Consultation, Referral, and Collaboration Between Midwives and Obstetricians: Lessons From New Zealand

Joan P. Skinner, RM, RN, PhD, and Maralyn Foureur, RM, RN, PhD

There has been substantial growth in the provision of midwifery-led models of care, yet little is known about the obstetric consultation and referral practices of these midwives or the quality of the collaboration between midwives and obstetricians. This study aimed to describe these processes as they are practised in New Zealand, where midwifery-led maternity care is the dominant model. A total population postal survey was conducted that included 649 New Zealand midwives who provided midwifery-led care in 2001. There was a 56.5% response rate, describing care for 4251 women. Within this cohort, there was a 35% consultation rate and 43% of these women had their lead carer role transferred to an obstetrician. However, the midwives continued to provide care in collaboration with obstetricians for 74% of transferred women. Seventy-two percent of midwives felt that they were well supported by the obstetricians to continue care. Midwifery-led care is reasonable for the general population of childbearing women, and a 35% consultation rate can be seen as a benchmark for this population. Midwives can, when well supported, provide continuity of care for women who experience complexity during pregnancy and/or birth. Collaboration with obstetricians is possible, but there needs to be further work to describe what successful collaboration is and how it might be fostered.
J Midwifery Womens Health 2010;55:28–37

keywords: collaboration, consultation, interprofessional relations, midwifery, obstetrics, referral

INTRODUCTION

Calls for increased continuity of care in the maternity sector have led to the development of models of care in which a pregnant woman will know the midwife who will care for her throughout the childbearing process. This model has been enacted most thoroughly in New Zealand's maternity service where continuity of care is established in legislation[1] and where midwives have full autonomy of practice with prescribing rights, use of laboratory facilities, access to hospitals, and equal remuneration with doctors. Regulation guiding the provision of maternity care now ''recognises that pregnancy and childbirth are a normal life stage for most women.''[1] Currently, each pregnant woman in New Zealand is required to choose a lead maternity caregiver (LMC) who is ''responsible for the assessment of her needs, planning of her care with her and the care of her baby and facilitates the provision of appropriate additional care for those women and babies who need it.''[1] This caregiver can be a midwife, a general practitioner/family doctor, or an obstetrician.

Seventy-five percent of New Zealand women choose a midwife as their LMC, which contrasts markedly with the 5.6% who chose family doctors and the 6% who chose obstetricians.[2] The effect of this is that there are a considerable number of women who have no physician input during their childbearing, a major change from the pre-1990 law where all maternity care required medical supervision.

There is no formal risk-screening process to undergo before women choose their caregiver, but there are national referral guidelines.[3] These guidelines, negotiated between midwives, family doctors, and obstetricians, provide a comprehensive list of clinical conditions commonly associated with pregnancy and rate them according to the degree of complexity. The guidelines describe three levels of consultation: 1) ''may recommend to the woman that a consultation is warranted''; 2) ''must recommend to the woman that a consultation is warranted''; and 3) ''must recommend to the woman that the responsibility for care be handed over.'' Similar types of obstetric referral guidelines are found in other countries, such as The Netherlands,[4] Australia,[5] and Canada.[6] They are also reflected in the American College of Nurse-Midwives (ACNM) position statement on collaborative management; while the statement does not provide a list of specific conditions, it does describe the same three levels of interaction with obstetrics: consultation (seeking advice or opinion), collaboration (joint management), or referral (complete handover of care).[7] This would indicate that there are similarities in the way midwifery is practiced in many developed nations, which makes international comparisons important.

The characteristics that make midwifery in New Zealand unique and that need to be taken into consideration when making comparisons are the extent to which women receive midwifery-led care; that maternity care is state-funded; that all midwifery education is by direct entry; and that nurses without a midwifery qualification do not feature in maternity care. Not only do midwives provide the majority of community-based continuity of care as LMCs, they also staff maternity hospitals. Whereas in the United States, where ''midwifery is intended primarily for healthy women,''[8] midwives in New Zealand (whether LMC or employed by the hospital) attend every birth, not just those deemed to be at low risk. In addition, LMC

Address correspondence to Joan P. Skinner, RM, RN, PhD, Graduate School of Nursing, Midwifery and Health, Victoria University of Wellington, P.O. Box 600, Wellington, New Zealand. E-mail: Joan.skinner@vuw.ac.nz

1526-9523/10/$36.00 • doi:10.1016/j.jmwh.2009.03.015

midwives in general are not based in any one birth environment but instead follow the women from home or birth centre to hospital should a transfer of site be required.

Collaboration with obstetrics is of crucial importance, and until the research that this article reports was undertaken, there was no available information about how many women who received midwifery-led care had no obstetric input during the course of their pregnancy and birth; neither has there been any information about the degree to which midwives consult with obstetricians. This lack of data has led to questions about the safety of the model, particularly in regard to the appropriateness of the obstetric consultation practices of the midwives. There has also been criticism in the local New Zealand media that this model of maternity care had decreased the quality of collaborative relationships between the two professions.[9–11] This research aimed to describe the midwives' obstetric consultation and referral practices and their perceptions concerning the quality of their professional relationships with obstetricians within the primary/secondary care interface.

BACKGROUND

In the New Zealand context and for the purposes of this article, the term ''obstetric consultation'' explicitly relates to a process whereby the midwife LMC seeks advice from an obstetrician about the clinical management of a particular woman. The midwife retains the role of primary caregiver until there is a transfer of clinical responsibility or referral. In New Zealand, this transfer or referral occurs when the obstetrician, in a 3-way discussion with both the woman and her midwife, retains an active decision-making role in the ongoing care following the initial consultation. The midwife may or may not continue to provide midwifery care alongside and in collaboration with the obstetrician, depending on the outcome of the discussion. In New Zealand, the term ''primary maternity care'' refers to care that is provided when no obstetric input is required. ''Secondary care'' occurs when the degree of complexity experienced by the childbearing woman requires obstetric input. When a woman is receiving secondary care, some degree of transfer of clinical responsibility has occurred. This process is mirrored almost exactly in the position statement of the ACNM.[7] Referral in the US context is similar to ''transfer of clinical responsibility'' in the New Zealand context.

