Challenges of integrating maternity care

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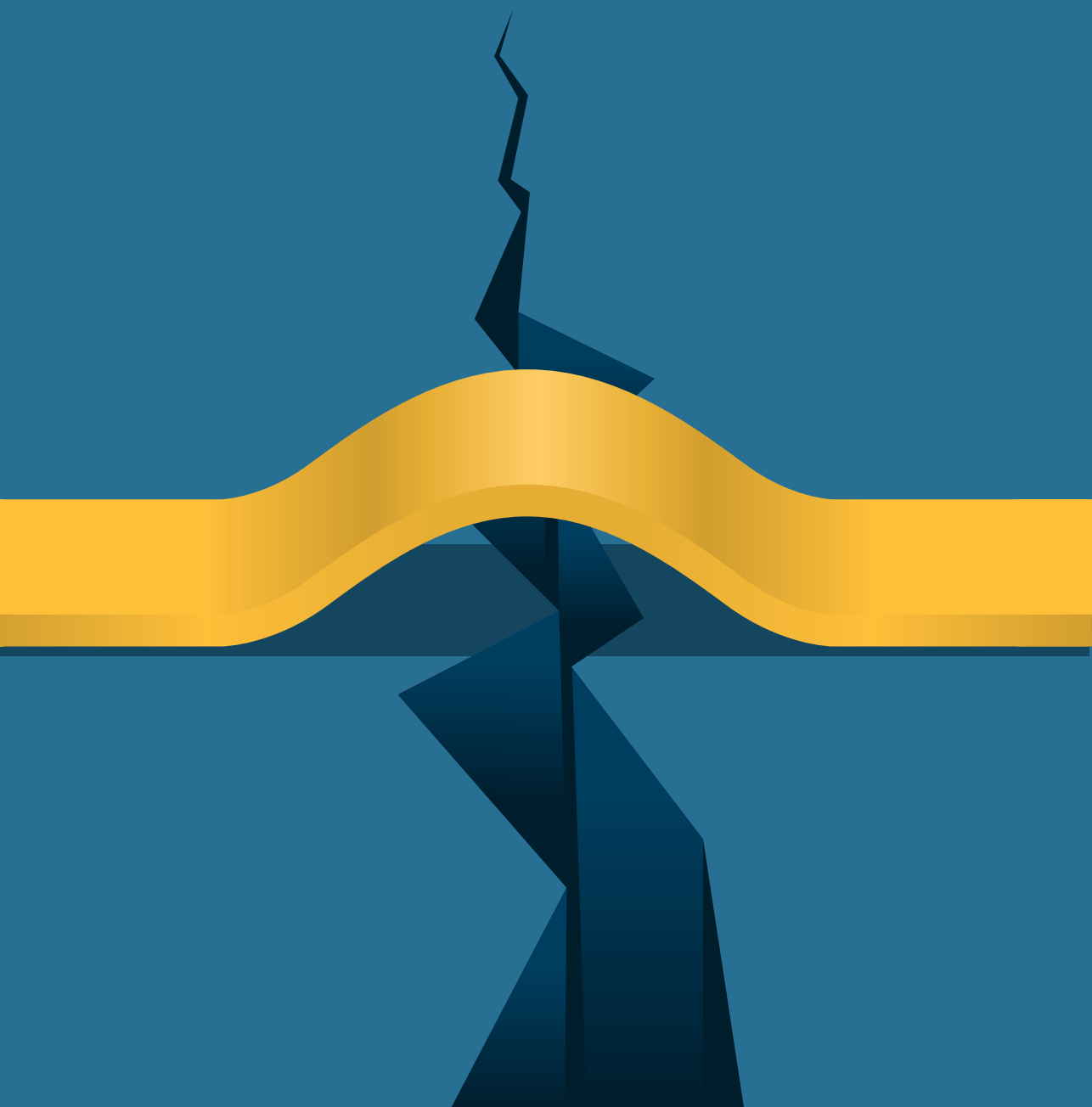
Hilde Perdok



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H.M. Perdok

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Challenges of integrating maternity care

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Contents

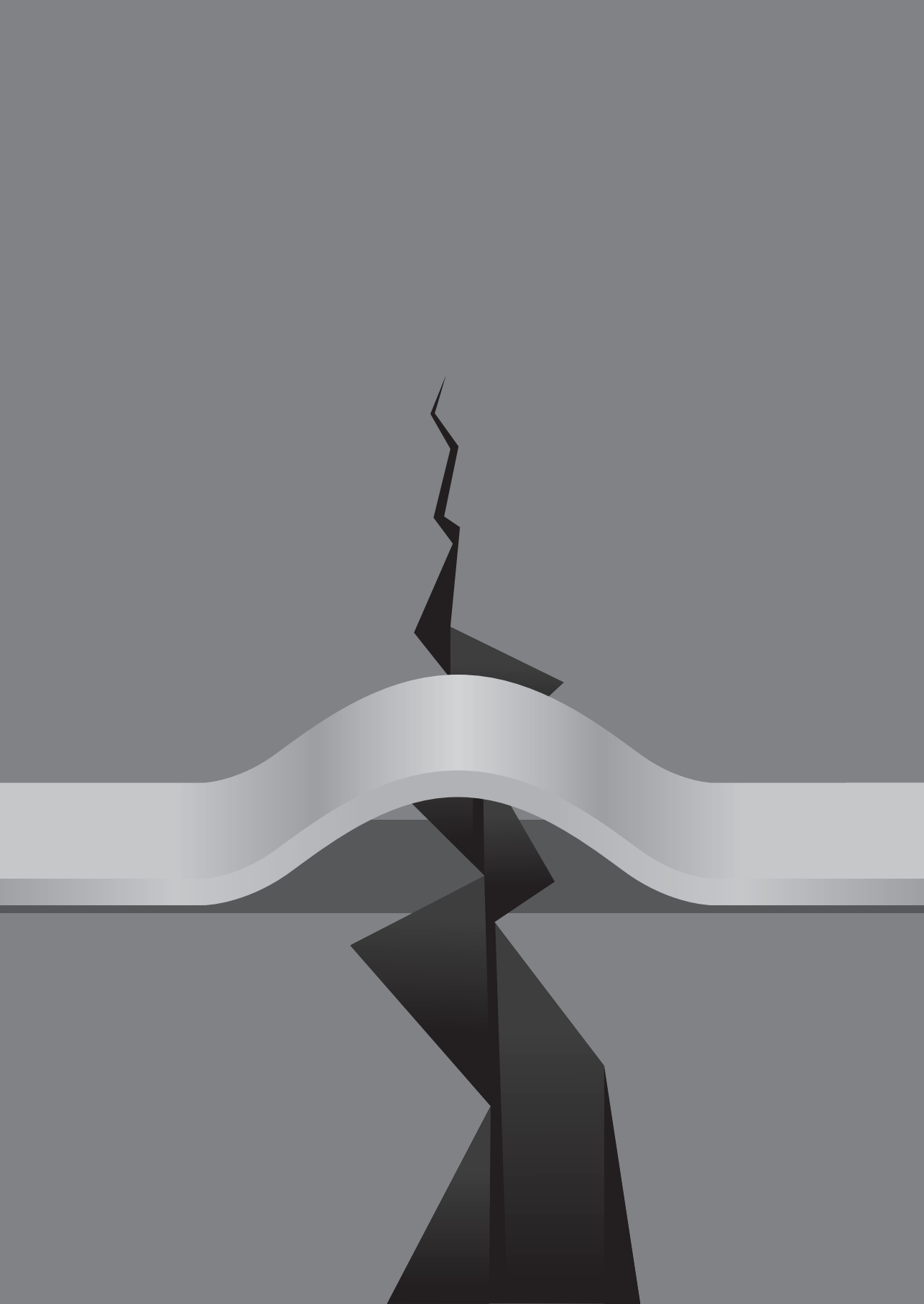
Motivation of thesis

Over the last 15 years, I have greatly enjoyed working as a clinical midwife. I have taken care of many women who were referred from midwife-led to obstetrician-led care during pregnancy and labour. The past few years, the number of women who are referred during labour has rapidly increased. More women are taken care of by more maternity care professionals with less personalized care. In the course of time this has influenced my work.

For a common referral indication, a woman can be seen by seven different maternity care professionals. In case of a referral for pain relief, the primary care midwife, having taken care of a woman for hours, will hand over care to the clinical midwife and the obstetric nurse. The primary care midwife is not responsible for her care anymore, as the woman is no longer considered to be “low risk”. After counseling the woman for pharmacologic pain relief, the clinical midwife will consult the obstetric registrar, who will then call the anesthetist for epidural analgesia. If a complication occurs, the obstetrician who is responsible for the whole care process from the moment of the referral, will be involved. During the puerperium, the primary care midwife and maternity care assistant will take over the care again.

One can imagine that some women are distressed because of this fragmentized care. There is room for a new model with fewer involved professionals and more personalized care for women. However, I experience that the opinions of primary care midwives, clinical midwives and obstetricians differ, regarding their vision on maternity care, their tasks and responsibilities. This complicates real teamwork.

In this thesis, I examine the conditions that are needed and the facilitators and barriers that are encountered when shifting towards an integrated maternity care system according to women, maternity care professionals and other stakeholders.



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General introduction

General introduction

This introduction will give insight in maternity care in the Netherlands, the roles of midwives and obstetricians over time, the models of care and the need for a new model of care, what women and maternity care professionals consider important in maternity care, the reasons for integrating maternity care, the challenges of integrating maternity care and finally the aims of this thesis.

Maternity care in the Netherlands

The Dutch maternity care system is based on the principle that pregnancy, childbirth and puerperium are physiologic processes. The structure of the Dutch maternity care system differs from most other countries, because of the independent and autonomous position of primary care midwives[1] with a clear boundary between midwife-led and obstetrician-led care. Primary care midwives in the Netherlands take care of around 30% of all births, and another 30% of all births is attended by a clinical midwife as member of the hospital obstetric team[2]. The independently practicing primary care midwives, being licensed as medical professionals, are the primary care provider for women at low risk of complications[3]. Primary care midwives mostly work in group practices in a community setting. A healthy woman with an uncomplicated pregnancy is taken care of by a primary care midwife, and she can give birth either at home, in a hospital or in a birth center supervised by a primary care midwife. If an increased risk of complications, as listed in the national "List of Obstetric indications"[4], occurs during pregnancy, labour or puerperium, the woman will be referred for consultation or transferred for care to an obstetrician in a secondary or tertiary care setting.

Clinical midwives are employed by hospitals and work in a team with obstetric nurses and obstetricians under the responsibility of an obstetrician. They have a broader scope of practice (e.g. performing fetal monitoring by using continuous electronic heart rate monitoring (EFM) and administering oxytocin) compared to primary care midwives and provide care to women with mixed risk profiles. In practice, clinical midwives are involved in the care for 77% of all women in secondary care[5].

In the Netherlands, the intervention rates during childbirth are relatively low with a rate of 22% for epidural anesthesia and 17% for caesarean sections[2]. The role of independently practicing primary care midwives in maternity care is seen as one of the reasons for the relatively high percentage of home births (13%) in the Netherlands[1,2]. The Netherlands has been an example for other countries showing that technology driven care and medicalization of birth are not always necessary[6].

Midwives and obstetricians have a common goal to provide high quality patient-centered maternity care. Regionally, maternity care professionals working in a hospital and the

primary care midwifery practices in the region of the hospital have established obstetrical collaboratives (Verloskundig Samenwerkingsverbanden) to optimize maternity care[7].

A historical overview of the roles of midwives and obstetricians

Midwifery was a well-established, independent profession long before the profession of the obstetrician was introduced. With the establishment of universities for males only in the fourteenth century, the profession of medical doctors and (obstetrical) surgeons arose and the responsibilities and activities of midwives, who were predominantly females, were restricted[8]. In 1818 the "Medical Act " (law of medical practice) was introduced by Dutch legislators, which was meant to structure and control the practice of medicine at a national level. The division of responsibilities between midwives and general practitioners for natural births without the use of instruments and medical doctors for the whole field of obstetrics and gynecology on the other hand, was formalized[3]. The Medical Act of 1865 reconfirmed the scope of practice of professionals.

In 1941 the "primaat voor verloskundigen" was introduced by Dutch health care insurance companies, which led to the primary care midwife being the gatekeeper of obstetrical care. The position of the general practitioner in maternity care decreased, as obstetrical care provided by them was no longer reimbursed by the public insurance if there were primary care midwives working in the area.

Until 1955, primary care midwives and general practitioners were the main professions providing maternity care, and most births took place at home. From 1950 onwards the number of hospital deliveries increased and obstetricians, specialized in perinatal care for women with high-risk pregnancies, became more involved in maternity care[9].

With the increasing involvement of obstetricians, there was a need for formalization of responsibilities. The division of responsibilities and scope of practice between the professions in obstetric care was officially established in 1956 by Holmer with the introduction of a specified and expanded list of "expected difficulties" and "unexpected events". For these "medical indications", care in the hospital setting was advised[10]. The Dutch healthcare insurance companies used Holmer's list as the basis for reimbursement of costs for maternal and newborn care. In 1973 the Kloosterman's Obstetric Indications List (Verloskundige Indicatie Lijst) was published. In the following editions, apart from the list of who was responsible for care, indications for consulting an obstetrician were added to the list, followed by indications that did not require referral to an obstetrician[3].

In 1987 the position of primary care midwives was strengthened as they were entitled to perform risk selection to establish whether a woman should be referred to an obstetrician. However, the Dutch Society for Obstetrics and Gynaecology (NVOG) initially did not acknowledge the new version of the indication list. By 1992, the revised Obstetric Indications List based on research and on consensus between professionals was developed and approved by the professional organizations of midwives, obstetricians, general practitioners and pediatricians[3].

The number of referrals during pregnancy and labour from primary midwife-led care to secondary obstetrician-led care has increased in the last decades (Table 1). At the onset of antenatal care about 85% of women are in midwife-led care[2]. Of these women 27% were referred at some stage during pregnancy in 2005[11] compared to 36% in 2015. The number of referrals during labour also increased steadily during the past years from 12% in 2005[11] up to 22% in 2015[2]. The number of home births decreased from 23% in 2005[11] to 13% in 2015[2]. As a result of the increased number of referrals from primary to secondary care, in the course of time, more women have experienced discontinuity of caregiver[12].

Table 1. Referrals from primary to secondary care in the period 2000-2015 in The Netherlands.

	2000 (n=204.584) %	2005 (n=193.724) %	2010 (n=178.781) %	2015 (n=166.733) %
Midwife-led care at onset of antenatal care	82	80	84	85
Referral during pregnancy	28	27	33	36
Referral during labour	17	12	21	22
Midwife-led care during birth	36	34	28	29
Home birth	23	23	17	13

Perined registration[2,11]

Historically there have been tensions between primary care midwives and obstetricians in the Netherlands. According to van der Lee et al., the history of physician domination over midwives, and education and the establishment of professional boundaries have undermined effective teamwork and interprofessional collaboration[13]. Interprofessional tensions still play a role now with a lack of trust in each other's expertise[14]. Recent research shows that primary care midwives experience a power imbalance[15] and inadequate interprofessional communication[16].

On the whole, there seems to be discussion about each profession's role and responsibilities within the collaboratives. This leads to professionals not perceiving themselves as being equally part of a team[17].

Models of care

Generally, health care systems with a strong emphasis on primary care are more likely to provide better population health and greater efficacy and efficiency in the use of resources[18].

A systematic literature review[19] comparing different models of maternity care (midwife-led, medical-led and shared care) suggests that women who receive care in a midwife-led continuity model were more likely to experience spontaneous vaginal birth (average risk ratio (RR) 1.05, 95% CI 1.03 to 1.07). Women who receive care in a midwife-led continuity model were less likely to experience interventions such as regional analgesia (average RR 0.85, 95% CI 0.78 to 0.92), and more likely to be satisfied with their care with at least comparable adverse outcomes for women or their infants compared to women who received other models of care. However, reporting bias is difficult to detect with the number of studies in this review[19]. In line with the study of Sandall[19], alongside and freestanding midwifery units appear to confer significant advantages over obstetric units for care of low-risk women showing significantly more uncomplicated, spontaneous births with good outcomes for mother and child[20, 21].

Some people have proposed a model of shared care embedded in local "obstetric collaborations"[7] arguing that the leveled care system in which professionals in midwifery and obstetrics work autonomously, does not fully meet the needs of pregnant women.

Need for a new model of care

Perinatal registration reports about data from 2000 and 2004 showed that the Netherlands had a relatively high perinatal mortality rate compared to other Western European countries[22-24]. Although comparison of mortality rates between European countries is challenging due to different definitions and registration systems[25] it was suggested that these high rates could partly be explained by the division between primary and secondary care[26] as this could lead to a suboptimal level of collaboration between maternity care providers, thereby contributing to adverse events and incidents[27]. Discussions arose both nationally and internationally regarding the sustainability of the current system. It was argued that the system could be improved by changing the organizational structure towards a model of integrated care[7,28].

At present, Dutch maternity care is undergoing major changes and there is a shift towards an "integrated model of care"[1]. A Steering Committee, appointed by the government, wrote an advisory report[26], which contained the recommendation to improve the quality of maternity care by encouraging closer cooperation and better communication between all maternity care professionals. The Dutch Healthcare Authority (NZa) stimulated regions to perform experiments to identify the facilitators and barriers of introducing a new model[29].

Initiated by the Steering Committee, representatives of (professional) organizations involved in maternity care developed a guideline "Zorgstandaard integrale geboortezorg"[30] in 2016. This guideline gives maternity care professionals a new and updated framework for maternity care. A new aspect in this protocol is that the regional obstetrical collaboratives are responsible for the quality of care and organization of care in their region and that maternity care professionals in the different care levels (primary, secondary and tertiary care) should collaborate more closely together[30].

Alongside this, the Dutch Ministry of Health has recently introduced the possibility to reimburse the costs for maternity care with a fee covering all maternity care or parts of it, which is to be divided among care providers involved. To date, a few regions have started working with this so-called "integral tariff".

What do women and maternity care professionals consider important?

Maternal and neonatal outcomes as well as the experiences of women are of great importance in health care[31,32]. However, the experiences and preferences of women regarding interventions and place of birth have changed over time. Some state that increasing media attention in the Netherlands for the way of giving birth in other countries has made women more positive towards medical interventions and birth in hospitals[1].

Factors that are important for women include personalized care[31,33], access to safe maternity care[31], continuity of care[19,31] and being able to choose the care that is right for them, their family and their circumstances[31].

Personalized information specifically tailored to an individual woman in a model of Shared Decision Making (SDM) has been shown to have a positive impact on the childbirth experience[33]. SDM is defined as "an approach where the clinician and client share the best available evidence when faced with the task of making decisions, and where the client is supported to consider options, to achieve informed preferences"[34]. An example of personalized care is birth plans written by women and shared with maternity caregivers. A higher number of fulfilled preferences in the birth plan was positively associated with birth experience satisfaction[35].

According to a Cochrane systematic review, women receiving continuous care were more likely to be satisfied with their care with comparable or better outcomes for women or their infants, compared to women who received care in the context of models with less continuity[19].

For maternity care professionals, job related wellbeing and satisfaction are shown to be of importance[36]. Job satisfaction is positively related to the quality of teamwork among professionals and quality of care for women[37]. Criteria for successful teamwork are professional competence (common body of knowledge, shared language), interprofessional respect and an effective communication[38,39]. In addition, job autonomy, defined as the degree of control a worker has over his or her own immediate scheduling and tasks[40], is one of the conditions that influence job related wellbeing and satisfaction[41,42].

Although caregivers have the health of woman and baby as their common priority, issues of communication, handovers and disagreements about how to handle specific situations such as the transition to more specialized care, are problems identified in a recent review of the national maternity care system in England, called "Better Births"[31].

Integration of maternity care

The main reason for changing the maternity care system in the Netherlands is to improve the quality of care in the entire spectrum of maternity care. A closer cooperation and better communication between all maternity care professionals, with no experienced boundary between primary and secondary care, may lead to lower adverse outcomes[27]. On the other hand, implementation of a new system can only be successful if there is support for change among professionals, stakeholders and clients[17].

"Integration of care" is a complex phenomenon[43] and is often used as an umbrella term with differences in underlying scope and value[44]. Integrated care as defined by the World Health Organization is a concept bringing together inputs, delivery and organization of services to improve services in relation to access, quality, user satisfaction and efficiency[45].

Implementing integrated care involves integrating care processes between, for example, primary care and specialized care to effectively deliver care[46]. The key feature on Universal Health Coverage Day 2016 (WHO 2016) was "reforming health services to be integrated and people-centered" which shows that integrated care is a relevant and present-day example of how care should be organized.

In the guideline "Zorgstandaard integrale geboortezorg"[30] integrated maternity healthcare is described as care starting preconceptionally until six weeks postpartum, including collaboration with or transfer to a maternity care assistant, nurse, general practitioner or - if indicated – transfer or referral to other professionals such as a pediatrician. The aim of integrated care is to improve care by multi-disciplinary collaboration in which the client and her needs and preferences play a central role.

In international documents similar descriptions are given without using the term "integrated care". The American College of Obstetricians and Gynecologists and the American College of Nurse-Midwives have stated "health care is most effective when it occurs in a system that facilitates communication across care settings and among providers. Obstetricians and midwives are experts in their respective fields of practice and are educated, trained, and licensed independent providers who collaborate with each other based on the needs of their patients. Quality of care is enhanced by collegial relationships characterized by mutual respect and trust, as well as professional responsibility and accountability"[47].

In a national review[31] of the maternity services the vision of services across England has been described referring to the importance of continuity of care and multidisciplinary collaboration, breaking down barriers between midwives, obstetricians and other professionals to deliver safe and personalized care for women and their babies. Safer care can be achieved by professionals working together across boundaries to ensure rapid referral and access to the right care in the right place[31].

Common in all citations is working multi-disciplinary, across boundaries with respect for each other's field of practice.

Challenges of integrating maternity care

When shifting towards a system of integrated care delivered by professionals from multiple disciplines and crossing care setting boundaries, the challenge lies in maintaining elements such as personalized care and continuity of care.

Therefore the aims of this thesis were:

- To examine maternal and perinatal outcomes and medical interventions among women who are referred from primary to secondary care during labour.
- To examine experienced continuity of care among women in relation to experienced quality of care and perception of care.
- To examine which factors are essential to effectuate successful integration of primary and secondary maternity care, according to maternity care professionals, women, representatives of professional organizations, health care insurance companies and policy makers.
- To define the facilitators and barriers when integrating maternity care.

Chapter 2 describes a retrospective cohort study into labour process and outcomes after intrapartum referral from primary to secondary care in the Netherlands.

To compare experienced continuity of care among women who received midwife-led versus obstetrician-led care and to compare continuity of care with quality of care and perception of labour, in **chapter 3** the findings are reported of a survey evaluating continuity, experienced quality of care and women's perception of labour.

Chapter 4 describes the results of a questionnaire survey to explore perceived job autonomy among maternity care professionals in the Netherlands and their expectations of job autonomy in the future in a system of integrated care.

Chapter 5 presents the results of a qualitative study into the opinions of maternity care professionals, women, representatives of professional organizations, health care insurance companies and policy makers about integration of maternity care in the Netherlands.

In **chapter 6** shows the results of a Delphi study in the Netherlands in which opinions of maternity care professionals about integration of care during labour for "moderate risk" indications is examined.

To quantify the results of the Delphi study, **chapter 7** presents the opinions of professionals about integrating midwife- and obstetrician-led care in the Netherlands.

In the general discussion in **chapter 8**, I consider the results, interpret them in the light of developments of maternity care in the Netherlands and discuss implications for practice and future research.

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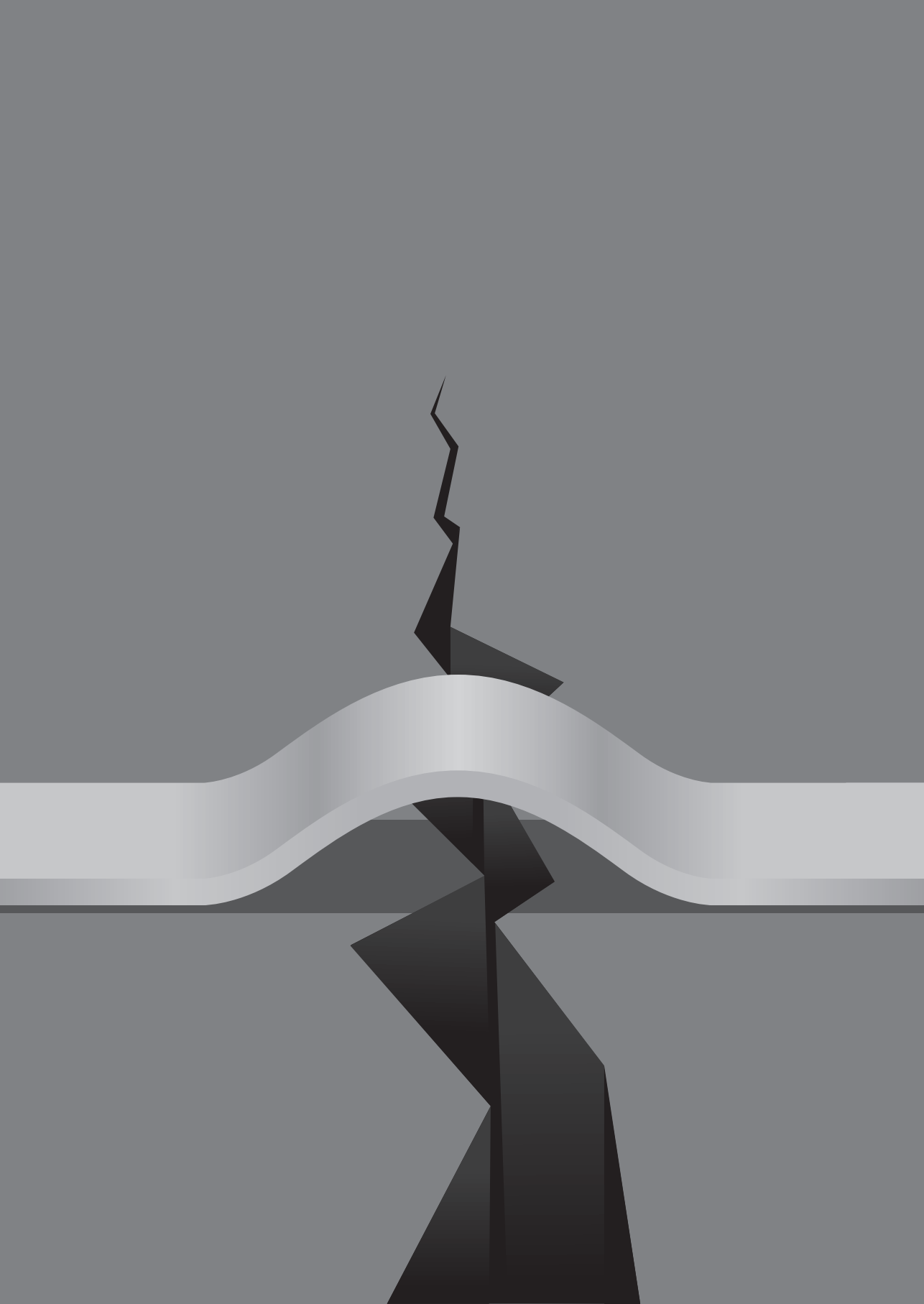

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Intrapartum Referral from Primary to Secondary Care in The Netherlands: A Retrospective Cohort Study on Management of Labor and Outcomes

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Abstract

Background In the Dutch maternity care system, primary care midwives provide care to low risk women and refer to obstetricians if risks or complications occur. We examined reasons for referral, management of labor and maternal and neonatal outcomes among women who were referred during labor.

Methods In a retrospective cohort study, descriptive analyses were performed on data obtained from patient records. Six purposively chosen hospitals in the Netherlands participated in the study from June 2011 to February 2012. The study population included 600 pregnant women who were referred during labor from primary to secondary care.

Main outcome measures Reasons for referral, interventions after referral, mode of delivery, and maternal and neonatal outcomes.

Results Of women who were referred during labor, three out of four women were referred for moderate risk indications: request for pain relief (30.5%), meconium stained liquor (25.3%), failure to progress during first stage of labor (14.0%) and prolonged ruptured membranes without contractions (12.5%). Of all women, 65.7% had a spontaneous vaginal delivery and 59.7% received some kind of pain relief. Acute referral, meaning fetal distress, occurred in 5.5%. Of the newborns 2.7% had an Apgar score of 7 or less after five minutes and 1.2% had an umbilical cord pH < 7.05. Postpartum complications occurred among 11.0% of women.

Conclusion Women who are referred during labor have a high probability of spontaneous vaginal delivery. To improve continuity of care and satisfaction for this group of women, management of labor could be continued by trained primary care midwives.

Introduction

In The Netherlands, independent primary care midwives provide care to pregnant women at low risk of complications who may choose to give birth either at home or in a hospital under the responsibility of a primary care midwife. The "List of Obstetric Indications" describes indications for consultation of or referral to an obstetrician[1]. Women classified as "high risk" are referred to obstetrician-led care in a hospital. Referral to an obstetrician can take place from the home situation as well as the hospital situation. Most hospitals employ clinical midwives who provide care to women with mixed risk profiles. They do not provide primary care. Clinical midwives are trained to perform fetal monitoring by using continuous electronic fetal heart rate monitoring (EFM) and to administer oxytocin for augmentation of labor[2]. In practice, care during labor for 40% of all women in secondary care is managed solely by clinical midwives[3]. Obstetricians are responsible for these women but will often only be involved if additional risks or problems such as fetal distress occur.

The number of referrals during labor from primary midwife-led care to secondary obstetrician-led care in the Netherlands has increased during the past years. The persisting rise in referrals during labor is mainly a result of more referrals for immediate but non-urgent reasons such as need for pain relief, failure to progress and meconium stained liquor. Non-urgent referrals during labor increased from 28.7 to 40.7 percent for nulliparous women in the period 2000-2008. For parous women this rate increased from 10.5 to 16.5 percent in the same period[4].

As a result, the referral system in the Netherlands leads to discontinuity of care during labor for a large number of women. There is increasing evidence that discontinuity of care during labor leads to less satisfaction among women[5,6], increased rates of interventions[7] and some have warned that it may lead to unsafe situations[8]. Primary care midwives in other Western countries often have a broader scope of practice and continue to provide care if moderate risk factors occur, such as need for pain relief or meconium stained liquor[9,10].

Integrating primary and secondary care in the Netherlands might increase continuity of care. In our definition, integration of care means a close collaboration between primary and secondary care professionals during labor whereby primary care midwives continue to provide care to women with a "moderate risk" indication[11]. However, if most women with moderate risks develop complications after referral, they would still need care from an obstetrician. Therefore, it is of interest to gain insight into outcomes of women referred during labor. This information is also relevant for other Western countries that look at the Dutch maternity care system as an example when changing their own system[12]. In the "INtegrated CAre System" project (INCAS), facilitating and inhibiting factors for integration of care were examined[11]. In this study, which is the second of four sub studies of the INCAS project, we explored reasons for referral, management of labor and maternal and neonatal outcomes among women who started labor in primary care and who were referred to secondary care during labor.

Methods

Study design

Data from 600 patient records (case-notes) were collected retrospectively from six purposively chosen hospitals in the Netherlands from June 2011 till February 2012. The patient records were examined in the individual hospitals as records from the national data base did not include all information needed. To be as representative as possible, hospitals were selected by the project group from different regions in the country including one academic, two teaching and three non-teaching hospitals.

In each hospital the 100 most recent referrals from primary to secondary care during labor were included. In the Netherlands, 26% of hospitals[91/351] have an obstetric care unit, and nearly 45% of these are teaching hospitals[40/91]. Data that were not individually identifiable were extracted from patient notes by research midwives and obstetric nurses. The results were analysed anonymously. Protocols with the indications for consultation and referral to a pediatrician were collected from the six participating hospitals.

Research population

Women at term (between 37 and 42 weeks' gestation) receiving primary care were included if they had been referred to secondary care during labor before birth, to one of the six participating hospitals. Onset of labor in our study was defined as ruptured membranes (with or without contractions) or contractions occurring at least every five minutes.

Definition of variables

Reasons for referral were put into seven main categories (pain relief, meconium stained liquor, prolonged first and second stage, prolonged rupture of membranes, fetal distress and other).

To classify women with more than one referral indication, a decision-tree was made to allocate them to the group with the most urgent indication. The decision tree was based on previous research[13] and clinical experience of the project group and took into account the emergency of an indication. The urgency was ranked as follows (from most urgent to least urgent): fetal distress, prolonged second stage, meconium stained amniotic liquor, prolonged rupture of membranes, prolonged first stage and pain relief. Fetal distress in combination with any other referral indication was classified as fetal distress, prolonged second stage in combination with meconium was classified as prolonged second stage, meconium stained amniotic fluid in combination with failure to progress in the first stage of labor was classified as meconium stained amniotic fluid and pain relief in combination with any other referral indication was classified as the other indication.

Data were collected on parity, reasons for referral, stage of referral (differentiating between nulliparous and parous women), fetal monitoring (EFM or ST-analysis (fetal electrocardiographic ST segment analysis)), fetal scalp blood sampling, type of interventions after

referral including the professionals who performed them, mode of delivery (spontaneous, vacuum extraction, forceps extraction or cesarean section), time between referral and delivery, day of referral (weekdays/weekend days), neonatal and maternal complications postpartum and the number of and reasons for consultation and/or referral to a pediatrician.

The stage of referral was coded as ruptured membranes without contractions, contractions and cervical dilatation ≤3 cm, first stage (contractions and dilatation ≥ 4cm), not further specified or second stage. The types of intervention were pain relief, augmentation (which included induction of labor after prolonged ruptured membranes), the use of antibiotics and operative delivery.

Neonatal outcomes were categorised as an Apgar score of 7 or less after five minutes, umbilical cord PH <7.05, Base Excess ≤-12 and other complications. Maternal complications were classified as postpartum haemorrhage, manual removal of the placenta, anal sphincter damage (third and forth degree tear) and other complications. In the List of Obstetric Indications for referral in the Netherlands, postpartum haemorrhage is classified as blood loss over 1000mL[1]. We therefor used postpartum haemorrhage > 1000mL.

Analysis

The data were analysed in SPSS® version 19.0 (SPSS, Inc., Chicago, IL, USA). Descriptive statistics were used to gain insight into reasons for referral during labor, medical interventions after referral and maternal and neonatal outcomes.

No identifiable information was available for the researchers who analysed the data.

The ethical committee of VU University Medical Center Amsterdam, the Netherlands ap-proved the study (reference 2011/252).

