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**A Quality Improvement Project to Increase Participation and Improve Quality in  
Nurse-Midwifery Benchmarking**

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**OHSU, 2017**

This report was created using the guidance presented in the Standards for Quality Improvement Reporting  
Excellence - SQUIRE 2.0 (Ogrinc et al., 2016)

### **Abstract**

This is a quality improvement project for a nurse-midwifery practice with a primary objective of examining current benchmarking participation and formulating recommendations for improvement in the benchmarking process. The collection of data and participation in benchmarking efforts are important tools in providing evidence of the outcomes of nurse-midwifery specific care. A review of the practice's current data collection process was undertaken. Facilitated meetings with stakeholders were held. Cause and effect diagrams were used to examine the process of benchmarking. Short cycle PDSAs were developed to improve workflow and standardize the benchmarking process. Recommendations for improvement were disseminated back to the practice. It is expected that, as a result of this quality improvement project, the practice will develop a streamlined process for gathering practice-level data for the American Association of Birth Centers Perinatal Data Registry and the American College of Nurse-Midwives Benchmarking Project. The development of a complete, high quality and easily accessible data set showcasing nurse-midwifery specific outcomes provides validation and support for the continued need for this particular midwifery practice and the profession of midwifery as a whole.

## **Problem**

Since 1925, the nurse-midwifery profession in the United States has worked toward validating nurse-midwifery care by collecting data on maternal and neonatal outcomes. Benchmarking is used to document trends within nurse-midwifery and allows for the comparison of measured outcomes to established standards. The Peace Health Nurse-Midwifery Birth Center (PHNMBC) in Springfield, Oregon is a midwifery practice providing care at both the local hospital and a free-standing nurse-midwife-run birth center. The practice has been participating in benchmarking as a member of the American Association of Birth Centers (AABC) but has minimal current processes in place to ensure consistency and quality of the data collection process. At this time, data from just 60% of midwifery clients who deliver with the practice are included in benchmarking efforts and attempts to expand towards developing a complete and high quality data set have been impeded by the lack of a data champion within the practice.

## **Available Knowledge**

Collection of nurse-midwifery-specific data was initiated as a way to document the processes and outcomes for practice improvement and risk reduction (Collins-Fulea, Mohr, & Tillett, 2005). There are a handful of existing and ongoing projects focused on data collection in midwifery at the national level including the Midwives Alliance of North America (MANA) Statistics Project 2.0, the Perinatal Data Registry through the American Association of Birth Centers (AABC) and the American College of Nurse-Midwifery's Benchmarking project. Each of these projects collects data in different ways and focuses on outcomes specific to their representative population. The MANA statistics project and the PDR gather data from direct-entry midwives, certified midwives and nurse-midwives. The ACNM Benchmarking Project collects and analyzes data only from ACNM members. The Peace Health Nurse-Midwifery Birth Center practice uses the Perinatal Data Registry (PDR) through the AABC as part of its accreditation requirements with that organization. The tool is available through a secure online site and gathers 189 data points from each consented and enrolled participant. De-

identified data is submitted continually as each client completes their pregnancy-related care. AABC then pools and analyzes the data which is used to document the perinatal outcomes of free-standing birth centers and provide data for various research projects. Practices using the MANA statistics project interface or AABC's PDR interface, can opt into having MANA or AABC submit their analyzed data to the ACNM benchmarking project

Benchmarking data collected by the American College of Nurse Midwives (ACNM) allows participating practices to maintain an ongoing measurement and analysis process, compare outcomes, and identify areas of practice where goals are being met as well as identify areas for quality improvement. By creating the environment where nurse-midwifery practice data is compared to data from similar nurse-midwifery practices (as opposed to obstetrics data) the data becomes more meaningful and allows for the profession to develop its own standards and support the quality and efficacy of midwifery care (Collins-Fulea, Mohr, & Tillett, 2005). With the movement from a traditional fee-for-service payment system towards value-based payments, midwifery is well-positioned by benchmarking efforts to demonstrate the quality and cost efficiency of midwifery-based outcomes (Collins-Fulea, Mohr, & Tillett, 2005).

### **Rationale**

Benchmarking provides the opportunity for nurse-midwifery practices to make comparisons to like practices. When best care practices are identified, practices can promote the best methods for achieving health care quality, effectiveness, and patient satisfaction. (Collins-Fulea, Mohr, & Tillett, 2005). Data collection and benchmarking in nurse-midwifery also provides evidence of the work of midwives and validates their important place within maternity care systems. Without evidence, the impact of the profession of midwifery is indistinguishable from obstetrics outcomes making practices and the profession as a whole vulnerable to assumptions and perceptions that may endanger their existence (Stapleton S. , 2011). Another vitally important piece of benchmarking is that it provides indicators for areas where improvements in clinical practice should be addressed. Through the ACNM benchmarking project, midwifery practices of like size are able to compare

outcomes to ensure that clinical standards are being met as well as providing an opportunity for high-performing practices to provide some mentorship to those midwives and practices working to improve their outcomes in particular areas (ACNM, 2017).

### **Specific Aims**

This was a quality improvement project for a nurse-midwifery practice with the primary objective of examining current benchmarking participation and making recommendations for improvement in the data collection process. Four aims of this project were identified. The first aim was to evaluate the current benchmarking process. The second aim was to identify opportunities to improve benchmarking. The third aim was to reduce variation in data entry between December 1, 2016 and May 1, 2017 by establishing the processes and common definitions used in the benchmarking tool. The final aim was to assess existing data from the 2015 benchmarking cycle, compare it to 2016 data and present the findings related to outcomes to the PHNMBC midwives by July 1, 2017. The overarching goal was to have a complete and accurate data set for this midwifery cohort from which data for group and individual outcomes can be pulled at any time to ensure that current practices are keeping up with the evidence in order to improve patient safety.

### **Context**

The Peace Health Nurse Midwifery Birth Center practice is made up of 7 midwives working a combined 6.5 FTE. The midwives see clients in two clinical settings, the birth center clinic and a local FQHC, as well as attend births at both the hospital and a free-standing birth center that is owned by the Peace Health medical system. The midwives attend between 400 and 500 births each year, with about one-third of those occurring in the birth center. Data collection in some form or another has existed in the birth center practice since its inception (independent of Peace Health) in the early 1980's. The current iteration of these data collection efforts is through the use of the AABC Perinatal Data Registry (PDR) an online data collection interface. This tool is available to

the practice as part of the membership package through AABC and its use is required as an AABC affiliated birth center practice. In addition to the PDR, the practice uses customized Excel sheets, a “Master Roster” and “Birth Log” as supplements and back-up to the PDR, another requirement of the AABC. While data has been collected over the years, the practice is missing a data champion; someone knowledgeable about the entire data collection and analysis process. In a community birth center practice where births take place in a non-medical environment, it is especially important that a reliable data set is continually and readily available for examination and analysis to support longevity of the practice. In 2016, an effort was made by one midwife who is no longer with the practice to submit the PDR data set to ACNM for benchmarking resulting in the practice being the recipient of several Best Practice awards through ACNM. Unfortunately, when that midwife left, she took with her the knowledge of the PDR and AABC systems and the practice was left without a data champion. With the advent of this project assessing the data collection system, the intention is to fill that gap and many steps have been taken and will continue to be taken to fulfill the role of data champion as well as develop a quality data set that is easily accessible. (Table 1: Explanation of Activities Complementary to Project).