Joan P. Skinner, RM, RN, PhD, is a senior lecturer in the Graduate School of Nursing, Midwifery and Health, Victoria University of Wellington, Wellington, New Zealand.

Maralyn Foureur, RM, RN, BA, Grad Dip Clin Epidem, PhD, is Professor of Midwifery at the University of Technology Sydney, Broadway, New South Wales, and Northern Sydney Central Coast Area Health Service in New South Wales, Australia.

LITERATURE REVIEW

Attempts to obtain information about maternity consultation or referral rates in other countries—in order to make a comparison with rates in New Zealand—was problematic. It highlighted the uniqueness of the New Zealand model, in that the New Zealand model includes women of ''mixed-risk'' status. In addition, most studies that assessed midwife-led care reported intervention rates and birth outcome rather than consultation rates. However, there were 25 studies that did provide some information on referral patterns. These were undertaken in a variety of contexts and were conducted in the United Kingdom,[12–22] Sweden,[23] the Netherlands,[24] the United States,[25] Canada,[26–29] Australia,[30–34] and New Zealand.[35] Twenty of these studies included only prescreened, ''low-risk'' women, and lacked enough commonality with the New Zealand midwifery client population to make comparisons.[12–32] Twelve of the studies were focused on place of birth (either home or birth centre), so the referral data related to transfer to a referral hospital rather than to the consultation rate.[12,13,17,22–24,26–30,34] The women in these studies had been prescreened as being low-risk, and the transfer to hospital rate varied from 15%[27] to 66%.[19] Four of the six Australian studies located included mixed-risk women,[30–33] but all had a 100% consultation rate because women, regardless of risk status, had at least one visit with an obstetrician.

Studies of general practitioner/family physician rates were more helpful. Six studies were located. One was from the United Kingdom,[36] two were from Canada,[37,38] and three were conducted in the United States.[39–41] These studies included mixed-risk women and reported referral rates from 12% to 49%. Three of the five studies had similar rates (ranging from 32% to 36%).[38–40] There were some difficulties in interpreting the results of the general practitioner studies, because ''referral'' and ''consultation'' sometimes meant that there was a consultation without transfer of care and sometimes meant that responsibility for care was transferred to an obstetrician. The distinctions between the definitions of consultation and referral were often unclear.

Guidelines from the World Health Organization (WHO) were also not helpful in determining what a benchmark consultation and referral rate might be. WHO has estimated that at least 15% of pregnant women will require specialist medical care in order to avoid death or disability, but did not suggest an appropriate consultation rate.[42] Therefore, there is no external, international standard against which to accurately measure midwifery rates of consultation and no available information about the patterns of transfer of clinical responsibility or the degree to which midwives continue to provide care once obstetric input is required. Given the international interest in the promotion of midwife-led care and the subsequent need for a shift in the way midwives and obstetricians interact,

Table 1. Survey Presented to New Zealand Midwives

Consultation Data	Transfer of Responsibility/Referral Data
For each client who had a consultation,[a] please complete the following items (using attached code for conditions).	For each of the above clients who had a transfer of care, please complete the following items.
Did you request an antenatal consultation? *(Y/N)*	Antenatal *(Y/N)*
Reasons for antenatal consultation *(Use >1, if applicable)*	Intrapartum *(Y/N)*
Were you present at the initial consultation? *(Y/N)*	Postpartum *(Y/N)*
Did you make an intrapartum consultation? *(Y/N)*	Did you provide any midwifery care after clinical responsibility and/or lead maternity caregiver was handed over? *(Y/N)*
Reasons for intrapartum consultation *(Use >1, if applicable)*	Did you receive payment for this care? *(Y/N)*
Did you make a postpartum consultation? *(Y/N)*	
Reasons for postpartum consultation *(Use >1, if applicable)*	

[a]Data requested for all clients cared for over a 4-month period.

it seemed timely to investigate how this occurs in New Zealand, a country that has adopted midwifery-led care for the majority of its childbearing population.

METHODS

In order to assess the extent of consultation and the transfer of care patterns and attitudes of New Zealand midwives, a total population postal survey of midwives who were LMCs in New Zealand was undertaken in 2001. Ethical approval was obtained from the New Zealand National Health Ethics Committee and from the Human Ethics Committee of Victoria University of Wellington. The survey was extensive and asked for demographic data and referral patterns of all consultations and transfers of care over a 4-month period. Each survey form included a table that enabled the midwife to enter the referral data for up to 20 women who had required an obstetric consultation. This number was chosen because the pretesting revealed that it would be extremely unusual for a midwife to refer more than this number of women in any 4-month period. The data were gathered retrospectively. Table 1 lists the questions asked about each client who had a consultation.

The survey also contained Likert-scaled attitudinal measures which consisted of 10 statements related to the general management of the consultation process and to the relationships with obstetricians. The scale was rated from 1 (strongly agree) to 7 (strongly disagree). Two examples of statements are: ''My pattern of referral is appropriate to the needs of the women for whom I care'' and ''In my region there is excellent collaboration between primary and secondary care.'' The questions were asked once of each midwife (rather than of each consultation).

The survey population included both LMC midwives who were self-employed (but contracted with—and paid for by—the Ministry of Health) and midwives who were working in LMC models of care and were employed by hospitals. At the time of the survey, there was no reliable national database of midwives who were providing midwifery-led care, so a database was constructed from a variety of sources, including the New Zealand College of Midwives, each of the 23 referral hospitals in New Zealand, from every New Zealand telephone directory, and from midwifery Web sites. The questionnaire was pretested with five midwives who worked in a variety of environments. Depending on the case load, the questionnaire took between 10 minutes and half an hour to complete. The questionnaire was sent out with a reply paid envelope and a reminder was sent 5 weeks later. The data were entered into SPSS and analyzed using descriptive and correlational statistics.