Results

Of the 600 women referred from primary to secondary care during labor, 71 percent were nulliparous and 29 percent were parous women. Most women were referred with contractions and a cervical dilatation of at least three centimetres (44.2%). Two-third of women (66.7%) were referred from home while 16.7 percent of the women were already in hospital at the time of referral.

For 16,7 percent the location at the time of referral was unknown. When referrals were analyzed by day of the week, we found an average of 88.8 referrals per day on weekdays and 78.0 on weekends, however this difference was not statistically significant. When analyzed by time of day, there were an average of 26.8 referrals per hour during the daytime and 23.1 during the evening/nighttime; this difference was not statistically significant either. (Table 1).

The most frequent reason for referral was request for pain relief (30.5%) followed by meconium stained liquor (25.3%), failure to progress during first stage (14%), prolonged rupture of membranes (12.5%), failure to progress in second stage (9.5%) and suspected fetal distress (5.5%) (Table 2).

The median time between referral and actual delivery was four hours and 40 minutes, with the longest median time interval occurring in the prolonged ruptured membranes group (nine hours and two minutes) and the shortest interval in the group with a prolonged second stage (39 minutes) (data not shown).

Nearly 60% of the women included in this study received some kind of pain relief (Table 2). The most common type of pain relief was epidural analgesia (36.7%), followed by intravenous remiphentanyl (20%) and intramuscular pethidine (7.2%). There were 25 women (4.2%) receiving two types of pain relief.

After referral, EFM was used among 88 percent of all women (Table 2). In 64 percent of cases labor was augmented. Fetal scalp blood sampling or ST-analysis was used among 13.8 percent of women. Of all women who were referred for prolonged ruptured membranes 29.3 percent received antibiotics.

Table 3 shows that 34.3 percent of women had an operative delivery (cesarean section, vacuum extraction or forceps delivery). Women who were referred because of prolonged second stage or fetal distress had the highest rates of operative deliveries (57.8% and 51.5%). The most common reasons for an operative delivery were fetal distress (43.6%) and failure to progress in second stage (42.7%). Of the referrals during labor 63% resulted in a spontanous vaginal delivery without EFM or ST-analysis. (data not shown).

The highest rate of cesarean sections was among women referred for meconium stained amniotic fluid (13.8%) and failure to progress in the first stage (14.3%).

Table 1. Place at the time of referral, stage of referral and hour and day of referral for nulli- and parous women. The Netherlands, 2011-2012.

	Nulliparous n (%)	Parous n (%)	Total n (%)
Total number of referrals	426 (71)	174 (29)	600 (100)
Referred from [§]			
Home	290 (68.0)	110 (63.2)	400 (66.7)
Hospital	66 (15.5)	34 (19.5)	100 (16.7)
Birth centre	1 (0.2)	0 (0)	1 (0.2)
Other	5 (1.2)	4 (2.3)	9 (1.5)
Unknown	64 (15.0)	26 (14.9)	90 (15.0)
Referral to [§]			
Teaching hospital	216 (50.7)	84 (48.3)	300 (50.0)
Non-teaching hospital	210 (49.3)	90 (51.7)	300 (50.0)
Referral to[¥]			
Academic hospital	80 (18.8)	20 (11.5)	100 (16.7)
Peripheral hospital	346 (81.2)	154 (88.5)	500 (83.3)
Stage of referral[¥]			
Ruptured membranes, no contractions	76 (17.8)	31(17.8)	107 (17.8)
Contractions + dilatation ≤3 cm			
Contraction + dilatation ≥ 4cm	104 (24.4)	30 (17.2)	134 (22.3)
Not further specified	170 (39.9)	95 (54.6)	265 (44.2)
Second stage	11 (2.6)	5 (2.9)	16 (2.7)
	65 (15.3)	13 (7.5)	78 (13.0)
Hour of referral [§]			
Daytime*	190 (45.2)	78 (45.3)	268 (44.7)
Evening and nighttime**	230 (54.8)	94 (54.7)	324 (54.0)
Missing data	6 (1.4)	2 (1.1)	8 (1.3)
Day of referral [§]			
Weekday	312 (73.2)	132 (75.9)	444 (74.0)
Weekend	114 (26.8)	42 (24.1)	156 (26.0)

Differences between nulliparous and parous women: [¥] P < 0.05, [§] = not significant

** daytime: from 8.00 till 18.00 hour*

*** evening and night time: from 6 P.M.-8 A.M.*

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Table 2. Monitoring and interventions per referral indication. The Netherlands, 2011-2012.

Referral indication	Number of referrals	EFM
	n	n (%)
Pain relief only	**183**	**158 (86.3)**
Missing value		6
Meconium only	137	113
Meconium and pain relief	11	11
Meconium and prolonged 1st stage	4	4
Total meconium	**152**	**128 (84.2)**
Missing value		6
Prolonged 1st stage only	49	45
Prolonged 1st stage and pain relief	35	33
Total prolonged 1st stage	**84**	**78 (92.9)**
Missing value		1
Prolonged rupture membranes only	70	69
Prolonged rupture of membranes and pain relief	3	3
Prolonged rupture of membranes and prolonged 1st stage	2	2
Total prolonged rupture membranes	**75**	**74 (98.7)**
Prolonged 2nd stage only	53	45
Prolonged 2nd stage and meconium	4	2
Total prolonged 2nd stage	**57**	**47 (82.5)**
Missing value		1
Fetal distress only	24	22
Fetal distress and prolonged 1st stage	3	2
Fetal distress and meconium	3	2
Fetal distress and prolonged 2nd stage	3	2
Total fetal distress	**33**	**28 (84.8)**
Other reason referral	**16**	**14 (87.5)**
Total	**600**	**527 (87.8)**
Missing value		**14 (2,3)**

A woman can have more than one intervention. Rows are not mutually exclusive

** Augmentation of labor included induction of labor after prolonged ruptured membranes*

EFM = electronic fetal heart rate monitoring; FBS = fetal scalp blood sampling;

ST-analysis = fetal electrocardiographic ST segment analysis

	FBS or ST-analysis n (%)	Augmentation of labor* n (%)	Antibiotics n(%)	Pain relief total n (%)
	37 (20.2)	**121 (66.1)**	**14 (7.6)**	**179 (97.8)**
	13	57	4	47
	3	7	0	9
	0	3	0	2
	16 (10.5)	**67 (44.1)**	**4 (2.6)**	**58 (38.2)**
	5	43	1	31
	7	32	1	32
	12 (14.3)	**75 (89.3)**	**2 (2.4)**	**63 (75.0)**
	6	61	20	44
	0	3	1	3
	0	2	1	0
	6 (8,0)	**66 (88.0)**	**22 (29.3)**	**47 (62.7)**
	1	33	0	0
	0	1	0	0
	1 (1.6)	**34 (59.6)**	**0**	**0**
	5	5	0	1
	1	2		1
	1	0		0
	0	0		0
	7 (21.2)	7 (21.2)		2 (6.1)
	4 (25.0)	**13 (81.2)**	**5 (31.2)**	**9 (56.3)**
	83 (13.8)	**383 (63.8)**	**47 (7.8)**	**358 (59.7)**

Table 3. Mode of delivery per referral indication. The Netherlands, 2011-2012.

Referral indication	Number of referrals	Spontaneous vaginal delivery	Operative delivery*	Vacuum or forceps extraction	Cesarean section
	n	n (%)	n (%)	n (%)	n (%)
Pain relief only	183	127 (69.4)	56 (30.6)	39 (21.3)	20 (10.9)
Total meconium	152	112 (73.7)	40 (26.3)	21(13.8)	21(13.8)
Total prolonged 1st stage	84	49 (58.3)	35 (41.7)	23 (27.4)	12 (14.3)
Total prolonged rupture membranes	75	55 (73.3)	20 (26.7)	14 (18.7)	7 (9.3)
Total prolonged 2nd stage	57	24 (42,1)	33 (57,8)	32 (56,1)	3(5,3)
Total fetal distress	33	16 (48.5)	17 (51.5)	15 (45.5)	3 (9.1)
Other reasons referral	16	11 (68.8)	5 (31.2)	2 (12.5)	3 (18.8)
Total	600	394 (65.7)	206 (34.3)	146 (24.3)	69 (11.5)

Nine women had a cesarean delivery after an instrumental delivery that was not successful

* Operative delivery: vacuum or forceps extraction or cesarean delivery

Table 4. Maternal and neonatal complications per referral indication. The Netherlands, 2011-2012.

Referral indication	Number of referrals	Women with a complication*	PPH >1000 mL
Total	n	n (%)	n (%)
Pain relief only	183	20 (10.9)	10 (5.5)
Total meconium**	152	17 (11.2)	12 (7.9)
Total prolonged 1st stage	84	9	6 (7.1)
Total prolonged rupture membranes	75	7 (9.3)	6 (8)
Total prolonged 2nd stage	57	8 (14.0)	3(5.3)
Total fetal distress	33	3 (9.1)	3 (9.1)
Other reasons referral	16	3 (18.8)	2 (12.5)
Total	600	67 (11.2)	42 (7)

*A women can have more than one complication. * Maternal complication: haemorrhage of more than 1000mL, manual removal of the placenta and anal sphincter damage (third and forth degree tear). **One newborn had meconium aspiration. PPH=postpartum haemorrhage; AS 5 ≤ 7= Apgar score of 7 or less at five minutes*

	Manual removal of placenta	Anal sphincter damage	AS 5 ≤ 7	PH<7,05	BE < -12
	n (%)	n (%)	n(%)	n(%)	n(%)
	10 (5.5)	6 (3.3)	5 (2.7)	1 (0.5)	6 (3.3)
	6 (3.9)	3 (2.0)	5 (3.3)	3 (2.0)	5 (3.3)
	3 (3.6)	1 (1.2)	1 (1.2)	1 (1.2)	4 (4.8)
	3 (4.0)	1 (1.3)	1(1.3)	0	2 (2.6)
	2 (3.5)	5 (8.8)	3 (5.3)	1 (1.8)	1 (1.8)
	0	0	0	1 (3.0)	2 (6.1)
	3 (18.8)	0	1 (6.3)	0	1 (6.3)
	27 (4.5)	16 (2.7)	16 (2.7)	7 (1.2)	21 (3.5)

Table 5. Interventions, mode of delivery and referral to pediatrician in the 6 hospitals. The Netherlands, 2011-2012.

	Hospital 1 n=100	Hospital 2 n=100	Hospital 3 n=100	Hospital 4 n=100	Hospital 5 n=100	Hospital 6 n=100	Total of 600 women n (%)
Augmentation of labor*	68	65	66	63	61	60	383 (63.8)
Pain relief total	58	62	69	52	44	73	358 (59.7)
Epidural	17	53	58	9	30	73	220 (36.7)
Ceserian section	12	19	7	8	11	12	69 (11.5)
Instrumental delivery without cesarian section	25	28	14	30	29	20	146 (24.3)
Consultation pediatrician	69	26	73	48	20	63	299 (49.8)
Referral to pediatrician	9	5	13	5	13	62	107 (17.8)

** Augmentation included induction of labor after prolonged ruptured membranes*

Postpartum complications (haemorrhage of more than 1000mL, manual removal of the placenta and anal sphincter damage) occurred among 11.2 percent of the women (Table 4). The incidence of postpartum haemorrhage of more than 1000mL was 7.0 percent and of these women, 1.5 percent had a haemorrhage of more than 2000 mL (data not shown). Manual removal of the placenta occurred among 4.5 percent of women and 2.7 percent had a third degree perineal tear. There were no women with a fourth degree perineal tear.

Of all neonates, 2.7 percent (n=16) had an Apgar score of seven or lower after five minutes, 22.2 percent had an umbilical cord pH <7.2, 1.2 percent (n=7) <7.05 and 3.5 percent (n=21) of neonates had a Base Excess of -12 or lower (Table 4). None of the infants were ventilated, there were no admissions to neonatal intensive care unit or high intensive care and there were no perinatal deaths.

The number of consultations by a pediatrician varied between the six hospitals from 20 to 73 percent and the number of referrals to a pediatrician varied from 5 to 62 percent (Table 5). Of all neonates born, 1 percent (n=6) was referred to a pediatrician for asphyxia, 3 percent (n=18) for (possible) infection and 12 percent (n=72) for the purpose of observation only (data not shown).

The number of interventions varied between the hospitals. The epidural rate differed from 9 to 73 percent and the cesarian section rate from 7 to 19 percent.

Discussion

This study shows that most women who were referred during labor from primary midwife-led care to secondary obstetrician-led care had a spontaneous vaginal delivery and most neonates were born in good condition. The main reason for referral during labor was a request for pain relief followed by meconium stained liquor.

The majority of referred women had continuous EFM (87.8%), pain relief (59.7%), augmentation of labor (which included induction of labor after prolonged ruptured membranes) (63.8%). The number of neonatal complications was low with only 2.7% of the neonates having an Apgar score of 7 or less after five minutes. There were no perinatal deaths.

The strength of this study is that the data were collected from a varied sample of hospitals covering all regions in the Netherlands, including teaching/ non-teaching hospitals and academic/ peripheral hospitals. In addition, data were collected directly from case notes rather than from routinely registered data resulting in more reliable data. Our study, using patient records, gives more detailed and accurate information compared to many other studies using national data.

A limitation of the study is that hospitals were not randomly selected. This may have resulted in some selection bias. Onset of labor in our study was defined as ruptured membranes (with or without contractions) or contractions occurring at least every five minutes. The project group chose this classification as it is in accordance with the List of Obstetric Indications for referral in the Netherlands[1]. Referral from primary care to secondary care is required after 24 hours of ruptured membranes without contractions and is defined as referral during labor. Internationally, ruptured membranes without contractions is often not considered to be the onset of labor. The differences in definition of onset of labor influence the comparability of referral rates between countries.

Consistent with the major reasons for referral in the Birthplace study[14], most referrals in our study were for immediate but non-urgent reasons (pain relief, meconium stained liquor and failure to progress during labor). Pain relief accounted for nearly a third of all referrals.

Current literature suggests that there is a growing demand for pain relief[15,16], possibly due to a change in professional attitude and a growing request among women[4]. Since primary care midwives are not licensed to administer any form of medical pain relief at present, this growing demand leads to a rise in the number of referrals. Water immersion as pain relief is not common in the Netherlands[17]. Most primary care midwifery practices do not use water immersion as pain relief and only few hospitals have this possibility. If water immersion would be used more frequently, this could possibly lower the rate of referrals.

In our study nearly half of the referrals for failure to progress during labor had request for pain relief as a second referral indication. In 2008, a national guideline on

medical pain relief was published which stated that women's request should be reason enough to offer pain medication[16]. Prior to this guideline, attitudes of professionals and women regarding medical pain relief were already changing which may have resulted in a rise in referrals for pain relief.

In The Netherlands, no distinction is made between thin and thick meconium stained liquor. Meconium stained liquor is a reason to refer from primary to secondary care[1]. In our study, meconium stained liquor accounted for a quarter of all referrals. Referrals for meconium stained liquor are on the increase, which may partly be due to the growing number of women from ethnic minority groups who have higher rates of meconium stained liquor[15].

Only 5.5 percent of referrals in our study were urgent because of fetal distress. Amelink et al. found 2.1 percent urgent referrals during the first and second stage of labor but this was among all women who started labor in primary care and not just among those who were referred[13].

Previous Dutch research showed that women are less satisfied with their birth experience if they have been referred from primary to secondary care during labor[18] and that they give higher scores to their quality of care if they give birth in primary care and are assisted by their own midwife[6]. In The Netherlands all women who are referred to obstetrician-led care are considered "high risk". However, this study shows that most referrals result in spontaneous vaginal deliveries with good maternal and neonatal outcomes and that reasons for most referrals during the first and second stage of labor could be classified as 'moderate risk' indications. We suggest that primary care midwives should be enabled to give continuity of care to a larger group of women, provided they acquire additional skills such as interpretation of EFM traces and administration of the different forms of medical pain relief as well as oxytocin when augmentation of labor is required. This is supported by a recent Cochrane review, which has shown that women are more satisfied when they receive continuity of (midwife-led) care[7].

Recent research shows that primary care midwives are willing to expand their tasks for certain "moderate risk" indications[11]. To maintain good medical outcomes, it is important that midwives are trained in additional skills and that appropriate changes are made to the organization of care and midwives' legal scope of practice. Midwifery academies in The Netherlands are currently working on incorporating additional skills into the curriculum of the initial education of midwives.

For low risk women in primary care at the start of labor, the national rate of cesarean section is 10.8 percent[19]. For women who are referred from primary to secondary care during labor, our study showed a cesarean section rate of 11.5 percent. The rate of spontaneous vaginal birth remained high despite the high number of women requiring an intervention.

If primary care midwives would be given the opportunity to provide more continuity of care, their legal scope of practice needs to be expanded and the organisation of care

needs to be changed. Moreover, our figures show an average of six hours between referral and delivery. This shows that the workload of primary care midwives would increase considerably if they would provide continuity of care.

The number of consultations or referrals to the pediatrician differed strongly between the six hospitals included in the study. This can be explained by the difference between hospital protocols in indications for pediatric consultation or referral. Therefore, the differences in consultation or referral rate are unlikely to be the result of a difference in adverse neonatal outcomes and suggest that there is room for optimizing protocols for neonatal referral. The total number of women with pain relief did not differ much between hospitals. However, epidural rates varied between hospitals (9-53%) among referrals compared with a national epidural rate of 15.9 percent among all women[19]. This is probably this is due to local hospital protocols. Other reasons could be that rural women had fewer birth interventions, particularly epidural analgesia, than metropolitan women, possibly due to a lack of choice in maternity services or due to differences in women's expectations[20]. Literature also shows that women with higher education levels and higher income are more likely to use epidural analgesia. Women are less likely to use epidural analgesia if they are parous and have been seen by a midwife, family physician or nurse for prenatal and intrapartum care[21]. These factors may also explain the differences in epidural rate between the hospitals in our study.

In addition, the number of interventions such as augmentation of labor and the number of operative deliveries differed between the six hospitals. This is possibly this is due to the difference in involvement of midwives in the various hospitals, as research shows that employment of midwives may result in lower intervention rates[22].

Conclusion

Women who are referred during labor still have a high probability of an uncomplicated spontaneous vaginal delivery. To improve continuity of care and satisfaction for this group of women, management of labor should be continued by trained primary care midwives.

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Contribution to Authorship
HP, BWM, and AdJ designed the study. HP wrote the article and conducted the analyses. HP, SJ, CV, JD, BWM, and AJ contributed to the interpretation of the data. SJ, CV, JD, BWM, and AJ critically revised earlier drafts of the paper for important intellectual content and gave final approval of the version to be published.

Details of Ethics Approval
The ethical committee of VU University Medical Center confirmed that ethical approval was not necessary for this study (reference number 2011/252).

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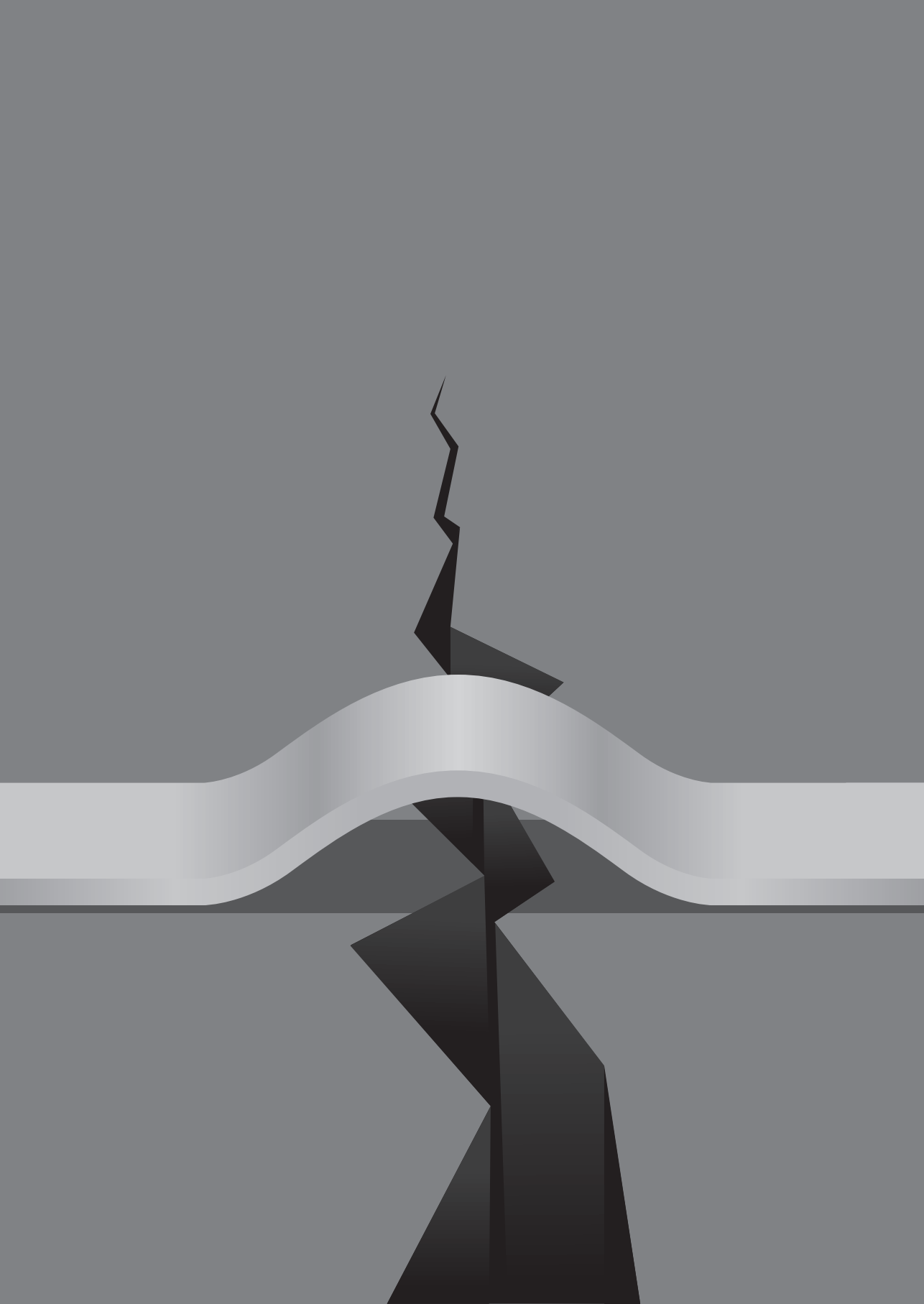

3

Continuity of care is an important and distinct aspect of childbirth experience: findings of a survey evaluating continuity, experienced quality of care and women's perception of labour

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Abstract

Background: To compare experienced continuity of care among women who received midwife-led versus obstetrician-led care. Secondly, to compare experienced continuity of care with a. experienced quality of care during labor and b. perception of labor.

Methods: We conducted a questionnaire survey in a region in the Netherlands in 2014 among 790 women after they gave birth. To measure experienced continuity of care, the Nijmegen Continuity Questionnaire was used. Quality of care during labor was measured with the Pregnancy and Childbirth Questionnaire, and to measure perception of labor we used the Childbirth Perception Scale.

Results: 325 women consented to participate (41%). Of these, 187 women completed the relevant questions in the online questionnaire. 136 (73%) women were in midwife-led care at the onset of labor, 15 (8%) were in obstetrician-led care throughout pregnancy and 36 (19%) were referred to obstetrician-led care during pregnancy. Experienced personal and team continuity of care during pregnancy were higher for women in midwife-led care compared to those in obstetrician-led care at the onset of labor. Experienced continuity of care was moderately correlated with experienced quality of care although not significantly so in all subgroups. A weak negative correlation was found between experienced personal continuity of care by the midwife and perception of labor.

Conclusion: This study suggests that experienced continuity of care depends on the care context and is significantly higher for women who are in midwife-led compared to obstetrician-led care during labor. It will be a challenge to maintain the high level of experienced continuity of care in an integrated maternity care system.
Experienced continuity of care seems to be a distinctive concept that should not be confused with experienced quality of care or perception of labor and should be considered as a complementary aspect of quality of care.

Key words Patient perspective, Birth, Labor, Childbirth experience, Continuity of care, Quality of care, Perception of care.

Background

Continuous support during labor from the same maternity caregiver has been associated with a positive childbirth experience[1,2]. This is referred to as "relational continuity" or personal continuity which supports trust and familiarity between care provider and the patient. Other dimensions of continuity of care are "information continuity" in which the care provider uses and exchanges information on past events to deliver care that is appropriate to the patient's current circumstances and "management continuity" in which the care providers connect their care in a coherent way[3].

Some studies suggest that personal continuity of care is related to fewer interventions such as the need for pain relief[4] and to feeling safer during labor[5]. Moreover, discontinuity of care (e.g. in case of referral to another care provider) could lead to unsafe situations due to more handovers and therefore loss of information[6], as well as inconsistency in advice and information from multiple caregivers.

Continuity of care is only one of the aspects, which can be measured when evaluating childbirth experience. Besides this, quality of care[7], satisfaction with care[8, 9] and perception of labor[10] are measured in studies evaluating childbirth experiences.

To measure quality of care, satisfaction scores are often used. Factors such as feeling supported[8, 11] care setting[12] and involvement in decision-making[8] have proven to be important for women's satisfaction with care. However, satisfaction scores as a measure of patient perceived quality have limitations because patients do not easily express dissatisfaction[13] and they are strongly colored by expectations and prior experiences[14]. Tools for measuring satisfaction with maternity care have not been rigorously tested[15]. Nonetheless, literature suggests that women who were referred (during labor and birth) from midwife- to obstetrician-led care, and are cared for by multiple care providers, experience less satisfaction with their care[4] or less quality of care[1] compared to women who have not been referred. This could indicate that more personal continuity of care is associated with satisfaction and experienced quality of care.

A positive perception of labor is of importance as psychological distress during labor can contribute to the development of postnatal stress[16] or posttraumatic stress disorder[17]. It is not clear whether personal continuity of care is associated with perception of labor.

In the Netherlands, women at low risk for complications start their antenatal care with a primary care midwife in a midwife-led care context. Women who develop a risk factor or a complication during pregnancy or labor, as listed in the national "List of Obstetric indications"[18], are referred to secondary, obstetrician-led care. The number of referrals from midwife-led care to obstetrician-led care during pregnancy is approximately 35% and

additionally, approximately 22% of women are referred during labor[19]. Most of the latter women are referred for a "moderate risk" indication such as the need for pain medication, failure to progress during the first stage of labor or meconium stained liquor[20]. Referral often means that new care providers (clinical midwives, obstetricians) take over care for these women, which leads to discontinuity of personal care as the primary care midwife is no longer involved in the care.

Currently, the Netherlands is in a transition regarding the organisation of maternity care moving from separate midwife- and obstetrician-led care towards a system of integrated care; care will be delivered by professionals from multiple disciplines and across care setting boundaries in close collaboration.

On one hand, integrated care could improve personal continuity of care if women have one case manager regardless of their level of risk[21]. On the other hand, personal continuity of care may be reduced as more professionals are routinely involved in the care process, Therefore, it is important to evaluate the effect of integrated care on continuity, quality of care and perception of labor from women's perspective.

To date, most studies limit their focus to either experienced continuity of care, experienced quality of care, satisfaction of care, or the perception of labor. We wanted to examine experienced continuity in relation to the level of care, and the associations between experienced continuity of care and other measures of childbirth experiences.

Therefore the aims of this study were:
- To compare experienced continuity of care during pregnancy and labor among women who were in midwife led versus obstetrician led care.
- To study the associations between experienced continuity of care and a. experienced quality of care during labor and b. perception of labor.

Methods

Study design
We conducted a survey among women having given birth in Leiden in the Netherlands in October 2014.

Participants
Women were eligible if they answered the relevant questions and care during their puerperium was provided by one of the ten primary care midwifery practices in the region of Leiden in the Netherlands in the period May till September 2014. Women with a primary caesarean section and women who gave birth to a child with a congenital abnormality were excluded.

Procedure
During home visits in the puerperium, primary care midwives asked all women for written consent to participate in this study. These women either had midwife-led care, obstetrician-led care or received care from both the primary care midwife and hospital staff during pregnancy or birth in case of referral. Usually, primary care midwives take care of postnatal care of all women after childbirth, irrespective of the place of birth. A link to the online questionnaire, using Survayzer Nederland BV, was sent by e-mail to those women who gave written consent. The period between giving birth and sending the questionnaire was no longer than six months. Non-responders received a reminder by e-mail after two weeks. Only non-identifiable information was available for the researchers who analyzed the data.

The study was submitted to the medical ethics committee of VU University Medical Center (reference number 2014/030). An ethical approval was not considered necessary according to the Dutch legislation[22].

Measurements
Women's experiences with care were measured with the Nijmegen Continuity Questionnaire (NCQ)[23], the validated Pregnancy and Childbirth Questionnaire (PCQ)[24] and the validated Childbirth Perception Scale (CPS)[25].

The NCQ[23] was used to assess experienced continuity of care. Originally, the NCQ questionnaire was developed for patients in general practice with a chronic disease, and the questionnaire has been adapted to maternity care. The NCQ is divided in three subscales measuring patients' experienced personal continuity/the care provider knows me (subscale one), experienced personal continuity/ the care provider shows commitment (subscale two), team continuity within the same care setting and cross-boundary continuity of care between care settings (subscale three). The NCQ consists of 28 items, which are scored on a five-point Likert scale ranging from totally disagree to totally agree.

A higher score indicates higher experienced continuity. The scores of the three subscales were calculated separately.

The PCQ[24] was used to assess the quality of obstetric care during labor as perceived by women. The PCQ is a 25-item scale, primarily based on the experiences and perceptions of pregnant women (18 items) and women who recently gave birth (7 items). In the PCQ questions are formulated in positive and negative statements, rated on a five point Likert scale, from totally agree[1] to totally disagree[5]. For this research only the seven items regarding labor were used. The total range of this subscale is 35 points and after recoding, higher scores indicate a higher quality of care during labor.

The CPS[25] was used to assess the perception of labor. The CPS is a 12-item scale divided in two subscales of six items representing perception of labor and perception of the first week postpartum. For this research only the subscale related to labor was used. Each item is a statement to be scored on a four-point Likert scale ranging from totally agree (0) to totally disagree (3). The total range of this subscale is 18 points in which higher scores indicate a less positive perception of labor. For this study the scores were reversed resulting in higher scores indicating a more positive perception of labor.

Statistical analyses

The data were analyzed using SPSS version 22.0[26].

The subscale scores were calculated as the mean of the item scores in each subscale. The subscale score was only calculated if all items were applicable for the subgroup of women. Participants with more than one missing value within a subscale were excluded. Differences between means of subscale scores were tested with the t-test. A P-value of ≤ 0.05 was considered statistically significant.

Spearman correlation analyses were used to assess the correlation between continuity of care and experienced quality of care during labor and perception of labor. Coefficients between 0 and 0.30 were defined as a weak correlation, from 0.30 to 0.50 as moderate, and 0.50 or higher, as a strong correlation. Multivariable linear regression analyses were performed to adjust for parity, which might be associated with the experienced continuity, quality of care or perception of care. For women who were referred during pregnancy, both the scores for the primary care midwife and hospital staff were calculated. Women in midwife-led care during pregnancy and at the onset of labor were taken as the reference group and were compared with the other groups.

The analyses were not corrected for mode of birth because of low numbers.

Results

Table 1 shows the women's personal and obstetric characteristics.
Of the 790 women who were asked to participate, 325 (41%) gave written informed consent and were invited to complete the online questionnaire. 195 of the 325 women who gave informed consent (60%), completed the online questionnaire. Eight women were excluded of whom six had a primary caesarean section and two gave birth to a child with a congenital abnormality.
Of all participants 41.7% were primiparous and 87.2% had a spontaneous vaginal birth. 36 (19.3%) women were referred during pregnancy and 37 (19.8%) women were referred during labor to obstetrician-led care. Of the 15 women in obstetrician led care from the onset of pregnancy 12 women had a spontaneous vaginal birth, 1 woman had an assisted vaginal birth and 2 women had an emergency caesarian section (data not shown).
Compared to all women who gave birth in 2014 in the whole region of Leiden our study population had a higher percentage of spontaneous vaginal births and home births (Table 1).

In Table 2 the mean scores for three subscales of the NCQ are presented. The Cronbach's Alpha values for women who were not referred during pregnancy successively for the three subscales were 0.81, 0.75 and 0.84 and for women who were referred during pregnancy 0.84, 0.74 and 0.83 respectively. Women who were in midwife-led care and who were not referred during their pregnancy had statistically significantly higher mean scores for continuity of care compared to those in obstetrician-led care in all subscales. Regression analyses adjusted for parity showed the same results.

Women who were referred during their pregnancy had similar mean scores for continuity of care by the midwife compared to women in midwife-led care who were not referred. Women who were referred during pregnancy had lower mean scores for continuity of care by hospital staff compared to women in midwife-led care who were not referred. However, not all differences were statistically significant.

The mean score for cross-boundary continuity of care of women referred during labor was higher compared to women referred during pregnancy (3.62 versus 3.38; difference not tested). (Additional Table I at end of Chapter 3). Regression analysis adjusted for parity showed similar result.

Table 3 shows the score of the PCQ with a Cronbach's Alpha of 0.87 and the score of the CPS with a Cronbach's Alpha of 0.75.
The results were similar for both scales: the score for women who were in midwife-led care was highest and women who were referred during pregnancy scored lowest but only the differences in CPS scores were statistically significant. (Additional Table II and III show this in more detail).

Table 1. Patients' characteristics and their obstetric features compared with regional data (all women who gave birth in the region in 2014) and national data including all births in the Netherlands in 2014.

Characteristics	Respondents n=187 n (%)	Regional data 2014 (n=3,085) %	National data PRN 2014 (n=175,215) %
DEMOGRAPHICS			
Age in years			
Mean [SD]	31.5 [4.1]	31	31 [4.9]
Educational level		-	-
Low	15 (8.0)		
Middle	52 (27.8)		
High	120 (64.2)		
Ethnicity			
Dutch	184 (98.4)	85	74
Other	3 (1.6)	15	26
OBSTETRIC FEATURES			
Parity			
Primiparous	78 (41.7)	44	45
Parous	109 (58.3)	56	55
Gestational age during birth in weeks			
median [range]	40 [35-42]	39	40
Mode of birth			
Vaginal spontaneous	163(87.2)	72	75
Vaginal assisted (vacuum/forceps)	17 (9.1)	10	9
Caesarean section, not primary	7 (3.7)	18	17
Location of birth			
Home	54 (28.9)	12	15
Midwife-led hospital	45 (24.1)	13	13
Obstetrician-led hospital	88 (47.0)	75	71
Care during pregnancy			
Midwife-led care	136 (72.7)	79*	86*
Obstetrician-led care	15 (8.0)	21	14
Referred during pregnancy	36 (19.3)	37	35
Care during labor			
Midwife-led care	99 (52.9)	42**	51**
Obstetrician-led care	51 (27.3)	58	49
Referred during labor	37 (19.8)	16	22

PRN data are national data. Regional data are Perined-insight LVR2 data.
In the regional and national comparison groups, women with a pre-labor caesarian section and who had a child with a major congenital abnormality could not be excluded.
**including women who were referred during pregnancy*
*** including women who were referred during labor*

Table 3. Experienced quality of care during labor measured with the Pregnancy and Childbirth Questionnaire and perception of labor measured with the Childbirth Perception Scale.