Facilitators of this project included the acceptance within the Peace Health Nurse-Midwifery Birth Center practice of the importance of data collection. It is useful that the practice is currently collecting data and participating in benchmarking. Another facilitator both for this project and ongoing data collection efforts is that there is a per diem nursing position that exists within the practice. The sole responsibility of that nurse is working on data collection and entry. This person was vital to the success of the project and will be known through this paper as the nurse champion.

A significant barrier that was identified within the PHNMBC practice was that although all the midwives agreed to the importance of data collection, with the recent implementation of a new electronic medical record, the midwives are using their time on the computer meeting charting requirements rather than data collection. Another barrier is that data from a portion of the births are not being captured by the PHNMBC practice. This is,

in part, due to the use of paper health records for patients in the second clinic. A third barrier is that there is not currently a nurse-midwife in the practice who is a champion of the benchmarking process.

### **Interventions**

The major quality initiative tool that was utilized during this quality improvement project was the rapid change cycle; Plan Do Study Act (PDSA) (IHI, 2016). Prior to initiating the PDSA cycles, facilitated meetings were held with key stakeholders and the current processes as well as facilitators and barriers in benchmarking were identified. Process and cause and effect diagrams were developed to inform the development of PDSA cycles. Three PDSA cycles were identified and implemented (Appendix 1).

### **Study of the Interventions**

Methods that were used to test change during the PDSA cycles included flowcharts and Ishikawa diagrams. The Ishikawa diagram was used to identify as many factors as possible that are involved in the process of data collection within the PHNMBC from the viewpoint of the midwives. Categories commonly used in the Ishikawa diagram (people, methods, materials, equipment and environment) and their impact upon the data collection process were discussed with several of the midwives. Analysis of these conversations with the midwives led to data entry being limited to the nurse champion. Process mapping that occurred with the nurse champion led to identification of the PDSA-cycles that were eventually carried out. A diagram of these PDSA cycles can be seen in Appendix 1.

### **Ethics**

This is a quality improvement project focused on clinical processes and as such does not jeopardize the well-being of any human subjects. All personal health information is stored on secure servers and data that has already been collected is submitted in a de-identified format. This project does not involve analysis of personal health information and is instead focused on analyzing the process of data collection, which is already in place.

All records reviewed by the DNP student during the project were de-identified. Prior to initiation of the project, Oregon Health & Science University Institutional Review Board (IRB) determination was granted concluding that the project is a quality improvement project and not research.

## **Results**

This project had four specific aims;

- Evaluation of the current data collection process
- Identification of opportunities to improve benchmarking
- Reducing variation in data entry between December 1, 2016 and May 1, 2017 by establishing the processes and common definitions used in the benchmarking tool
- Comparing data outcomes between the 2015 and 2016 benchmarking results.

These aims were addressed through various activities and conversations.

The first step in the project was a discussion with the midwives in the practice to assess their level of knowledge, interest and involvement in data collection efforts. These conversations took place over a number of weeks and resulted in the major finding that while the midwives recognize the importance of having data to support their practice, they do not want to be responsible for collecting and inputting the data. These conversations were analyzed for themes and categories and reported in an Ishikawa diagram (Appendix 2: Ishikawa Diagram of all Midwifery Discussions Regarding Data Collection Process). While this could have presented a major obstacle to the project and data collection efforts, the desire of the midwives to step away from data entry was complemented by the nurse champion in the practice who voiced a desire and willingness to input all client information into the perinatal data registry rather than just some sections. While the decision by the midwives not to participate in data collection presented an enormous barrier to achieving the original aims of this project, the

eagerness of the nurse champion allowed for the project to both maintain the original focus and become more streamlined by decreasing the number of involved parties.

Following the conversations with the midwives, the next action in this project was to map out the data collection process within the birth center from a client's initial point of entry to care through their discharge from the practice. This was done through several one-on-one interviews with the nurse champion and the process was mapped out visually (Appendix 3: Process Map of Data Collection within Birth Center). Mapping revealed the need for an auditing procedure in order to ensure that records being initiated in the system were tracked to completion. An initial audit of chart completion was identified as the first change cycle to be completed within this project. In all, three Plan-Do-Study-Act (PDSA) cycles were run during this quality improvement project, each of which revealed opportunities for improvement in the data collection process.

### **PDSA Cycle One: Identifying Reasons Client Records Remain Incomplete in PDR**

De-identified data from 2016 collections efforts were analyzed to identify incomplete records in the PDR. This was done by exporting data on incomplete records directly from the PDR to an Excel spreadsheet. Once the data was exported into an Excel file, it was filtered to include only those records for women who had given birth between January 01, 2016 and December 31, 2016. One hundred and sixty seven total records were identified that met this criteria. This information was shared with the nurse champion and together, a method of systematic review for each incomplete record was agreed upon. Notes for each record were kept during the review process and included information about which clinic the record originated in, data points that were missing and any identifiable reason why the record was incomplete; transfer of care, client lost to follow-up, duplicate etc. (Table 2: Reasons for Incomplete PDR Records). A goal was set to review approximately 30% of incomplete records during each of the following three weeks with auditing of the review process to occur at the end of each week. The plan was for random review of 5 records at the end of each week to ensure quality of the record. If necessary, the weekly review would include suggestions for improvement in order to make review

and completion of records as efficient and accurate as possible. At the end of the initial three weeks, the goal was to have completed 100% of the records identified as incomplete and for a final audit to occur before submitting a complete data set to AABC for inclusion in ACNM benchmarking. Unfortunately, the practice and DNP student were unaware that the deadline for benchmarking submission had been moved forward by one month to March 15 from April 15, 2017. The intention for this new timeline was to allow practices to have access to their data earlier in the year to allow for more time to utilize it. While the change in the deadline for submission to ACNM benchmarking caused increased stress for completing records, the original aim for the PDSA, identifying reasons that records were incomplete, was accomplished and the results led to identification of two subsequent PDSA's. Due to the advancement of the benchmarking deadline, the process of weekly review that was anticipated to occur following completion of a percentage of the records did not happen. No negative impact from the omission of the review process was observed on the project.