RESULTS

The survey was sent to 649 midwives, and 433 were returned. Of those which were returned, 122 were not completed, because 81 midwives were not currently in practice, 19 did not want to complete it, and 13 were not at that address. Nine midwives did not provide a reason. There were a total of 311 completed questionnaires, which gave a response rate of 56.5%. Demographic characteristics of the participants are shown in Table 2. Using the New Zealand Health Information Service database of midwifery practitioners, the responding midwives were seen as being representative of the total midwifery population by age, years of practice, and country of registration. There were, however, more direct-entry midwives among the study population than in the general population (18% vs 7.3%).

Over the 4-month period in which the data were collected, the 311 midwives who completed the questionnaire cared for 4251 women. There was a 35% consultation rate. The midwives considered that they had transferred clinical responsibility for 608 of the referred women (Figure 1) Transfer of clinical responsibility occurred most commonly in the intrapartum period (48%) followed by the postpartum period (22%) and the antenatal period (18%). Most of the consultations (36.6%) occurred only in the antenatal period and were not repeated in the intrapartum or postpartum periods (Table 3). Thirty-five percent of the referred women were seen by medical staff in more than one childbearing period. Only 3.5% of those who had care transferred did not continue to receive care from the midwife.

Table 2. Demographic Characteristics of Midwives Participating in the Study

Demographic Characteristic	No.	%	Mean	Range
Age, y	309	—	43.7	23–66
Years of practice	299	—	13.1	1–35
Country of registration				
New Zealand	192	61.9	—	—
United Kingdom	77	24.8	—	—
Australia	27	8.7	—	—
Other	14	4.6	—	—
Type of registration[a]				
Nurses and midwives	255	82	—	—
Direct-entry midwives	56	18	—	—
Employment				
Self-employed	236	76.6	—	—
Employed	72	23.4	—	—
Location				
Urban	232	74.6	—	—
Rural	79	25.4	—	—
Case load in 4-month period	280	—	15.2	1–39

[a]"Registration" implies certification and/or licensure.

The data from the survey were further analyzed to ascertain whether there were any relevant characteristics of the midwives that were associated with higher or lower referral rates. This included the midwife's age, country of registration, years of experience, whether a direct-entry midwife or a midwife with a nursing registration, whether employed or self-employed, or whether the midwife was located in an urban or rural area. No relationships were found. There were also no differences in referral rates between New Zealand's four main urban centres.

Responses to the attitudinal questions indicated that in general the midwives felt that they referred appropriately (Figure 2) and that the referral guidelines were useful (Figure 3). Ninety-four percent (n = 284) of the participants responded that they agreed with the statement that their referral patterns were appropriate to the needs of the women for whom they cared, and 81% (n = 251) agreed that the guidelines were a useful tool.

The midwives were also asked about the quality of the relationship between the midwife and the secondary maternity service (secondary maternity services occur where there is any need for obstetric input) and whether they felt that obstetricians supported continuity of midwifery care. The majority of midwives (n = 195; 64%) agreed to some extent that there was both excellent collaboration between primary and secondary care (Figure 4) and that obstetricians supported continuity of midwifery care (n = 223; 72%; Figure 5). Twenty-four percent (n = 73) of the midwives were less likely to agree that there was excellent collaboration in their regions and 14% (n = 42) did not think their obstetricians were supportive of continuity of midwifery care.

DISCUSSION

This study set out to establish the rate at which New Zealand midwives consult with obstetricians and the extent to which they continue to provide midwifery care once ongoing obstetric input is required (clinical responsibility has been transferred). It also aimed to describe the quality of the relationships that exist between midwives and obstetricians.

The Referral for Obstetric Consultation Rate

The rate at which LMC midwives referred women to obstetricians for a consultation was 35%. This figure

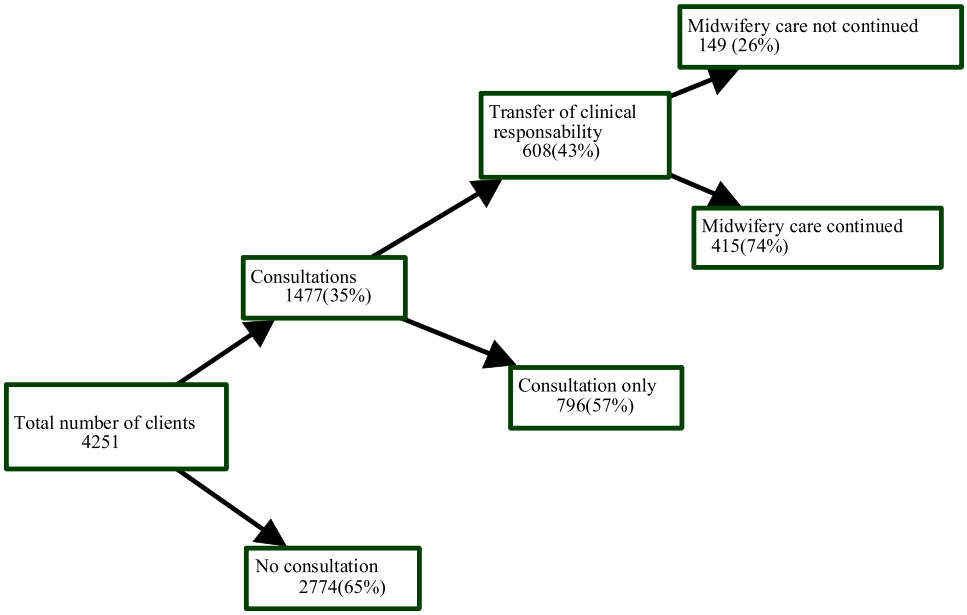

Figure 1. Numbers of midwifery referrals for obstetric consultation, transfer of clinical responsibility, and midwifery care continued.