	Not referred during pregnancy (n=151)		Referred during pregnancy (n=36)
Total scale score	Midwife-led care at onset of labor mean (n=136)[¥]	Obstetrician-led care at onset of labor mean (n=15)	
a. PCQ	4.23	4.13 (p=0.55)	4.08 (p=0.22)
missing	3	3	1
b. CPS	2.30	**2.02 (p=0.04)**	**1.95 (p=<0.001)**
missing	3	0	0

Experienced quality of care during labor and perception of labor for women who received midwife-led care at onset of labor compared to a. obstetrician-led care, at onset of labor and b. women who were referred during pregnancy (scores of the PCQ and CPS; n=187 women)

a Mean score (after recoding) (1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree)

b Mean score (after recoding) (0=strongly disagree, 1=disagree, 2=agree, 3=strongly agree)

**P<0.05*

[¥] Reference category

Statistically significant results p<0.05 are in bold

Table 4 shows the association between experienced continuity of care and experienced quality of care during labor.

For personal continuity ("the care provider knows me"), a moderate correlation with quality of care was found for women in midwife-led care (r=0.40, p<0.001). For women who were referred during pregnancy a moderate correlation was found for the scores for hospital staff (r=0.47, p=0.009).

The second subscale on personal continuity ("the care provider shows commitment") showed a moderate correlation with quality of care for women in midwife-led care (r=0.41, p=0.025).

For team continuity a strong correlation with quality of care was found for women in midwife-led care (r=0.54, p<0.001). A moderate correlation with quality of care during labor was found in the referred group for the scores for hospital staff (r=0.41, p=0.025). Regression analyses adjusted for parity showed the same results.

Table 2. Experienced continuity of care by women measured with subscale scores of the Nijmegen Continuity Questionnaire.

	Not referred during pregnancy (n=151)
Total of the Subscale	Midwife-led care at onset of pregnancy and labor. Score primary care midwife ¥ mean (n=136)¥
SUBSCALE 1: PERSONAL CONTINUITY/ CARE PROVIDER KNOWS ME	
1. I know this care provider very well	3.71
2. This care provider knows my medical history very well	4.10
3. This care provider always remembers what he/she did during my last visit(s)	4.08
4. This care provider knows my family circumstances very well	3.77
5. This care provider knows very well what I do in my day-to-day life	3.53
Total subscale score	3.84
missing	6
SUBSCALE 2: PERSONAL CONTINUITY/ CARE PROVIDER SHOWS COMMITMENT	
This care provider contacts me when necessary without me having to ask him/her to do so	3.84
2. This care provider knows very well what I think is important when it comes to my care	3.93
3. This care provider maintains enough contact with me when I am seen by another care provider	n.a.
Total subscale	n.a.
missing	
SUBSCALE 3: TEAM CONTINUITY	
1. These care providers pass on information to each other very well	4.27
2. These care providers work together very well	4.36
3. The care given by these care providers is well-connected	4.33
4. These care providers always know very well what the other care providers have done	4.23
Total subscale score	4.29
missing	4
SUBSCALE 3B CROSS-BOUNDARY CONTINUITY	
missing	n.a.

Experienced care for women who received midwife-led care at onset of labor compared to a. obstetrician-led care, at onset of labor and b. care provided by primary care midwives and hospital staff for women who were referred during pregnancy. (Subscale scores of the NCQ: n=187 women)

Mean score (1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree)

		Referred during pregnancy (midwife-led care at onset of pregnancy and obstetrician-led care at onset of labor) (n=36)	
	Obstetrician-led care at onset of pregnancy and labor. Score hospital staff mean (n=15)	Score primary care midwife mean (n=36)	Score hospital staff mean (n=36)
	3.20	3.57	2.58
	3.93	3.91	3.34
	3.80	3.96	3.27
	3.13	3.77	2.60
	2.80	3.46	2.40
	3.37 (p=0.02)	3.73 (p=0.44)	**2.83 (p=<0.001)**
	0	1	6
	2.60	3.89	2.22
	3.13	3.83	2.39
	n.a.	4.03	2.70
	n.a.	3.94	2.42
		2	4
	3.67	4.11	3.25
	3.73	4.09	3.53
	3.67	4.17	3.59
	3.60	4.09	3.44
	3.67 (p=0.002)	4.11 (p=0.20)	**3.43 (p=<0.001)**
	0	1	6
	n.a.	3.38	
		4	

n.a. No score because one item is not applicable (see additional file)

¥ Reference category

Statistically significant results p<0.05 are in bold

Table 4. Correlation between experienced continuity of care measured with the Nijmegen Continuity Questionnaire and experienced quality of care during labor measured with the Pregnancy and Childbirth Questionnaire.

	NCQ Subscale 1: personal continuity/ care provider knows me		NCQ Subscale 2: Personal continuity/ care provider shows commitment		NCQ Subscale 3: Team/cross-boundary continuity	
		P value		P value		P value
Not referred						
Midwife-led care (n=136)	**0.40**	**<0.001**	**0.41**	**<0.001**	**0.54**	**<0.001**
Obstetrician-led care (n=15)	0.43	0.11	0.42	0.12	0.44	0.10
Referred						
Score hospital staff (n=36)	**0.47**	**0.009**	0.29	0.10	**0.41**	**0.025**

Spearman correlation between experienced continuity of care (NCQ) and experienced quality of care during labor (PCQ) for women who received midwife-led care at onset of labor, obstetrician-led care at onset of labor and care provided by hospital staff for women who were referred during pregnancy.
Statistically significant results p<0.05 are in bold

Table 5 shows the correlations between experienced continuity of care and women's perception of labor.

For subscale 1 regarding personal continuity ("the care provider knows me"), a weak negative correlation with perception of labor was found for women in midwife-led care (r=-0.21, p=0.016).

For the second scale of personal continuity ("the care provider shows commitment") a moderately negative correlation with perception of labor was found for midwife-led care (r=-0.31, p=0.002). For team continuity no significant correlations were found.

Table 5. Correlation between experienced continuity of care measured with the Nijmegen Continuity Questionnaire and women's perception of labor measured with the Childbirth Perception Scale.

	NCQ Subscale 1: personal continuity/ care provider knows me		NCQ Subscale 2: Personal continuity/ care provider shows commitment		NCQ Subscale 3: Team/cross-boundary continuity	
		P value		P value		P value
Not referred during pregnancy						
Midwife-led care (n=136)	**-0.21**	**0.016**	**-0.31**	**0.002**	-0.12	0.17
Obstetrician-led care (n=15)	-0.17	0.54	0.14	0.62	0.08	0.79
Referred during pregnancy						
Score hospital staff (n=36)	-0.19	0.31	0.06	0.75	-0.16	0.39

Spearman correlation between experienced continuity of care (NCQ) and women's perception of labor (CPS) for women who received midwife-led care at onset of labor, obstetrician-led care at onset of labor and care provided by hospital staff for women who were referred during pregnancy.
Statistically significant results p<0.05 are in bold

Discussion

The experienced personal and team continuity of care during pregnancy was significantly higher for women in midwife-led care compared to those in obstetrician-led care. Experienced continuity of care during pregnancy was moderately correlated with experienced quality of care although not significantly so in all subgroups A weak negative correlation was found between experienced personal continuity of care by the midwife and perception of labor.

The findings that the level of experienced personal continuity of care was higher among women in midwife-led versus obstetrician-led care is in line with the literature showing that continuity of care has been identified as a core component of a midwife-led care model[4]. Logically, women experience less cross boundary continuity if they are referred from primary to secondary care, as they will receive care from a new team of caregivers. However, our study did not show that women who were referred during pregnancy experienced less personal continuity of care from all professionals compared to women solely under obstetrician-led care. An explanation for this could be that in our study women in the hospital are attended by different caregivers (e.g. clinical midwife, nurse, resident and obstetrician).

The cross boundary continuity is higher if women are referred during labor compared to if they are referred during pregnancy. This may be related to the fact that in case of referral for certain indications such as failure to progress during the second stage and suspected fetal distress during labor, the midwife usually remains present during the entire labor.

It will be important to evaluate the effect of integrating midwife-led and obstetrician-led care on the different aspects of continuity of care.

A weak or no correlation was found between the experienced continuity of care during pregnancy and the perception of labor. These findings suggest that other aspects than continuity of care are important for women's perception of labor. This is in accordance with the literature[27], which shows that the patient perspective in maternity care is complex, and multidimensional. Unfortunately, scales measuring childbirth experience fail to capture this complexity[27].

Literature shows that continuity of care is important to women. Although Posthumus et al.[28] describe that in a model of shared care, continuity of care could be improved, we should also be aware that integration of midwife-led and obstetrician-led care could be at the expense of continuity of care for women. As more caregivers will be involved in an integrated care system this could lead to less experienced continuity of care for women. Working in small teams of caregivers, especially in hospitals could be of great benefit. This will be a great challenge, especially in hospitals in the Netherlands, as teams usually

include a large number of caregivers. Small teams in which women are seen by a minimum number of caregivers, could result in more continuity of care as well[21, 29].

A strength of this study is that a comparison could be made between the experienced continuity of care, the experienced quality of care and perception of labor because the same women completed all questionnaires.

Our study has some limitations as well: the response rate was low with nearly 25% of the eligible women taking part and the total number of women in obstetrician-led care was small. The percentage of women in midwife-led care in our sample was high, also compared to national data. Possibly midwives were more alert (or prone) to include women whom they had taken care of during their pregnancy. Also, this response bias could have impacted the results of this survey as literature shows a positive correlation between patient satisfaction and response rate[30]. If the response rate had been higher, the scores for experienced continuity, satisfaction and birth experience might therefore have been different. In addition, patients do not easily express dissatisfaction[13], which could have led to an overrepresentation of positive experiences in our results, in particular about primary care midwives. Furthermore, the NCQ[23] was developed for patients with a chronic disease in general practice whereas we used it to measure experienced continuity of care during pregnancy. As we are not certain whether our population scores the same on the NCQ, we recommend validation of the NCQ for women in perinatal care in future research. Although it is possible that part of the variation can be explained by clustering of respondents in midwifery practices, multi-level analyses were not performed because the number of respondents per practice was not sufficient for meaningful analyses. For the same reason, we did not adjust for complications because of the small size of groups. This could have resulted in higher scores for obstetrician-led care.

The questionnaires we used varied from general questions (NCQ) regarding pregnancy and labor to specific questions with regards to labor (CPS and PCQ). Therefore, they are not fully comparable.

Finally, the time between giving birth and completing the questionnaire varied from one to six months. As women's perceptions of their experience of birth changes over time, this could have influenced our results. Women who filled in the questionnaire soon after birth might have been more positive about their care compared to those who filled it in after several months[31].

Conclusion

This study suggests that experienced continuity of care depends on the care context because scores were higher for midwife-led care compared to obstetrician-led care. It will be a challenge to maintain the high level of experienced continuity of care in an integrated maternity care system. Experienced continuity of care and experienced quality of care during labor were only associated for women who were not referred during pregnancy. Experienced continuity of care seems to be a distinctive concept that should not be confused with experienced quality of care or perception of labor and should be considered as a complementary aspect of quality of care.

Ethics approval and consent to participate
The study was submitted to the medical ethics committee of VU University Medical Center (reference number 2014/030). An ethical approval was not considered necessary according to the Dutch legislation.

Consent for publication
Not applicable

Availability of data and materials
Not applicable

Competing interests
The authors declare that they have no competing interests.

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Author's contributions
HP, CV, JvD, FS and AdJ designed the study. HP and KH collected the data. HP, CV, JC and AdJ performed the analyses. HP drafted the article. CV, JvD, TJS, KH, JC FS, and AdJ revised the article critically. All authors read and approved the final manuscript.

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Supplementary Tables

Additional Table I. Cross-boundary continuity

Subscale 3: Cross-boundary continuity	Referred during pregnancy (n=36)	Referred during labor (n=37)
1. These care providers pass on information to each other very well	3.41	3.68
2. These care providers work together very well	3.36	3.74
3. The care given by these care providers is well-connected	3.44	3.67
4. These care providers always know very well what the other care providers have done	3.31	3.39
Total subscale score	3.38	3.62
missing	4	4

Mean score (1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree)

Additional Table II. Item means and total scale score of the Pregnancy and Childbirth Questionnaire.

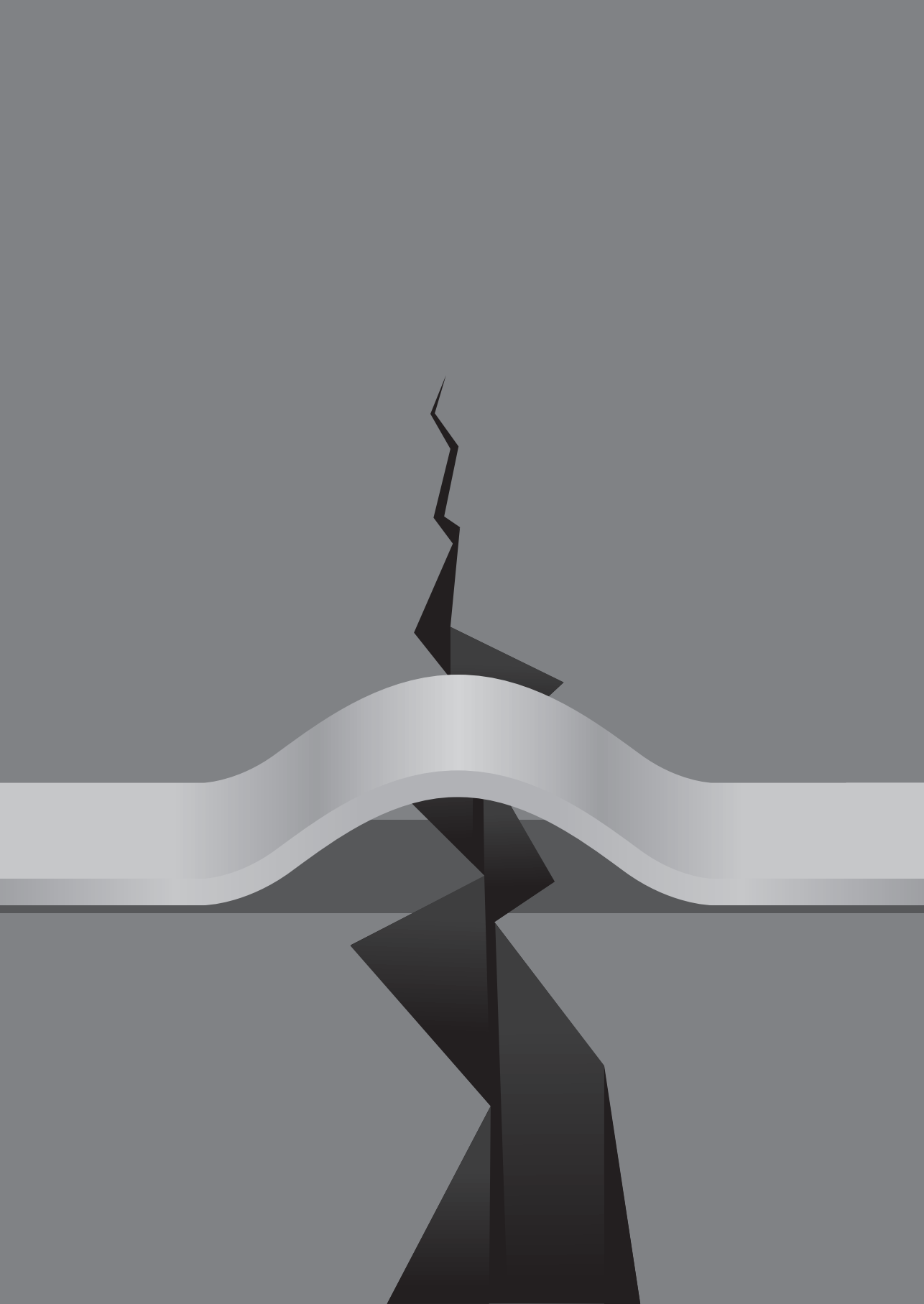
	Not referred during pregnancy (n=151)		**Referred during pregnancy (n=36)**
	Midwife-led care at onset of pregnancy and labor. Score primary care midwife	Obstetrician-led care at onset of pregnancy and labor. Score hospital staff	
	mean (n=136)	mean (n=15)	mean (n=36)
Keeping informed on the progress of birth	4.32	4.33	4.06
Paid attention to partner during delivery	4.27	3.87	4.17
Being aware of preferences and wishes	4.14	3.87	3.94
Good communication with professionals during delivery	4.41	4.33	4.20
Communication between professionals	4.29	4.27	4.14
Clear who is in charge of care during delivery	4.34	4.40	4.09
Involved in decision making regarding analgesia	3.86	3.87	4.00
Total scale score	4.23	4.13	4.08
missing	3	3	1

Mean score (1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree)

Additional Table III. Item means and total subscale score of the Childbirth Perception Scale.

	Not referred during pregnancy (n=151)		Referred during pregnancy (n=36)
	Midwife-led care at onset of pregnancy and labor. Score primary care midwife	Obstetrician-led care at onset of pregnancy and labor. Score hospital staff	
	mean (n=136)	mean (n=15)	mean (n=36)
My labor was worse than I expected*	0.57	1.13	1.22
I felt safe during my labor	2.19	2.0	2.03
When I was in labor I did many things wrong*	0.38	0.53	0.64
When I was in labor I doubted whether I would be able to do it*	0.79	1.27	1.11
I panicked during my labor*	0.65	0.67	0.75
I was able to relax during my labor	1.98	1.73	1.39
Total subscale score	2.30	2.02	1.95
missing	3	0	0

Mean score (0=strongly disagree, 1=disagree, 2=agree, 3=strongly agree) * for analysis the scores for negative stated CPS questions were reversed.



4

Experienced job autonomy among maternity care professionals in The Netherlands

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Abstract

Objective High levels of experienced job autonomy are found to be beneficial for health-care professionals and for the relationship with their patients. The aim of this study was to assess how maternity care professionals in the Netherlands perceive their job autonomy in the Dutch maternity care system and whether they expect a new system of integrated maternity care to affect their experienced job autonomy.

Design A cross-sectional survey. The Leiden Quality of Work Life Questionnaire was used to assess experienced job autonomy among maternity care professionals.

Setting Data were collected in the Netherlands in 2015.

Participants 799 professionals participated of whom 362 were primary care midwives, 240 obstetricians, 93 clinical midwives and 104 obstetric nurses.

Findings The mean score for experienced job autonomy was highest for primary care midwives, followed by obstetricians, clinical midwives and obstetric nurses. Primary care midwives scored highest in expecting to lose their job autonomy in an integrated care system.

Key conclusions There are significant differences in experienced job autonomy between maternity care professionals.

Implications for practice When changing the maternity care system it will be a challenge to maintain a high level of experienced job autonomy for professionals. A decrease in job autonomy could lead to a reduction in job related wellbeing and in satisfaction with care among pregnant women.

Keywords Maternity care professional, Job autonomy, Integrated care, Obstetrics, Midwifery

Introduction

Job related wellbeing and satisfaction is of importance both for maternity care professionals and for the women they take care of. Job autonomy, defined as the degree of control a worker has over his or her own immediate scheduling and tasks,[1] is one of the conditions that influence job related wellbeing and satisfaction.[2] In various professional groups a linear relationship was found between experienced job autonomy and job satisfaction.[2, 3, 4, 5] Job autonomy is of high importance as it protects healthcare professionals against somatic complaints, psychological distress in their work, and burnout.[6]

Besides the positive effects for the maternity care professional, a high level of job autonomy is shown to have a positive effect on the empowerment of women and has a positive influence on the professional-patient relationship.[7] This can be clarified by the correlation between job-autonomy, job related stress and satisfaction of professionals, with patient satisfaction and quality of care.[8]

Maternity care services are shifting the focus of care from the professional and organisational interests to the interests of women and their family.[9] Organisational changes and job uncertainty can influence job conditions such as job autonomy.[10] As the Netherlands is in the process of changing the maternity care system, this may influence the level of experienced job autonomy of professionals. Shifting towards a system of integrated care provided by professionals from multiple disciplines, will result in professionals working together in taking care of women. This might possibly influence autonomous decision making of both midwives and obstetricians in the Netherlands.

Similar to midwifery care in countries such as Canada[11] and New Zealand,[12] the current maternity care system in the Netherlands is characterised by risk-selection. However, in contrast to these countries, in the Netherlands different professionals provide segmented perinatal maternity care. Primary care midwives in the Netherlands are independent practitioners with a legally defined sphere of practice and work in a community setting.[13] Primary care midwives are responsible for risk selection and autonomously provide care to women at low risk for complications during pregnancy, labour and in the post-partum period. Women at low risk for complications can choose to give birth either at home, in a hospital or in a birth centre. At the onset of antenatal care 86% of all women in the Netherlands receive midwife-led care.[14,15] During pregnancy and labour, women at increased risk or with a complication are referred to secondary, obstetrician-led care in a hospital setting. In this setting women are assisted by obstetricians, residents, clinical midwives (midwives who work in a hospital setting) and obstetric nurses. At the onset of labour 51% of all women are in midwife-led care and approximately 29% of all births eventually take place in primary midwife-led care.[15]

Due to supposed relatively high perinatal mortality rates in the Netherlands[16] the Dutch maternity care system has become the subject of debate. It has been suggested that closer collaboration between primary and secondary care would lead to better quality of care and fewer perinatal deaths.[17] Some argued that reorganising maternity care

and combining primary and secondary care into one system might result in better outcomes.[18,19] Others have pleaded for experimenting with different types of organisation of care and evaluating these experiments before changing the system.[20] However, although professional organisations of both obstetricians and midwives are positive regarding the integration of maternity care, and a guideline for integrated care has been published,[14] opinions differ with regard to the optimal organisational structure.[21] A complicating factor is that historically there have been tensions between midwives and obstetricians in the Netherlands due to a power imbalance, which still plays a role now. According to van der Lee et al., the establishment of professional boundaries has undermined effective teamwork and inter-professional collaboration.[22] This has led, in some cases to midwives and obstetricians not perceiving themselves as equals within the team.[23]

Integrated care is expected to lead to a shift in professionals' tasks and responsibilities and more professionals taking care of women, which could affect experienced job autonomy.[19] For a successful implementation of integrated maternity care, it is of importance that the autonomy of different professionals within the team is maintained.[24] To evaluate the effect of new models in the maternity care system it is vital to measure experienced job autonomy in the current system. The findings are also relevant to other countries that are in the process of changing their maternity care system.

The aims of this study were to assess how maternity care professionals in the Netherlands perceive their job autonomy and whether professionals expect to lose job autonomy in a system of integrated maternity care.

Methods

Data were used from a broad survey among professionals in maternity care including midwives, obstetricians, obstetric nurses, maternity care assistants and paediatricians.

For this study we used data from obstetricians, midwives and obstetric nurses in the Netherlands. We focused on these groups because we expect a shift in these professionals' tasks and responsibilities.

Data were collected using a self-administered online questionnaire (Survey Monkey, Palo, Alto, CA, USA), from February 2015 till May 2015.

The questionnaire contained 126 questions on multiple aspects of maternity care. For the present study only the questions on demographic characteristics and perceived job autonomy were used.

In the Netherlands a total of 3,150 midwives,[25] 959 obstetricians and 2,835 nurses are active in maternity care.[26] The majority of midwives, 2,231 (71%), work in primary care and 919 (29%), work as clinical midwives.[25] The majority of Dutch obstetricians provide obstetric care but 298 are member of the Dutch Society for Obstetrics and Gynaecology (NVOG) working group perinatology and maternal diseases and presumably have obstetrics as their main field of practice.

In order to reach an appropriate sample of primary care midwives for this study, invitations were sent by e-mail (where the e-mail address could be obtained from their website) to 452 midwifery practices from a total of 532 practices,[25] in the Netherlands in 2015.

To reach obstetricians, clinical midwives and obstetric nurses an e-mail was sent to a contact person of all 91 Dutch hospitals with an obstetric department. The e-mail contained information on the study and a link to the survey. Addressees in midwifery practices and obstetric departments were asked to distribute the invitation e-mail among colleagues.

In addition to this, the Royal Dutch Organisation of Midwives (KNOV) of whom 84% of all midwives are a member, placed a notification on their website asking midwives to participate in this study. There was no restriction on the number of participants per hospital or practice.

All midwifery practices and obstetric departments received a reminder by e-mail in March 2015. Only non-identifiable information was available for the researchers who analysed the data.

Measures

Job conditions were assessed with the Leiden Quality of Work Life Questionnaire for Nurses (LQWLQ-N) developed by van der Doef.[27] This questionnaire is a validated instrument to examine job satisfaction, of which "decision authority" is a characteristic, among nurses. The formulations of the questions were adjusted for maternity care professionals in consultation with the author of the instrument.

Job conditions were measured on a 4-point Likert-like scale ranging from 1 (totally

disagree) to 4 (totally agree). Higher scores correlate with better job conditions. For the purpose of this study the domain "decision authority" was used to measure experienced job autonomy, which was defined as the mean of the five questions in this domain. This domain has five statements:

- I continuously have to perform tasks I am ordered to do
- In my work I am allowed to make decisions myself
- I have a say in decisions related to work
- I am free to choose when to do client related and non-client related tasks
- I am free to perform my tasks according to my own insight.

Regarding the demographic characteristics information was collected on age, number of years of work experience and the number of working hours per week.
A steering group with representatives from obstetricians, midwives, obstetric nurses, paediatricians, clients and researchers was consulted and advised on all steps during the research process.

Ethical considerations
The study was submitted to the medical ethics committee of VU University Medical Centre. (reference number 2014/030) Ethical approval was not considered necessary according to Dutch legislation. (METc-VUmc, 2015)

Data analysis
The data were analysed using SPSS version 24.0 (SPSS, Inc., Chicago, IL, USA).
Descriptive statistics were computed and normality of the distribution of the outcome measure was examined. The scores were calculated as the mean of the items in the domain's subscale. Participants with more than one missing value within a subscale were excluded.[27]

Independent ANOVA was used to examine the level of job autonomy of the professionals and their future perspective of job autonomy. A p-value of 0.05 or lower was considered statistically significant.

Multivariable linear regression analyses were performed to adjust for age, years of work experience and number of working hours per week, which might be associated with experienced job autonomy.

Findings

A total of 1,896 professionals responded to the questionnaire of whom 799 completed at least four questions of the domain "decision authority". Of the 91 obstetric hospital departments who were approached, respondents came from 88 departments. The number of midwifery practices from whom midwives participated was 242 (54% of the invited practices) and all provinces were represented in our sample. Analysis of incomplete responses in SPSS showed that data were missing completely at random (MCAR).

Table 1 shows the characteristics of maternity care professionals. In total 799 participants were included of whom 362 were primary care midwives, 93 clinical midwives, 240 obstetricians and 104 obstetric nurses.

Table 1. Characteristics of participating maternity care professionals

	Total population n = 799 (100%)	Primary care midwives n = 362 (45.3%)	Obstetricians n = 240 (30.0%)	Clinical Midwives n = 93 (11.6%)	Obstetric nurses n = 104 (13.1%)
Age in years Mean (SD)	41.5 (10.68)	38.2 (10.65)	44.1 (10.01)	42.1 (9.66)	46.5 (9.63)
Years of work experience Mean (SD)	14.7 (9.60)	13.1 (8.96)	14.0 (9.96)	16.3 (8.91)	20.7 (9.02)
Working hours/week (SD)	40.6 (14.00)	43.4 (14.84)	47.2 (9.85)	28.8 (5.53)	26.3 (5.66)

The mean age of obstetric nurses was the highest with 46.5 years and the primary care midwives had the lowest mean age of 38.2 years. In line with this, the obstetric nurses had the longest work experience with nearly 20.7 compared to 13.1 years for primary care midwives. The obstetricians scored highest in the mean number of working hours with 47.2 hours of work per week.

In Table 2 the experienced job autonomy scores are presented for the different maternity care professionals. Adjustment for age, number of years of work experience and number of working hours per week showed minor changes in the regression coefficients compared to the bivariate analysis. Primary care midwives had a significantly higher score (mean 2.94 on a 4-point scale) for experienced job autonomy compared to obstetricians (mean 2.73), clinical midwives (mean 2.70) and obstetric nurses (2.61).

Table 2. Experienced job autonomy scores by professional group (means (±SD) and adjusted means with 95% Confidence Interval (CI))

	Experienced autonomy Mean (SD)	Experienced autonomy Adjusted mean* (95% CI)
Primary care midwives (n=362)	3.07 (0.40)	2.94 (2.77-3.11)
Obstetricians (n= 240)	2.88 (0.37)	2.73 (2.53-2.92)
Clinical midwives (n= 93)	2.82 (0.39)	2.70 (2.53-2.88)
Obstetric nurses (n=104)	2.73 (0.38)	2.61 (2.44-2.79)

Mean score (1=strongly disagree, 2=disagree, 3=agree, 4=strongly agree)

** Adjusted for age, work experience, working hours per week*

Table 3 shows the item (statement) means and total subscale score of experienced job autonomy for the different professional groups. The lowest score given by all professionals was for the statement "I am free to choose when to do client related and non-client related tasks".

Table 3. Item and total sub-scale scores of experienced job autonomy (means and SD)

	Primary care midwives n=362	Obste-tricians n=240	Clinical midwives n= 93	Obstetric nurses n=104
I continuously have to perform tasks that I am ordered to do*	3.10 (0.56)	3.15 (0.50)	3.00 (0.44)	2.84 (0.58)
In my work I am allowed to make decisions myself	3.20 (0.53)	3.27 (0.49)	3.11 (0.50)	2.96 (0.42)
I have a say in decisions related to work	3.16 (0.56)	3.22 (0.46)	2.97 (0.60)	2.86 (0.53)
I am free to choose when to do client related and non-client related tasks	2.85 (0.67)	2.11 (0.69)	2.25 (0.64)	2.22 (0.61)
I am free to perform my tasks according to my own insight.	3.04 (0.53)	2.65 (0.62)	2.78 (0.57)	2.74 (0.48)
Total scale score	3.07 (0.40)	2.88 (0.37)	2.82 (0.39)	2.73 (0.38)

Mean score (1=strongly disagree, 2=disagree, 3=agree, 4=strongly agree)

** For analysis the score for this negatively formulated question was reversed.*

In table 4 the scores for the statement "In the future I expect to lose autonomy" are presented. Primary care midwives scored highest (mean 2.43), followed by obstetric nurses (mean 2.06), obstetricians (mean 1.99) and clinical midwives (mean 1.92).

Table 4. Scores on questionnaire item "Future perspective: I expect to lose autonomy in an integrated care system" by professional group (means (±SD) and adjusted means with 95% Confidence Interval (CI))

	Mean (SD)	Adjusted mean*(95% CI)
Primary care midwives (n=362)	2.61 (0.78)	2.43 (2.13-2.73)
Obstetricians (n=240)	2.19 (0.64)	1.99 (1.65-2.34)
Clinical midwives (n= 93)	2.11 (0.64)	1.92 (1.61-2.22)
Obstetric nurses (n=104)	2.30 (0.50)	2.06 (1.76-2.38)

Mean score (1=strongly disagree, 2=disagree, 3=agree, 4=strongly agree)

** Adjusted for age, work experience, working hours per week*

Discussion

In our study, which relates to the current model of midwifery care in the Netherlands, primary care midwives had a significantly higher score for job autonomy compared to obstetricians, clinical midwives and obstetric nurses. Primary care midwives also scored highest with regards to their future perspective of losing job autonomy, in a system of integrated maternity care.

Literature suggests that working outside a hospital setting is related to higher job satisfaction, primarily due to higher experienced job autonomy.[28,29] This is in line with our study, which shows that self-employed primary care midwives, who work outside the hospital, experienced the highest level of job autonomy. This corresponds with obstetricians in the Netherlands who are self-employed (mostly in peripheral hospitals) experiencing a higher level of job-autonomy compared to obstetricians employed by hospitals (mostly in academic hospitals).[30]

Our study shows that primary care midwives score highest in expecting to lose job autonomy in a new, integrated maternity care system. This is in contrast to clinical midwives who have a lower expectation to lose their job autonomy. An explanation for this could be that, since clinical midwives already work under the supervision of an obstetrician in the current system, they do not expect much change in job autonomy. Surprisingly, the obstetric nurses who also work under supervision, score second highest in the expectation to lose their job autonomy. This could be caused by the fact that nurses seem to be highly satisfied with their job, and they generally attributed this satisfaction to the autonomy they were granted through delegation of tasks (meaning an intentional transfer of clinical tasks from one professional to another healthcare professional).[31] Possibly, their expectation to lose job autonomy is caused by their expectation of a change in task delegation.

The obstetricians, clinical midwives and nurses in our study scored lower on experienced job autonomy compared to the primary care midwife. This could be caused by the widespread use of protocols and a more prescriptive form of maternity care in hospitals leading to a more regulated form of practice.[32]

Even though there were differences in experienced job autonomy between the professionals, in our study all professionals scored at least 2.7 on a scale of 4. A sense of job autonomy is of importance for professionals themselves as it can protect them from burnout.[6] As well as this, a higher sense of job autonomy among midwives in midwife-led care settings is shown to have a positive effect on the empowerment of women and has a positive influence on the professional-patient relationship.[7]

Therefore, care must be taken to maintain a high level of job autonomy amongst all professionals when moving to a system of integrated maternity care.