PDSA cycle one revealed two main reasons for the 167 records being incomplete. The first was that the client record originated at the secondary clinic staffed by the midwives (42% of all records) and was not being completed. The second reason was the nurse champion was not receiving the yellow postpartum form generated by the 6 week postpartum visit, which should have triggered her to complete the PDR record (26%). Other causes of incomplete records were client transfers of care (4.5%), no postpartum visit (13.7%) and clients who left care for unknown reasons (4.5%). This information is presented in a pie chart in Appendix 4.

Some measures in this PDSA were in line with pre-observation predictions while other outcomes were unexpected. It was predicted that many records originating in the secondary clinic would be incomplete. It was unexpected that 13.5% of the incomplete records represented clients who did not return for their postpartum care. This data led to the identification of PDSA cycles two and three which were carried out simultaneously due to time restraints of the project.

## **PDSA Cycle Two: Tracking the Yellow Sheet**

Analysis of the data from PDSA Cycle One revealed several areas in the data collection process where opportunities for improvement existed. Two particular areas were targeted for the second and third PDSA cycles in an effort to maximize their impact on reducing the number of incomplete records for calendar year 2017. The focus of PDSA Cycle Two was tracking the process of the 6 week postpartum visit and how the yellow form generated by that visit travels through the clinic. When present, this form ultimately triggers the nurse champion to enter the final sections of information in the client record in the PDR.

Process analysis revealed that the yellow form generated during the 6 weeks postpartum visit for each client was not reaching the desk of the nurse champion. Therefore, there was no trigger to complete the record. PDSA Cycle Two consisted of mapping the progression of the “yellow sheet” (the postpartum form) through the clinic during the 6 week postpartum visit to determine system breakdowns. (Appendix 3; Process Map of Data Collection within Birth Center). The plan that was carried out for this change cycle was to first interview members of the staff who are involved in the 6-week visit and to physically follow the progression of the yellow sheet through the clinic. It was determined that in some cases a yellow sheet was not being generated because new staff had not been advised of the process and in others, the midwife seeing the patient erroneously left the yellow sheet in the pile sent for scanning rather than the file for the nurse champion. Following the identification of these critical points, staff members were briefed on the importance of the yellow sheet and the nature of each person’s role in its progress through the system. Once the process was clear, de-identified records of clients who had had a postpartum visit either before or after the briefing were reviewed to determine if a change in the handling of the yellow sheet was occurring. PDR identification numbers were used to find clients who had a 6-week postpartum visit between March 1 and March 15 and between April 1 and April 15, 2017. Of those that met this criteria, 5 PDR records were chosen at random for review from each month. Results of this review showed that for the month of March, 2 of the 5 cases reviewed were complete while 4 of the 5 April cases were complete, a doubling

of completed charts (Appendix 5: Completion of Postpartum Records). The outcome from this chart review showed that the briefing intervention may have led to improved process, though there is still opportunity to continue improving on the system.

### **PDSA Cycle Three: Tracking PDR Record Completion**

PDSA Cycle One revealed a need for close tracking of each record for every client that is entered into the PDR to ensure both quality and completion of records. The third PDSA cycle focused on implementing and/or refining a system of tracking all client records being added to the PDR in order to avoid having to catch up at the end of each cycle of data collection. The goal of PDSA Cycle Three was to create a master roster that would facilitate tracking the progression of each client record through the stages of the PDR. The American Association of Birth Centers recommends that each practice keep such a record and provides a template and suggestions for how it can be tailored to the needs of each practice (Stapleton & Wright, 2016). It was important that this tracking roster (Table 3: PDR Record Tracking Roster) be created without any personally identifiable health information so that it can be safely shared and utilized between clinics and outside of the clinical setting. This tracking roster will be used by the data champions of the practice to check both quality of PDR records and timely completion of entries. Moving forward, the goal is to have a complete and accurate data set for this midwifery cohort from which data for group and individual outcomes can be pulled at any time to ensure that current practices are keeping up with the evidence in order to improve patient safety.

PDSA Cycle Three consisted of the creation of an independent document that tracks each client record as it is created in the PDR. Guided by principles of patient privacy, a new document was created in order to maintain client confidentiality and includes categories for the PDR identifier, columns for each of the four data entry sections in the PDR and the date the record was complete. This document will be utilized for the first 6 months of 2017 data collection and ongoing use will be evaluated at that time as another document, a master roster, for

the entire clinic already exists and this information could easily be added to the master document. Reevaluation will occur in the second 6 months of 2017, after completion of this DNP student-led project.

Once the document was created in an Excel workbook, an individual sheet was created for each month. Data from clients with a due date in January 2017 were included in one of the sheets. This worksheet was made accessible to both the midwife data champion and the nurse champion and can be updated and shared by each. An example of this sheet can be seen in Table 3.

### **Summary**

This project had four specific aims;

- Evaluation of the current data collection process
- Identification of opportunities to improve benchmarking
- Reducing variation in data entry between December 1, 2016 and May 1, 2017 by establishing the processes and common definitions used in the benchmarking tool
- Comparing data outcomes between the 2015 and 2016 benchmarking results.

Each aim was met during the project through various means including solicitation of feedback from stakeholders, meetings with the nurse champion and quick-change cycles.

The first aim was to evaluate the overall process of data collection within the midwifery practice. This aim was achieved through several activities including process mapping, quality and completion auditing of records and personal interviews with stakeholders in the data collection process. Evaluation of the process was the primary motivator for initiation of the project and will continue to occur as data collection methods continue to evolve within this practice.

The second aim of the project was to identify opportunities to improve the procedures for data collection in this specific midwifery group. This aim was accomplished through multiple activities such as personal interviews (especially with the nurse champion), process mapping, auditing of PDR records and quick-change PDSA cycles.

The third aim, reducing variation in data entry between December 1, 2016 and May 1, 2017 by establishing the processes and common definitions used in the benchmarking tool, was achieved but received the least attention through the project. This was due to multiple midwives removing themselves from the process to be replaced by one dedicated RN. With just one person interpreting definitions and entering data, standardization was improved. Within the PDR, there are both mandatory and voluntary questions for each record and every query has specific definitions to identify the exact information. During one of the interviews with the nurse champion, it was agreed that the maximum number of questions would be answered for each record and the definitions for each question were reviewed to ensure mutual understanding of each item.

The fourth aim was the most difficult to address and the one most impacted by changes within the midwifery practice. The goal was to compare clinical outcomes between 2015 and 2016 data that was submitted for ACNM benchmarking. While the aim was achieved, the intent behind setting this goal was to be able to find trends between two comparable data sets in an effort to make recommendations for ongoing clinical practice. Due to the number of changes that occurred in the data collection process in this practice in the year prior to the QI project and the need for earlier than anticipated submission of data to ACNM, comparison of the two data sets is not an accurate portrayal upon which to base major changes in practice. However, during a final presentation with stakeholders, this information was presented for review and was used as an example of the importance of collecting and submitting quality data in the support of midwifery. In addition, it could be said that the dynamic nature of practices and systems means that there is never a perfect time for change. Some of the benefit of tracking data is that it can be instructive concerning the impact of change on clinical outcomes.