Table 3. Numbers of Women Referred for Consultation According to Childbearing Episode

	No. (%)
Antenatal only	516 (36.6)
Intrapartum only	383 (27.3)
Postpartum only	22 (1.5)
Antenatal and intrapartum	411 (29.4)
Antenatal and postpartum	23 (1.5)
Intrapartum and postpartum	17 (1.2)
All 3 episodes	36 (2.5)
Total	1408 (100)

remained stable when analyzed according to the demographic and practice patterns that were identified as possibly affecting referral for consultation. There were no variables that were associated with higher or lower rates of consultation, and therefore no areas of midwifery practice where particular concern about appropriate referral might be identified.

However, the question of whether this rate might be considered too high or two low is difficult to answer. As discussed earlier in this article, it was not possible to find a benchmark for consultation in the international literature. The New Zealand Maternity Service reference document states that according to a case mix analysis, 25% to 30% of women may need the care of an obstetrician, and another 20% will need a consultation.[43] Given that midwives are more likely to be providing maternity care for a higher ratio of lower-risk women than obstetricians (current case mixes are unknown), a 35% consultation rate and a 14% transfer of clinical responsibility rate is neither alarmingly high nor low. The stability of the referral rate across all the midwifery demographic and practice pattern variables is further indication that the rate should be considered an appropriate benchmark.

Whether these rates should be applied as a benchmark for individual practitioners is contentious. There was no discussion of this found in the midwifery literature, so the medical literature was explored. The commentary related to referral and consultation practices of general practitioners was concerned mainly with keeping the referral rates low and reducing hospital costs. In general practice, there was reported to be wide individual variation in referral rates across the spectrum of all health disorders, and it was accepted that any attempt to shift individual referral rates toward an established benchmark was not appropriate. This position was summarized by O'Donnell[44] who, in her comprehensive review of the literature regarding general practitioner referral practices, stated that the rates themselves do not say anything about the appropriateness of the referrals, nor even whether the norm is appropriate. She found that there was a lack of consensus about what constituted appropriate referral, and stated that the use of guidelines had only limited success in altering referral behaviour. According to O'Donnell, ''Pressure on general

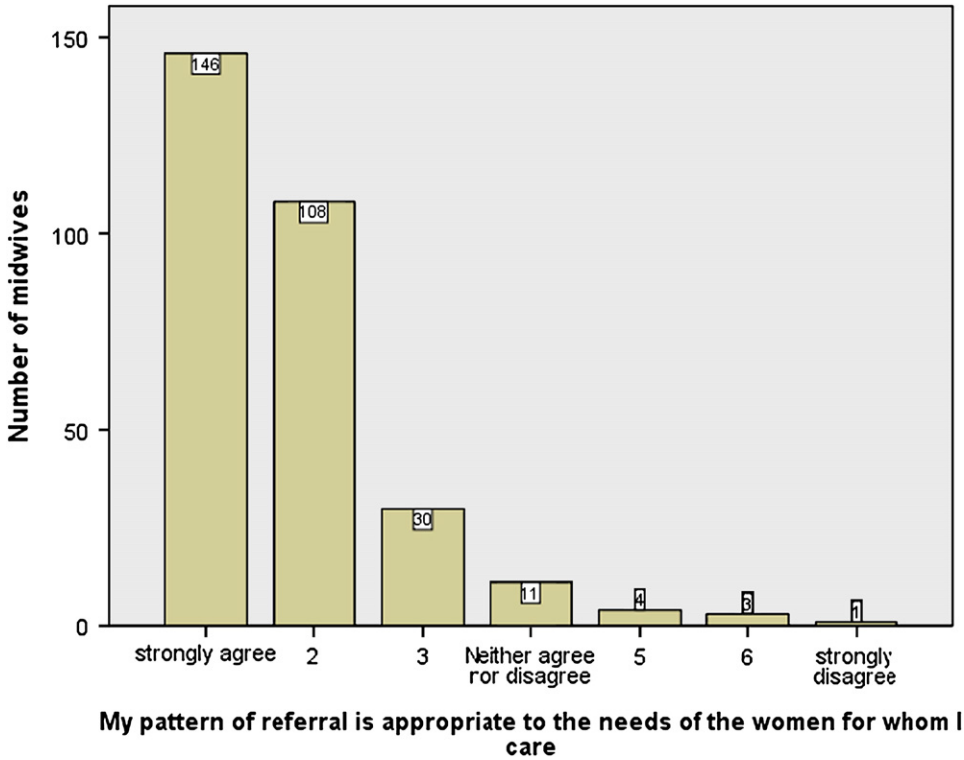

Figure 2. Midwives' attitudes towards their referral patterns.