Successful implementation of new staffing models requires fulfilment of certain preconditions. One of these conditions is that staff must be empowered and supported to establish their own ways of working which can increase professional autonomy.[33] One

example of a successful, alternative model is a self-directed nursing service "Buurtzorg" (neighbourhood care) in the Netherlands, which provides patient-centred home care. Under this model the organisation values professional autonomy and delivers care through small, local, self-managing nursing teams. Buurtzorg clients appreciate the consistent, compassionate and autonomous care. This is reflected in high levels of satisfaction in national surveys.[34] A recent study among nursing staff confirms that a higher degree of self-direction (self-perceived autonomy over patient care) leads to higher satisfaction levels.[35] Another example is caseload midwifery, as a model of care whereby childbearing women receive their antenatal-, intrapartum- and postnatal care from one midwife, which leads to higher levels of experienced autonomy and increased job satisfaction among professionals.[36] As well as this caseload midwifery increases women's satisfaction with antenatal, intrapartum and postpartum care.[8]

Although it has been shown that job autonomy is of importance in different maternity care systems,[8,37] there seems to be tension between job autonomy and collaboration between professionals.[38] Literature shows that good collaboration of maternity care professionals, improves the quality of care.[39] Therefore, the challenge lies in finding the balance between maintaining a high level of job autonomy among professionals and good collaboration between professionals based on the needs of women. Lack of a clear definition, consensus and coordination between practitioners, researchers and policy leaders in relation to the concept of collaboration[24,40] adds to the challenge of finding this balance.

Strengths and limitations

A strength of this study is that different maternity care professionals were included whereas most studies focus on only one professional group.[28] In addition, we received responses from the majority of primary care midwifery practices and hospitals with an obstetric department in the Netherlands, therefore giving a reliable picture of the views of professionals.

A limitation of this study is that the exact response rate of the participants cannot be established due to the method of (snowball) sampling. Midwifery practices and obstetric departments were invited by e-mail. Individuals did not receive a personalised link to the survey and therefore no information could be traced back to the respondents. In addition with the anonymity of the respondents, no information is available on the non-respondents and possible selection bias. Due to snowball-sampling the distribution of the recruitment e-mail depended on the willingness of the person who was responsible for the practices' e-mail. However, this was mitigated by the invitations on the professional groups' websites to participate.

The general idea that people are naturally reluctant to change must be taken into account when interpreting the results of this study.

Furthermore, the LQWLQ was validated to measure overall job-satisfaction among nurses whereas we focused our research on the domain of job autonomy and included obstetric nurses, midwives and obstetricians. As the LQWLQ does include the charac-

teristic decision-authority, which was used to measure experienced job autonomy, we consider this a reliable instrument for our study.
Future research considering individual elements of job satisfaction may examine a separate validation of each the domains within the questionnaire.

More research is needed to explore how to optimise collaboration between professionals in order to improve the quality of maternity care and maintain the high level of job satisfaction.

Conclusions

This study shows that there is a significant difference in experienced job autonomy between maternity care professionals. Primary care midwives working in the community experienced the highest level of job autonomy and scored highest in expecting to lose their job autonomy in an integrated maternity care system.

Since a decrease in job autonomy could have a negative impact on job related well-being and satisfaction among professionals and the women for whom they care, the challenge is to maintain a high level of experienced job autonomy when changing the maternity care system. Further research is needed to evaluate experienced job autonomy in a system of integrated maternity care and its effect on the wellbeing of professionals involved as well as on patient care.

Author's Contributions
HP, DC, AdJ and CV designed the study. HP and CvdS collected the data. HP and CvdS performed the analyses. HP drafted the article. DC, CvdS, JvD, AdJ, MR, IdG, FS and CV revised the article critically. All authors read and approved the final manuscript.

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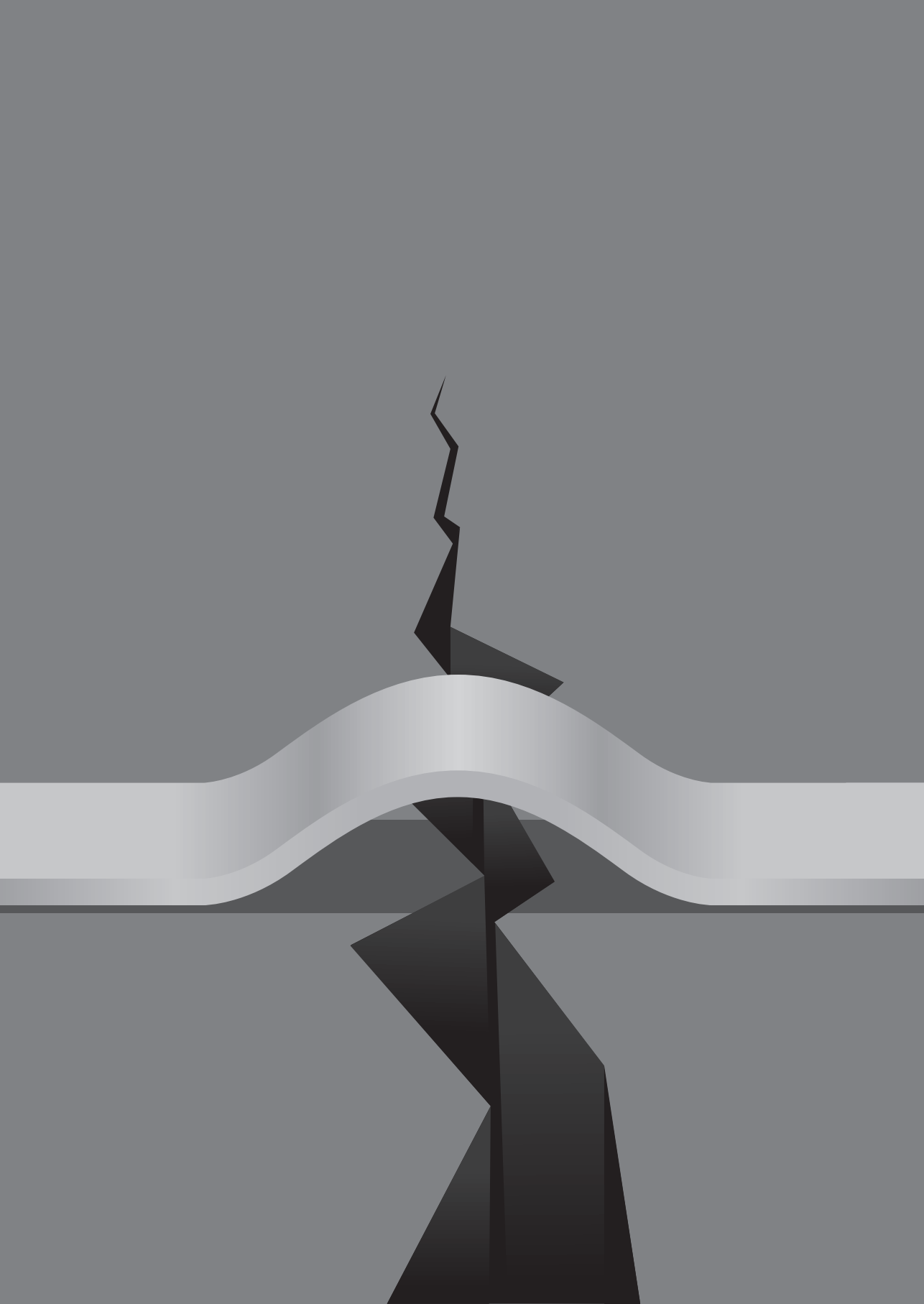

5

Opinions of maternity care professionals and other stakeholders about integration of maternity care: a qualitative study in the Netherlands.

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Abstract

Background This study aims to give insight into the opinions of maternity care professionals and other stakeholders on the integration of midwife-led care and obstetrician-led care and on the facilitating and inhibiting factors for integrating maternity care.

Methods Qualitative study using interviews and focus groups from November 2012 to February 2013 in the Netherlands. Seventeen purposively selected stakeholder representatives participated in individual semi-structured interviews and twenty-one in focus groups. One face-to-face focus group included a combined group of midwives, obstetricians and a paediatrician involved in maternity care. Two online focus groups included a group of primary care midwives and a group of clinical midwives respectively. Thematic analysis was performed using Atlas.ti. Two researchers independently coded the interview and focus group transcripts by means of a mind map and themes and relations between them were described.

Results Three main themes were identified with regard to integrating maternity care: client-centred care, continuity of care and task shifting between professionals. Opinions differed regarding the optimal maternity care organisation model. Participants considered the current payment structure an inhibiting factor, whereas a new modified payment structure based on the actual amount of work performed was seen as a facilitating factor. Both midwives and obstetricians indicated that they were afraid to loose autonomy.

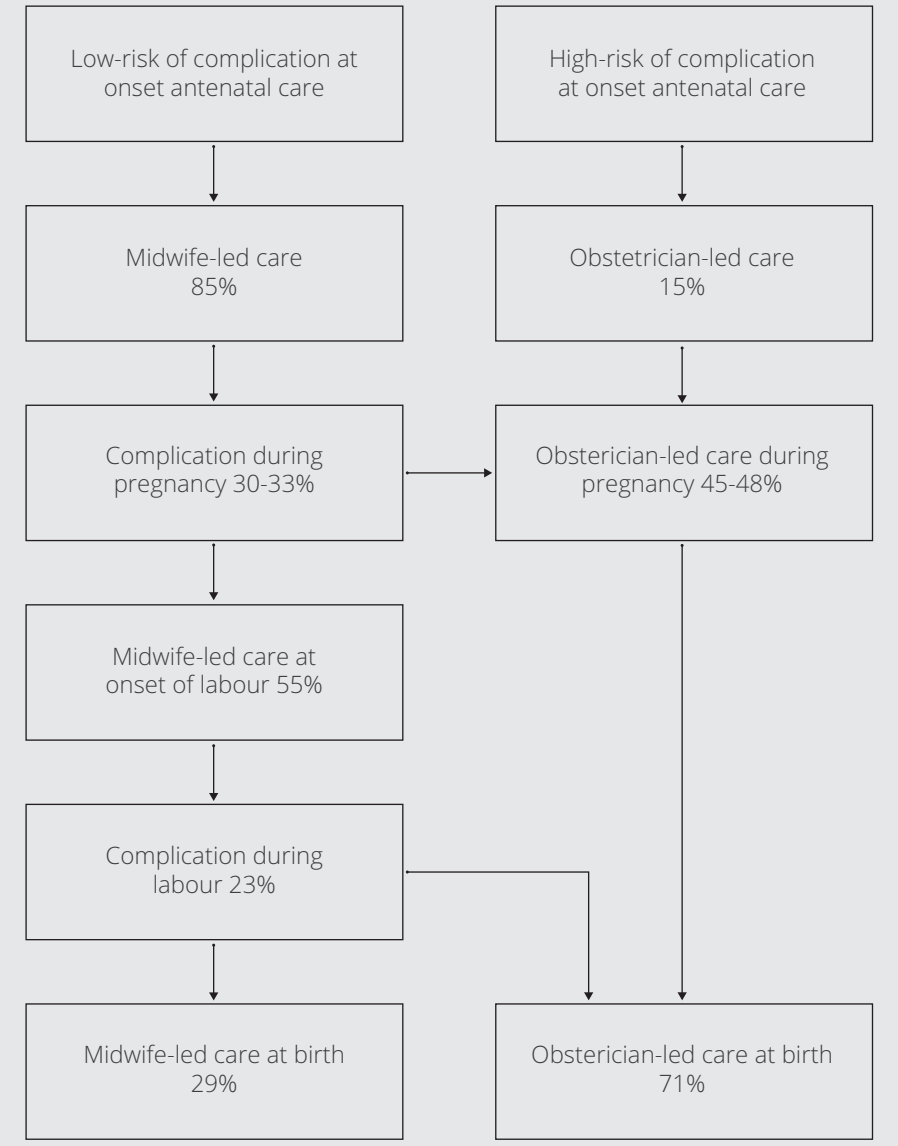
Conclusions An integrated maternity care system may improve client-centred care, provide continuity of care for women during labour and birth and include a shift of responsibilities between health care providers. However, differences of opinion among professionals and other stakeholders with regard to the optimal maternity care organisation model may complicate the implementation of integrated care. Important factors for a successful implementation of integrated maternity care are an appropriate payment structure and maintenance of the autonomy of professionals.

Background

The way in which maternity care is organized and by whom maternity care is provided shows substantial variation around the world. In a midwife-led care model "the midwife is the lead professional in the planning, organisation and delivery of care given to a woman from initial booking to the postnatal period"[1], in an obstetrician-led care model the obstetrician is the lead professional and in a shared care model the responsibility for the organisation and delivery of care is shared between different health care professionals. The degree of continuity of care is different in each model. In some models the midwife remains the main caregiver after referral to another care provider, whereas in other models the obstetrician takes over responsibility from the midwife entirely when a risk factor or complication occurs.

Maternity care in the Netherlands is organised in two echelons, midwife-led care and obstetrician-led care (Flowchart 1), with professionals in these echelons working alongside and complementary to each other. Primary care midwives work autonomously and are responsible for the care of 85% of women at the start of antenatal care[2]. Women at low risk of complications, who are in midwife-led care at the onset of labour, may choose to give birth at home or in a hospital. During pregnancy 30% of women in the Netherlands who start antenatal care with a primary care midwife, develop a risk factor or complication as listed in the national "List of Obstetric indications"[3], and are subsequently referred to secondary or tertiary obstetrician-led care. Responsibility is then taken over by obstetricians and most care is provided by clinical midwives[4]. A primary care midwife no longer has a formal role in the care of women referred to secondary or tertiary care. Of all women in midwife-led care at onset of labour 23% is referred[2]. This means that overall approximately two third of *all women* in the Netherlands give birth in an obstetrician-led care setting. Only 0.5% of women give birth assisted by their general practitioner[5]. In the Dutch system, a woman may be transported from home to hospital or from one hospital department to another in case of a referral during labour. Obstetric nurses assist both midwives and obstetricians and provide nursing care during labour in a hospital. Maternity care assistants assist the primary care midwives during labour and care for women at home during the first week after birth.

Flowchart 1 Maternity care in the Netherlands



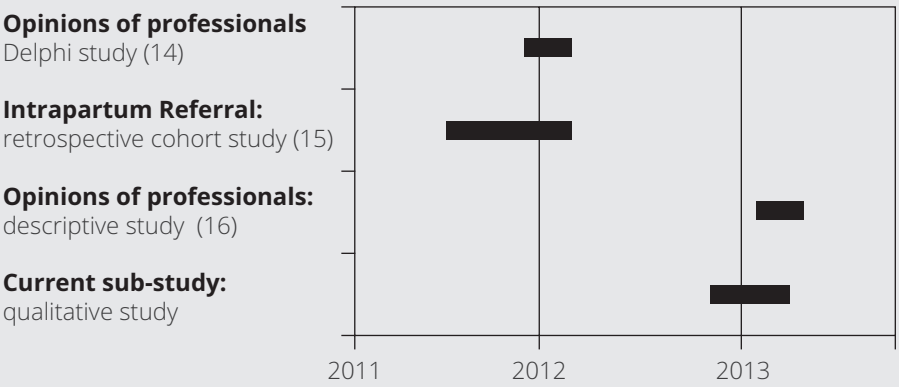
In the current restricted market-driven health care system in the Netherlands the government is responsible for safeguarding public interests. Health insurers play an active role as health care purchasers and as representatives of their clients' interests[6]. The insurance company pays the primary care midwife a fixed fee for care during pregnancy, birth and the postpartum period. This in contrast to the payments of maternity care in hospital, which are not transparent and differ considerably between hospitals[7]. However, the payment structure for maternity care is likely to change as the health insurance companies aim to introduce an overall integrated fee for all maternity care which should be divided among care providers involved.

Although the maternity care system in the Netherlands has been an example for other countries such as Canada[8] the system has also been subject of debate both nationally[9], and internationally[10]. A system with two separate echelons has disadvantages such as discontinuity of care as a result of referrals from midwife-led to obstetrician-led care[11]. Discontinuity of care increases the risk of inaccurate communication[12], and may lead to more interventions and less satisfaction among women[13].

Our previous research in the Netherlands showed that the majority of maternity care professionals are in favour of closer collaboration between primary and secondary care professionals to enhance personal continuity of care for women[14] which was defined as "integrated care"[14]. However, views differ widely on how to operationalise integrated care in practice[14]. In order to improve personal continuity of care, earlier research showed that primary care midwives are willing to expand their tasks to continue management of labour for women that are currently referred to an obstetrician once they have acquired the necessary skills. However, no consensus could be reached on the division of responsibilities and tasks[14]. For innovations in maternity care, such as integration of care, gaining insight into the opinions of health professionals and other stakeholders is important. Innovation strategies can then take these opinions into account.

In the "INtegrated CAre System" study (INCAS), we examined facilitating and inhibiting factors for integration of midwife-led and obstetrician-led care during labour amongst maternity care professionals. This study is the fourth sub-study within the INCAS-study (Figure 1)[14-16]. The aim of this study is to gain insight into the opinions of maternity care professionals and other stakeholders on the integration of midwife-led care and obstetrician-led care and on facilitating and inhibiting factors for the implementation of this care.

Figure 1 Time period of the INCAS sub-studies



Methods

A qualitative design was chosen to explore participants' views and opinions about integrated care in the light of their experience in maternity care. A total of seventeen interviews (Table 1) and three focus groups, two of which were online, (Table 2) with a total of 21 participants were carried out. Data triangulation was used to enrich the data[17]. Triangulation was achieved by using semi-structured interviews allowing stakeholders to represent their organisations' opinions and focus groups to explore professionals' experiences and personal opinions. Data were gathered until saturation was reached. The checklist of the Consolidated Criteria for Reporting Qualitative Research (COREQ) was used when reporting on the data[18]. The study was submitted to the medical ethics committee of VU University Medical Center (reference number 2011/252). An ethical approval was not considered necessary according to the Dutch legislation as this study does not impair medical integrity, it is not stressful for participants and no interventions are performed[19].

Table 1 Participants interviews

Interviews Stakeholder representatives (n=17)	n
Royal Dutch Organisation of Midwives (KNOV)	1
Dutch Society for Obstetrics and Gynaecology (NVOG)	1
Dutch Organisation for Anaesthesiologists (NVA)	1
Dutch College of General Practitioners (NHG)	1
Dutch Organisation for Maternity Care Assistants (NBvK)	1
Client organisation	2
Health care insurance company	4
Ministry of health	1
Midwifery cooperation	2
Project management organisation in maternity care assistance	1
National collaborating organisation for perinatal care	1
Organization for Health Research and Development (ZonMw)	1

Table 2 Focus groups

Focus groups (n=21)	n
Focus group Face-to-face (mixed)	
Primary care midwives	2
Clinical midwives	2
Obstetricians	2
Paediatrician	1
Focus group Online	
Primary care midwives	9
Focus group Online	
Clinical midwives	5

Interviews

A heterogenic group of seventeen stakeholders involved in maternity care were purposively selected by the project team for semi-structured interviews, which were[19] held in December 2012. The participants represented different stakeholder organisations and were officially mandated by organisations. (Table 1).

The selected stakeholders all had a professional interest in integrated maternity care or were involved with national or societal discussions related to this topic. All participants were explicitly asked to formulate the viewpoints of their respective organisations. By sending the topic list prior to the interview, participants were able to verify these viewpoints on beforehand if necessary.

Focus groups

Three focus groups took place between November 2012 and February 2013 (Table 2). Two focus groups were held online. We expected this online methodology to facilitate recruitment, as more professionals might be willing to participate if they were able to join the discussions without traveling and at their own convenience. An independent researcher, not directly involved in maternity care, led all focus groups together with a representative of a client organisation. The face-to-face focus group consisted of two primary care midwives, two clinical midwives, two obstetricians and a paediatrician and were held in a centrally located meeting room. A travel allowance was given to participants.

One online focus group consisted of nine primary care midwives and the other of five clinical midwives.

In our previous study, we found that primary care midwives and clinical midwives have strongly divergent opinions with regards to their responsibilities and tasks[14]. As we were interested in the opinions of both groups, the online focus groups were held for these groups separately. At the time the focus group discussions were conducted, five regions in the Netherlands adopted some type of integrated maternity care. At least one primary and one clinical midwife from each of the five regions with experience in integrated care were invited to participate in the online focus groups.

The face-to-face focus group was tape recorded and fully transcribed. The online focus groups were organised asynchronously using a browser-based application developed by the Netherlands Organisation for Applied Scientific Research, TNO. A new topic (formulated as a question) was introduced online each day during seven consecutive days. Participants could respond 24 hours a day, at a time of their own convenience. They were asked to respond to the statement in writing and were encouraged by the moderator to interact with each other. To stimulate active involvement, participants of the online focus group received a gift voucher for books of 25 euro if they responded to all statements at least two times.

The responses of the online focus groups were downloaded.

Topic list

A multidisciplinary project group consisting of obstetricians, midwives, an obstetric nurse, a paediatrician, a client representative and researchers acted as an advisory panel and approved the topic lists used in the interviews and focus groups. The topic list of the stakeholder interviews (Table 3) was similar to the topic list for the focus group (Table 4 and 5) and was based on the results of a previous Delphi procedure[14].

Fleuren[20] described four categories of determinants based on a literature review and Delphi study among implementation experts that have an important influence on the successful implementation of an innovation: the socio-political context, organization of care, the health care professional and the innovation. We used this model because of its good fit with our study objectives. These categories were included in the topic list for the interviews and focus groups. The topic list consisted of seven semi-structured questions including characteristics of "integrated care" related to previous research[14], specific aspects of integrated care of the participant's organisation, conditions needed for a successful integration of care and the role that the participant's organisation could play.

The topic list was sent to the participants by email one week before the interview took place. The semi-structured interviews were carried out by telephone (HP), lasted between 35 and 60 minutes and were audio recorded. The participants of the focus groups did not receive the topic list beforehand, but the leader used the topic list as a guide.

Data analysis

Thematic data analysis was used[21]. The interviews were anonymously transcribed (HP, SM). Two researchers (ED, FL) closely read the first two interviews and formulated codes independently, after which they were compared. Consensus on the codes was reached through discussion. The research team, consisting of four researchers including an independent health science expert approved the final coding categories. These were used to code the other interviews (ED, FL). The texts of the focus groups were coded using the same coding categories. Through regular discussion of the findings in the research team, overarching themes were formulated. A frequency analysis of the codes was made. By means of a mind map of the most frequent codes, themes and relations were described. An active search in the data was conducted to find deviant opinions. The software program Atlas.ti version 5.2 was used to support the analysis of the interviews and focus groups discussions. The quotes in the results were translated into English and edited for readability removing words like "uh" without loss of meaning. Characteristics of participants are given in brackets at the end of each quote and are indicated with a number.

Table 3 Interview topic guide for stakeholders

Topic
Introduction
Definition of integrated care
• Viewpoint of the organisation.
Knowledge of integrated maternity care
Integration of care within region. Development within own organisation.
Influence of the socio-political context on integration of care
• Does integration of maternity care fit within the political development?
• Does integration of care complement the needs of women?
• Does the media play a role in the development of integrated care?
Characteristics of the organisation
• The ideal structure
• Level of teamwork
• Hierarchy
Collaboration between professionals
• Division of responsibilities
Task-shifting
Characteristics of the adopting person / stakeholder on integration of care
• Do you expect support from your colleagues, other stakeholders or patients?
• Needed competencies
What is needed for successful integration of maternity care?
• Characteristics of innovation (e.g. protocols, finances, education)
How can integrated care be implemented?
Facilitators and inhibitors
Roll of participant's organisation

Table 4 Face-to-face focus group discussion protocol

Topic
Introduction discussion leader and representative of a client organisation.
Introduce participants
• Participants are asked for definition of integrated care
• Integration of care within organisation/region
Expectations of maternity care in 10 years
Division of responsibilities in an integrated care system
International best practise
Accepting change; challenges
Successful implementation of integrated care
• What and who is needed
• Facilitators and inhibitors
• Role of professional's organisation
• Role of insurance companies
Roll of organisation
Questions

Table 5 Online focus group topic guide

Day	Topic
1	Reason for integrated care in the region. Most important changes in the region.
	• Facilitators and inhibitors
	Initiator of project
	Expectations
	Collaboration midwives, obstetricians and hospital
2	Changes in care.
	• Changes that have been successful
	• Delegation of tasks
	• Organisation of care
	Finances
3	Experience of integrated care
	• Facilitators/inhibitors integrated care
	Task-shifting
4	Experience of clients
	• (Dis) advantages
	Role of clients
5	Responsibilities and competencies of professionals
	• Qualifications of professionals
	Autonomy
6	Requirements for integrated care
	• Personal support
	Additional resources
7	Implementation of integrated care
	• Facilitators and inhibitors
	• Role of professional organisations
	• Role of insurance companies
	Additional points

Results

In the face-to-face focus group more discussion and interaction was observed compared to the online focus groups. More comments were made during the discussion with the mixed health professionals by the obstetricians compared to the midwives. The number of reactions on the online forum was 52 responses for the primary care midwives and 46 responses for clinical midwives.

From the interviews and focus group discussions three main themes of integrating maternity care were identified. The first theme was client-centred care with the sub-theme client involvement, collaboration and the type of organisation. The second theme was continuity of care and the third theme was task shifting between professionals with the sub-theme midwifery training.

Facilitating and inhibiting factors for the implementation of integrated care were also identified: the payment structure and professional autonomy. Saturation was reached after seventeen interviews.

Client-centred care

Most participants agreed that client-centred care is a prerequisite for optimal care, which is the aim of integrating midwife-led and obstetrician-led care. To achieve client-centred care participants indicated that clients must be involved in management of care and decision-making. Moreover, good collaboration between primary and secondary care is needed within an organization: the client should experience a smooth transfer from primary to secondary care.

Client involvement

Participants expressed different opinions on the optimal level of client involvement during pregnancy and labour. Opinions varied from freedom of choice for women to limitations prescribed by the professional responsible for medical care, in case of a risk factor.

> *"But it is about giving a patient all options, including all risks involved of course. But the patient should be allowed to choose. A patient should decide because it is all about the patient. Sometimes it can be different, it may perhaps be better, medically, to choose another option. But a patient may interpret quality of life differently sometimes. Incomprehensible for a medical professional." (Representative of a Client organisation, interview #11).*

Participants mentioned a variety of examples with regard to the degree of client involvement for the place of birth and caregiver. Opinions ranged from believing that clients should have the freedom to choose the place of birth based on informed consent, to the opinion that clients should not have a choice in the place of birth at all. Concerning

the choice of caregivers, opinions ranged from 'clients should have complete freedom in choosing their own caregiver' to 'caregivers should decide which caregiver should be involved, as clients cannot be held responsible for medical decisions'.

"I think it's good to involve the patient but you cannot pass medical responsibility on to the patient. Caregivers must ensure that they can offer a good service. With adequate level of care [...]. Trust in the system will then arise." (Representative of the Dutch College of General Practitioners, interview #2).

Good collaboration

Good collaboration between primary and secondary care was said to be a condition for client-centred care. Several participants agreed that it is important to organise multidisciplinary training for maternity care professionals, to improve collaboration in emergency situations and to have knowledge of each other's competencies and working methods. According to participants, shared training and more involvement in each other's working environment could improve communication between professionals as well as improve the quality of care.

"Yes, I think that if we talk about training, if we would train multidisciplinary, structurally training the whole chain of professionals, that that could have additional value. Occasionally you can see this happening here and there during the "skills and drills training" but this could be very much extended I think." (Representative of the Royal Dutch Organisation of Midwives, interview #13).

"We have gained a better understanding of each others profession: by getting to know the other, trust arises in knowledge and skills. It works two ways: physiology when possible and medical interventions when necessary." (Primary care midwife, online focusgroup #10).

Type of organisation

Respondents had difficulty describing which type of organization would be ideal in order to provide more client-centred care during labour. However a well operating chain of care was mentioned several times: care in which the various partners work together in a birth centre and the client should experience a smooth transfer. Most participants in both the interviews and focus groups held the opinion that all caregivers should work in the same building and that clients who want to give birth in hospital should not have to be moved to a different department or room when a referral is indicated. According to them, the labour ward must be accommodated and equipped to the needs of both the primary care midwife and the obstetrician.

"In that type of care [care with division between primary and secondary care], you are still talking about a primary care birth centre where you only carry out primary care things. I do not think that this is the concept of the future because if a woman needs medical attention, which occurs quite often, one has to lug the patient around to another location in the same hospital. I envisage that our care will eventually merge more and more. [...] That there should be no door in between, that you can do the transfer from primary to secondary care totally transparent within one open space." (Representative Project management organisation in maternity care assistance, interview #10)

One primary care midwife emphasised that the primary care midwifery practices should be part of a larger cooperation to create more efficient collaboration. Participants of one focus group mentioned the need of a team of eight to twelve professionals for the system to function well.

"We have had some discussions to combine the various midwifery practices into one large [primary care] centre. Antenatal clinics on more than one location, shorter routes for consultation or referral. Choice of place of birth and home birth guaranteed. [...]. Joint consultations can subsequently be organized more effectively, as well as training etc. There are a lot of advantages to it, except for the bigger scale." (Primary care midwife, online focus group #2)

A counter argument was that if organisations are too big, this could lead to professionals having many meetings at the expense of care for clients.

"And of course it will be very nice for the College of Perinatal Care to soon be able to say how well everyone is collaborating regionally, but what we see is that it mainly consists of managerial meetings of people who have never seen a postpartum woman before or it has been a long time ago." (Representative of the Dutch Organisation for Maternity Care Assistants, interview #6)

Continuity of care

It was a commonly held view by both maternity caregivers and stakeholders, that continuity of care during labour is important for women in an integrated care system. Although in the current system the primary care midwife only cares for women at low-risk of complications, several participants of both echelons, indicated that primary care midwives

should also be the main caregivers after referral during labour so women continue to have the same caregiver. A primary care midwife who already provides this type of care said the following:

"We conduct regular client satisfaction surveys which show that pregnant women have difficulty with the large number of midwives in our practice... with regards to birth, our pregnant women don't know any better other than that the midwife will assist them to give birth, and that she has both primary and secondary care responsibilities." (Primary care midwife, online focus group #10).

Some participants made a distinction between low, moderate and high-risk indications. The following examples of moderate risk indications were given: meconium stained amniotic fluid, need for medical pain relief, prolonged rupture of membranes and a previous caesarean section. Participants stated that primary care midwives could continue to take care of women in labour also when moderate risk situations occur, if necessary after consulting or under supervision of a clinical midwife or obstetrician, leading to a more integrated way of working.

"I think that you will have to let the ordinary [primary care] midwives support physiology as much as possible and that they will really try their best to really assist people. More nitrous oxide and water injections etc. Doing everything that's possible with regard to pain relief in primary care. Then the midwife will accompany women and finish things [labours] that are expected to end fairly soon. Meconium, induction of labour and so on..." (Representative of Midwifery cooperation, interview #17).

"Maybe formally the obstetrician will remain responsible but the midwife continues to provide care. And more training will be given with regards to surveillance and pathology (Representative of project management organisation in maternity Care Assistance Organisation, interview #10).

Other participants preferred to adhere to the current system in which the obstetrician takes over the responsibility of care when a moderate or high risk occurs and the primary care midwife assists low risk women remaining skilled in physiological birth. It was noted that the transfer of care must be 'seamless' which should be supported by a joint electronic record system and shared protocols.

Task shifting

According to the majority of participants integration of care will lead to task shifting for all maternity care professionals. This should involve extra training for professionals taking over certain tasks as a condition to obtain new competencies. An example of task shifting is when the "maternity care assistant", who currently assists the primary care midwife at home during labour would continue to provide assistance to women after referral to hospital. This would mean a shift of tasks from the obstetric nurse to the maternity care assistant for moderate-risk women.

"I think the maternity care assistant will also have more tasks in the field of risk identification and more coordination with the midwife, and of course providing assistance during labour. [...] The maternity care assistant will receive more training in these things and will become more like the obstetric nurse. If the maternity care assistant will be better trained, I think that hospitals will make more use of maternity care assistants during a hospital birth assisted by a primary care midwife". (Representative of a Health insurance company, interview #8).

Some midwives mentioned the need for specific competencies such as the ability to interpret continuous electronic fetal heart rate monitoring (EFM). Other participants, however, argued that the primary care midwife should not carry out interventions such as EFM because they would not perform these often enough to guarantee good quality of care.

"We work with primary care midwives, and they interpret EFM, you know it is all relative and of course it is possible if you have been trained. But I doubt that it is efficient [...] you need enough cases and a lot of practice to be good at the secondary care tasks. [...] It is about volume of practice. I do not agree with midwives who say they can do both primary and secondary care. We obstetricians have to specialize. Within our team of obstetricians, six of the seventeen have obstetrics as their main field of practise. We try and have one of these six available during every shift. I don't agree with a midwife saying: "we can all do the same". Acknowledge what you're not so good at, and have someone else do that." (Obstetrician, face-to-face focus group #1).

Midwifery training

Participants agree that training is required if tasks are shifted to other professionals. Several participants agreed that it is necessary to upgrade midwifery training to an academic level, to be capable of performing more specialised tasks and conducting research. However, some participants prefer to maintain midwifery at a higher professional education level, as they are afraid that upgrading midwifery to a university Master level will be at the expense of hands-on experience of student midwives.

"I think that you mainly need hands at the bedside and if every midwife is academically educated, I think a lot of power will be lost at the bedside; maybe that is not quite the right word [bedside], in care. […] I think that you disqualify yourself as well by saying that you need an academic education. That would mean that you don't do it [provide care] well enough at the moment. I do think that they do very well at the moment [provide care]. Rather, you must believe in your own strength, like: we do it our way, and the obstetrician complements that and vice versa." (Representative of the Ministry of Health, interview #5).

Facilitating and inhibiting factors

From the interviews and focus group discussions facilitating and inhibiting factors for the implementation of integrated care were identified. Two factors were found to be most important: the payment structure and professional autonomy.

Payment structure

Some participants indicated that the payment structure is a sensitive subject. Participants expressed their concern that in a different payment structure, cost savings could occur which could possibly lead to a reduction in income for health professionals. These concerns may be the cause of resistance to the development of a new funding system.

"Yes, money, we avoided that a little bit up until now. Yes, but everyone avoids it and at a certain moment you will have to address the issue." (Obstetrician, face-to-face focus group #1)

"Those are things [money] with which people are less willing to take risks. And that starting point makes that it remains a sensitive subject." (Representative of Midwifery cooperation, interview #9)

A few participants considered the current financial structure as a threat because referrals from primary care to secondary care or vice versa may be "finance-driven".

"At the College of Perinatal Care we are already in favour of an integral payment structure, stemming from the thought that the current system sometimes has incentives for midwives and obstetricians to keep a woman in their care or, say, not return her [to the original caregiver.] It would be better if those incentives no longer existed and that you might have an incentive to collaborate." (Representative of the National collaborating organisation for perinatal care, interview #12)

In addition, participants indicated that the influence of health insurance companies should be limited so that optimal care for women can be provided without financial hindrance.

"Our common goal should be: to give the best care without any form of personal interest or financial drive." (Representative of the Dutch Society for Obstetrics and Gynaecology, interview #18)

Opinions on how a new payment structure should be defined differed among participants. A fair distribution of money between care providers based on the actual work performed was said to be important.