The overall project was very successful in evaluating the data collection process and identifying opportunities for improvement within this midwifery practice. The key findings from this project were the need for a continual process of auditing PDR records to ensure completion through the use of the roster tracking tool and the need for data champions within this midwifery group who will continue to support the evolution of the data collection process.

The rationale for this project was that benchmarking provides the opportunity for nurse-midwifery practices to make comparisons to like practices and, when best care practices are revealed, identify the clinical and operational processes that improve care outcomes. Benchmarking stimulates collaboration between practices to promote the best methods for achieving health care quality, effectiveness, and patient satisfaction. (Collins-Fulea, Mohr, & Tillett, 2005). The data set that was generated through this project was incomplete and should be interpreted with caution. However, ongoing data collection efforts continue to be of great importance and improvements in the process should ensure that future sets are an accurate representation of clinical practice.

There were a few particular strengths that added to the successful completion of this project. The biggest strength of this project was the nurse champion who is dedicated to collection and entry of data for the practice. Her knowledge of the PDR and commitment to data entry and to this project are vital to the data collection occurring in this midwifery practice. Her concentrated and accelerated effort to complete all the incomplete records in a matter of days rather than weeks when the ACNM benchmarking deadline changed was nothing short of heroic. Even if the midwives choose to resume data entry at some point, maintaining this RN position will be critical to the practice as the nurse champion provides for standardization of data input and checks and balances in completion of records.

A second strength in the project was support from within the midwifery practice for this project to take place. The midwives were eager for a change in data collection activities and other personnel are invested in using the resulting data points to enable to continued support of the birth center as a viable practice. The support of all

the members of the birth center staff was of utmost importance as each one of them was, at one time or another, called upon to assist in the project's completion.

Commitment to data collection varies among the midwives. While each understands the importance of having the data, none have expressed a particular interest in spearheading collection efforts. If the nurse champion and/or the data champion were to leave the practice, a gap in data entry may occur leading to an incomplete data set. While this would not be an insurmountable challenge, it would create an area of vulnerability.

## **Interpretation**

### **Association between Interventions and Outcomes**

Overall, the intention to evaluate the data collection process in this midwifery practice yielded improvements in data collection efforts. The PDSA cycle interventions that were used in this project were successful in that they provided information that will inform ongoing data collection. PDSA Cycle One identified reasons for records being incomplete. Incomplete records are a major barrier in data collection as they yield an incomplete and therefore poorly representative data sets. PDSA Cycles Two and Three were carried out simultaneously and both focused on increasing the number of records completed in a timely manner. While the outcome of these PDSAs showed that immediate efforts at decreasing the number of incomplete records were successful, the overall success of the project will be determined over time. The ultimate goal of this project was for a complete, accurate and high quality data set to be generated for inclusion in ongoing benchmarking and analysis of group and individual clinical outcomes. Though there was time for just three PDSAs in relation to this project, many opportunities for improvement in the data collection cycle were identified and will continue to be addressed as data collection efforts continue and evolve. Some of these opportunities include evaluating data collection in the second clinic, utilizing the master roster as a way to audit quality, continued increases in knowledge around use of the PDR and improvement in timeliness of record entries.

## **Comparison of Results with Similar Projects**

It is difficult to compare the results of this quality improvement project with others due to overall lack of evidence regarding data collection in midwifery. MacMorris-Adix (2016) found that among midwifery practices collecting data, time was a common barrier to meeting goals for data collection and benchmarking. This is in alignment with the attitudes among the midwives interviewed for this project reported in the Ishikawa diagram (Appendix 2). While the midwives in this project voiced their understanding of the importance of data collection all the midwives stated that there isn't enough time to fulfill all the duties and obligations of their work and enter data. Two other findings from MacMorris-Adix (2016) were consistent with findings in this project that impacted the outcomes including the negative impact of health systems issues and the cumbersome nature of the data collection tool. The practice environment for this midwifery group is currently unsettled creating even greater stress in an already challenging milieu. This increased stress has directly impacted the attitudes of the midwives towards data collection making them less likely to participate in the data collection that could, ironically, support the continuation of the practice. Fortunately, the practice is able to support the nurse champion position to continue data collection efforts, freeing the midwives to pursue other avenues necessary to the longevity of the group.

While not a primary outcome of the project, it should be noted that the interface of the PDR tool is something of a limiting factor in this project that certainly influenced the data set submitted for ACNM benchmarking, a finding consistent with that reported by MacMorris-Adix (2016). Though the PDR is a reliable and validated data collection tool, the challenges experienced in accessing and utilizing the PDR makes it difficult to support its continued use due to the poor return experienced in relation to the time and resources spent on its use (Stapleton S. , 2011). Since the PDR is a requirement for AABC credentialing, there are barriers to pursuing other options for data collection. However, a second form of data collection does exist within the practice in the form of a master roster of all clients that enter the practice which tracks the outcomes of each

client. As data collection in the practice evolves, this master roster will be used as a means of checks and balances against the data outcomes that result from AABC/PDR analysis. It will also be utilized to continue tracking the completion status of each PDR record to ensure that all data being entered is included in the overall data set.

### **Impact of the project on people and systems**

The impact of this quality improvement project has implications from the personal to the national and international level. Collection of data as a means of evidencing the quality of individual midwives and the vocation of midwifery is of great importance in supporting the ongoing existence of the profession (Collins-Fulea, Mohr, & Tillett, 2005). In the current environment of this particular midwifery practice, the evidence provided by data collection showing the overall excellent outcomes of midwifery care may be vital to the continued existence of the practice. The outcomes of this project supporting increased quality of data are of great importance in achieving the overarching goal of obtaining a data set that is an accurate representation of individual and practice outcomes. Once a reliable system of data collection and analysis is in place, individuals will be able to use it to improve personal practice. The group will be able to use the data to support the continuation and improvement of the practice and data submitted to the ACNM benchmarking project will aid in continued efforts at the national and international levels in advocating for the continuance and expansion of midwifery (Collins-Fulea, Mohr, & Tillett, 2005).