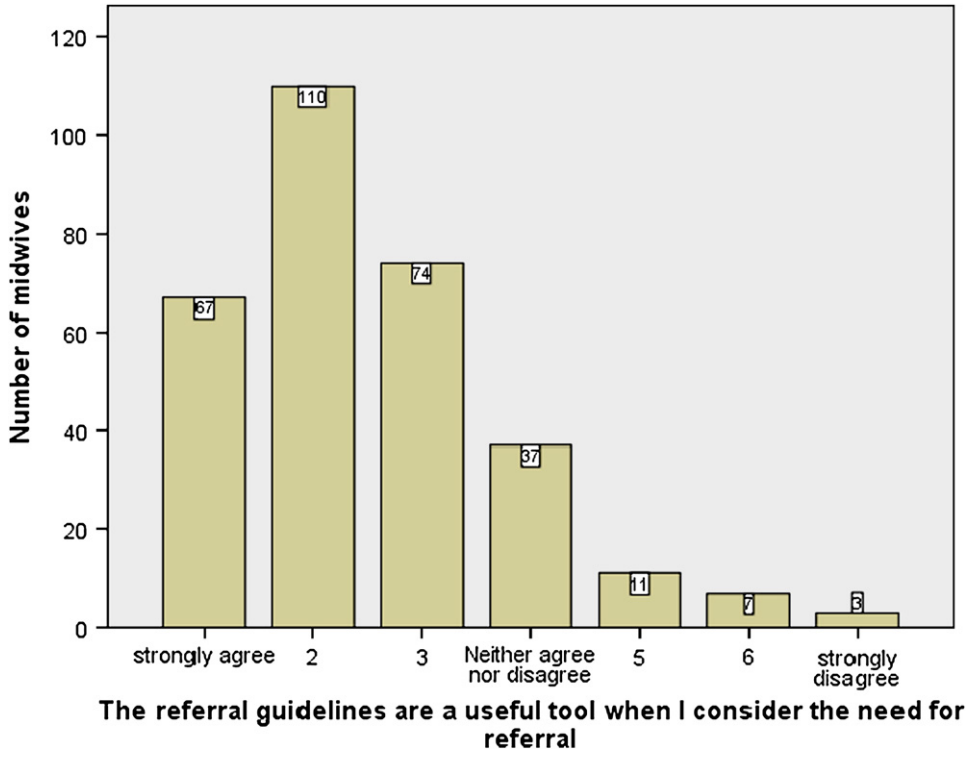

Figure 3. Midwives' attitudes to the referral guidelines.

practitioners to review their referral behaviour and the use of guidelines may reduce their willingness to tolerate uncertainty and manage problems in primary care, resulting in an increase in referrals to secondary care.''[44] The impression from the medical literature is that lower referral rates are seen as better. Whether this approach would be acceptable in maternity care where the primary caregivers are midwives remains to be assessed.

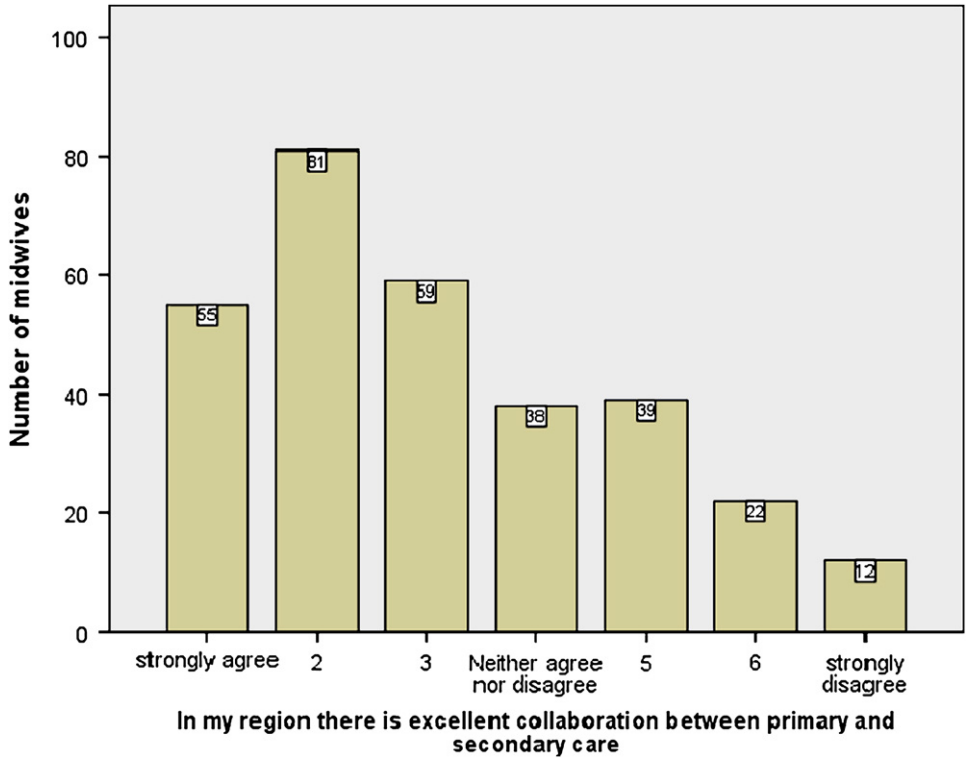

Figure 4. Midwives' attitudes to collaboration with secondary maternity services.

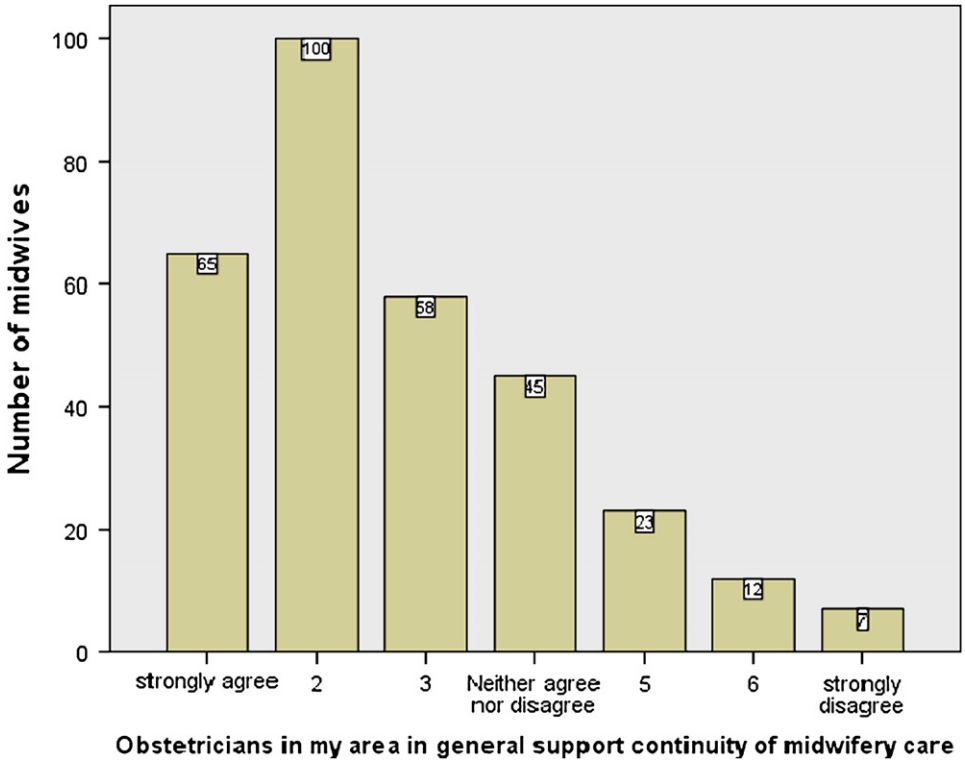

Figure 5. Midwives' attitudes as to whether obstetricians supported continuity of care.