Professional autonomy

Participants of both the focus groups and interviews indicated the importance of professionals functioning as a team.

"Both midwives and obstetricians are trained to function autonomously but I hope we can change that into functioning as a team."(Obstetrician, face-to-face focus group #1).
"I think all professionals involved in maternity care are responsible together [...] I don't think you have to lose your own identity." (Representative of the Royal Dutch Organisation of Midwives, interview #13).

Professionals are concerned about the loss of autonomy if an integrated care system would be implemented. Most professionals would like to collaborate but wish to remain autonomous when making decisions and in the way they organise their practice.

" I notice that the Royal Dutch Organisation of Midwives is very frightened of losing part of the autonomy, where it concerns primary care…[…] on the other hand there is a tendency for obstetricians, to say; "if 80% of women will be in our care sooner or later, let us be in the lead. We can then decide what can be delegated to the midwife". For midwives that would be the unacceptable" (Representative Project management organisation in maternity care assistance, interview #10)

Several stakeholders and professionals mentioned that the existing domain struggle between primary and secondary care could be a bottleneck for integration of care. According to participants a joint vision should be formulated and multidisciplinary protocols should be developed, as this would be of benefit to women. Others indicated that it is necessary to formulate the professional organisations' vision first before making multidisciplinary protocols.

"You know, the vision of the Royal Dutch Organisation is that in an ideal world we will do all this [making of protocols] together. But it seemed better to us [the KNOV] to first have our own ideas on paper: how we think it should be done. Subsequently, of course you have to talk to your collaborative partners and I understand that the Dutch Society for Obstetrics and Gynaecology will do something similar." (Representative of the Royal Dutch Organisation of Midwives, interview #13).

General characteristics of integrated care

Besides the main themes, participants mentioned the following characteristics of integrated care: a joint electronic client record system for all maternity caregivers, the use of pathways and multidisciplinary protocols supporting a consistent and unequivocal management of care in primary and secondary care for women, mutual respect among professionals, intakes for pregnant women jointly by midwives and obstetricians, a buddy system between obstetricians and midwifery practices for more collaborative work and consultations by obstetricians in midwifery practises as opposed to consultations after referral to hospital.

Discussion

The aim of this study was to gain insight into the opinions of maternity care professionals and other stakeholders on the integration of midwife-led care and obstetrician-led care and on facilitating and inhibiting factors for the implementation of this care. For most professionals it appeared to be difficult to envisage a system, which does not yet exist and to think "out of the box". Nonetheless, client-centred care and continuity of care for women were found to be important characteristics of an integrated maternity care system by participants. Opinions differed regarding the optimal maternity care organisation model. Participants indicated that inhibiting factors for integrating maternity care are the payment structure and fear of losing autonomy.

In this study we explored the relevant topics for our maternity care model, which is in the process of change. Other studies have not explicitly explored opinions regarding integrated care at both professional and management level. The combination of interviews and focus groups enhances trustworthiness of findings, making the results more robust. The interviews and focus groups generated a broad range of opinions regarding integrated care, giving a realistic impression of opinions in the whole field[17]at both professional and management level. The stakeholders were asked not to give their personal opinion but that of the organisation they represented. We realise that this was sometimes difficult for participants. The advantage of bringing together a diverse group of professionals for our face-to-face focusgroup was that it maximized exploration of different perspectives. However, hierarchy may have affected individual participants[22]. Since obstetricians made more comments compared to the midwives during the face-to-face focusgroup, this may have been the case in this study causing overestimation of the weight of themes. Because the interviews were carried out by telephone and two focus groups were carried out online, it was not possible to observe body language of the participants. The fact that interaction amongst participants in the online focus groups was limited may have been the result of participants not meeting face-to-face. This could also have been the result of not being able to supervise the discussions 24 hours a day and respond to participants immediately.

The current restricted market-driven health care system in the Netherlands might strengthen the individual interests of professionals, instead of stimulating collaboration between professionals to achieve optimal care[23]. If a woman is referred to the obstetrician during pregnancy, remuneration could be the "trigger" to keep her in obstetrician-led care and vice versa, finances could "trigger" midwives to take care of women longer than they would if finances did not play a part. Participants in our study and in the study of Avery et al.[24] recognize the "finance driven competition for clients" and agree that this must be changed in a modified system, as this does not help to achieve optimal care for clients. However, opinions differ with regards to the design of a new payment structure from an

integrated tariff to separate tariffs for each professional group, which could be nationally or regionally determined. Participants agree that health insurance companies should not be allowed to have a major role in determining care policy. To support a decision on the best maternity care system and one that is economically feasible, the Dutch Healthcare Authority (NZA) has stimulated experiments in pilot regions, which are currently being carried out[25]

Participants in our study state that the two separate echelons, which currently exist, may have disadvantages with regards to continuity of care. In countries such as Canada[26] and New Zealand[27] midwives move between primary and secondary care settings leading to more personal continuity of care for women. All participants in this study mentioned that personal continuity of care for women is important. This is consistent with earlier findings showing that there is consensus among professionals to minimize the number of professionals involved during labour[16] clients appreciate the continuity of care given by a primary care midwife after referral[28], and clients rate the quality of care higher if they know their care provider prior to going into labour[29]. In our study participants pointed out that this can be achieved if the primary care midwife could remain the caregiver for women with a moderate risk indication, with or without consulting a clinical midwife or obstetrician. However, to realise continuity of care, task shifting is needed but this in itself can be seen as an inhibiting factor for integrating care. Both this study and prior research[14] show a lack of agreement among maternity care professionals with regard to task shifting.

Participants in our study mentioned client-centred care as an important basis for a maternity care model. However, it remains unclear how patient preferences should be balanced with physicians' opinion[30]. In line with this, our study shows that tension exists between professionals related to the level of client involvement in maternity care, which ranges from the opinion that all decisions should be made by the client to the other extreme that the professional decides what is best for the client. Our results are in accordance with literature[31]showing that opinions of maternity care experts are divided with regards to the amount of professional advice that should be given to women. Our suggestion is that professionals in the Netherlands give more information specifically tailored to each individual woman and move to a model of Shared Decision Making (SDM) which has been shown to have a positive impact on the childbirth experience[32]. SDM is defined as "an approach where the clinician and client share the best available evidence when faced with the task of making decisions, and where the client is supported to consider options, to achieve informed preferences"[33]. Open and respectful communication between women and care professionals will help practitioners in SDM[31]. As well as supporting the client, a common orientation towards the client is beneficial for the success of interdisciplinary teams[34].

Different regions in the Netherlands already have experience with some form of "integrated care". For example, in one region, the primary care midwife continues to care for women with moderate risk indications during birth[35]. Midwives in our study indicated that although the workload was high in this region, work satisfaction was even greater and satisfaction among clients was very high compared to other regions. In contrast, obstetricians in our study held the opinion that further specialisation is needed among all professionals to increase volume of practice and ensure optimal quality of care. However, literature shows that professionals might best serve the client by providing continuity of care[28] and having common goals and visions among professionals[36].

The current training of midwives and obstetricians is completely separate in the Netherlands. However, participants indicated that some combined education for maternity care professionals would be better to share ideas and broaden their horizon. The importance of interprofessional training is widely accepted[24,37] and can help develop professional competence, a joint attitude towards the client, interprofessional respect[34] and better teamwork, which could improve quality of care for women.

In contrast to countries such as Canada and New Zealand[38,39] where midwifery training leads to a university degree, midwifery education in the Netherlands is at higher professional education level. Several participants agreed that it is necessary to upgrade midwifery training in the Netherlands. A few participants were sceptical about this, as they fear that the "practical hands-on midwifery" could disappear. However, general practitioners in the Netherlands have a history of upgrading their level of practice from a Bachelor to a Master's Degree. This change in academic education has enabled them to support their clinical practice with scientific evidence[40], which strengthened the profession. Currently, the Midwifery Academies are developing a new curriculum at Master's Level[41]. Training at academic level will enable the midwife to be a strong advocate for clients by translating scientific evidence in a way that enables pregnant women and their partners to make the choices that are right for them. An academic partner for obstetricians could facilitate the integration of maternity care.

Autonomy is considered to be very important by midwives and obstetricians because they do not want to lose control and independence in their clinical decision-making. In the current maternity care system collaboration already exists between the two professions although they are autonomous in making decisions regarding the management of care. Midwives and obstetricians in this study and professionals in our previous Delphi study[14] expressed fear of losing this autonomy if maternity care is integrated. This is complicated by the fact that professionals disagree about role boundaries[14,36]. In addition, deep-seated philosophical differences about childbirth generate tensions[42]. In this study participants agreed that to improve good collaborative practice between midwives and obstetricians, respect and accountability are essential as well as clearly identified responsibilities for

the different professionals. In the UK, stricter delineation of the boundaries between midwifery and obstetrics increased the confidence and professional visibility of midwives but left doctors feeling excluded and undervalued[43]. In order to achieve good collaborative practice, instead of mainly focussing on autonomy, the skills and qualities that form the basis of "professional courtesy" need to be recognised in one another[42].

Since the start of the data collection in this study, several regions in the Netherlands have already initiated some form of integrated care but a lot of regional variation does exist. A follow-up study is on-going in which these regions will be valuated in terms of clinical outcomes, experiences of women and professionals and costs. By comparing outcomes and experiences between regions, lessons can be learned about the optimal model of integrated care.

Conclusions

Maternity care professionals and other stakeholders who participated in this study indicated that the optimal maternity care system should be client-centred, provide continuity of care for women during labour and birth and include a shift of responsibilities between health care providers. However, opinions differed with regard to the optimal maternity care organisation model, which could complicate the implementation of integrated care.

Important factors for a successful implementation of integrated maternity care are an appropriate payment structure and maintenance of the autonomy of professionals. These factors need to be addressed when implementing an integrated maternity care system.

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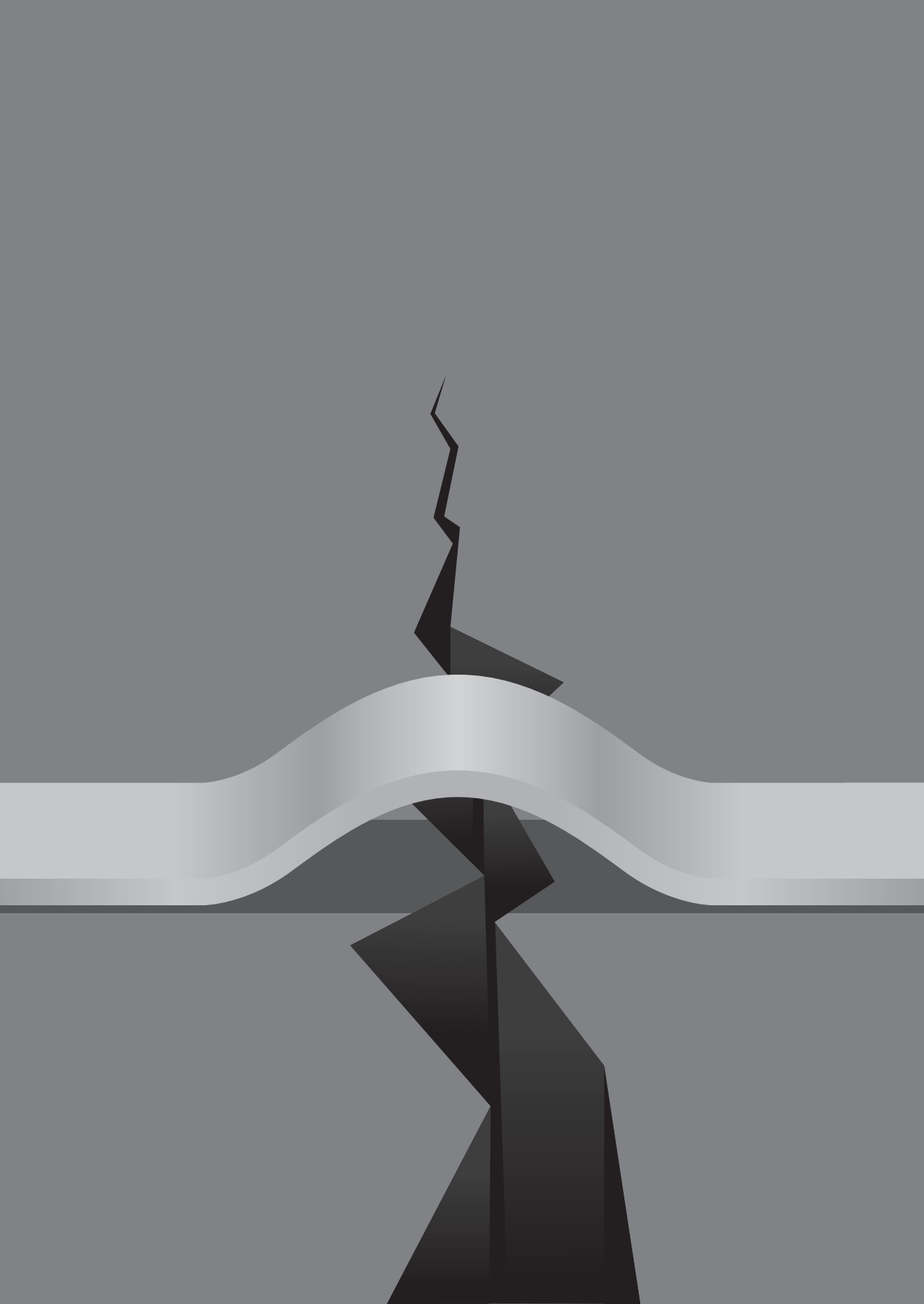

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Opinions of maternity care professionals about integration of care during labour for "moderate risk" indications: a Delphi study in the Netherlands.

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Abstract

Background The percentage of referrals during labour from primary midwife-led care to obstetrician-led care has increased over the past years in the Netherlands. Most women are referred for indications with a moderate increase in risk and are looked after by clinical midwives. This study aims to provide insight into the opinions of maternity care professionals about integration of care and involvement of primary care midwives in the intrapartum care of women with "moderate risk" factors.

Methods A Delphi study consisting of three rounds was conducted. A purposively selected heterogenic panel of 50 professionals, including obstetricians, primary care midwives, clinical midwives and obstetric nurses, answered questions anonymously.

Results Although primary care midwives would like to expand their responsibilities and tasks regarding "moderate risk" indications, consensus among panel members was only reached concerning prolonged rupture of membranes for which the primary care midwife could remain the caregiver.

Conclusion This study shows that most participants support more integration of care during labour. The lack of consensus amongst Dutch maternity care professionals with regard to the distribution of responsibilities and tasks for "moderate risk" indications is a challenge. Further studies should explore how to deal with differences in opinions among professionals when integrating maternity care systems.

Introduction

In the Netherlands, independent primary care midwives are the principle caregivers for low-risk women who do not need obstetric interventions such as continuous Electronic Fetal Heart Rate Monitoring (EFM), medical pain relief or augmentation. Women in primary care at the onset of labour can choose to give birth with their primary care midwife at home or in hospital. As soon as a risk factor is identified at any time during pregnancy, labour or puerperium, they will refer a woman to obstetrician-led hospital care. Reasons for referral are defined in a national, multidisciplinary guideline; the List of Obstetric Indications[1]. About 50 percent of all women in The Netherlands start labour in midwife-led care and 28 percent of births are managed solely by primary care midwives[2]. In the Netherlands, the percentage of referrals during labour from primary midwife-led care to obstetrician-led care increased from just over 35 percent in 1988 to around 50 percent in 2004 and this percentage is still increasing[3]. The rise is mainly a result of more referrals for non-urgent "moderate-risk" indications such as prolonged ruptured membranes, need for pain relief, failure to progress and meconium stained liquor[4]. Less than 4% of referrals are for urgent reasons[5].

Although obstetricians are responsible for women referred to secondary care, they will often only provide actual care if additional risks or problems occur, such as fetal distress or to perform an instrumental delivery[6]. Of all obstetrician-led births, 40% are managed solely by a clinical midwife who works under supervision of an obstetrician[7]. Obstetric nurses assist birth attendants during labour in hospitals.

Referrals during labour and the subsequent discontinuity of care are considered to be major problems by women, health professionals and policy makers[8]. During handover of care vital information may be lost, which could result in unsafe situations. A regional Dutch study[9] found the highest risk of perinatal mortality among women who were referred during labour. In addition, it has been shown that continuous support during labour leads to fewer interventions and shorter labours[10,11]. Furthermore, women are often more satisfied if they have been cared for by the same health professional during labour[8].

In our definition, integration of care means a close collaboration between primary and secondary care professionals during labour whereby primary care midwives continue to provide care to women with a "moderate risk" indication, will lead to more continuity of care. In the "INtegrated CAre System" project (INCAS) facilitating and inhibiting factors for integration of care during labour were examined. In this study, which is one of four sub-studies of the INCAS project, we explored the degree of consensus among maternity care professionals about conditions needed for integration of care and involvement of the primary care midwife in the care for women in labour with "moderate risk" factors.

Following the example of maternity care systems in other countries such as Canada and the United Kingdom where the midwife who looks after a "low risk" woman often remains the caregiver when certain "moderate risks" occur, Dutch primary care midwives could be trained to take on additional tasks to enable them to take care of women with these "moderate risk" indications. This would involve a change in the organisation of

Dutch maternity care.

A high degree of consensus amongst all those involved in the care for women during labour is essential, as implementation of a new system can only be successful if there is support for change amongst all professionals concerned. The results will be of relevance to other countries that want to make changes in their organisation of maternity care. We formulated the following research questions: What conditions are necessary to integrate care during labour between primary and secondary care and what are possible barriers? In which clinical scenarios can primary care or clinical midwives remain fully responsible if "moderate risk" situations occur? Which obstetric interventions could be performed by primary care or clinical midwives?

Methods

Study design

A Delphi study was conducted to achieve consensus among a panel of professionals. A heterogenic panel of 50 maternity care professionals working in the Netherlands was purposively selected in December 2011. The panel members consisted of 12 obstetricians, 18 primary care midwives, 12 clinical midwives and 8 specialised obstetric nurses. A relatively high number of primary care midwives were included because they are the only group who work outside the hospital. More obstetricians and midwives were included than obstetric nurses because the introduction of an integrated care system is likely to affect them most. Participation was anonymous.

To select obstetricians, a mailing was sent to all obstetricians in the Netherlands, to which 41 obstetricians responded. A purposeful selection was made based on region, level of integration between primary and secondary care in the region and type of hospital (academic or peripheral, teaching or non-teaching, number of births per year). To select midwives, an announcement was placed in the Dutch Journal for Midwives and a mailing was sent to all regional primary care midwifery networks and to the working party of clinical midwives. A total of 31 primary care midwives and 17 clinical midwives responded. A total of 8 obstetric nurses were selected through their professional organisation who all agreed to take part. A varied sample of midwives and nurses was selected based on region, years of work experience, number of working days a week and, for primary care midwives, size of their practice. For all groups a maximum of one professional per hospital or practice was included.

The questionnaires

Three rounds of questionnaires were submitted online from March until May 2012 using Survey Monkey software (Survey Monkey, Palo Alto, California, USA). The questionnaires were designed with the support of two experts (LM, AvdP) in Delphi studies. These experts also advised on the analysis of the data. A multidisciplinary project group consisting of obstetricians, midwives, an obstetric nurse, a paediatrician, a client representative and researchers acted as an advisory board and approved all questionnaires. Input for this Delphi study was based on national and international literature concerning integration of care[1,12-17].

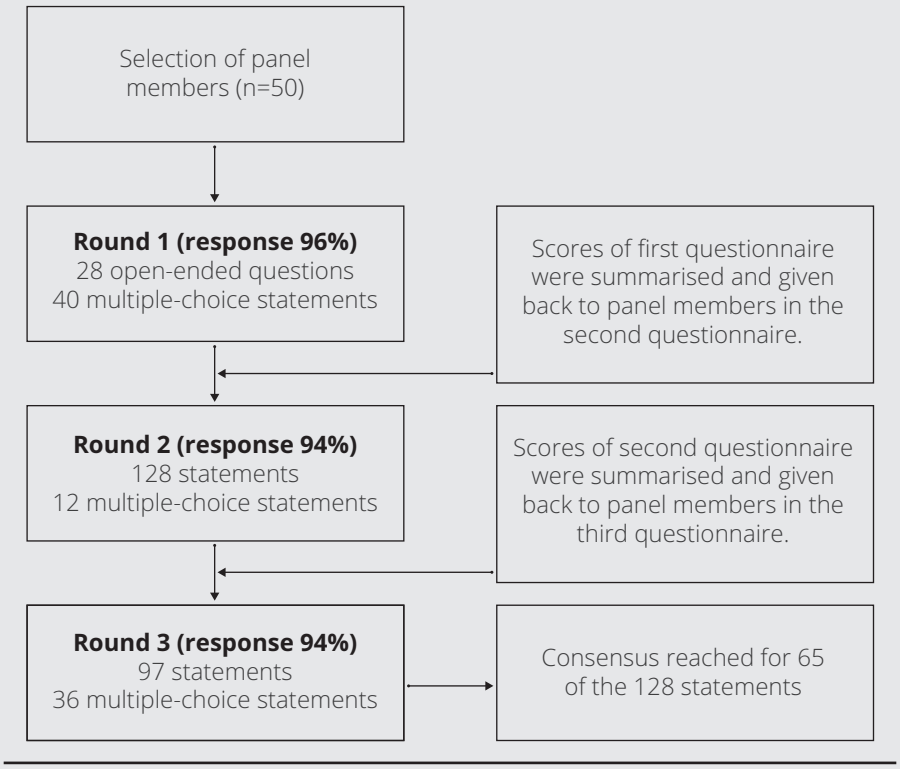
To answer the statements, panel members were asked to rate their level of agreement with each statement on a Likert scale ranging from 1 (totally agree), 2 (agree), 3 (neutral score) 4 (disagree) to 5 (totally disagree). For the analysis, the responses 1 and 2 were combined as 'agree', and the responses 4 and 5 as 'disagree'. If all panel members had an opinion, 'agree' and 'disagree' scores for statements added up to 100% (Table 1, 2 and 3). If the total was less than 100%, it meant that some people did not have an opinion (neutral score). For the multiple-choice statements participants could choose more than one option.

The first questionnaire included 28 open-ended questions and 40 multiple-choice statements. The responses were categorised and 4 topics were selected: opinions of maternity care professionals about conditions for the implementation of integrated care, opinions of maternity care professionals on potential role division concerning "moderate risk" indications, responsibilities of professionals concerning interventions and possible barriers for implementation of integrated care. These were incorporated in the second questionnaire. The second questionnaire contained 128 single-answer statements and 12 multiple-choice statements. The third questionnaire contained 97 single-answer statements for which no consensus was reached in the second questionnaire and 36 multiple-choice statements (Figure 1).

After each round the results were summarised (statements for which consensus had been achieved were highlighted and the percentage of agreement or disagreement of the total group was given) and sent to participants in subsequent questionnaires alongside their own answers. Panel members were asked to reconsider their initial opinion after seeing the results of the former round. Statements in the second questionnaire were based on comments and responses of panel members to the open-ended questions from the first round. Statements for which no consensus was reached in the second round were used again. In the third round, no new statements were added.

All panel members were asked to respond within one week. Non-respondents received a personal mailing and a phone call as a reminder. A financial compensation of 100 euro was paid after all three rounds of the Delphi procedure were completed.

Figure 1 Flowchart of the Delphi procedure



Data analysis

The project group formulated the criteria for consensus before the study started. Consensus for each statement was defined as agreement or disagreement by more than 70% of the panel members in combination with more than 50% agreement or disagreement per professional group. Basic statistics, such as percentages to calculate the levels of agreement were performed in

SPSS® version 19.0 (SPSS, Inc., Chicago, IL, USA).

Results

The first questionnaire was returned by 48 panel members (response rate of 96%). Both non-respondents were obstetricians. The second and third questionnaires were completed by 47 of the 50 panel members (response rate of 94%), with two obstetricians (the same as in the first round) and one obstetric nurse being non-responders.

Comments given in round one and two showed that the interpretation of four statements was ambiguous and these were rephrased in the third questionnaire.

Of the 128 statements in the second round, consensus was reached on 65 statements (51%) after three rounds.

Opinions of maternity care professionals about conditions for the implementation of integrated care

Table 1 shows the statements on conditions necessary for integrating care. Consensus was reached after the first round among panel members about the need of integrating maternity care in the Netherlands. Reasons mentioned were an expected reduction in interventions, better quality of care and more satisfaction among clients. Nonetheless, some professionals feared integration might result in increased medicalization and loss of autonomy. No consensus was reached on the statements that differentiation should be made between "high risk" and "moderate risk" indications and that primary care midwives should continue to provide care to women after referral during labour. 73% of the panel members in round 1 agreed that there must be a shift of responsibilities concerning interventions. 46% of the panel members specifically mentioned a shift of tasks from the clinical to the primary care midwife. 21% of the panel members disagreed with a shift of responsibilities. A reason frequently mentioned was that primary care midwives would not carry out sufficient numbers of interventions such as EFM to remain competent.

Although there was 100% correspondence between primary midwives and obstetrical nurses that home birth should remain a choice for low risk women, no consensus was achieved because only 30% of obstetricians agreed with this statement.

Table 1. Opinions of maternity care professionals about conditions for the implementation of integrated care

Statement		Opinion per professional group (%)				Total group (%)	Consensus (Round)
		O	P	C	N		
A system where maternity care is "integrated"	A	67	78	75	63	72 agree	Yes (1)
	D	11	11	17	12		
Difference between "high-risk" and "moderate risk" indications	A	67	89	42	62	68 agree	No
	D	33	0	50	25		
Primary and clinical midwife must have the same competencies	A	20	50	8	0	70 disagree	No
	D	80	50	83	86		
Competencies of primary care midwives should be expanded	A	50	100	75	57	76 agree	No
	D	30	0	25	29		
In case of a referral the midwife will continue to take care of the woman in labour.	A	30	78	58	29	55 agree	No
	D	60	22	42	57		
Home birth can be attended by both the primary care midwife and the clinical midwife	A	30	33	17	14	75 disagree	Yes (3)
	D	70	67	83	86		
Home birth should remain a choice for low risk women	A	30	100	67	100	77 agree	No
	D	30	0	8	0		
The primary care midwife must remain autonomous	A	70	100	58	71	79 agree	Yes (3)
	D	20	0	25	29		
The client may choose her primary caregiver if medically acceptable	A	40	17	33	0	74 disagree	No
	D	50	83	67	100		

A= Agree, D=Disagree

O=Obstetrician, P=Primary care midwife, C=Clinical midwife, N= Obstetric nurse

Consensus: >70% of all panel members and> 50% per professional group agree or disagree

Statements for which consensus was reached are reported in dark grey.

Opinions of maternity care professionals on potential role division concerning “moderate risk” indications

Table 2 shows the potential role division with regard to the main reasons for referral during labour. For each indication panel members were asked to give their opinion about which professional may carry the primary responsibility for care during labour and which professional can provide the actual care during labour (without primary responsibility).

The primary care midwives would like to remain responsible after referral for thin meconium stained liquor and prolonged ruptured membranes and would like to continue to provide care but not be responsible after referral for pain relief, thick meconium stained liquor and failure to progress in the first and second stage of labour. Amongst panel members consensus was only reached for primary care midwives to continue to give care in case of prolonged rupture of membranes without being responsible. Panel members agreed that primary care midwives should not be responsible in case of thick meconium stained liquor or failure to progress in first or second stage and in the latter case should not continue to give care.

All panel members agreed that clinical midwives could be responsible in case of thick or thin meconium stained liquor, failure to progress in first stage and prolonged ruptured membranes and that they should not be responsible in case of request for pain relief or failure to progress in second stage. They also agreed that clinical midwives can continue to give care in all of the “moderate risk” indications.

Table 2. Opinions of maternity care professionals on potential division of roles concerning "moderate risk" indications

Professional's role during labour		Opinion per professional group (%)				Total group (%)	Consensus (Round)
		O	P	C	N		
PAINRELIEF							
Obstetrician is responsible for care	A	80	61	83	71	72 agree	Yes (3)
	D	20	39	17	14		
Primary care midwife is responsible for care	A	20	44	33	14	66 disagree	No
	D	70	56	67	86		
Clinical midwife is responsible for care	A	22	6	42	38	77 disagree	Yes (1)
	D	78	94	58	63		
Primary care midwife may provide care	A	30	89	50	57	62 agree	No
	D	50	11	50	43		
Clinical midwife may provide care	A	89	72	92	86	83 agree	Yes (2)
	D	0	11	0	0		
THICK MECONIUM STAINED AMNIOTIC LIQUOR							
Obstetrician is responsible for care	A	90	72	58	86	75 agree	Yes (2)
	D	10	28	33	0		
Primary care midwife is responsible for care	A	0	28	25	0	79 disagree	Yes (2)
	D	100	72	58	100		
Clinical midwife is responsible for care	A	70	61	83	86	72 agree	Yes (3)
	D	20	33	17	14		
Primary care midwife may provide care	A	20	67	17	43	57 disagree	No
	D	80	28	83	57		
Clinical midwife may provide care	A	90	83	83	86	85 agree	Yes (2)
	D	0	11	8	0		
THIN MECONIUM STAINED AMNIOTIC LIQUOR							
Obstetrician is responsible for care	A	80	44	75	71	64 agree	No
	D	10	56	25	0		
Primary care midwife is responsible for care	A	30	83	17	57	51 agree	No
	D	70	17	83	43		
Clinical midwife is responsible for care	A	90	61	92	100	81 agree	Yes (3)
	D	10	33	8	0		
Primary care midwife may provide care	A	30	94	50	86	68 agree	No
	D	60	6	50	14		
Clinical midwife may provide care	A	90	72	55	71	72 agree	Yes (2)
	D	10	17	27	0		

A= Agree, D=Disagree

O=Obstetrician, P=Primary care midwife, C=Clinical midwife, N= Obstetric nurse

Table 2. Continued

Professional's role during labour		Opinion per professional group (%)				Total group (%)	Consensus (Round)
		O	P	C	N		
FAILURE TO PROGRES FIRST STAGE							
Obstetrician is responsible for care	A	100	83	83	100	89 agree	Yes (3)
	D	0	11	8	0		
Primary care midwife is responsible for care	A	11	44	25	0	75 disagree	Yes (1)
	D	89	56	75	100		
Clinical midwife is responsible for care	A	80	72	92	86	81 agree	Yes (3)
	D	20	28	8	14		
Primary care midwife may provide care	A	20	94	42	57	60 agree	No
	D	70	6	58	43		
Clinical midwife may provide care	A	100	61	100	86	83 agree	Yes (2)
	D	0	11	0	0		
FAILURE TO PROGRES SECOND STAGE							
Obstetrician is responsible for care	A	89	89	83	75	85 agree	Yes (1)
	D	11	11	17	25		
Primary care midwife is responsible for care	A	11	17	8	0	89 disagree	Yes (1)
	D	89	83	92	100		
Clinical midwife is responsible for care	A	11	0	17	12	92 disagree	Yes (1)
	D	89	100	83	88		
Primary care midwife may provide care	A	22	39	17	0	77 disagree	Yes (1)
	D	78	61	83	100		
Clinical midwife may provide care	A	90	72	100	86	85 agree	Yes (3)
	D	10	28	0	14		
PROLONGED RUPTURE OF MEMBRANES							
Obstetrician is responsible for care	A	80	56	67	86	68 agree	No
	D	10	44	33	14		
Primary care midwife is responsible for care	A	20	72	42	29	51 disagree	No
	D	70	28	58	71		
Clinical midwife is responsible for care	A	80	67	83	86	77 agree	Yes (3)
	D	20	22	17	14		
Primary care midwife may provide care	A	70	100	67	71	81 agree	Yes (3)
	D	30	0	33	29		
Clinical midwife may provide care	A	90	72	75	71	77 agree	Yes (2)
	D	10	6	17	0		

Consensus: >70% of all panel members and> 50% per professional group agree or disagree,
Statements for which consensus was reached are reported in dark grey

Opinions of maternity care professionals on responsibilities concerning interventions

To gain information about responsibilities of professionals regarding different interventions, statements were presented on (Table 3): which professional can take the decision about the necessity of the intervention, which professional can carry out the intervention (e.g. administer medication or carry out EFM) and which professional can interpret or monitor the outcome of an intervention, if applicable. It was possible to agree on more than one suitable professional.

The majority of primary care midwives thought that they would be able to take a decision for all interventions apart from the need for fetal scalp blood sampling (FSBS). In addition, they felt they would be capable of carrying out EFM, administer oxytocin, remiphentanyl or pethidine and interpret EFM and monitor epidural anaesthesia. Among panel members there was only consensus about the primary care midwife being able to decide on the need for EFM and they agreed that primary care midwives should not decide on the need for FSBS, nor carry out this procedure or interpret the result.

There was consensus among panel members about the clinical midwife being able to take a decision on EFM, carry out the intervention and interpret its results. They also agreed that clinical midwives can take a decision on the need for oxytocin, remiphentanyl or pethidine and administer oxytocin and remiphentanyl. There was consensus on clinical midwives being able to decide on the need for FSBS, carry out the procedure and interpret its results.

Possible barriers for implementation of integrated care

Slightly more than half (56%) of primary care midwives expected that their workload would increase after integration of care. The majority of primary and clinical midwives agreed that clinical midwives would lose part of their work in an integrated system. Clinical midwives also felt that an integrated care system would jeopardize their role and status. (Table 4).