### **Influence of Context**

One important impact of context, and an unanticipated outcome that influenced this project is the fact that the data collected thus far represents only about half of the clients cared for by this midwifery practice. The midwives see clients in two separate clinics, one of which is an FQHC serving a lower socioeconomic population of women. The original intent for this project was to ensure that 100% of clients seen by the

midwives, regardless of where they receive their care, had their outcomes included in the data set. However, initial explorations into the data collection process made it clear that evaluation of each clinic process individually was the necessary first step towards implementing a system of data collection that would be both supported and sustainable by the practice. Therefore, any outcomes data currently reported is representative of only one of two systems of data collection and half of the population served by this midwifery practice. Based on the finding that 42% of incomplete client charts originated at the FQHC, along with the inability to determine the specific final data set that was analyzed for submission to ACNM by AABC, final statistical outcomes associated with this project through inclusion in ACNM benchmarking should be interpreted with great caution. Taken out of context, the outcomes resulting from AABC analysis could be greatly misleading.

A contextual impact on the outcomes of the project is the capability of the practice to employ the nurse champion whose dedicated responsibility is data entry. In the future, as the data collection process becomes more efficient, the hope is that it will lead to a highly accurate and complete data set. Due to the changes and challenges experienced during the timing of this project, the presence of the nurse champion ensured that submission of a data set was possible.

### **Costs**

As with any qualitative or quantitative exploration, pursuance of certain avenues of inquiry meant that other aspects related to data collection would be left un-evaluated. The greatest cost was the decision to limit the project so that just one of the two data collection processes between the two clinics was examined. In the short term, this led to an unexpected negative impact on the quality of the data set submitted for benchmarking. However the long-term goal is that polishing of the process in one clinic will lead to a streamlined implementation of a similar process in the second clinic resulting in a “super data set”. It is anticipated that this super data set will be able to be analyzed as a whole or broken down to show outcomes of the two separate populations the data represents. That the quality and reliability of the outcomes resulting from analysis of the

data set were questionable was unanticipated. Pursuing evaluation of the process of just one clinic optimized the evaluation of the data collection process itself helping to support the nurse champion position as well as offering an opportunity for this writer to become more familiar and adept at navigating the PDR. All of these things will aid in the long term success of data collection within this practice.

Financial costs in pursuing this project include the expense of membership in AABC which allows access to the PDR. As a birth center practice attending between 400-500 births a years, the annual cost for AABC membership is \$2550.00 (AABC, 2017). The cost of the nurse champion position fluctuates as it is a per diem position not associated with an FTE. In the future, there will be a cost incurred for administrative time for the midwife data champion related to data collection. All costs associated with data collection are off-set by the fact that the data provides example of outcomes achieved through midwifery care which support the value of the practice and provide support for its ongoing viability.

### **Limitations**

One major limitation of this project was the absence of an existing data champion or coordinator within the practice. Recent changes in staffing due to retirement or relocation had depleted the number of people within the practice who had either real understanding of the entire data collection process or a passion for its ongoing existence. This resulted in a great deal of the time allotted for this project being used to understand and modify the administrative side of the PDR in order to best benefit the practice. These activities are reported in Table 1. While this will lead to later improvement in the data collection process, its impact was felt in this project and was one of the reasons that data collection processes were not able to be examined at both sites. This loss of continuity and knowledge in the data collection process within the practice is challenging because it can result in deficiencies and omissions in the process leading to a loss of practice history.

Another limitation was the implementation of a new electronic medical record system within the practice, which coincided with the implementation of this project. The change in the EMR impacted the desire of the midwives to participate in data collection as it demanded more time at the computer and away from direct patient care. It also impacted the process of the nurse champion as it required her to learn to navigate yet another computer interface to search for particular details related to a client record. This caused an initial increase in the time that it took for a PDR record to be completed but eventually, as the nurse champion's familiarity with the interface increased, the time for data entry decreased. The use of the new EMR may also have impacted the accuracy of data implemented into the PDR, though this impact was not able to be directly observed or quantified.

While the existence of the nurse champion dedicated to data collection was a major benefit to the project, there were some limitations that should not be ignored. One major limitation was the difficulty in scheduling time to meet with the nurse champion to discuss different aspects of the project. As a per diem position, there is no requirement for the amount of time spent working on the PDR nor an expectation around timing of record entry. Much of the communication that occurred was through email, text messaging and some phone calls. This led to limitations in the understanding of the PDR record entry and retrieval process by the DNP student leading to increased need for time to learn the process through other means. Another concern was that with just one person entering data into the PDR, there is the possibility that this nurse champion may choose to discontinue their position within the practice. If this were to occur, quality and accuracy of the data set may be compromised as the interface is challenging to work with. A new hire may not initially be as passionate or dedicated to the importance of the project as this nurse was. As the data collection process evolves, this is an area in which continued development of quality measures have the potential to lead to improvement.

A final limitation is the fact that this project only looked at data collection in one of two clinics staffed by this midwifery practice. Approximately 40% of the total clients cared for by the midwives are seen in the second clinic and the data collected and analyzed does not include or represent this population. This is a major limitation. Hopefully, by seeing the potential in this updated project, there will be interest in moving forward to obtain a complete data set for analyses that includes 100% of the client population.

## **Conclusion**

### **Usefulness of the Work and Potential for Spread to other Contexts**

The outcomes achieved through this quality improvement project have been very useful in informing the evolution of data collection processes within this midwifery practice. Data collection has an important and real impact on optimality, or focusing on good and desired outcomes, which within the current milieu this midwifery group is working in will be beneficial to demonstrating their worth and quality contribution to the community (Aikins Murhy, 2001). Walker, Visger and Levi (2008) eloquently state that without the data to provide evidence of the outcomes and effects of midwifery care, a midwifery practice risks becoming invisible making it vulnerable to closure. When midwifery practices close, it decreases choices in health care access in the communities where they serve and limits the ability of midwives to positively impact both the profession and the women they care for at state, national and international levels (Walker, 2008). Having evidence of quality outcomes also positively impacts revenue streams in a value-based compensation system. The lack of reliable data due to decreased quality in data collection within this practice has exposed a level of vulnerability contributing to the current and real threat of possible dissolution of the practice. Any and all improvements to the existing data collection process leading to the compilation of an accurate and complete data set will be greatly beneficial and useful to all parties involved.

In addition to the practical outcomes related to this project, other helpful pieces of information have come to light, such as the role that every member of the clinic staff has in the data collection process, the importance of buy-in to data collection and performing their duties as assigned with each and every client. The results of tracking the progression of the “yellow sheet” through the postpartum visit was evidence that overlooking, what may seem like a small detail (inclusion of the yellow sheet in the postpartum visit), can have a large impact on the resulting data set. Identifying the role of each member of the team within the data collection process allows them to take ownership of the process and the outcomes revealed through it. This kind of buy-in by all members of the midwifery practice will be important for sustainability.