Transferring or Sharing Clinical Responsibility

It is the New Zealand national referral guidelines that provide recommendations about who should be sent to an obstetrician for a consultation. They also provide recommendations about which conditions should result in a transfer of clinical responsibility to obstetricians. In this study, the midwives considered that 43% of women who they referred to an obstetrician for a consultation had clinical responsibility transferred. However, this was not the end of the story for midwives nor for the women that were transferred. In only 26% of cases where clinical responsibility had been transferred did the LMC midwife cease to provide any further care. For the remaining 74% of women, the LMC midwife considered that she had continued to provide care, alongside and in collaboration with the obstetrician. This information is, in effect, the most important finding of this study, and it raises several crucial issues. The first concerns the nature of clinical responsibility. If the LMC midwife continues care, she must inevitably retain clinical responsibility for the decisions she makes and the care she continues to provide, albeit alongside the obstetrician's decisions. Clinical responsibility then, is not transferred—it is shared. Although the referral guidelines do present conditions where obstetric input is required, it names that shift in responsibility as ''transfer'' rather than ''sharing.'' This is a misnomer in light of this research, and raises important issues about how clinical responsibility can be shared effectively especially in light of the medicolegal context in which Western maternity care is currently provided.

The findings of this research also highlight another practice characteristic of New Zealand LMC midwives. In addition to providing primary health service in the community and in primary birth at home or in hospitals, these midwives also work in secondary hospitals alongside specialist medical staff to provide secondary, complex maternity care. When their clients require obstetric input, they stay and continue care. Some examples of this are during induction or augmentation of labour, and care of women with epidural anaesthesia or women who have some degree of fetal compromise. The other primary care and community-based health professionals in New Zealand do not provide secondary health services. The commitment to continuity of carer is such that for midwives, being ''with women'' has extended into the secondary maternity service.

One might debate whether this degree of continuity is feasible on a long-term basis, given the long hours that can be required, and there is a growing body of research in New Zealand that questions the sustainability of LMC midwifery as it has been practised.[45–47] The contrary position—that LMC midwives restrict their practice to the care only of low-risk women experiencing normal childbirth—poses its own problems. The current high levels of obstetric intervention and risk categorisation would exclude a large number of women from continuity of midwifery care.

Relationships With Obstetricians

The shift in the relationship between midwives and obstetricians in New Zealand has been profound given the dominant and autonomous role that midwives now play in maternity care, and there has been little work either to assess its impact or to work on processes that improve true collaborative practice. Given the extent to which midwives continue to provide care when ongoing obstetric input is required, the need for sound collaborative practice between the two professions is clearly apparent. This research found that although most midwives felt that there was excellent collaboration between primary and secondary care, and that obstetricians supported continuity of care, there was still room for improvement. Nearly a quarter of the midwives regarded the collaboration as less than excellent, and 14% did not feel supported by obstetricians. These are areas that require improvement. This research has shown that midwives do experience reasonable support and that media attention over the last few years promoting the idea that doctors and midwives are ''at war'' are far from the truth. It also illustrates that there needs to be active work on promoting understanding between the two professions.

Reviewing the literature about efforts made to promote collaboration in maternity care reveals opinions on how important collaboration is and what the issues are.[48–53] However, no studies were found that addressed how improved collaboration might be promoted in the primary/secondary interface, especially in relation to two groups of autonomous professionals (midwives and doctors) who come to childbearing from differing paradigms. These paradigm differences are beginning to be identified as the central challenge to collaboration.[54,55] There needs to be some understanding of how this sharing takes place and how trusting, collaborative, cross-professional relationships are developed. Sharing responsibility can be a challenging but rewarding experience. New Zealand has developed a successful model of continuity of midwifery care and, in the main, successful collaborative approaches. It is in an excellent position to work towards the development of models that support collaboration.

Limitations of the Study

The rate of midwifery consultation, referral, and transfer of care in this study needs to be interpreted in light of New Zealand's referral guidelines that necessarily had an impact on which women were referred. Consultation and referral rates in other settings might vary because of different guidelines. For example, midwives in New Zealand are not required to consult before giving narcotic pain relief in labour, whereas in other settings they may be. In order to deal with this issue, the midwives in the study were asked whether they thought their consultations and referrals were appropriate to the needs of the women for whom they cared; 94% agreed to some extent that this was so. However, midwives in other settings who might like to compare their consultation and referral rates with the New Zealand rates would be advised to access the New Zealand Referral Guidelines.[3]

The demographics, practice patterns, and referral rates of the nonresponders to the survey were not able to be assessed. However, the representativeness of the respondents was confirmed according to demographic and regional characteristics. The only difference was found in the higher proportion of direct-entry midwives in the study population.