Table 3 Responsibilities of professionals concerning interventions

Responsibility of professional		Opinion per professional group (%)				Total group (%)	Consensus (Round)
		O	P	C	N		
CONTINUOUS ELECTRONIC FETAL HEART RATE MONITORING (EFM)							
Primary care midwife can take decision for EFM	A	67	94	58	75	77 agree	Yes (1)
	D	33	6	42	25		
Clinical midwife can take decision for EFM	A	89	83	75	88	83 agree	Yes (1)
	D	11	17	25	12		
Primary care midwife can carry out EFM	A	40	94	50	57	66 agree	No
	D	60	6	42	43		
Clinical midwife can carry out EFM	A	89	67	67	63	70 agree	Yes (1)
	D	11	33	33	37		
Primary care midwife can interpret EFM	A	10	83	42	29	49 agree	No
	D	80	17	58	71		
Clinical midwife can interpret EFM	A	100	78	83	88	85 agree	Yes (1)
	D	0	22	17	12		
ADMINISTER OXYTOCIN							
Primary care midwife can take decision to administer oxytocin	A	40	89	50	100	70 agree	No
	D	50	11	42	0		
Clinical midwife can take decision to administer oxytocin	A	89	67	83	75	77 agree	Yes (1)
	D	11	33	17	25		
Primary care midwife can administer oxytocin	A	20	78	25	43	51 disagree	No
	D	80	22	67	57		
Clinical midwife can administer oxytocin	A	89	78	92	63	81 agree	Yes (1)
	D	11	22	8	37		
PAIN RELIEF REMIPHENTANYL							
Primary care midwife can take decision to administer Remiphentanyl	A	50	100	58	86	77 agree	No
	D	30	0	33	14		
Clinical midwife can take decision to administer Remiphentanyl	A	89	78	83	75	81 agree	Yes (1)
	D	11	22	17	25		
Primary care midwife can administer Remiphentanyl	A	10	83	33	29	47 agree	No
	D	70	17	50	57		
Clinical midwife can administer Remiphentanyl	A	70	89	92	86	85 agree	Yes (2)
	D	20	6	0	0		

Table 3. Continued

Responsibility of professional		Opinion per professional group (%)				Total group (%)	Consensus (Round)
		O	P	C	N		
PAIN RELIEF PETHIDINE							
Primary care midwife can take decision to administer Pethidine	A	78	94	58	25	70 agree	No
	D	22	6	42	75		
Clinical midwife can take decision to administer Pethidine	A	100	78	83	75	83 agree	Yes (1)
	D	0	22	17	25		
Primary care midwife can administer Pethidine	A	40	94	50	71	68 agree	No
	D	50	6	50	29		
Clinical midwife can administer Pethidine	A	78	67	58	75	68 agree	No
	D	22	33	42	25		
PAIN RELIEF EPIDURAL							
Primary care midwife can take decision for epidural	A	50	100	67	77	77 agree	No
	D	50	0	25	29		
Clinical midwife can take decision for epidural	A	100	72	83	75	81 agree	Yes (1)
	D	0	28	17	25		
Primary care midwife can monitor epidural	A	60	89	50	57	68 agree	No
	D	40	11	50	43		
Clinical midwife can monitor epidural	A	78	67	75	88	75 agree	Yes (1)
	D	22	33	25	12		
FETAL SCALP BLOOD SAMPLING							
Primary care midwife can take decision for fetal scalp blood sampling	A	11	33	17	25	77 disagree	Yes (1)
	D	89	67	83	75		
Clinical midwife can take decision for fetal scalp blood sampling	A	100	67	75	88	79 agree	Yes (1)
	D	0	33	25	12		
Primary care midwife can do the fetal scalp blood sampling	A	11	39	25	0	77 disagree	Yes (1)
	D	89	61	75	100		
Clinical midwife can do the fetal scalp blood sampling	A	100	72	83	63	79 agree	Yes (1)
	D	0	28	17	37		
Primary care midwife can interpret the outcome of fetal scalp blood sampling	A	11	22	25	0	83 disagree	Yes (1)
	D	89	78	75	100		
Clinical midwife can interpret the outcome of fetal scalp blood sampling	A	90	67	75	86	77 agree	Yes (2)
	D	10	17	8	0		

Table 3. Continued

Responsibility of professional		Opinion per professional group (%)				Total group (%)	Consensus (Round)
		O	P	C	N		
VACUUM EXTRACTION							
Primary care midwife can take decision for vacuum extraction	A	10	56	17	0	72 disagree	No
	D	90	44	83	100		
Clinical midwife can take decision for vacuum extraction	A	90	89	100	86	92 agree	Yes (3)
	D	10	11	0	0		
Primary care midwife can carry out the vacuum extraction	A	0	6	0	0	98 disagree	Yes (1)
	D	100	94	100	100		
Clinical midwife can carry out the vacuum extraction	A	33	17	17	37	77 disagree	Yes (1)
	D	67	83	83	63		

A= Agree, D=Disagree

O=Obstetrician, P=Primary care midwife, C=Clinical midwife, N= Obstetric nurse

Consensus: >70% of all panel members and> 50% per professional group agree or disagree

Statements for which consensus was reached are reported in dark grey.

Table 4 Possible barriers for implementation of integration of care

Possible barriers		Opinion per professional group (%)				Total group (%)	Consensus (Round)
		O	P	C	N		
There will be a domain struggle between de primary care midwife and secondary care in an integrated care system.	A	40	28	60	29	53 disagree	No
	D	60	72	25	43		
The workload of the primary care midwife will increase in an integrated care system	A	20	56	17	14	53 disagree	No
	D	60	44	75	29		
The clinical midwife will lose part of her work in an integrated care system	A	10	83	92	28	62 agree	No
	D	80	11	8	71		
An integrated system will threaten the position of the clinical midwife	A	0	39	67	0	62 disagree	No
	D	80	56	33	100		
The obstetrician will need to delegate more tasks in an integrated care system	A	90	94	75	100	89 agree	Yes (3)
	D	10	6	17	0		

A= Agree, D=Disagree

O=Obstetrician, P=Primary care midwife, C=Clinical midwife, N= Obstetric nurse, EFM= Electronic Fetal Monitoring

Consensus: >70% of all panel members and> 50% per professional group agree or disagree

Statements for which consensus was reached are reported in dark grey.

Discussion

In this Delphi study, we explored the degree of consensus among maternity care professionals about conditions needed for integration of care and the involvement of the primary care midwife in the care for women in labour with "moderate risk" factors. Most panel members in the study agreed that integration of maternity care in the Netherlands is important to enhance continuity of care, client-centred care and collaboration between maternity health care professionals in primary and secondary care. Panel members agreed professional autonomy of the primary care midwife is an important condition when integrating care. The primary care midwives would like to expand their tasks and responsibilities during labour but consensus among professionals was only reached for them to continue providing care in case of prolonged ruptured membranes. Panel members agreed that clinical midwives could have more responsibilities regarding "moderate risk" indications than primary care midwives.

The Delphi method was the appropriate research method, as there is lack of knowledge and agreement on the subject of integrated care[18]. Moreover this method avoids the dominance of individuals in the group as a result of written and anonymous participation.

The large number of midwives and obstetricians who had applied to take part in the Delphi study gave us the possibility to select a heterogenic panel of experts from a range of backgrounds and geographical areas. In addition, a response rate of nearly 95% in three rounds of questionnaires within three months demonstrates the affinity of professionals with the subject. The 50 professionals who were included were possibly more interested in integrated care than their colleagues who did not respond, probably giving rise to some bias. As the professionals had diverse opinions, the group was ideal for this Delphi study. The results of this Delphi study therefore give a good impression of the range of opinions and level of consensus among a group of maternity care professionals on integrated care. A survey to quantify the results of this Delphi study may provide broader insight into the opinions of a larger group of professionals.

This study shows that most professionals want to maintain the autonomy of the primary care midwife. However in particular obstetricians and clinical midwives do not agree that primary care midwives should extend their responsibilities and tasks. A survey carried out among professionals in Canada also showed that in the past obstetricians were reluctant to allow midwives to have extended care responsibilities[19]. Compared with family practitioners, they were more likely to prefer midwives to work in hospitals under physicians' authority. The authors suggest that interdisciplinary education may enhance understanding among obstetricians about the contribution of midwives. Unlike in many other countries, primary care and clinical midwives in the Netherlands work in separate settings and have a different scope of practice. The clinical midwife has been

given additional tasks, such as the administration of oxytocin and conducting EFM, while the role of the primary care midwife remains restricted to physiological births without any medical intervention. The results of our study show that there is a discrepancy between the opinions of clinical and primary care midwives regarding the role division and responsibilities. The primary care midwives were of the opinion that they can perform many of the same tasks as their clinical colleagues, while clinical midwives often did not agree with this. An explanation might be that clinical midwives are afraid to lose their professional position on the labour ward and feel threatened by an expanding role of the primary care midwife. The statement that 60% of the clinical midwives expect there will be a domain struggle between primary and secondary care when introducing integrated care supports this assumption. Although all midwives follow the same basic education, some clinical midwives have followed additional courses to carry out medical interventions and therefore may also feel they are more capable of performing extra tasks. Peterson[20] refers to this as interdisciplinary competition and indicates that, above all, midwives are afraid to lose autonomy. Professionals may find it difficult to envisage a shift in responsibilities without having the experience how this would work. This is illustrated by the fact that for many statements several panel members ticked the "neutral" score. Other countries that want to change the organisation of their maternity care system should bear in mind that this may result in insecurity among professionals. Therefore, an implementation strategy should be chosen that deals with differences in interests and opinions among professional[21].

Certain countries without clinical midwives such as Canada have a strong national correspondence amongst the roles and scope of all midwives practicing[16]. In the Netherlands there is a strong division between the two groups of midwives. To improve quality of care, consideration should be given to conflate the roles of primary care and clinical midwives.

It was surprising that panel members differentiated between thin and thick meconium stained liquor, because this difference is not made in the Dutch List of Obstetric Indications[1]. A referral to secondary care is indicated in case of both thin and thick meconium stained liquor. Little research has been done on the reliability of making a difference between thin and thick meconium stained liquor. One study showed that the inter- and intra-observer reliability is very low[22]. Nonetheless, in the literature[23,24], in some international guidelines[12,13] and in practice a difference is often made. Several studies have shown more adverse pregnancy outcomes when thick meconium is compared to thin meconium stained liquor[25,26]. Further research is needed to find out whether thin meconium stained liquor can be classified as "moderate risk" and thick meconium as "high risk".

Lee[27] stated that care throughout birth should be seen as a continuum. Although our results show that most of the panel members agree that the dichotomous division between abnormal and normal labour is no longer appropriate, no consensus was reached on a shift of responsibilities between professionals involved in the care for women

during labour. Changes in the way responsibilities are divided amongst health professionals when a "moderate risk" occurs during labour may enhance continuity of care.

In the Netherlands some regions have started experiments with integration of care. Research is recommended to evaluate the outcomes of these experiments. Based on our results, there is a need to develop new guidelines that deals with "moderate risk" indications. However, considering the lack of consensus about the division of responsibilities and tasks, more research is needed to explore how to deal with differences in opinions among professionals when integrating maternity care systems.

Conclusion

This study shows that maternity care professionals in the Netherlands agree on the importance of integrating care during labour. However, for most "moderate risk" factors there is a lack of consensus amongst Dutch maternity care professionals with regard to the division of responsibilities and tasks. This lack of consensus is a challenge, as agreement amongst professionals about key elements is essential for a successful implementation of a more integrated system of care. More research is needed on how to change roles and responsibilities of maternity care professionals in an integrated care system with the ultimate goal to improve intrapartum care and labour outcomes.

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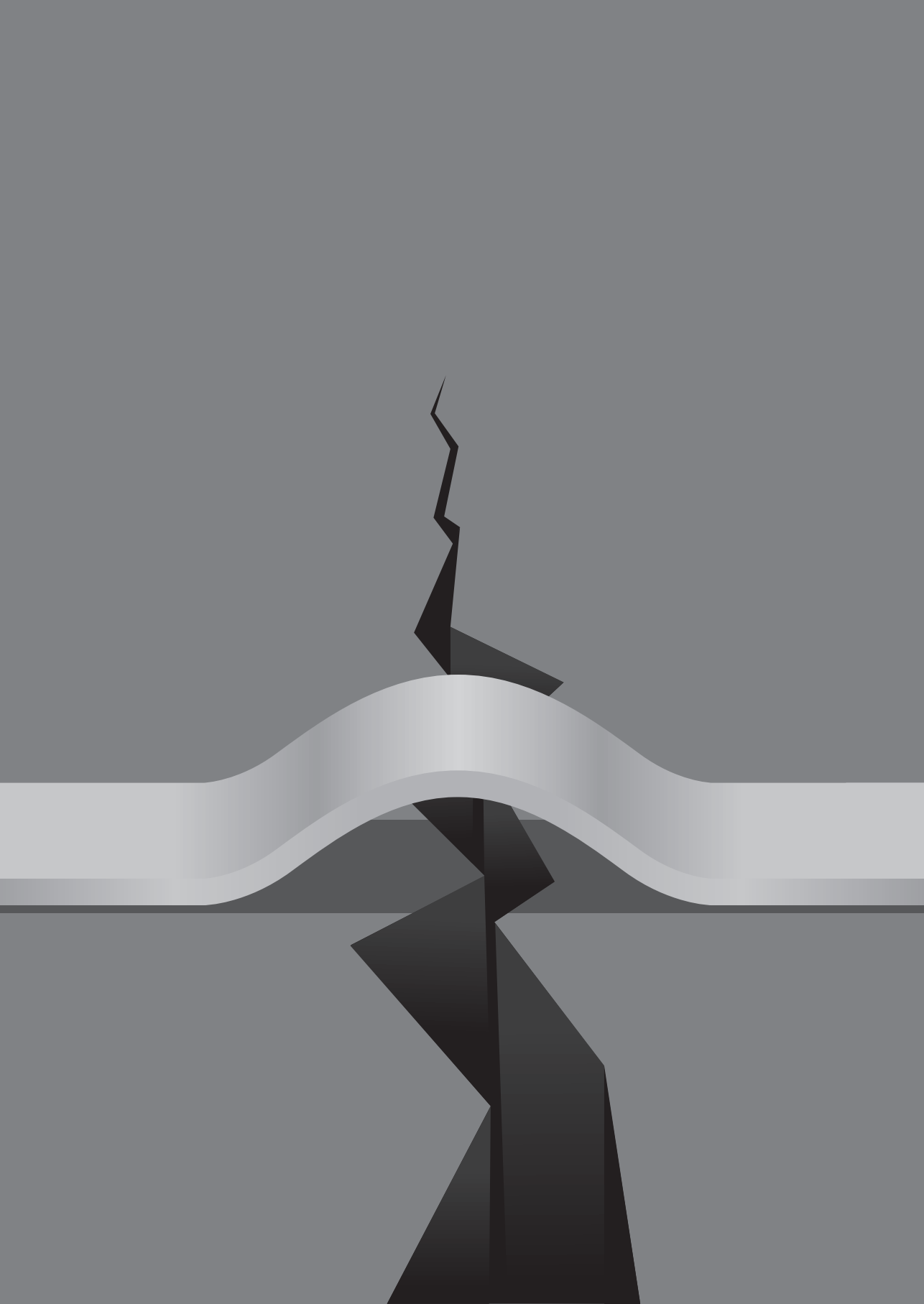

7

Opinions of professionals about integrating midwife- and obstetrician-led care in The Netherlands

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Abstract

Objective The current division between midwife-led and obstetrician-led care creates fragmentation in maternity care in the Netherlands. This study aims to gain insight into the level of consensus among maternity care professionals about facilitators and barriers related to integration of midwife-led and obstetrician-led care. Integration could result in more personal continuity of care for women who are referred during labour. This may lead to better birth experiences, fewer interventions and better outcomes for both mother and infant.

Design a descriptive study using a questionnaire survey of 300 primary care midwives, 100 clinical midwives and 942 obstetricians,

Setting the Netherlands in 2013

Participants 131 (response 44%) primary care midwives, 51 (response 51%) clinical midwives and 242 (response 25%) obstetricians completed the questionnaire.

Findings There was consensus about the clinical midwife caring for labouring women at moderate risk of complications. Although primary care midwives themselves were willing to expand their tasks there was no consensus among respondents on the tasks and responsibilities of the primary care midwife. Professionals agreed on the importance of good collaboration between professionals who should work together as a team. Respondents also agreed that there are conflicting interests related to the payment structure, which are a potential barrier for integrating maternity care.

Key conclusions This study shows that professionals are positive regarding an integrated maternity care system but primary care midwives, clinical midwives and obstetricians have different opinions about the specifications and implementation of this system.

Implication for practice Our findings are in accordance with earlier research, showing that it is too early to design a blueprint for an integrated maternity care model in the Netherlands. To bring about change in a maternity care system, an implementation strategy should be chosen that accounts for differences in interests and opinions between professionals.

Introduction

A division between midwife-led and obstetrician-led care traditionally characterizes maternity care in the Netherlands, but pregnant women, professionals and other stakeholders are increasingly questioning this division. One of the consequences of this division is that after transfer from midwife-led care to obstetrician-led care, the primary care midwife is no longer involved which results in discontinuity of caregiver[1,2] potentially leading to loss of important obstetric information[3] with a potential impact on quality and safety of care. In this study, "integration of care" is defined as closer collaboration between midwives and obstetricians. Integration of midwife-led and obstetrician-led care by shifting existing tasks and responsibilities during labour could enhance personal continuity of care for women, possibly leading to fewer instrumental deliveries, less need for pain relief[4] and more satisfaction among women[5].

The principal caregivers for women with low-risk pregnancies in the Netherlands are self-employed primary care midwives who work in private practices in, so-called midwife-led care. Women in primary care at onset of labour can choose to give birth either at home or in a hospital under supervision of their primary care midwife. If a primary care midwife identifies a risk factor during pregnancy or labour, she will refer a woman to an obstetrician who takes over responsibility for her care: so-called obstetrician led care. In total, 85% of women start their pregnancy in midwife-led care and eventually 29% of all pregnant women give birth in midwife-led care[6]. Indications for referral to or consultation with an obstetrician during pregnancy and labour are listed in the national guideline "The List of Obstetric Indications"[7]. Women can be referred back to primary care when appropriate. However, about 50% of pregnant women starting in midwife-led care are referred at some stage during pregnancy and start labour in secondary care. The number of referrals during labour has increased steadily during the past years from 15% in 2010[8] up to 23% in 2013[9]. This rise is mainly a result of more referrals for non-urgent reasons[10], such as meconium stained liquor, the need for pain medication or failure to progress during the first stage of labour[9].

The List of Obstetric Indications only distinguishes "high-risk" and "low-risk" indications. A "moderate risk" indication does not formally exist at present. In this study we defined referral indications with a high probability of good maternal and neonatal outcome[11], such as the need for epidural anaesthesia for pain relief and meconium stained amniotic liquor, as "moderate risk". All women who develop "moderate risk" indications during labour are currently classified as "high risk", and referral takes place to an obstetrician, which means that care is handed over[7]. In daily practice the obstetrician often delegates the care to a clinical midwife[12].

The primary entry to practice qualification for midwifery in the Netherlands is a four year Midwifery degree, at higher professional education". On graduation midwives can choose to work as a primary care midwife providing full scope of practice care for women experiencing an uncomplicated pregnancy. Alternatively, midwives can choose to work within the hospital system as a clinical midwife under the responsibility of the obstetrician. Clinical midwives provide midwifery care for women, referred to obstetrician led care, who experience complications or have developed risk factors that require secondary care. Clinical midwives are experienced in additional tasks such as conducting continuous electronic fetal heart rate monitoring (EFM) and augmentation of labour. Clinical midwives deal with complicated pregnancy and birth, built on a foundational knowledge base through experience and work under the responsibility of an obstetrician. A postgraduate education to enable them to take on these "additional " tasks exists in the Netherlands and is expected to become obligatory in the near future. Of all births in obstetrician-led care 40 percent are managed solely by a clinical midwife[12]. Obstetricians will only be actively involved if additional risks or problems occur, such as fetal distress or the need to perform an operative delivery. Obstetric nurses assist the midwife or doctor during labour in hospitals.

Countries such as New Zealand[13] Canada[14] and have a well-integrated primary and secondary care structure. Midwives move between primary and secondary care settings and continue to care for women transferred to secondary care, leading to more personal continuity of care for women. In these two countries, midwives are trained and have the skills required to care for women who are transferred.

We hypothesize that if women with "moderate-risk" indications continue to receive care from their primary care midwife during labour, this will lead to more personal continuity of care,[15] which is likely to increase women's birth satisfaction[5] and contribute to their feeling of safety during labour[1]. In addition, this may lead to health benefits such as a reduction of medical interventions with a similar or lower rate of maternal and neonatal morbidity[16]. If the primary care midwife were to provide care to women with a "moderate risk" indication this would require a major change in the organisation of Dutch maternity care and would need more collaboration between primary and secondary care with joint care pathways and additional tasks for the primary care midwife, such as the use of continuous EFM.

Changes in tasks and responsibilities require consensus among all maternity care professionals involved. In the "INtegrated CAre System"(INCAS) study, the barriers and facilitators for integration of care during labour in the Netherlands were examined. In a Delphi-study with a panel of 50 professionals, we found a lack of consensus with regard to redistribution of responsibilities and tasks among Dutch maternity care professionals including primary care midwives, clinical midwives and obstetricians, and a wide variety of opinions about the ideal organisation of care[17].

In the study reported here we followed up the previous Delphi study[17] in order to investigate (a) the level of consensus among maternity care professionals regarding facilitators and barriers to integrate midwife-led and obstetrician-led care for women at "moderate risk" and (b) the level of consensus among maternity care professionals regarding tasks and responsibilities of professionals when caring for women with "moderate risk" factors.

Methods

Study design

To obtain the opinions of maternity care professionals we developed an online questionnaire and in February/March 2013 invited midwives and obstetricians to complete this by sending them a link (Survey Monkey, Palo, Alto, CA, USA) via e-mail. Non-responders received a reminder by e-mail after two weeks.

In the Netherlands a total number of 2,852 midwives[18] and 942 obstetricians were active in maternity care, as of January 1, 2013. The majority of midwives (71%), work in primary care and 29% work as a clinical midwife[18]

84% of midwives in the Netherlands are members of the Royal Dutch Organisation of Midwives (KNOV) and nearly all obstetricians are member of the Dutch Society for Obstetrics and Gynaecology (NVOG). In order to reach an appropriate sample for the study, invitations were sent to members through both professional organisations. An e-mail with a link to an online questionnaire, was sent to a random sample of 400 midwives (300 primary care midwives and 100 clinical midwives) and to all 942 obstetricians between February and March 2013. More primary care midwives were invited compared to clinical midwives as this gives a good representation of current midwifery practice. The majority of Dutch obstetricians (gynaecologists) provide obstetric care but only approximately 300 of them have obstetrics as their main field of practice. Due to privacy regulations it was not possible to select those who have obstetrics as their main field of practice. To reach an equal number of obstetricians with obstetrics as their main field of practice and midwives, 400 midwives were randomly selected. In the e-mail we specifically invited obstetricians with obstetrics as their main field of expertise to participate in the survey. Participation was anonymous.

The ethical committee of VU University Medical Centre Amsterdam, the Netherlands approved the study (reference 2011/252).

The Questionnaire

A multidisciplinary project group consisting of obstetricians, midwives, an obstetric nurse, a paediatrician, a client representative and academic researchers acted as an advisory panel and approved all questions.
The questionnaire was based on the results of the previous Delphi study[17].
The questionnaire consisted of 48 questions about the characteristics of professionals, a number of statements, and open-ended questions to identify unknown important determinants of successfully integrated care. The following topics were included: possible facilitators and barriers related to integration of maternity care, distribution of responsibilities of maternity care professionals concerning care in case of "moderate risk" during labour in an integrated system (similar to Delphi study[17], and specific questions related to education and skills of professionals concerning continuous EFM.

Participants were asked to indicate whether they considered a determinant to be a facilitator, a barrier or a neutral factor for integration of care and how influential they thought the determinant was on a Likert scale from 1 (very influential), 2 (influential), 3 (neutral score), 4 (not influential) to 5 (not at all influential). For the analysis, the categories 1 and 2 were combined as "influential" and 4 and 5 as "not influential".

To score the statements about the implementation of an integrated care system during labour and about the re-distribution of tasks and responsibilities of professionals concerning "moderate risk" indications during labour in an integrated system, participants were asked to rate their level of agreement on a Likert scale ranging from 1 (totally agree), 2 (agree), 3 (neutral score), 4 (disagree) to 5 (totally disagree). For the analysis, 1 and 2 were combined as "agreement" and 4 and 5 were combined as "disagreement". Next, "consensus" for each statement was defined as agreement or disagreement by more than 70% among all panel members and more than 50% agreement or disagreement within each professional group.

In the statements a distinction was made between "taking care of women" and "being totally responsible for women's care".

Data Analysis

Descriptive statistics were used for the analysis. A p-value of <0.05 was considered statistically significant when testing differences between subgroups. Analyses were conducted by calculating the proportion of professionals who indicated a determinant as influential and the percentage of agreement or disagreement for the total group. These analyses were conducted separately for primary care midwives, clinical midwives and obstetricians if more than 60% of the participants answered the determinant as influential. The data were analysed in SPSS version 19.0 (SPSS, Inc., Chicago, IL, USA).

Findings

A total number of 442 professionals responded of which 18 respondents were excluded because their questionnaires were incomplete. Questionnaires of 424 professionals were included in the analysis. The response rate was 44% (n=131) amongst primary care midwives, 51% (n= 51) amongst clinical midwives and 25% (n=242) amongst obstetricians (Table 1). Of the responding obstetricians 89% (n= 215) had obstetrics as their main field of practice.

Table 1. Characteristics of respondents.

	Primary care midwives	Clinical midwives	Obstetricians
Respondents: N (%)	131 (44)	51(51)	242 (25)
Mean age in years (SD)	37.0* (10,6)	41.4* (10,1)	47.2 * (SD 8,9)
Mean work experience (years)	11.8*	15.7*	15.4*
Urbanisation level of the practise/hospital (%)			
Urban			
Middle sized towns	30.5*	45.1*	26.4*
Rural	30.5*	47.1*	52.5*
	38.9*	7.8*	21.1*
Employment (%)			
Employed by private practise	29.0*	0	0
Employed by hospital	0	100*	33.4*

Total respondents 424
**p<0,05*

Facilitators and barriers

In the free text section many professionals expressed a positive attitude towards integrating care. Consensus was observed on six statements of which five were considered facilitating factors and one was considered a barrier for integrating midwife-led and obstetrician-led care during labour (Table 2).

Table 2. Opinions about the facilitators and barriers of an integrated maternity care system of professionals.

Statement	Opinion per professional group (%)				Total group (%) n=424	Consensus
		O n=242	P n=131	C n=51		
VISION						
The vision of maternity care professionals is very diverse: some concentrate on the physiological process, whereas others concentrate on the risks that might occur	F	11	16	16	67 barrier	No
	B	63	74	63		
Obstetricians and midwives both work autonomously	F	16	39	37	42 barrier	No
	B	49	30	37		
All maternity care professionals are personally responsible for the care they provide	F	45	71	67	56 facilitator	No
	B	15	12	12		
Low risk women can chose the place of birth: either at home or in hospital	F	48	78	70	60 facilitator	No
	B	14	4	7		
In an integrated system, a birth centre could be an alternative for a home birth for all women at low risk for complications	F	71	37	44	58 facilitator	No
	B	7	51	19		
In an integral care system, a birth centre could be a possible alternative location where pain relief can be administered	F	44	80	56	57 facilitator	No
	B	28	6	26		
Re-arrangement of tasks within midwife-led and obstetrician-led care could lead to a different role for the primary care midwife	F	60	64	51	60 facilitator	No
	B	18	17	35		
CHARACTERISTICS ORGANISATION						
To enable an integrated care system, all caregivers involved in the care for pregnant women, are organised within one independent organisation	F	76	48	79	68 facilitator	No
	B	8	21	8		

Table 2. Continued

Statement	Opinion per professional group (%)				Total group (%) n=424	Consensus
		O n=242	P n=131	C n=51		
CHARACTERISTICS ORGANISATION						
An integrated care system is a well-structured hierarchal organisation, in which responsibilities for the care are clearly defined	F B	63 16	43 28	47 24	55 facilitator	No
An integrated care system is organised as such that a team of caregivers is responsible for the care of a pregnant woman. The role of each professional is well-defined and each professional is personally responsible for his/her own tasks	F B	87 3	86 5	84 5	86 facilitator	Yes
CONTINUITY OF CARE						
Each client has a written birth plan expressing her wishes concerning the birth (midwife-led as well as obstetrician-led care)	F B	53 14	80 1	82 0	64 facilitator	No
All caregivers use a joint electronic client record system	F B	97 1	99 0	100 0	98 facilitator	Yes
The management of care for all pregnant women is discussed with all primary and secondary caregivers in a structured manner.	F B	88 4	61 21	76 10	78 facilitator	Yes
Every client has a case-manager who is the first point of call, even when the client is referred to another professional	F B	59 19	59 12	76 10	61 facilitator	No
After referral from midwife-led to obstetrician-led care, it is important to minimize the number of health care professionals involved	F B	74 6	93 2	90 5	82 facilitator	Yes

Table 2. Continued

Statement	Opinion per professional group (%)				Total group (%) n=424	Consensus
		O n=242	P n=131	C n=51		
CONTINUITY OF CARE						
The use of a "care pathway" will support a consistent and unequivocal policy	F B	77 3	83 5	79 3	79 facilitator	Yes
The use of "pathways" will help to create a policy that is synchronized to the needs of the client.	F B	64 4	72 8	71 8	67 facilitator	No
EDUCATION						
Primary care midwives should be trained to assist women with a "moderate-risk" indication	F B	54 25	83 7	67 16	64 facilitator	No
Primary care midwives should have enough practical experience to be and remain competent in assisting "moderate risk" births	F B	58 18	79 4	81 5	67 facilitator	No
Midwives are trained in such a way that they are able to work in both primary and secondary care	F B	53 24	60 16	54 35	55 facilitator	No
FINANCE						
Currently financial motives exist which interfere with the type of care that is given to a labouring woman in midwife-led care	F B	3 87	11 43	14 71	72 barrier	No
Currently financial motives exist which interfere with the type of care to a woman in labour	F B	5 61	2 57	11 69	61 barrier	No
Financial motives could interfere with the implementation of integrated care during labour	F B	12 75	15 68	20 66	72 barrier	Yes
Professionals will be paid for the work they actually do instead of a fixed sum for the total care given	F B	23 46	38 43	34 49	46 barrier	No

Table 2. Continued

Statement		Opinion per professional group (%)			Total group (%) n=424	Consensus
		O n=242	P n=131	C n=51		
FINANCE						
Health care professionals collectively receive an integral tariff which they have to divide according to tasks performed and care given	F B	45 31	20 56	29 51	41 barrier	No
Health care professionals will be paid individually for the tasks performed and care given. Funds will be available for collaborative activities	F B	51 24	83 7	60 17	62 facilitator	No
Finances (declarations) concerning care are managed by an independent organization	F B	49 18	55 20	74 6	53 facilitator	No

F= Facilitator, B=Barrier

O=Obstetrician, P=Primary care midwife, C=Clinical midwife

Consensus: >70% of all panel members and> 50% per professional group agree or disagree

Statements for which consensus was observed are reported in dark grey.

If more than 60% of the participants thought the statement to be (not) influential, the statement is shown in this table.

Consensus was observed on the following statements: the role of each professional is well-defined and each professional is personally responsible for his/her own tasks (86%, facilitator), all caregivers use a joint electronic client record system (98%, facilitator), the management of care for all pregnant women is discussed with all primary and secondary caregivers in a structured manner (78%, facilitator), after referral from midwife-led to obstetrician-led care, it is important to minimize the number of health care professionals involved (82%, facilitator), the use of a "care pathway" will support a consistent and unequivocal policy (79%, facilitator) and financial motives could interfere with the implementation of integrated care during labour (72%, barrier).

No consensus was observed on the women's freedom of choice for the place of birth for low risk women (either at home or in the hospital). The majority of primary care midwives (78%) and clinical midwives (70%) agreed that low risk women should be able to choose

to give birth either at home or in hospital while 48% of the obstetricians agreed with this. Equally, 71% of the obstetricians agreed that a birth centre could be an alternative for home birth while fewer primary care midwives and clinical midwives did (37% and 44% respectively). No consensus was observed on the women's freedom of choice for the place of birth in case the need for pain relief arises during labour. Most primary care midwives agreed (80%) that being able to give medical pain relief in a birth centre is a facilitating factor for integrating care, whereas of the obstetricians only 44% agreed with this statement.

Regarding the training of midwives to assist women with a moderate risk indication (e.g. training in EFM) there was also discrepancy in the opinions of professionals: 54% of the obstetricians believed that primary care midwives should be trained to assist these women compared to 83% of primary care midwives and 67% of clinical midwives.

Participants were asked how much training is needed to interpret EFM. According to the participants, clinical midwives and medical trainees need to have assisted at least 80 (SD 95) women with EFM to be competent enough and should assist a minimum of 61 (SD 59) women to give birth with EFM annually to remain competent. For the primary care midwife, the mean reported duration of training for interpreting EFM was 15 weeks (data not shown).

Implementation of integrated care

Concerning facilitating factors for the organisation of care, nearly 80% of obstetricians and clinical midwives agreed that all professionals involved in both midwife-led care and obstetrician-led care should work within one organisation independent of the hospital organisation (as opposed to private or independent practice) compared to 48% of primary care midwives.

Tasks and responsibilities

Table 3 shows the opinions of different professionals regarding the management and responsibilities in case of "moderate risk" indications. Most consensus was observed on the statements regarding the role of the clinical midwife.

Primary care midwives agreed that they can provide care to women with "moderate risk" indications. However, obstetricians and clinical midwives did not consider this to be an appropriate role for primary care midwives. None of the professional groups, including primary care midwives themselves, thought that primary care midwives should be responsible for the care of women with moderate risk indications.

According to most respondents, the clinical midwife is the most appropriate professional to care for women with a "moderate risk" indication. Consensus about this was observed for all indications except for thin meconium stained amniotic liquor. Clinical midwives themselves agreed that they could be responsible for the care for women with "moderate risk" indications, but no consensus was observed in the overall group.

Table 3. Opinions about responsibilities of maternity health professionals in managing moderate risk indications.