Many of the findings from this project would be, and in fact are, relevant in different contexts. Identification of the activities that lead to compiling an incomplete data set should occur within any data collection process related to midwifery or not. Midwifery practices using or considering implementing the PDR interface may find the outcomes in this project to be informative in supporting their data collection efforts. The processes and documents reported on and created in this project may be especially helpful for practices working on implementing a data program with little time and few resources. While the exact process in each practice will look different depending on resources, the overarching goal of all data collection efforts resulting in a complete, accurate and quality data set that reliably evidences outcomes will be true within all contexts.

### **Sustainability**

The sustainability of data collection efforts within this practice will be wholly reliant on two factors. The first factor is the sustainability of the practice itself. This is a concern that has recently arisen and in fact, this DNP candidate presented data achieved through this quality project to a group of stakeholders in early May. Obviously, if the practice does not continue, data collection will not be necessary. The second most important factor is the ongoing presence of a data champion within the practice. Without someone with the interest and understanding of the importance of data collection, the program will wither making data unreliable once again

leaving the practice vulnerable to dissolution. The implied and real outcomes of this project indicate that there is much work to be done on the part of the data champion to continue building on the existing process to ensure longevity even in the case where a new champion is identified. This will require ongoing efforts to understand the PDR itself and creation of documentation that walks new users through interaction with the interface. A priority moving forward will be to identify what information was included in the 2016 ACNM benchmarking project as submitted by AABC personnel in order to ensure that the 2017 submission is highly reflective of actual practice outcomes.

Sustainability of this project will also require the continued buy-in by members of the practice; midwives, nurses, medical assistants and administrative staff, all of whom fulfill an important role in the process. Support for ongoing data collection may be influenced by outcomes especially if they lead to increased funding for hiring additional staff as current low-staffing and a high client-load have resulted in provider burnout. Support for continuing data collection will also increase as reliable results provide evidence for the quality of care provided by the practice and staffing requirements. Pride in outcomes will be motivation for continued attention to quality care at every level of client contact.

### **Implications for Practice and Further Study**

Data collection and benchmarking in midwifery is important as midwifery outcomes must be compared to other midwifery outcomes in order to maintain validity (Collins-Fulea, Mohr, & Tillett, 2005). Having evidence of quality and safe outcomes attributed to midwifery care can be the difference between a practice remaining a viable and thriving option or being closed. In a community birth center practice where births take place in a non-medical environment, it is especially important that a reliable data set is continually and readily available for examination and analysis. The PDR was developed for this exact purpose and every effort should be made to continue utilization of this validated tool (Stapleton S. , 2011).

Further study should include increasing the knowledge of the data champion so that the PDR can be utilized to its full capability. This can occur through identification of other area PDR users with better knowledge of the database as well as workshops and review of AABC materials and webinars specific to the PDR. Gaining this knowledge will allow easier and more fluent access of the data set held in the PDR which can in turn be used to identify other areas for continued quality improvement within the practice.

### **Next Steps**

There are multiple opportunities identified through this project for continued quality improvement in the data collection process with the goal of creating an accurate, complete and quality data set representing both populations of clients served by this midwifery group. Some activities have already been identified as the focus of ongoing rapid-change-cycles. One PDSA will focus on the timing of data entry by the nurse champion. AABC has made recommendations regarding the timeline of data entry as a way to decrease manipulation of the data through hindsight (Stapleton & Wright, 2016). These guidelines are not currently being observed due to the unpredictable schedule of the nurse champion and more insight into this area of the process and the implications for compromise in the data set should be observed. A second PDSA comparing statistics that result from the master roster and those derived from analysis of PDR records is also being considered as a way to check for quality and reliability. The goal of this PDSA will be to determine if the information in the master roster, which is easier to access, could be used for benchmarking purposes in the future.

The most pressing need for this practice however with respect to data collection is identifying quality outcomes related to clinical practice. It is anticipated that these will be most reliable through analyzing data from the master roster. The purpose of gathering this data will be to present evidence on the quality of client outcomes specifically due to midwifery care in this setting as well as identify areas where improvement in practice is warranted.

### **Funding**

No funding was generated nor used to support this project.

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Table 1: Explanation of Activities Complementary to Project

Conversations and meetings with former midwife who submitted data for 2015 benchmarking	Discuss process of data collection and what records were submitted for analysis. How were records submitted?
Conversations and meetings with former RN responsible for auditing and tracking PDR records	Discussion regarding tool used to audit charts. How were charts tracked and audited for quality?
Meetings with practice lead regarding goals for data collection	How has data contributed to evolution of the practice? How can improving the data collection process improve the practice?
Contact with AABC	Change contact name and information with organization Register as CNM, provide paperwork showing affiliation Understand criteria for data collection to be AABC accredited birth center
Meetings with RN responsible for practice roster and tracking statistics independent of the PDR	Review of how practice roster is used Review of stats kept in roster and how to access
Multiple phone calls to AABC PDR coordinator and liaison	Registration problems Webinar registration Requests for documentation Requests for access to specific tools Discussions regarding ACNM benchmarking deadline Clarification of which records to be included in benchmarking Identification of roles as practice lead for data collection Accessing data and pulling statistics Analysis of data Follow-up webinar questions Participation in forums with other people collecting data
Perinatal Data Registry Time	Becoming familiar with the interface in order to <ul style="list-style-type: none"> <li>• Identify records belonging to practice</li> <li>• Start a record</li> <li>• Continue a record</li> <li>• Complete a record</li> <li>• Identify complete versus incomplete records</li> <li>• Identify duplicate records</li> <li>• Identify blank records</li> <li>• Pull reports into an excel sheet</li> <li>• Export data as a complete set</li> <li>• Export specific pieces of data</li> <li>• Analyze data to create statistical representation of outcomes</li> </ul>
Conversations and meetings at FQHC site	Familiarizing the system of data collection at this site Learning who is responsible for data and the process. A duplication of the project at a second site!

Table 2: Reasons for Incomplete PDR Records

Detailed Reason for incomplete PDR Records	Number of Records
Total number incomplete records	177
PP form not received by data entry personnel - reason for non-receipt unknown	47
SAB	2
No Postpartum visit	24
Reasons for no pp visit	
Delivered at home	1
Transferred to OB care for PTL, did not return to midwifery clinic PP	1
Transferred* care during pregnancy	8
Reasons for transfer of care	
Twin pregnancy	1
Relocated during pregnancy	3
Unknown	2
Preterm labor	1
Did not move to Eugene	1
Left Care**	8
Reason for leaving care	
Moved	2
Unknown	6
CHC	75
Blank	9
Due date entered incorrectly, still pregnant	1
Postpartum visit scheduled in future	2
Outcome unknown	1
*Transfer of care refers to any client who EMR specifically shows as transferred care to another care provider for particular reason.	
**Left Care refers to any client who left the NMBC practice but it is unknown or unclear if care was established with another provider.	