CONCLUSION

The findings of this survey show that it is possible to implement continuity of care and midwifery-led care on a national basis, and that this model of care need not be restricted only to those who are deemed to be ''low risk.'' Although New Zealand midwives care for a mixed-risk population, only 3.5% of the women cared for by midwives in this study did not continue to have some care provided by their midwife, even when transfer of clinical responsibility to an obstetrician had occurred. The findings illustrate the rate at which midwives consult with obstetricians and the rate at which there is transfer of clinical responsibility. Although there is room for improvement, in general, midwives felt that they had successful collaborative relationships with obstetricians. The study provides some basis on which to begin a rational debate, not only about how the primary/secondary maternity interface can work effectively but also about how midwifery-led care might meet the needs of women experiencing complexity in childbearing. This study reports the only available data about the consultation and referral practices associated with midwifery-led care outside of a research framework, where constraints are placed on the selection and treatment of participants, thereby limiting applicability to the way referral might take place in a real-world setting. As such, it offers a benchmark rate for consultation and referral and adds important knowledge to inform the way midwifery-led care might be further supported in New Zealand or in other countries. It shows the possibility of collaborative practice within this model of care and calls for ways that this might be better understood and developed.

Supported by grants from the Faculty of Humanities and Social Sciences, Victoria University of Wellington, New Zealand, and scholarships from Victoria University of Wellington and the New Zealand Vice-Chancellors Committee.

REFERENCES

1. New Zealand Ministry of Health Web site. Primary maternity services notice. Wellington, New Zealand: Ministry of Health, 2007. Available from: *www.moh.govt.nz/moh.nsf/indexmh/section88-maternity-notice-2007-feb07* [Accessed September 20, 2008].

2. New Zealand Health Information Service Web site. Report on maternity. Maternal and newborn information. Wellington, New Zealand: Ministry of Health, 2007. Available from: *www.nzhis.govt.nz/moh.nsf/pagesns/73/$File/maternityreport04.pdf* [Accessed October 20, 2008].

3. New Zealand Ministry of Health Web site. Guidelines for consultation with obstetric and related specialist medical services. Wellington, New Zealand: Ministry of Health, 2002. Available from: *www.moh.govt.nz/moh.nsf/pagesmh/6257/$File/maternity-referral guidelines-may07.pdf* [Accessed October 24, 2008].

4. National Health Insurance Board of the Netherlands. Obstetric manual: Final report of the obstetric working group of the National Health Insurance Board of the Netherlands, 1998. Available from: *http://europe.obgyn.net/nederland/?page=/nederland/richtlijnen/vademecum_eng_sec5* [Accessed October 25, 2008].

5. Australian College of Midwives Web site. National midwifery guidelines for consultation and referral, 2nd ed. Available from: *www.midwives.org.au/Portals/8/Documents/standards%20&%20guidelines/Consultation%20Referral%20Guidelines%20Sept%202008.pdf* [Accessed October 25, 2008].

6. College of Midwives of British Columbia Web site. Indications for discussion, consultation and transfer of care. Vancouver, British Columbia: College of Midwives of British Columbia, 1997. Available from: *www.cmbc.bc.ca/pdf.shtml?Indications-for-Discussion-Consultation-and-Transfer-of-Care* [Accessed October 25, 2008].

7. American College of Nurse Midwives Web site. Collaborative management in midwifery practice for medical, gynaecological and obstetrical conditions. Available from: *www.midwife.org/siteFiles/position/Collaborative_Mgmt_05.pdf* [Accessed October 25, 2008].

8. American College of Nurse Midwives Web site. Joint statement of practice relations between obstetrician-gynecologists and certified nurse-midwives. Available from: *www.midwife.org/siteFiles/position/Joint_Statement_05.pdf* [Accessed October 25, 2008].

9. The Editor. The war for the womb. *The Dominion Post*. Nov 16 2005:B4.

10. McLoughlin D. Are midwives delivering? *The Dominion Post*. Aug 5 2005:A10.

11. Managh C, Macdonald N, Andrew K. Midwives under scrutiny. Second home birth death. *The Dominion Post*. Nov 12 2004:A1.

12. Hundley V, Cruickshank F, Lang G, Glazener C, Milne J, Turner M, et al. Midwife managed delivery unit: A randomised controlled comparison with consultant care. Br Med J 1994;309:1400–4.

13. MacVicar J, Dobbie G, Owen-Johnstone L, Jagger C, Hopkins M, Kennedy J. Simulated home delivery in hospital: A randomised controlled trial. Br J Obstet Gynaecol 1993;100:316–23.

14. Flint C, Poulengeris P. The ''know your midwife'' report. Peckarman's Wood, Sydenham Hill, London: Privately published, 1997.

15. Kean LH, Liu DT, Macquisten S. Pregnancy care of the low risk woman: The community-hospital interface. Int J Health Care Qual Assur 1996;9:39–44.

16. Chapman MG, Jones M, Spring JE, De Swiet M, Chamberlain GV. The use of a birthroom: A randomised controlled trial comparing delivery with that in the labour ward. Br J Obstet Gynaecol 1986;93:182–7.

17. Klein M, Lloyd I, Redman C, Bull M, Turnbull AC. A comparison of low-risk pregnant women booked for delivery in two systems of care: Shared-care (consultant) and integrated general practice unit. I. Obstetrical procedures and neonatal outcome. Br J Obstet Gynaecol 1983;90:118–22.

18. Tucker JS, Hall MH, Howie PW, Reid ME, Barbour RS, Florey CD, et al. Should obstetricians see women with normal pregnancies? A multicentre randomised controlled trial of routine antenatal care by general practitioners and midwives compared with shared care led by obstetricians. Br Med J 1996;312:554–9.

19. Turnbull D, Holmes A, Shields N. Randomised, controlled trial of efficacy of midwife-managed care. Lancet 1996;348:213–8.

20. Street P, Gannon MJ, Holt EM. Community obstetric care in West Berkshire. Br Med J 1991;302:698–700.

21. Law YY, Lam KY. A randomized controlled trial comparing midwife-managed care and obstetrician-managed care for women assessed to be at low risk in the initial intrapartum period. J Obstet Gynaecol Res 1999;25:107–12.