Statement		Opinion per professional group (%)			Total group (%)	Consensus
		O	P	C		
REQUEST FOR PAIN RELIEF (MEDICAL)						
The primary care midwife is totally responsible for care, without involvement of the obstetrician. When an epidural is required, the clinical midwife refers the woman to the anaesthetist without prior consultation of the obstetrician.	A D	7 88	21 62	22 67	77 disagree	Yes
The clinical midwife is totally responsible for care, without involvement of the obstetrician. When an epidural is required, the clinical midwife refers the woman to the anaesthetist without prior consultation of the obstetrician.	A D	38 50	43 42	67 26	45 disagree	No
The primary care midwife may provide care (with or without final responsibility of care by obstetrician or clinical midwife)	A D	23 60	66 18	37 44	45 disagree	No
The clinical midwife may provide care (with or without final responsibility of care by obstetrician)	A D	85 7	57 22	89 4	76 agree	Yes
THICK MECONIUM STAINED AMNIOTIC LIQUOR						
The primary care midwife is totally responsible for care, without involvement of the obstetrician	A D	11 79	30 53	37 48	67 disagree	No
The clinical midwife is totally responsible for care, without involvement of the obstetrician	A D	42 39	44 37	85 7	47 agree	No

Table 3. Continued

Statement		Opinion per professional group (%)			Total group (%)	Consensus
		O	P	C		
THICK MECONIUM STAINED AMNIOTIC LIQUOR						
The primary care midwife may provide care (with or without final responsibility of care by obstetrician or clinical midwife)	A D	26 64	74 15	37 44	46 disagree	No
The clinical midwife may provide care (with or without final responsibility of care by obstetrician)	A D	85 6	53 24	78 15	74 agree	Yes
THIN MECONIUM STAINED AMNIOTIC LIQUOR						
The primary care midwife is totally responsible for care, without involvement of the obstetrician	A D	16 73	48 38	48 37	58 disagree	No
The clinical midwife is totally responsible for care, without involvement of the obstetrician	A D	60 26	47 36	78 15	58 agree	No
The primary care midwife may provide care (with or without final responsibility of care by obstetrician or clinical midwife)	A D	31 53	82 9	56 33	50 agree	No
The clinical midwife may provide care (with or without final responsibility of care by obstetrician)	A D	84 8	46 36	82 15	72 agree	No
FAILURE TO PROGRESS 1st STAGE						
The primary care midwife is totally responsible for care, without involvement of the obstetrician	A D	4 92	16 68	26 67	82 disagree	Yes
The clinical midwife is totally responsible for care, without involvement of the obstetrician	A D	30 58	34 53	63 30	53 disagree	No

Table 3. Continued

Statement	Opinion per professional group (%)				Total group (%)	Consensus
		O	P	C		
FAILURE TO PROGRESS 1st STAGE						
The primary care midwife may provide care (with or without final responsibility of care by obstetrician)	A D	19 67	65 20	44 37	49 disagree	No
The clinical midwife may provide care (with or without final responsibility of care by obstetrician)	A D	85 7	55 24	85 7	76 agree	Yes
PROLONGED RUPTURE OF MEMBRANES						
The primary care midwife is totally responsible for care, without involvement of the obstetrician	A D	12 77	30 45	35 54	64 disagree	No
The clinical midwife is totally responsible for care, without involvement of the obstetrician	A D	45 44	38 43	69 23	45 agree	No
The primary care midwife may provide care (with or without final responsibility of care by obstetrician)	A D	32 58	71 16	54 23	47 agree	No
The clinical midwife may provide care (with or without final responsibility of care by obstetrician)	A D	88 4	65 18	92 4	81 agree	Yes

A= Agree, D=Disagree

O=Obstetrician, P=Primary care midwife, C=Clinical midwife

Consensus: >70% of all panel members and> 50% per professional group agree or disagree

Statements for which consensus was observed are reported in dark grey.

Discussion

This study confirms and quantifies the previous findings from our Delphi study[17], which showed that maternity care professionals are positive about integrating maternity care in the Netherlands, but they do not agree on the characteristics of such a system nor the corresponding tasks and responsibilities of the different care providers. All professional groups agreed with the statement that clinical midwives are the appropriate caregivers for most women with "moderate risk" indications. In the current study we observed agreement regarding the importance of an electronic client record system as well as the importance of strong collaboration between professionals. Respondents reported that although individuals remain responsible for their own actions, teamwork is considered to be important. Respondents largely agreed with the statement that conflicting interests exist related to the payment structure, which may form a barrier for integrating care.

This study is the first large-scale evaluation in the Netherlands that gives insight into the opinions of maternity care professionals working or planning to work in an integrated care setting. It is vital to take the opinions of numerous professionals involved into account for a successful integration of midwife-led and obstetrician-led care. When comparing the results of this study and the Delphi study[17], the following factors must be taken into account: firstly, the current study was carried out one year after the Delphi study meaning that the process of integrating care was at a somewhat further stage and secondly, this study shows the opinions of a sample of midwives and obstetricians willing to respond whereas the panel members in the Delphi study could be considered leaders in the field with regards to this topic. Knowledge about professionals' opinions is important for other countries as well where changes in the maternity care system are being implemented. Preferably we would have sent the invitation to the subgroup of obstetricians with obstetrics as their main field of practice only. However, due to privacy regulations this was not possible and therefore all obstetricians were approached. In the invitation we stated that we were particularly interested in the views of obstetricians who are experts in obstetrics. As the majority of obstetricians are sub-specialized in gynaecological care this may have led to the lower response rate of the obstetricians compared to the group of midwives. However the number of responders was high enough to provide valid insights. As the random sample of midwives was selected from a list of all midwives in the Netherlands we consider this to be a representative group.

Professionals seem to be reluctant to change the system, as their opinions about many statements regarding responsibilities of professionals were consistent with the current system[7]. Moreover, in 13% of the statements "neutral" was the most frequently given answer, which can be interpreted as not having an opinion about the statement. Perhaps this resistance to change might be due to professionals having difficulty to envisage a different system if they do not know what the consequences will be for their professional

position or income[19]. A survey among midwives in Australia showed that most participants found it difficult to conceptualise how they might contribute to system change. In addition, the majority passively accepted their status and believed they were powerless to effect change[20]. This might be the case with primary care midwives in this study, as they are prepared to give care but not to carry responsibility in case of a moderate risk indication, which is in line with the current system. As people are more likely to adopt new ways of organizing, thinking and acting, if they are actively involved in the decision-making process in a bottom-up approach[21] it may be important to involve professionals from the start when changing the maternity care system. Strong midwifery leadership is needed to enable midwives to re-conceptualise roles and work patterns and identify how they can contribute to reform maternity services[20]. We expect that this counts for all health care professionals. The general idea that people are naturally reluctant to change must be taken into account when interpreting the results in this study and when reorganising a maternity care system.

This study shows that professionals involved in maternity care in the Netherlands consider continuity of care to be important. Three types of continuity of care have been described: care from the same provider who knows and follows the woman (personal continuity), good communication and cooperation between care providers in one care setting (team continuity), and good communication and cooperation between care providers in different care settings (cross-boundary continuity)[15]. It is not surprising that in our study cross-boundary continuity was found to be important as integrated care aims to improve cooperation between professionals in midwife-led and obstetrician-led care. Examples of cross-boundary continuity are working with electronically available client records, shared care pathways and the more collective decision-making. This is in agreement with other literature showing that collaboration between professionals is thought to be important[22]. Consensus was also observed on the statement about personal continuity: it is important to minimize the number of professionals (82%). In line with this, qualitative research shows that clients appreciate the continuing care of the primary care midwife after referral[1,23].

As found in the Delphi study[17], midwives and obstetricians agreed that the clinical midwife is the most appropriate professional to care for women with a "moderate risk" indication. However, when compared to the Delphi study[17] this study found less consensus in the overall group with regards to the clinical midwife also being responsible for women without direct involvement of an obstetrician. A reason for this could be growing anxiety among professionals in this study possibly due to recent disciplinary action by the national complaints commission when tasks were delegated[24]. This study shows that the clinical

midwife herself does feel confident in being responsible for most moderate risk indications, more so in the current study when compared to the Delphi study. This could be

explained by the fact that, at the time of this study, more clinical midwives had received additional training in using medical interventions such as epidural anaesthesia or the administration of remiphentanyl, and thus feel more confident in taking care of this group of women. Surprisingly, consensus was observed for the clinical midwife to provide care to women with thick meconium stained liquor although not for thin meconium stained liquor. No consensus was observed for the care of women with thin meconium because only a minority of primary care midwives agreed with clinical midwives to take care of this group. This could indicate a domain struggle between primary and clinical midwives when integrated care is being introduced in regions.

A seemingly contradictory outcome was observed in this study. Although the primary care midwife was willing to extend her tasks (e.g. provide care to women with a request for pain relief and EFM), she was not willing to take on full responsibility for women with a moderate risk indication. This is not in line with prior research[17], nor the other outcomes in this study in which the majority of primary care midwives state that professionals are individually responsible for the care they provide. Again, this could be explained by resistance to change if they cannot envisage the consequences. Although midwife-led care has been shown to lead to better birth outcomes and more continuity of care compared to shared care[4] and a lower risk of severe acute maternal morbidity compared to obstetrician-led care[25] for women without substantial medical or obstetric complications, our study shows that primary care midwives are not yet ready to extend their responsibilities.

This is consistent with the low rate (21%) of primary care midwives who were prepared to refer women directly to an anaesthesist without consulting an obstetrician first. Most professionals in this study indicated that an obstetrician must be consulted before referring to an anaesthesist for epidural analgesia. This is different to other countries where midwives consult the anaesthesist directly for epidural analgesia as pain management during normal labour. In Canada, midwives who have acquired the appropriate knowledge, skills and judgment are permitted to monitor and manage clients with epidural analgesia after consulting the anaesthesist[26]. As long as there is no indication for transfer of care to an obstetrician, the Canadian midwife remains the primary caregiver, thereby enhancing continuity of care. This could be an example for the Netherlands.

If primary care midwives continue to care for women when a "moderate risk" arises, it is necessary that they are educated for additional tasks such as EFM. The primary care midwife in the Netherlands currently uses intermittent auscultation to assess the fetal condition during normal labour. Although continuous EFM has been shown to have low accuracy[27,28] and does not improve perinatal outcomes among low risk women[29], it is widely used across the world to monitor the fetal condition during labour. Our study shows that primary care midwives are willing to extend their tasks but no consensus was observed on the primary care midwife being the suitable caregiver to use and to interpret EFM, which is supported by previous research[17]. Surprisingly, there is no educational

standard with regards to EFM training. Internationally agreed standards for EFM training and number of EFM's are needed and may contribute to the quality of maternity care.

The quality of care delivered by non-physician health professionals is not inferior compared to clinicians[30]. However, our study shows that obstetricians (clinicians) and clinical midwives (non-clinician health professional) do not agree with the extension of tasks of the primary care midwife (non-clinician health professional) such as EFM. Agreement amongst obstetricians was higher regarding the clinical midwife extending her tasks. However, these midwives work under the responsibility of obstetricians and not autonomously like primary care midwives. Findings by another study[31] were similar to ours showing that the majority of nurse practitioners expressed their ability to practice independently as leaders of patient-centred medical homes but this was not reflected in the attitudes of the majority of physicians. Donelan[31] describes that it is not surprising (and indeed may even be expected) that physicians and non-physician health professionals emerge without a common vision of their roles in the provision of primary care as these professionals come from very different cultures of professional education, are guided by different theoretical perspectives, and often develop their clinical skills in different practice environments. Other reasons for the different vision with regards to extension of tasks could be that clinical midwives are afraid of becoming redundant whereas obstetricians may fear the loss of control. Nonetheless, if primary care midwives were to provide care to women with a moderate risk indication after appropriate training this would improve continuity of midwife-led caregiver. However, task shifting can only be achieved if obstetricians are willing to give up tasks and non-physicians health professionals (midwives) are able to perform these tasks[32]. As well as this, fee-for-service schemes may be a barrier to role expansion of non-physician health professionals (midwives) if only services delivered by physicians (obstetricians) are reimbursed[32].

Internationally the safety of home births and midwife-led care is now positively being discussed[33]. However, significant differences remain between opinions of maternity care professionals regarding home birth. Our study confirms research findings[34,35] showing a strong support from the midwifery community regarding home birth for low risk women but that obstetricians have a neutral or negative opinion and prefer women giving birth in a hospital or in a birth centre. A Canadian study showed that the attitude of maternity caregivers is associated with exposure to home birth; physicians believed home birth to be less safe than hospital birth[34]. It is known that views of caregivers have significant impact on the extent to which women are able to make informed decisions[36]. In order for medical trainees to broaden their view on the organisation of the Dutch obstetric system it is important that they experience home birth. This may be achieved by undertaking training within a primary care practice[37]. Sufficient exposure to home birth may enable medical trainees to give a more informed choice of birth place to women and more insight into the tasks of colleagues working in primary care.

Health care systems with a strong focus on primary care, such as the Dutch system, achieve a high-quality and cost-effective healthcare system[38] and provide better population health compared to systems without primary care[39]. The WHO advocates a switch from specialized to generalist ambulatory care, whereby generalists are responsible for a defined population and are able to coordinate support from hospitals[40]. Taking this into account, the role of the primary care midwife could be merged with the role of the clinical midwife. This would contribute to personal continuity of care but would require a major change in the Dutch maternity care system. Still, the system in New Zealand could be used as an example where primary and clinical midwives use the same protocols and the same midwife continues to take care of women with a "moderate risk" indication (Lee and Walker, 2011). Additional tasks, such as working with EFM and ultrasound screening could be part of the regular midwifery training contributing to the quality of maternity care. To prepare student midwives for the full scope of practice in the community and in hospitals, the midwifery training could be upgraded to a university degree like in Canada[41]. Additional training may give the primary care midwife more confidence and willingness to extend their responsibilities.

Conclusion

This study shows that professionals are positive about the implementation of an integrated maternity care system in the Netherlands but no consensus exists about the characteristics of such a system. Consensus was observed on the clinical midwife being an appropriate caregiver for most women with a "moderate risk" indication but no consensus was observed with regards to the clinical midwife being responsible for women without direct involvement of an obstetrician. Although the primary care midwife is willing to expand her skills in order to improve continuity of care, no consensus was observed on extension of her tasks and responsibilities.

The results of this study are in accordance with earlier research, which shows that it is not yet possible to design a blueprint for an integrated maternal care model in the Netherlands. To bring about change in a maternity care system, an implementation strategy should be chosen that accounts for differences in interests and opinions between professionals.

In addition, primary care midwives need to gain confidence before they are willing to take on additional responsibilities for women with moderate risk indications.

Authors' contributions

HP, BWM and AJ designed the study. HP wrote the article. HP and SJ conducted the analyses. HP, SJ, CV, JD, RB, BWM, FS and AJ contributed to the interpretation of the data. SJ, CV, JD, RB, BWM, FS and AJ critically revised earlier drafts of the paper for important intellectual content and gave final approval of the version to be published.

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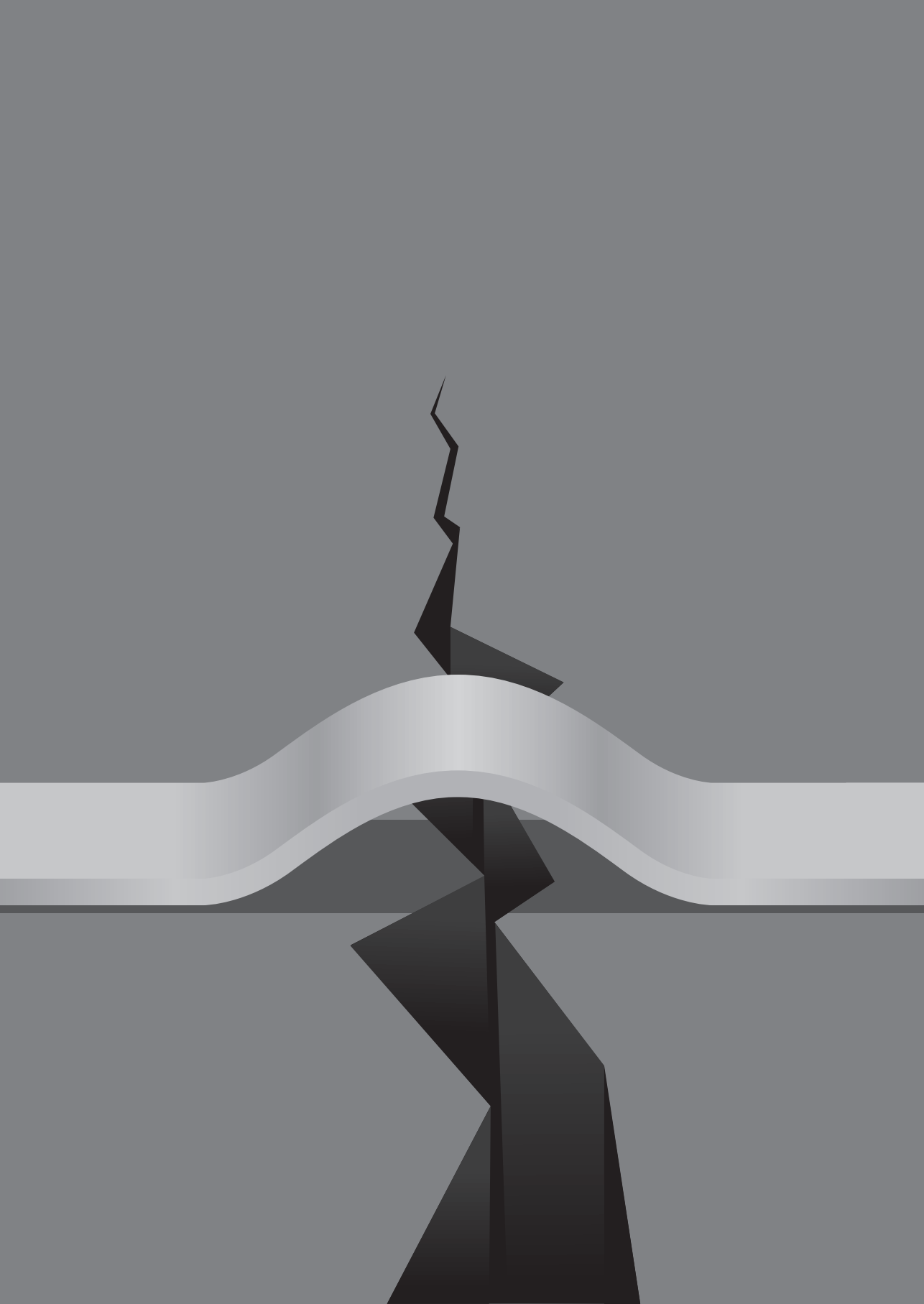

8

General discussion

General discussion

The main aims of this thesis were
- To examine maternal and perinatal outcomes and medical interventions among women who are referred from primary to secondary care during labour.
- To examine experienced continuity of care among women in relation to experienced quality of care and perception of care.
- To examine which factors are essential to effectuate successful integration of primary and secondary maternity care, according to maternity care professionals, women, representatives of professional organizations, health care insurance companies and policy makers.
- To define the facilitators and barriers when integrating maternity care.

In this chapter, a summary and discussion of the main findings of this thesis are given, followed by methodological considerations, and the implications for practice and research.

Main findings

In the cohort study representing 600 births, reported in chapter 2, most women who were referred during labour from primary midwife-led care to secondary obstetrician-led care had a spontaneous vaginal delivery and most neonates were born in good condition. The main reasons for referral during labour were a request for pain relief and meconium stained fluid. The majority of referred women had continuous electronic fetal heart rate monitoring (88%), pain relief (60%) and augmentation of labour (64%). Approximately 3% of the neonates had an Apgar score of 7 or less after five minutes. There were no perinatal or maternal deaths.

Chapter 3 gave the results of a survey conducted in one region in the Netherlands into experienced continuity of care for women in primary midwife-led care compared to those in obstetrician-led care. The experienced personal and team continuity of care during pregnancy was higher for women in midwife-led care compared to those in obstetrician-led care at the onset of labour. Experienced continuity of care and experienced quality of care during labour were only associated for women who were not referred during pregnancy. Therefore, experienced continuity of care might be considered as a complementary aspect of quality of care.

Job autonomy (chapter 4) is defined as the degree of control a worker has over his or her own immediate scheduling and tasks. In this survey among maternity care professionals, primary care midwives showed a significantly higher score for experienced job autonomy compared to obstetricians, clinical midwives and obstetric nurses. Primary care midwives scored highest with regard to their expectation to lose job autonomy in a system of integrated maternity care.

Maternity care professionals were positive about integrating maternity care in the Netherlands. Opinions differed regarding the characteristics of the optimal maternity care organization model including the corresponding tasks and responsibilities of the different care providers (chapter 5, 6 and 7).

We observed agreement regarding the importance of a shared electronic client record system as well as the importance of strong collaboration between maternity health care professionals in primary and secondary care. Maternity care professionals reported that teamwork is considered to be important with individuals remaining responsible for their own actions (chapter 6).

Most maternity care professionals, representatives of professional organizations, health care insurance companies and policy makers who participated in our study, agreed that integration of maternity care in the Netherlands is important for enhancing continuity of care and client-centered care. Maternity care professionals and other stakeholders largely agreed with the statement that conflicting interests exist related to the payment structure, which may form a barrier for integrating care. In addition, maternity care professionals indicated that the fear of losing job autonomy is an inhibiting factor for integrating maternity care (chapter 5).

The primary care midwives would like to expand their tasks and responsibilities during labour but among professionals consensus was only reached for primary care midwives to continue providing care in case of prolonged ruptured membranes. Participants agreed that clinical midwives have more responsibilities regarding "moderate risk" indications than primary care midwives. All professional groups agreed with the statement that clinical midwives are the appropriate caregivers for most women with "moderate risk" indications (chapter 6 and 7).

Implementation of integrated maternal care

The aim of integrated maternal care is to improve care by working multi-disciplinary in which the client plays a central role[1]. In this thesis factors were identified for a successful integration of midwife-led and obstetrician-led maternity care. Consensus was observed regarding the importance of collaboration and continuity of care but no consensus was found regarding the tasks and responsibilities of the different maternity care providers involved. Therefore, a blueprint for the optimal maternity care system cannot be given on the basis of the findings in this thesis. According to stakeholders in our studies, important factors for a successful implementation of integrated care are an appropriate payment structure and respecting the job autonomy of professionals.

The studies in this thesis were performed during a very turbulent period in maternity care in which many changes took place. Important developments such as publication of the report of the Steering Committee commissioned by the government, the develop-

ment and publication of the guideline on integrated maternity care, political pressure on maternity care professionals to intensify their collaboration and the launch of one tariff for maternity care all occurred during the timeframe of this research.

Recently, regions started implementing integrated care in practice before different types of organization of care were properly evaluated.

Our studies show that professionals and other stakeholders do not have a shared vision on the optimal model of integrated maternity care. We therefore call for a thorough evaluation of the process and outcomes of integrated care to determine which type of organization meets the expectations of women, professionals and stakeholders the most.

Thematic discussion

Themes that emerge from this thesis, which we will discuss, are continuity of care, collaboration between maternity health care professionals, pregnant women with a "moderate-risk" indication for complications and job autonomy of maternity care professionals.

Continuity of care

In our studies, participating professionals and other stakeholders agreed that integration of maternity care in the Netherlands is important to enhance continuity of care for women (chapter 6 and 7).

Continuous support during labour from the same maternity caregiver has been associated with a positive childbirth experience[2,3]. This is referred to as "personal continuity" or "relational continuity". This might for example be achieved if the primary care midwife continues to play a role in caring for women after referral for indications such as the need for pharmacological pain relief or prolonged rupture of membranes (further referred to as "moderate-risk" indications).

Other dimensions of continuity of care are "information continuity" in which the care provider uses and exchanges information on past events, to deliver care that is appropriate to the patient's current circumstances; and "management continuity" in which the care providers connect their care in a coherent way[4].

A maternity care system with two separate echelons has disadvantages such as discontinuity of care as a result of referrals from midwife-led to obstetrician-led care. Discontinuity of care increases the risk of inaccurate communication[5], and may lead to more interventions[6] and less satisfaction among women[2,7].

Posthumus et al.[8] describe that in a model of integrated care, continuity of care could improve. Integrating maternity care is likely to result in more information continuity due to shared medical records and higher management continuity due to intensive collaboration between primary and secondary maternity care professionals.

However, we should also be aware that integration of midwife-led and obstetrician-led care could be at the expense of personal continuity of care for women as more professionals are involved in taking care. Integration of care could also increase the orientation towards specialized care, which could lead to unnecessary medicalization of pregnancy and birth. This is confirmed by literature showing that health systems built on the principles of primary care, achieve better health and greater equity in health than systems with a specialty care orientation[9-11]. In line with this, the Lancet Series on midwifery concludes that in high- and middle-income countries there is a growing risk of over-medicalization of normal pregnancy and birth, with the routine use of interventions[12].

Our findings in chapter 3 suggest that the level of experienced personal continuity of care may be higher among women in midwife-led versus obstetrician-led care at the onset of labour. This is in accordance with the literature showing that continuity of care is a core component of a midwife-led care model[6]. In our study, women who were referred during pregnancy experienced more personal continuity of care from all professionals compared to women solely under obstetrician-led care. An explanation for this could be that women who receive obstetrician-led care are attended by multiple caregivers (e.g. clinical midwife, nurse, resident and obstetrician). Additionally, women under obstetrician-led care may have to consult other specialists as well.

As women value personal continuity of care, we think it is important to take this into consideration when integrating maternity care. Optimizing collaboration between professionals in midwife-led care and obstetrician-led care, in which referral is smooth without loss of information, could increase experienced continuity of care. In addition, working in small teams of caregivers, in primary as well as in secondary care, in which women are seen by a limited number of caregivers might benefit the experienced continuity of care for women.

Collaboration between maternity health care professionals

The present thesis shows that there is no agreement among maternity care professionals regarding the division of tasks and responsibilities between the different groups of care providers (chapter 6 and 7). This is confirmed by literature showing that there is a lack of understanding of the roles and responsibilities between professional groups[13].

Obstetricians and midwives are organized in professional associations with their own visions on maternity care, guidelines and political lobbies. This could hinder professionals understanding and respecting one another, and could disturb the interprofessional collaboration[14]. A better understanding, and shared goals between maternity care professionals and their organizations may lead to more effective communication and mutual support[15].

Additionally, better collaboration between professionals may be achieved by developing and endorsing multidisciplinary guidelines at national level, such as the "Zorgstandaard Integrale Geboortezorg"[1].

The present separate education for midwives and obstetricians does not contribute to gaining knowledge of and respect for the other professional group. Obtaining more insight in each other's visions by multidisciplinary training could result in a better understanding of each other's profession[16]. Examples are obstetrician trainees doing internships in primary care and vice-versa or midwives and obstetricians performing research together.

Finally, the studies within this thesis show that there is a strong division between the participating primary care midwives and clinical midwives regarding their roles and responsibilities (chapter 5,6 and 7). An example is that only a minority of the participating primary care midwives agreed that clinical midwives are the appropriate caregivers for women with thin meconium stained amniotic fluid, whereas the majority of primary care midwives themselves indicated that they could take care of these women. Possibly this is caused by a domain struggle between midwives in the Netherlands. This strong division between primary care midwives and clinical midwives must be solved to achieve better collaboration within one and the same profession. In Canada, for example, there is no difference between primary care and clinical midwives and there is a strong national agreement about the roles and scope of all practicing midwives[17]. To improve collaboration and quality of care, consideration should be given to conflate the roles of primary care and clinical midwives by addressing necessary conditions, such as expanding midwives' training and their scope of practice.

In conclusion, better collaboration might be achieved by joint development of more multidisciplinary guidelines at national level, multidisciplinary training and merging the roles of the primary care- and clinical midwife.

Pregnant women with a "moderate-risk" for complications

In the Netherlands all women referred to obstetrician-led care, are considered "high risk" according to the "Obstetric Indications List"[18]. However, this thesis shows that most referrals during labour result in spontaneous vaginal deliveries with good maternal and neonatal outcomes (chapter 2). After referral the clinical midwife will provide care for most of these women as member of the hospital obstetric team and under the responsibility of the obstetrician[19]. In our research we referred to this group as pregnant women with a "moderate risk" of complications.

In our studies, consensus between maternity care professionals was found with regards to clinical midwives being the appropriate caregivers for most women with "moderate risk" indications. Primary care midwives are willing to expand their tasks for women with

certain "moderate risk" indications.Recent research showed that midwifery students are also motivated to expand their scope of practice in order to enhance their role in providing intrapartum care[20]. However, in our studies no consensus was found among other professional groups for this.

Although no agreement was observed with regard to the tasks and responsibilities of primary care midwives, providing care to women with a "moderate risk" indication could result in more personal continuity of care and satisfaction among women. Following the example of maternity care systems in other countries such as Canada[21] and New Zealand[22], where midwives move between primary and secondary care settings and continue to care for women transferred to secondary care, Dutch primary care midwives could be trained to take on additional tasks. This would enable the primary care midwives to take care of women with these "moderate risks". This would result in a shift of tasks from the clinical midwife to the primary care midwife.

A so called "extended arm construction" existed in the Netherlands from 1990 till 2009. In this construction the primary care midwife continued to take care of women after referral to secondary care. In 2007 the extended arm construction was rejected by the professional organizations of both midwives (KNOV) and obstetricians (NVOG)[23] as the responsibilities between midwives and obstetricians were not clearly delineated.
However, the satisfaction among women and professionals who worked in this system was high because of a high level of experienced continuity of care[24].

Therefore, when training of Dutch midwives to take on additional tasks will be initiated, also changes are needed to create an appropriate legal framework.

Job autonomy

Job autonomy, defined as the degree of control a professional has over his or her own immediate scheduling and tasks[25], is one of the conditions that influence job related wellbeing and satisfaction[26,27]. According to our studies, midwives and obstetricians consider job autonomy as very important because they do not want to lose their control and independence in clinical decision-making (chapter 4).

A high sense of job autonomy is of high importance as it protects healthcare professionals against somatic complaints and psychological distress in their work[28-30]. Besides the positive effects for the professional, a higher sense of job autonomy among midwives in midwife-led care settings has been shown to have a positive effect on the empowerment of women and has a positive influence on the professional-patient relationship[29]. This might be explained by the increased job autonomy that both women and midwives experience in midwife-led care settings. This job autonomy is mediated principally by the relationships developed between women and their midwives, in particular due to the smallness of scale[29].

However, there also seems to be tension between job autonomy and collaboration between professionals[31]. Van der Lee states that the autonomous position of both midwives and obstetricians in the Netherlands undermines true teamwork[31]. Therefore, the challenge lies in finding the balance between a high level of job autonomy among professionals and a good collaboration between professionals when moving towards a system of integrated maternity care based on the needs of women.

Methodological considerations

This thesis is the first evaluation in the Netherlands that gives insight into the opinions of women, maternity care professionals and other stakeholders about integrated care. Several limitations have to be taken into account, therefore the results should be interpreted cautiously.

Although in total a large number of respondents participated in the various studies included in this thesis, the results may be subject of different types of bias. Clients may have been more inclined to participate if they had positive experiences with the care provided, especially when they were invited by "their own midwife" to complete a questionnaire.

Also, the studies in this thesis were performed during a very turbulent period in maternity care in the Netherlands in which maternity care has often been a topic in the news. Professionals may have contributed to the various studies with the aim to defend their position instead of giving their own opinion. Or, the opinions of professionals and other stakeholders obtained during this turbulent period may have been influenced by the day-to-day news about maternity care. They may have felt inhibited to give their opinion if this could harm the interests of their professional organisation. Also, because of these fast developments opinions of maternity care professionals and other stakeholders may have changed within the timeframe of this thesis or afterwards.

The general idea that people are naturally reluctant to change must also be taken into account when interpreting the results of this thesis. This may have led to higher response rates of women, practices and departments who are most reluctant regarding integrated care. This may have led to an overrepresentation of critical and conservative opinions in the studies in this thesis.

However, the thesis has several strengths as well.

In qualitative studies (Delphi study, focus groups, interviews) important themes were identified that are important to professionals and stakeholders regarding integrated care. Subsequently, the results of the survey , confirmed these results in a quantitative way. Moreover, triangulation of the results from the various studies (based on questionnaires, interviews and focus groups) showed substantial consistency, which enhances the trustworthiness of these findings.

Implications for practice

This thesis shows that differences in opinions exist among professionals and other stakeholders with regard to the optimal maternity care organization model (chapter 5,6 and 7). This complicates the implementation of integrated care. As people are more likely to adopt new ways of organizing, thinking and acting if they are actively involved in the decision-making process in a bottom-up approach[32] it is of great importance to involve professionals from the start when changing the maternity care system.

Results of our studies have been used to develop plans for integrated care. For example, in a new integrated care project in Amsterdam, primary care midwives will take care of pregnant women with a moderate risk indication such as meconium stained amniotic fluid because our results suggest that most women with these indications proceed to have a spontaneous vaginal birth.[33]. In the evaluation of this project the maternal and perinatal outcomes, experiences of women and professionals and costs will be carefully monitored.

From our research we have the impression that most professionals find it difficult to think "out of the box" and to envisage a system that does not yet exist (chapter 5,6 and 7). Leadership is needed to enable professionals to re-conceptualise roles and work patterns and to identify how they can contribute to reform maternity services[34]. Therefore, leadership training should be encouraged among maternity care professionals.

More integration with regard to education of midwives and obstetricians may enhance respect of each other's vision and expertise, resulting in better collaboration. Examples are obstetrician trainees doing internships in primary care and vice-versa or research performed by midwives and obstetricians together.

Additionally, better collaboration between professionals may be achieved by increasing the number of multidisciplinary guidelines at national level, developed and supported by professional organizations. This may result in a better understanding of common goals. Based on our results, we suggest developing multidisciplinary guidelines for "moderate risk" indications.

To increase continuity of care, consideration could be given to conflate the roles of primary care and clinical midwives into one midwifery professional. Additional tasks, such as performing electronic fetal heart rate monitoring could be preceded by including this in the regular midwifery training of all midwives. However, sufficient exposure in daily practice with regards to interventions such as electronic fetal heart rate monitoring is needed to guarantee high quality of care. To prepare student midwives for the full scope of practice and to extend their responsibilities, including care for women with a moderate risk of complication in both the community and in hospitals, there is a strong need to upgrade midwifery training. An appropriate legal framework is needed in parallel to changing the system. Upgrading midwifery training to university level and interprofessional training could contribute to a better understanding among professionals.

In addition, working in small teams of caregivers, in which women are seen by a limited number of caregivers in primary and secondary care could be of benefit for the experienced continuity of care for women.

Recommendations for research

Considering the observed lack of consensus about the division of responsibilities and tasks, more research is needed to explore how to deal with differences in opinions among professionals. These differences may partly be caused by dissimilar visions and goals. Therefore, it is important to further explore what midwives and obstetricians need to be confident about when shifting responsibilities and tasks in an integrated maternity care system.

It is of interest to examine what the effect is of partly combining education for midwives and obstetricians, such as doing internships and research together, on the collaboration between the professional groups.

Research is needed with regard to the midwife of the future: whether to merge the primary care and clinical midwife or to shift the tasks between these groups.

An international study is needed to examine the responsibilities, tasks, and education of midwives in countries such as New Zealand and Canada where midwives move between primary and secondary care settings and continue to care for women transferred to secondary care. It is of interest to know how women, professionals and other stakeholders experience that system.

In our studies I have evaluated current care in the Netherlands and how women, professionals and other stakeholders experience the system. However, meanwhile some regions have started implementing integrated care in some form. Further research is needed to evaluate the effects of different models of integrated care in practice on maternal and neonatal outcomes, satisfaction among women, wellbeing among professionals and cost- effectiveness. By comparing the outcomes and experiences between regions, lessons can be learned about optimizing maternity care.

Further research is needed evaluating whether working in small teams of caregivers, in which women are seen by a limited number of caregivers benefits the experienced continuity of care for women. As our study was limited because of the small sample size, research in larger groups is needed to evaluate the experienced personal and team continuity of care for women in midwife-led care and those in obstetrician-led care.