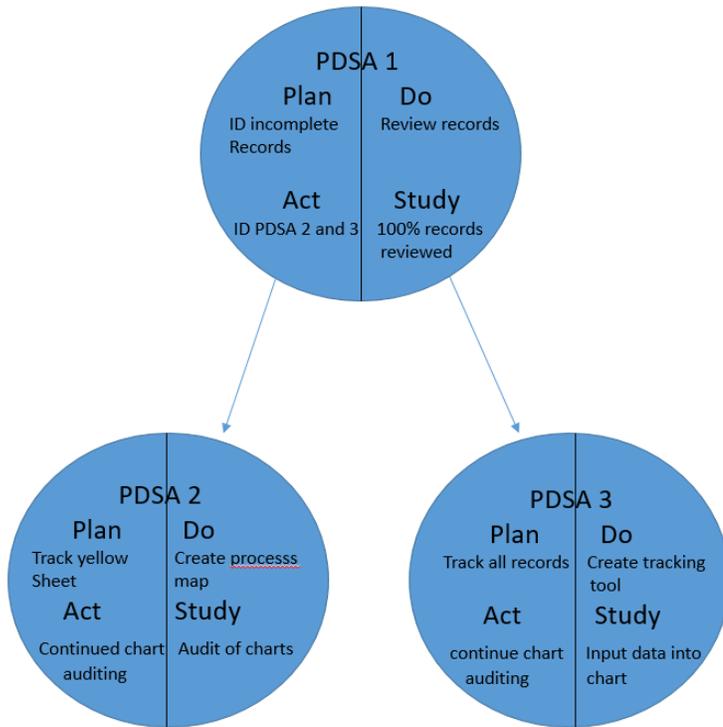
Running Head: A QI Project in Nurse-Midwifery Benchmarking

Table 3: PDR Record Tracking Roster

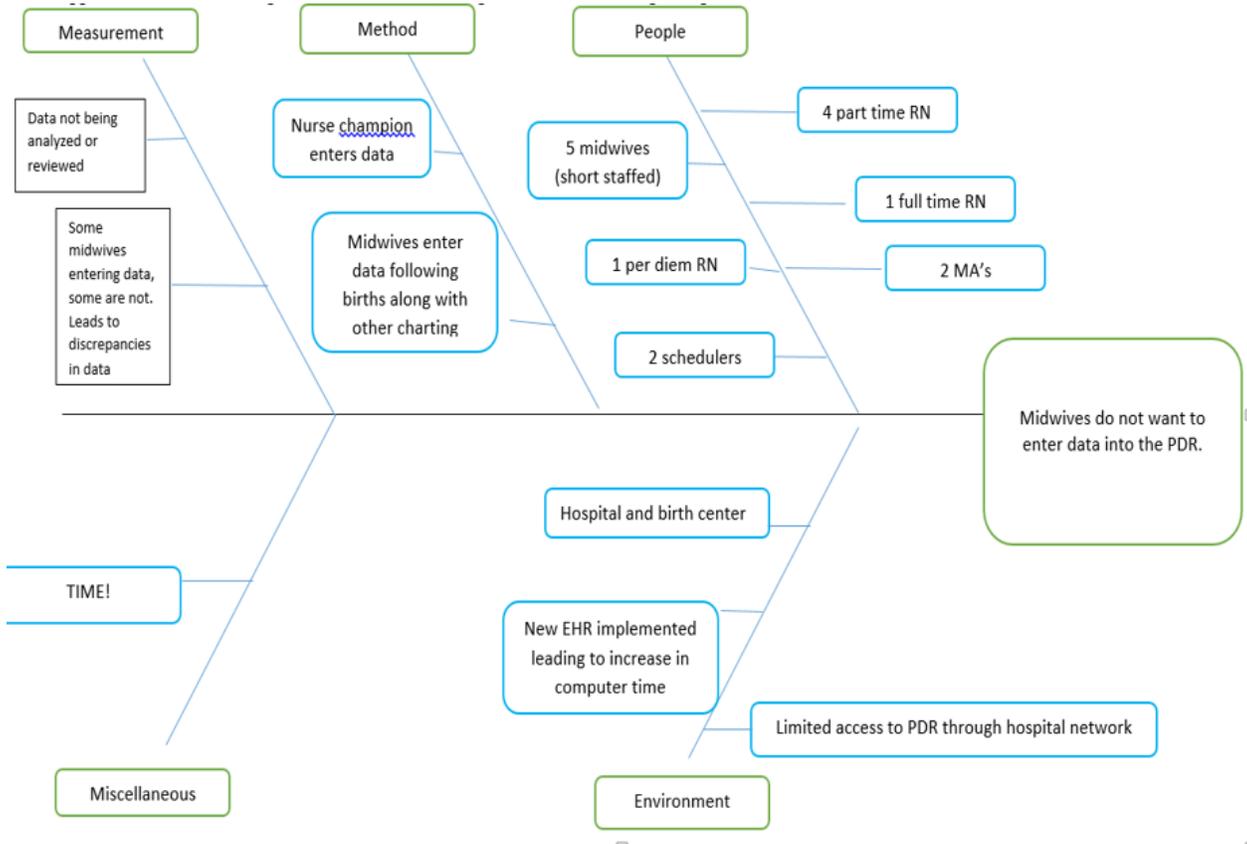
PDR #	PDR Section One Antepartum	PDR Section Two	PDR Section Three	PDR Complete
1429	X	X	X	X
1497	X	X	X	X
1428	X	X	X	X
1395	X	X	X	X
1688	X	X	X	X
1418	X	X	X	X
1519	X	X	X	X
1448	X	X	X	X
1498	X	X	X	X
1413	X	X	X	X
1434	X	X	X	X
1312	X	X	X	X
1506	X	X	X	X
1495	X	X	X	X
1416	X	X	X	X
1678	X	X	X	X
1663	X	X	X	X
1421	X	X	X	X
1433	X	X	X	X
1390	X	X	X	X
1427	X	X	X	X
1422	X	X	X	X
1571	X	X	X	X
1501	X	X	X	X
1459	X	X	X	X
1391	X	X	X	X