22. Boulton M, Chapple J, Saunders D. Evaluating a new service: Clinical outcomes and women's assessment of the Edgeware Birth Centre. In: Kirkham M, editor. Birth centres. A social model for maternity care. Cheshire, England: Books for Midwives, 2003.

23. Waldenstrom U, Nilsson CA, Winbladh B. The Stockholm birth centre trial: Maternal and infant outcome. Br J Obstet Gynaecol 1997;104:410–8.

24. Wiegers TA, Keirse MJ, van der Zee J, Berghs GA. Outcome of planned home and planned hospital births in low risk pregnancies: Prospective study in midwifery practices in The Netherlands. Br Med J 1996;313:1309–13.

25. Anderson R, Murphy P. Outcomes of 11788 planned home births attended by certified nurse-midwives. A retrospective descriptive study. J Nurse Midwifery 1995;40:483–92.

26. Janseen PA, Lee SK, Ryan EM, Etches DJ, Farquharson DF, Peacock D, et al. Outcomes of planned home births versus planned hospital births after regulation of midwifery in British Columbia. CMAJ 2002;166:315–23.

27. Fraser W, Hatem-Asmar M, Krauss I, Maillard F, Bréart G, Blais R. Comparison of midwifery care to medical care in hospitals in the Quebec pilot projects study: Clinical indicators. L'Equipe d'Evaluation des Projets-Pilotes Sages-Femmes. Can J Public Health 2000;91:I5–11.

28. Tyson H. Outcomes of 1001 midwife-attended home births in Toronto, 1983–1988. Birth 1991;18:14–9.

29. Harvey S, Jarrell J, Brant R, Stainton C, Rach D. A randomized controlled trial of nurse-midwifery care. Birth 1996;23:128–35.

30. Biro M, Waldenstrom U, Pannifex JH. Team midwifery care in a tertiary level obstetric service: A randomized controlled trial. Birth 2000;27:168–73.

31. Biro M, Lumley J. The safety of team midwifery: The first decade of the Monash Birth Centre. Med J Aust 1991;155:478–80.

32. Giles W, Collins J, Ong F, MacDonald R. Antenatal care of low risk obstetric patients by midwives. A randomised controlled trial. Med J Aust 1992;157:158–61.

33. Rowley MJ, Hensley MJ, Brinsmead MW, Wlodarczyk JH. Continuity of care by a midwife team versus routine care during pregnancy and birth: A randomised trial. Med J Aust 1995; 163:289–93.

34. Griew K. Birth centre midwifery down under. In: Kirkham M, editor. Birth centres. A social model for maternity care. Cheshire, England: Books for Midwives, 2003.

35. Virtue C. Annual review. Domino Midwives Wellington. Nga Tapuhi Whakawhanau.1999–2000. Wellington, New Zealand: Domino Midwives, 2000.

36. Bryce FC, Clayton JK, Rand RJ, Beck I, Farquharson DI, Jones SE. General practitioner obstetrics in Bradford. Br Med J 1990;300:725–7.

37. Radomsky NA. Family practice obstetrics in a community hospital. Can Fam Physician 1995;41:617–24.

38. Reid AJ, Carroll JC, Ruderman J, Murray M. Consultation in family practice obstetrics. Can Fam Physician 1995;41:591–8.

39. Rosenthal TC, Holden DM, Woodward W. Primary care obstetrics in rural western New York. A multi-center case review. N Y State J Med 1990;90:537–40.

40. Craig AS, Berg AO, Kirkwood CR. Obstetric consultations during labor and delivery in a university-based family practice. J Fam Pract 1985;20:481–5.

41. Sinusas K. Deliveries by family physicians in Connecticut: Results of a practice-based research network. Arch Fam Med 2000;9:434–8.

42. World Health Organisation. Indicators to monitor maternal health goals: Report of a technical working group. Geneva, Switzerland: World Health Organization, 1994.

43. New Zealand Ministry of Health Web site. Maternity services: A reference document. Hamilton, New Zealand: Ministry of Health, 2000. Available from: *www.moh.govt.nz/moh.nsf/0/64F4A80CD43629704C2569D9001A01C9* [Accessed April 14, 2009].

44. O'Donnell CA. Variation in GP referral rates: What can we learn from the literature? Fam Pract 2000;17:462–71.

45. Engel C. Towards a sustainable model of midwifery practice in a continuity of carer setting: The experience of New Zealand midwives. New Zealand College of Midwives Journal 2003;28:12–5.

46. McLardy E. Boundaries: Work and home. New Zealand College of Midwives Journal 2002;27:33–4.

47. Wakelin K, Skinner J. Staying or leaving: A telephone survey of midwives, exploring the sustainability of practice as Lead Maternity Carers in one urban region of New Zealand. New Zealand College of Midwives Journal 2007;37:10–4.

48. de Veer AJ, Meijer WJ. Obstetric care: Competition or co-operation. Midwifery 1996;12:4–10.

49. Miller S. Midwives' and physicians' experiences in collaborative practice: A qualitative study. Womens Health Issues 1997; 7:301–8.

50. Session one: The challenges and opportunities of providing maternity care through collaborative practice. Womens Health Issues 1997;7:309.

51. Keleher KC. Collaborative practice. Characteristics, barriers, benefits, and implications for midwifery. J Nurse Midwifery 1998; 43:8–11.

52. Miller S, King T. Collaborative practice. A resource guide for midwives. J Nurse Midwifery 1998;43:66–73.

53. Peterson WE, Medves JM, Davies BL, Graham ID. Multidisciplinary collaborative maternity care in Canada: Easier said than done. J Obstet Gynaecol Can 2007;29:880–6.

54. Kateman H, Herschderfer K. Multidisciplinary collaborative primary maternity care project. Current practice in Europe and Australia. A descriptive study. International Confederation of Midwives. Available from: *www.mcp2.ca/english/studies_reports.asp* [Accessed February 4, 2009].

55. Blaaka G, Schauer T. Doing midwifery between different belief systems. Midwifery 2008;24:344–52.