This thesis shows that barriers exist such as differences in opinion among professionals regarding the optimal maternity care model, responsibilities and the appropriate payment structure. Research is needed to investigate how to overcome these barriers.

Maternity care should be based on women's needs and preferences. To give the best care to women, true team working by pregnant women, clinical and primary care midwives, obstetricians, pediatricians, policy makers and researchers is needed, based on development of a shared philosophy of care and mutual respect.[35]

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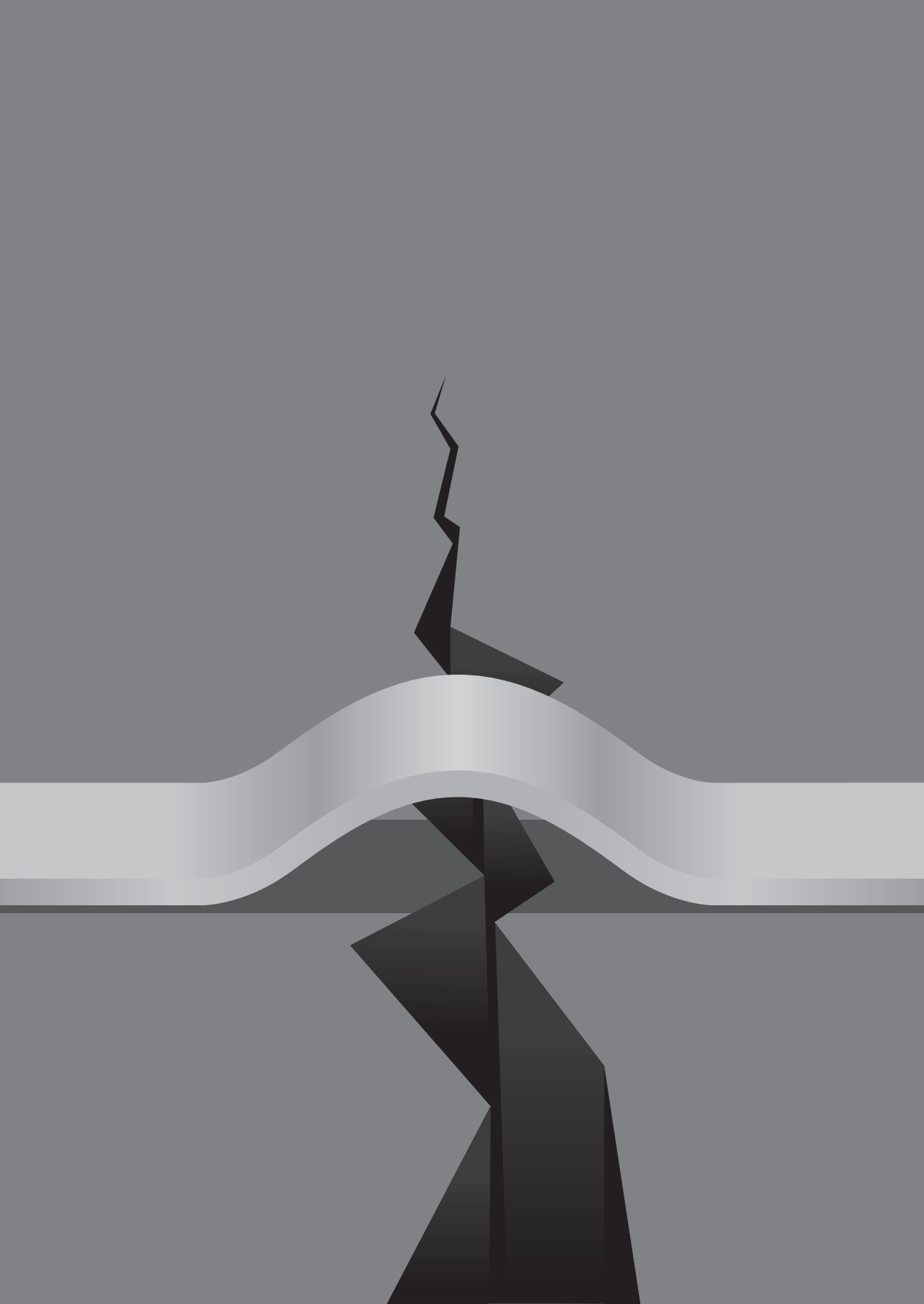


9

Summary
Samenvatting

Summary

The Euro-Peristat project, with international comparison of maternity outcome data since 1999 showed that the Netherlands had a relatively high perinatal mortality rate compared to other Western European countries. Comparison of mortality rates between European countries is challenging due to different registration systems[2]. Nevertheless, it has been suggested that these high rates could partly be explained by the division between midwife-led care and obstetrician-led care as this could lead to a suboptimal level of collaboration between maternity care providers, thereby contributing to adverse events and incidents. Discussions arose both nationally and internationally regarding the sustainability of the current system. It was argued that the system could be improved by changing the organizational structure towards a model of integrated care.

At present, Dutch maternity care is undergoing major changes and there is a shift towards an "integrated model of care". The goal of integrating maternity care is to improve the quality of care in the entire spectrum by working multi-disciplinary in which the client plays a central role.

The Introduction **(chapter 1)** gives insight in maternity care in the Netherlands, the roles of midwives and obstetricians over time, the models of care and the need for a new model of care, what women and maternity care professionals consider important in maternity care, the reasons for integrating maternity care and the challenges of integrating maternity care. Triangulation of methods (questionnaires, interviews and focus groups) were used with the aim to:

- To examine maternal and perinatal outcomes and medical interventions among women who are referred from primary to secondary care during labour.
- To examine experienced continuity of care among women in relation to experienced quality of care and perception of care;
- To examine which factors are essential to effectuate successful integration of primary and secondary maternity care in practice, according to maternity care professionals and other stakeholders;
- To define the facilitators and barriers when integrating maternity care.

In **chapter 2** the results are presented of a retrospective cohort study into labour process and outcomes after intrapartum referral from primary to secondary care in the Netherlands. We examined reasons for referral, management of labour and maternal and neonatal outcomes among women who were referred during labour.
Descriptive analyses were performed on data obtained from patient records examining the reasons for referral, interventions after referral, mode of delivery, maternal and neonatal outcomes. The study population included 600 pregnant women. Three out of

four women were referred for moderate risk indications: request for pain relief (30.5%), meconium stained fluid (25.3%), failure to progress during first stage of labour (14.0%) and prolonged ruptured membranes without contractions (12.5%). Of all women, 65.7% had a spontaneous vaginal delivery and 59.7% received some kind of pain relief. Acute referral for fetal distress occurred in 5.5%. Of the neonates 2.7% had an Apgar score of 7 or less after five minutes and 1.2% had an umbilical cord pH < 7.05. Postpartum complications occurred among 11.0% of the referred women.

The conclusion of this chapter is that women who are referred during labour have a high probability of spontaneous vaginal delivery.

To improve continuity of care and satisfaction for this group of women, management of labour could be continued by trained primary care midwives.

In chapter 3 the findings of a survey evaluating experienced continuity and quality of care and women's perception of labour are presented. The primary aim was to compare experienced continuity of care among women who received midwife-led versus obstetrician-led care. Secondly, to compare experienced continuity of care with a. experienced quality of care during labour and b. perception of labour.

To measure experienced continuity of care, the Nijmegen Continuity Questionnaire was used. Quality of care during labour was measured with the Pregnancy and Childbirth Questionnaire, and to measure perception of labour we used the Childbirth Perception Scale.

325 women consented to participate (response rate 41%). Experienced personal and team continuity of care during pregnancy were higher for women in midwife-led care compared to those in obstetrician-led care at the onset of labour. Experienced continuity of care was moderately correlated with experienced quality of care although not significantly so in all subgroups. A weak negative correlation was found between experienced personal continuity of care by the midwife and perception of labour.

This study suggests that experienced continuity of care depends on the care context and is significantly higher for women who are in midwife-led compared to obstetrician-led care during labour. It will be a challenge to maintain the high level of experienced continuity of care in an integrated maternity care system.

Experienced continuity of care seems to be a distinctive concept that should not be confused with experienced quality of care or perception of labour and should be considered as a complementary aspect of quality of care.

In **chapter 4** the experienced job autonomy among maternity care professionals in the Netherlands is described. This study aimed to assess how maternity care professionals in the Netherlands perceive their job autonomy in the Dutch maternity care system and whether they expect a new system of integrated maternity care to affect their experienced job autonomy.

The Leiden Quality of Work Life Questionnaire was used to assess experienced autonomy.

799 professionals participated in this research of whom 362 were primary care midwives, 240 were obstetricians, 93 clinical midwives and 104 obstetric nurses. Significant differences were seen in experienced job autonomy between maternity care professionals. The mean score for experienced autonomy was highest for primary care midwives, followed by obstetricians, clinical midwives and obstetric nurses. Primary care midwives scored highest in expecting to loose job autonomy in an integrated care system.

When changing the maternity care system it will be a challenge to maintain a high level of experienced job autonomy for professionals. A decrease in job autonomy could lead to a reduction in job related wellbeing and in satisfaction with care among pregnant women.

In **chapter 5** the findings are shown of a qualitative study using interviews and focus groups which gave insight into the opinions of maternity care professionals and other stakeholders on the integration of midwife-led care and obstetrician-led care and on facilitating and inhibiting factors for integrating maternity care.

Seventeen purposively selected stakeholder representatives participated in individual semi-structured interviews and twenty-one in focus groups.

Three main themes were identified with regard to integrating maternity care: client-centered care, continuity of care and task shifting between professionals. Opinions differed regarding the optimal maternity care organization model. Participants considered the current payment structure an inhibiting factor, whereas a modified payment structure based on the actual amount of work performed was seen as a facilitating factor. Both midwives and obstetricians indicated that they were afraid to loose autonomy.

An integrated maternity care system may improve client-centered care, provide continuity of care for women during labour and birth and include a shift of responsibilities between health care providers. However, differences of opinion among professionals and other stakeholders with regard to the optimal maternity care organization model may complicate the implementation of integrated care. Important factors for a successful implementation of integrated maternity care are an appropriate payment structure and maintenance of the autonomy of professionals.

In **chapter 6** the results of a Delphi study are reported, consisting of three rounds. This study provides insight into the opinions of maternity care professionals about integration of care and involvement of primary care midwives in the intrapartum care of women with "moderate risk" factors. A purposively selected heterogenic panel of 50 professionals, including obstetricians, primary care midwives, clinical midwives and obstetric nurses, answered questions anonymously.

Although primary care midwives would like to expand their responsibilities and tasks regarding "moderate risk" indications, consensus among panel members was only reached concerning the indication of prolonged rupture of membranes for which the primary care midwife could remain the caregiver.

This study showed that most participants support more integration of care during labour. The lack of consensus amongst Dutch maternity care professionals with regard to the distribution of responsibilities and tasks for "moderate risk" indications is a challenge.

In **chapter 7** a descriptive study is presented giving insight into the level of consensus among maternity care professionals about facilitators and barriers related to integration of midwife-led and obstetrician-led care.

131 (response 44%) primary care midwives, 51 (response 51%) clinical midwives and 242 (response 25%) obstetricians participated in a questionnaire survey. There was consensus about the clinical midwife caring for labouring women at moderate risk of complications. Although primary care midwives themselves were willing to expand their tasks there was no consensus among respondents on the tasks and responsibilities of the primary care midwife.

Professionals agreed on the importance of good collaboration between professionals who should work together as a team. Respondents also agreed that there are conflicting interests related to the payment structure, which are a potential barrier for integrating maternity care.

This study showed that professionals are positive regarding an integrated maternity care system but primary care midwives, clinical midwives and obstetricians have different opinions about the specifications and implementation of this system.

Our findings are in accordance with earlier research, showing that it is too early to design a blueprint for an integrated maternity care model in the Netherlands. To bring about change in a maternity care system, an implementation strategy should be chosen that accounts for differences in interests and opinions between professionals.

In the general discussion in **chapter 8,** experienced maternity care by women, professionals and other stakeholders was evaluated. Factors were identified for a successful integration of primary and secondary maternity care. Consensus was reached regarding the importance of collaboration and continuity of care but no consensus was reached regarding the contents of care. Therefore, a blueprint for the optimal maternity care system cannot be given on this basis.

Themes that emerged from this thesis were continuity of care, collaboration between maternity health care professionals, pregnant women with a "moderate-risk" indication for complications and job-autonomy among maternity care professionals.

It is of importance to maintain personal continuity of care for women when integrating maternity care. Optimizing collaboration between midwife-led care and obstetrician-led care, in which referral is smooth without loss of information, could increase experienced continuity of care. In addition, working in small teams of caregivers, in which women are seen by a maximum limited number of caregivers will be of great benefit for the experienced continuity of care for women.

To improve collaboration and quality of care, more multidisciplinary guidelines at national level and multidisciplinary training should be realized. Consideration should be given to conflate the roles of primary care and clinical midwives. If primary care midwives take care of women with a "moderate risk" indication, Dutch primary care midwives must be trained to take on additional tasks. In both cases appropriate changes must be made to midwives' legal scope of practice.

The challenge lies in finding the balance between maintaining a high level of job autonomy among professionals and good collaboration between professionals based on the needs of women when moving towards a system of integrated maternity care.

This thesis shows that differences in opinions exist among professionals and other stakeholders with regard to the optimal maternity care organization model. This complicates the implementation of integrated care. As people are more likely to adopt new ways of organizing, thinking and acting if they are actively involved in the decision-making process in a bottom-up approach it is of great importance to involve professionals from the start when changing the maternity care system.

Further research is needed to evaluate the effects of different models of integrated care in practice on maternal and neonatal outcome, satisfaction among women, wellbeing among professionals and cost effectiveness. By comparing the outcomes and experiences between regions experimenting with integrated care models, lessons can be learned to optimize maternity care.

Samenvatting

De organisatie van de geboortezorg in Nederland is gebaseerd op het principe dat zwangerschap, bevalling en kraambed fysiologische processen zijn. Het verschil met veel andere landen is de onafhankelijke en autonome positie van eerstelijns verloskundigen en de tweedeling tussen eerstelijns (met de verloskundige als eindverantwoordelijke) en tweedelijns zorg (met de gynaecoloog als eindverantwoordelijke).

Uit het Euro-Peristat project, waarin de uitkomsten van zwangerschappen in West Europese landen vanaf 1999 werden vergeleken, bleek in 1999 en 2008 dat Nederland een relatief hoge perinatale mortaliteit had in vergelijking met andere West Europese landen. Echter, door verschillen in registratiesystemen in de diverse landen is een betrouwbare vergelijking lastig. Desondanks werd gesuggereerd dat de tweedeling tussen eerste- en tweedelijns zorg mogelijk de oorzaak van de hoge perinatale mortaliteitscijfers in Nederland zou kunnen zijn. Deze tweedeling binnen het verloskundig systeem zou kunnen leiden tot suboptimale samenwerking tussen zorgverleners in de geboortezorg wat zou kunnen leiden tot slechte uitkomsten en incidenten. In zowel binnen- als buitenland heeft dit geleid tot discussies over de houdbaarheid van het huidige systeem. Er werd gesuggereerd dat het huidige verloskundige zorgsysteem verbeterd zou kunnen worden door veranderingen in de organisatie van zorg naar een model van "integrale zorg".

Momenteel zijn er grote veranderingen gaande binnen de geboortezorg in Nederland richting een model van "integrale zorg". Het doel hiervan is om de kwaliteit van de zorg te verbeteren door multidisciplinair te werken, waarin de zwangere een centrale rol speelt. Het inleidend hoofdstuk **(hoofdstuk 1)** beschrijft het huidige verloskundige zorgsysteem in Nederland, de rolverdeling van verloskundigen en gynaecologen door de jaren heen, modellen van zorg, belangrijke waarden voor vrouwen en zorgverleners in de verloskundige zorg en uitdagingen van integrale zorg. Het doel van de studies, beschreven in dit proefschrift is om:

- Inzicht te krijgen in de maternale en perinatale uitkomsten en medische interventies van vrouwen die durante partu vanuit de eerste naar de tweede lijn werden verwezen;
- Inzicht te krijgen in de ervaren continuïteit van zorg van vrouwen in relatie tot de ervaren kwaliteit van zorg en perceptie van de bevalling;
- Factoren te identificeren die van belang zijn voor succesvolle integratie van eerste en tweedelijns zorg volgens zorgverleners en andere belanghebbenden;
- Bevorderende en belemmerende factoren te identificeren voor integrale geboortezorg.

In **hoofdstuk 2** worden de resultaten gepresenteerd van een retrospectieve cohortstudie naar de maternale en perinatale uitkomsten en medische interventies van vrouwen die durante partu vanuit de eerste naar de tweede lijn werden verwezen. Redenen voor

verwijzing, interventies na overdracht, modus partus en de uitkomsten van moeder en kind werden bestudeerd.

Een analyse werd verricht op gegevens uit de medische dossiers van 600 zwangere vrouwen. Drie op de vier vrouwen werden verwezen met een "moderate risk" indicatie: verzoek om pijnstilling (30,5%), meconium houdend vruchtwater (25,3%), niet vorderende ontsluiting (14,0%) en langdurig gebroken vliezen zonder contracties (12,5%). Van alle vrouwen had 65,7% een spontane vaginale bevalling en ontving 59,7% medicinale pijnstilling. Een spoed-verwijzing in verband met foetale nood kwam voor bij 5,5% van de vrouwen. Van alle neonaten had 2,7% een Apgar score van 7 of minder na vijf minuten en 1,2% een Astrup pH van <7.05. Complicaties postpartum kwamen voor bij 11,0% van de verwezen vrouwen.

De conclusie van dit hoofdstuk is dat vrouwen die verwezen zijn durante partu, een hoge kans hebben op een spontane, vaginale bevalling. Om continuïteit van zorg en satisfactie onder vrouwen te verbeteren zou de zorg voor vrouwen met een "moderate risk" indicatie gecontinueerd kunnen worden door daarin getrainde eerstelijns verloskundigen.

In **hoofdstuk 3** worden de gegevens gepresenteerd van de door zwangere vrouwen ervaren continuïteit van zorg, de ervaren kwaliteit van zorg en de perceptie van de bevalling. Het primaire doel was om de ervaren continuïteit van zorg te vergelijken van vrouwen die onder begeleiding waren van een eerstelijns verloskundige ten opzichte van de tweede lijn. Het tweede doel was om de ervaren continuïteit te vergelijken met a. de ervaren kwaliteit van zorg en b. de perceptie van de bevalling.

Als meetinstrument voor ervaren continuïteit werd de "Nijmegen Continuity Questionaire" gebruikt. Kwaliteit van zorg durante partu werd gemeten met de "Pregnancy and Childbirth Questionnaire" en perceptie van de bevalling met de "Childbirth Perception Scale".

325 vrouwen gaven toestemming om deel te nemen (respons van 41%). De ervaren persoonlijke en team -continuïteit tijdens de zwangerschap was hoger voor vrouwen in eerstelijns zorg ten opzichte van tweedelijns zorg. De ervaren continuïteit van zorg was matig gecorreleerd met de ervaren kwaliteit van zorg, hoewel dit niet statistisch significant was in alle subgroepen. Een zwakke negatieve correlatie werd gevonden tussen ervaren persoonlijke continuïteit van zorg door de verloskundige en perceptie van de bevalling.

Deze studie suggereert dat de ervaren continuïteit van zorg afhankelijk is van de setting en significant hoger is voor vrouwen onder eerstelijns zorg ten opzichte van vrouwen onder tweedelijns zorg. In een systeem van integrale geboorte zorg zal het een uitdaging zijn om een hoog niveau van ervaren continuïteit van zorg te behouden.

Ervaren continuïteit is een onderscheidend concept dat niet verward moet worden met ervaren kwaliteit van zorg of perceptie van de bevalling. Het moet gezien worden als een aanvullend onderdeel van kwaliteit van zorg.

In **hoofdstuk 4** wordt de ervaren autonomie onder verloskundige zorgverleners in Nederland beschreven. Het doel was om te onderzoeken hoe zorgverleners autonomie ervaren in het huidige verloskundige systeem en wat hun verwachtingen zijn ten aanzien van behoud of verlies van autonomie in een nieuw systeem van integrale geboortezorg.
Om de ervaren autonomie te meten werd de "Leiden Quality of Work Life Questionnaire" gebruikt. 799 zorgverleners namen deel aan het onderzoek van wie 362 eerstelijns verloskundigen waren, 240 gynaecologen, 93 klinisch verloskundigen en 104 obstetrisch verpleegkundigen. Er werden significante verschillen gevonden in de ervaren autonomie tussen zorgverleners. De gemiddelde waarde voor ervaren autonomie was het hoogst voor eerstelijns verloskundigen, gevolgd door gynaecologen, klinisch verloskundigen en obstetrisch verpleegkundigen. Eerstelijns verloskundigen scoorden het hoogst ten aanzien van de verwachting om autonomie te verliezen in een systeem van integrale geboortezorg.

Het zal een uitdaging worden om een hoog niveau aan ervaren autonomie te behouden in een nieuw zorgsysteem. Verlies van ervaren autonomie zou kunnen leiden tot een lager gevoel van welzijn onder zorgverleners en lagere tevredenheid met de zorg onder zwangere vrouwen.

In **hoofdstuk 5** worden de resultaten getoond van een kwalitatieve studie, gebruik makend van interviews en focusgroepen, die inzicht geeft in de zienswijze van zorgverleners en andere belanghebbenden binnen de geboortezorg over integratie van zorg. Tevens werd gekeken naar bevorderende en belemmerende factoren voor integrale geboortezorg.

Zeventien doelgericht geselecteerde belanghebbenden namen deel aan individuele semigestructureerde interviews en 21 namen deel aan focus groepen.

Er werden drie thema's geïdentificeerd die betrekking hebben op integrale geboortezorg: cliëntgerichte zorg, continuïteit van zorg en taakverschuiving tussen zorgverleners. Meningen verschilden wat betreft het optimale geboortezorg model. Deelnemers beschouwden de huidige bekostigingsstructuur als een belemmerende factor terwijl een aangepast bekostigingssysteem gezien werd als een bevorderende factor. Zowel verloskundigen als gynaecologen gaven aan dat zij vreesden om hun autonomie te verliezen.

Integrale geboortezorg zou de cliëntgerichtheid van de zorg kunnen vergroten, continuïteit van zorg kunnen bieden aan vrouwen tijdens de ontsluiting en de bevalling en kunnen leiden tot taakverschuiving tussen zorgverleners. Echter, verschil van mening tussen zorgverleners en andere belanghebbenden ten aanzien van de optimale organisatie van de zorg zou de implementatie van integrale zorg kunnen belemmeren. Belangrijke factoren voor het slagen van de implementatie van integrale geboortezorg zijn een passende bekostigingsstructuur en behoud van autonomie van zorgverleners.

In **hoofdstuk 6** worden de resultaten gerapporteerd van een Delphi studie die bestond uit drie rondes. Deze studie geeft inzicht in de meningen van zorgverleners over het integreren van de geboortezorg en over de rol van de eerstelijns verloskundige in de zorg voor vrouwen met een "matig verhoogd risico" op complicaties. Een doelgericht geselecteerde heterogene groep van 50 zorgverleners waaronder gynaecologen, eerstelijns verloskundigen, klinisch verloskundigen en obstetrisch verpleegkundigen hebben anoniem vragen beantwoord.

Hoewel eerstelijns verloskundigen aangaven dat ze ook verantwoordelijk zouden willen zijn voor de zorg voor vrouwen met een "matig verhoogd risico" op complicaties, werd alleen consensus bereikt over uitbreiding van de verantwoordelijkheid voor de zorg voor vrouwen met langdurig gebroken vliezen.

Deze studie laat zien dat het merendeel van de deelnemers voor meer integratie van zorg durante partu is. Echter, het ontbreken van overeenstemming tussen zorgverleners ten aanzien van de verdeling van verantwoordelijkheden en taken bij vrouwen met een "matig verhoogd risico" op complicaties is een uitdaging.

In **Hoofdstuk 7** worden de resultaten van een beschrijvende studie weergegeven, die inzicht geeft in de mate van consensus tussen zorgverleners wat betreft bevorderende en belemmerende factoren voor integratie van zorg.

131 (respons 44%) eerstelijns verloskundigen, 51 (respons 51%) klinisch verloskundigen en 242 (respons 25%) gynaecologen vulden de vragenlijst in. Er was consensus over het zorg dragen voor vrouwen met een "matig verhoogd risico" op complicaties door de klinisch verloskundige. Hoewel eerstelijns verloskundigen bereid waren om hun taken uit te breiden, was er geen consensus over de taken en verantwoordelijkheden van de eerstelijns verloskundige.

Goede samenwerking werd door alle zorgverleners als belangrijk gezien. Ook waren de respondenten het er over eens dat er tegenstrijdige belangen zijn door de bekostigingsstructuur en dat dit een belemmerende factor zou kunnen zijn voor het integreren van geboortezorg. Uit ons onderzoek blijkt dat zorgverleners positief zijn over integratie van de geboortezorg maar dat eerstelijns verloskundigen, klinisch verloskundigen en gynaecologen verschillende meningen hebben over de kenmerken en implementatie ervan.

Onze bevindingen komen overeen met bevindingen uit eerder onderzoek die laten zien dat het niet mogelijk is om een blauwdruk te maken voor een integraal zorgmodel voor de geboortezorg. Om het verloskundige systeem te veranderen, zal een implementatiestrategie gekozen moeten worden waarin rekening wordt gehouden met de verschillende belangen en meningen van zorgverleners.

In de discussie in **hoofdstuk 8** wordt de geboortezorg geëvalueerd, zoals deze beleefd wordt door vrouwen, zorgverleners en andere belanghebbenden. Factoren die nodig zijn voor een succesvolle integratie van eerste- en tweedelijns zorg worden besproken. Er is overeenstemming over het belang van goede samenwerking en continuïteit van zorg maar niet over de inhoud van zorg. Een blauwdruk voor een optimaal geboortezorg-model kan op basis hiervan niet gegeven worden.

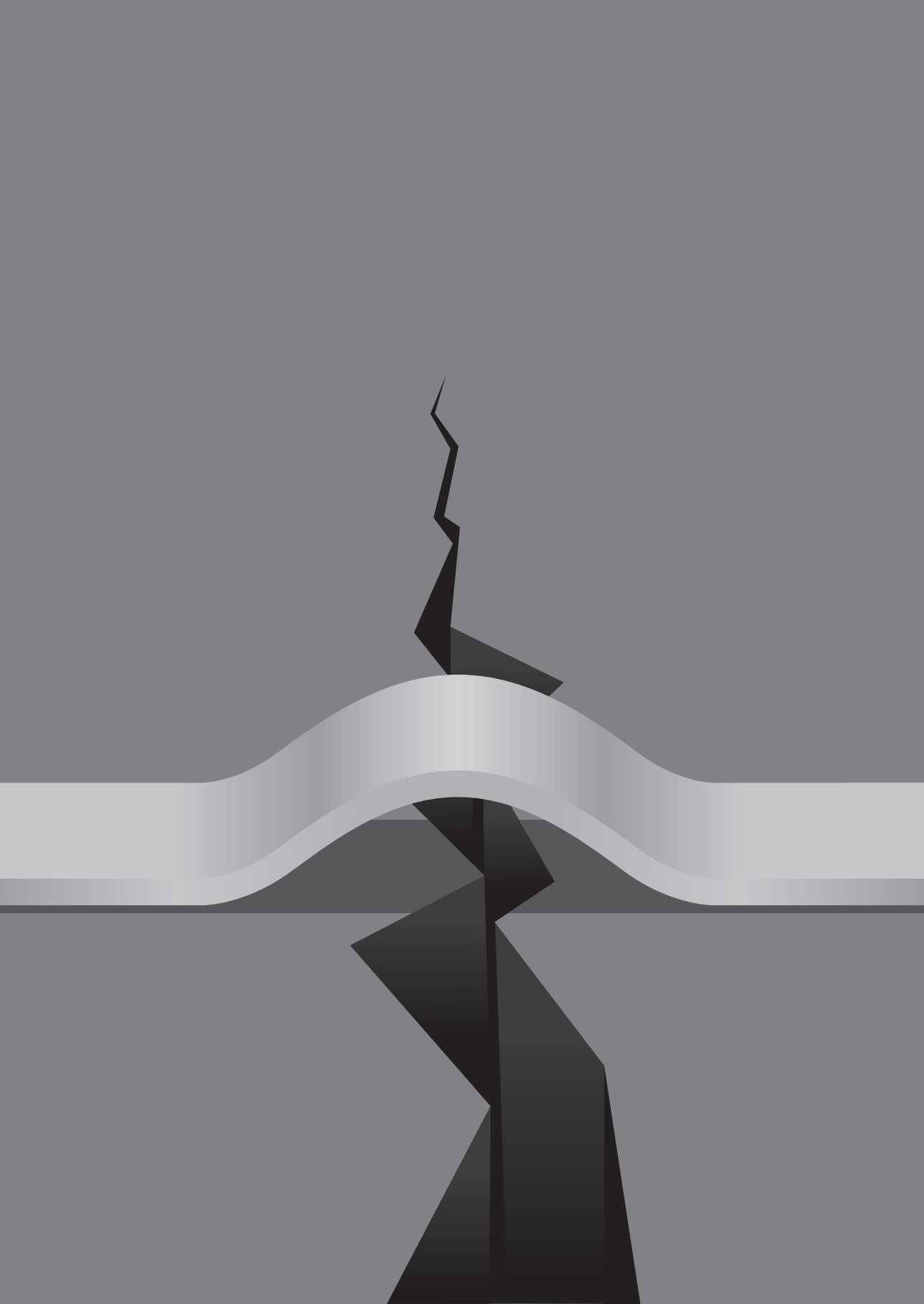
Thema's die naar voren zijn gekomen in dit proefschrift zijn; continuïteit van zorg, samenwerking tussen zorgverleners in de geboortezorg, taakverdeling van zorgverleners bij zwangeren met een "matig verhoogd risico" op complicaties en autonomie van zorgverleners.

In een integraal zorgmodel is het van belang om persoonlijke continuïteit van zorg te behouden. Het optimaliseren van de samenwerking tussen eerste en tweedelijn, waarbij overdracht van zorg plaatsvindt zonder verlies aan informatie, zou de ervaren continuïteit van zorg voor vrouwen kunnen verbeteren. Tevens zal het werken in kleine teams, met een beperkt aantal zorgverleners, de ervaren continuïteit van zorg kunnen verbeteren. De samenwerking tussen eerste en tweedelijn zou verbeterd kunnen worden door de implementatie van meer multidisciplinaire zorgpaden op nationaal niveau en door multidisciplinaire opleiding en training. Tevens kan overwogen worden om de taken van eerste- en tweedelijns verloskundigen meer samen te voegen. Als eerstelijns verloskundigen zorg verlenen aan vrouwen met een "matig verhoogd risico" op complicaties zal de verloskundige getraind moeten worden om deze aanvullende taken op zich te nemen en zullen wettelijke bevoegdheden moeten worden aangepast.

Bij de overstap naar een integraal zorgmodel is de uitdaging om een balans te vinden tussen behoud van autonomie onder zorgverleners en goede onderlinge samenwerking, afgestemd op de behoefte van zwangeren.

Dit proefschrift toont aan dat er verschil van mening is onder zorgverleners en andere belanghebbenden ten aanzien van een optimaal geboortezorg model. Dit bemoeilijkt de implementatie van een nieuw model. Alle betrokkenen zullen vanaf het begin van het verandertraject actief betrokken moeten worden en moeten kunnen meebeslissen, om de kans van slagen te vergroten.

Verder onderzoek is nodig om de uitkomsten van verschillende modellen van integrale zorg te evalueren met betrekking tot maternale en neonatale uitkomsten, tevredenheid onder vrouwen, het welzijn van zorgverleners en de kosteneffectiviteit. Door uitkomsten en ervaringen tussen regio's te vergelijken, kunnen lessen geleerd worden om de geboortezorg te optimaliseren.



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Curriculum Vitae

Hilde Malaika Perdok werd op 25 juli 1973 in Groningen geboren als middelste van drie kinderen. De lagere school volgde Hilde in Sri Lanka en in Australië. HAVO en VWO volgde Hilde aan het Drachtster Lyceum en aan het Noordelijk Avond College in Groningen. Omdat Hilde uitgeloot werd voor verloskunde heeft ze ter overbrugging twee jaar fysiotherapie gestudeerd. In 1996 begon Hilde aan de Kweekschool voor Vroedvrouwen (tegenwoordig de Verloskunde Academie) in Amsterdam die ze in 2000 voltooide.

Haar baan als eerste lijns verloskundige in Zeist combineerde ze met het werk als echografiste in het Wilhelmina Kinderziekenhuis. In 2002 maakte Hilde de overstap naar het werk als klinisch verloskundige in het Meander Medisch Centrum in Amersfoort.

Intussen volgde ze de opleiding Master of Science met als afstudeerrichting beleid en management in het AMC Amsterdam. De opleiding werd onderbroken door een uitzending voor Artsen zonder Grenzen in Ivoorkust. Bij terugkomst heeft ze de Master opleiding voltooid met een afstudeerscriptie voor Artsen zonder Grenzen.

In 2008 startte ze als klinisch verloskundige en echografiste in het Medisch Centrum Alkmaar en als beleidsmedewerker bij de KNOV. Ze was tevens voorzitter van het Verloskundig Samenwerkings Verband. Intussen begon ze aan de Opleiding Physician Assistant Klinisch Verloskundige, aan de Erasmus Hogeschool in Rotterdam, die ze in 2015 voltooide. Van 2009 tot 2014 was Hilde coördinator van een bilateraal samenwerkingsverband van de KNOV met de beroepsgroep van verloskundigen in Sierra Leone en Marokko (Twin to Twin project). Hiervoor is ze in verschillende keren afgereisd naar deze landen.

In 2012 begon ze als junior onderzoeker bij Midwifery Science verbonden aan het VuMC aan een onderzoek naar de bevorderende en belemmerende factoren van een integraal verloskundig system binnen Nederland (INtegrated CAre System, INCAS).

Daarnaast werkte ze als verloskundig onderzoeker bij het College Perinatale Zorg, samen met een multidisciplinaire werkgroep, aan de herziening van de Verloskundige Indicatie Lijst (VIL). In 2013 ontving Hilde een promotie beurs van de KNOV. Hierdoor kon ze haar werkzaamheden bij Midwifery Science voortzetten. Sinds 2014 werkt ze parttime als klinisch verloskundige bij het Catharina Ziekenhuis in Eindhoven.

Hilde is getrouwd met Dirk van Oostveen. Samen zijn ze de trotse ouders van Mira (2008), Iris (2012) en Leon (2014).

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