# Running Head: A QI Project in Nurse-Midwifery Benchmarking

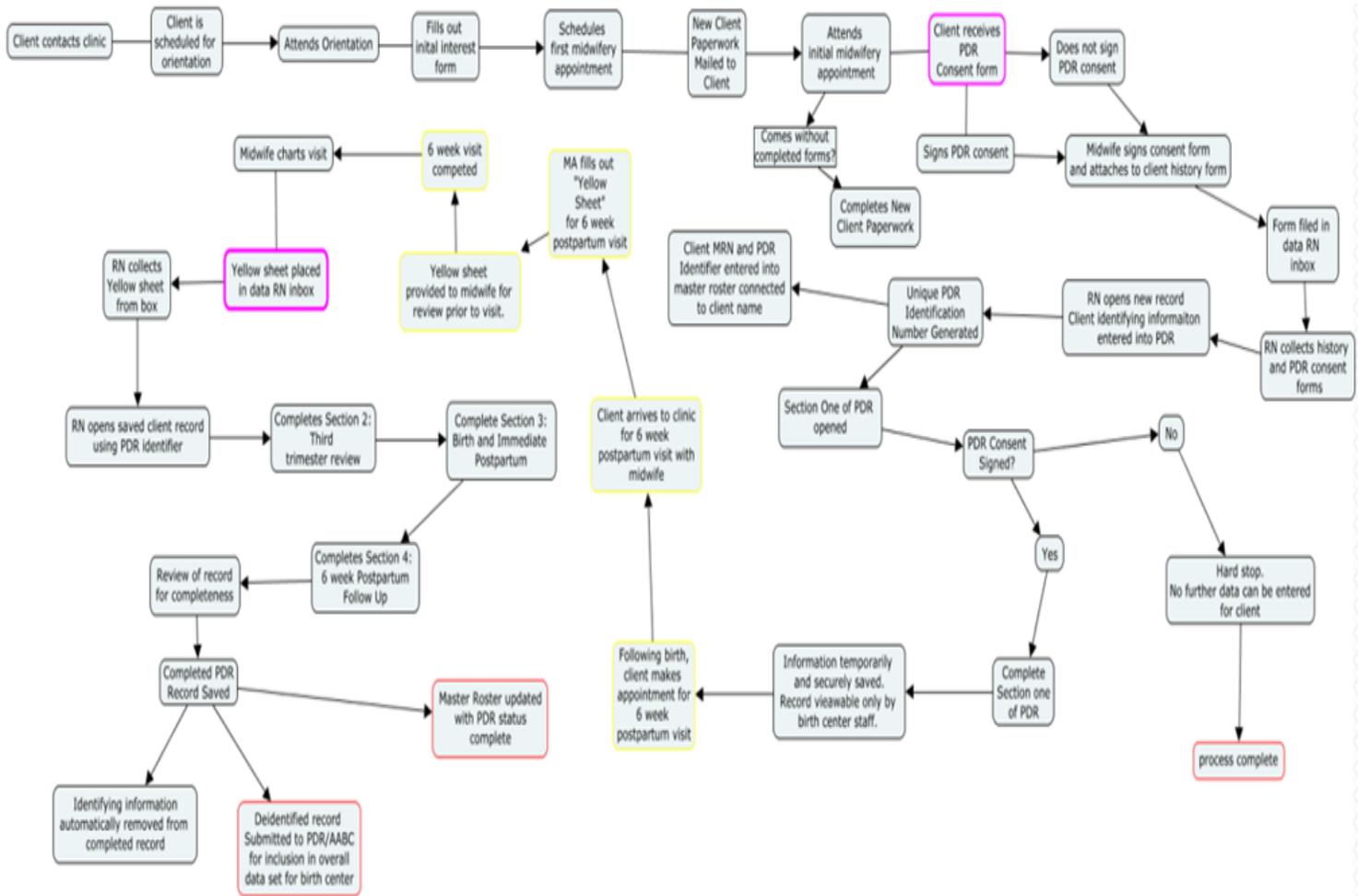
## Appendix 1: Plan-Do-Study-Act Cycles One, Two and Three



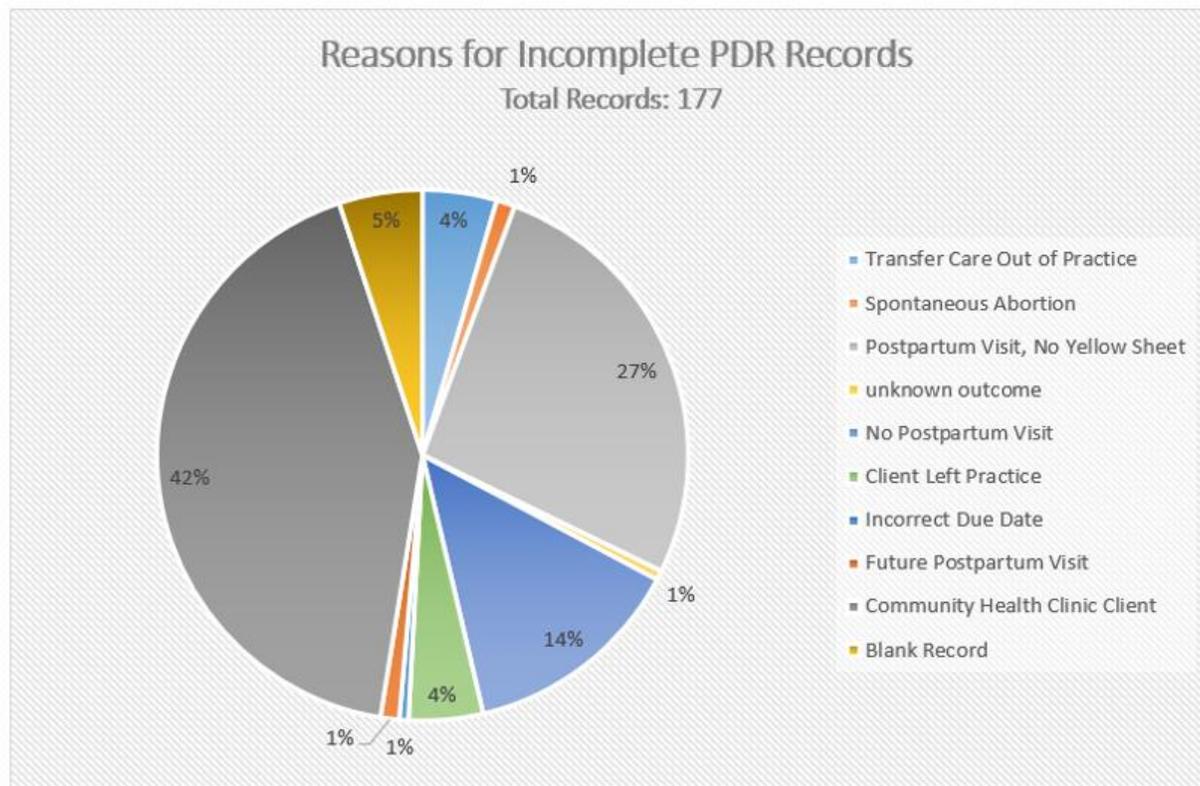
Appendix 2: Ishikawa Diagram of all Midwifery Discussions Regarding Data Collection Process



Appendix 3: Process Map of Data Collection within Birth Center



Appendix 4: Statistical Breakdown of Reasons for Incomplete PDR Records



Appendix 5: Completion of Postpartum Records

