The role of primary care midwives in the Netherlands. Evaluation of midwifery care in the Dutch maternity care system: a descriptive study
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Citation for published version (APA):

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Summary

The primary-care midwife holds a special position in the Dutch maternity-care system. The midwife’s competencies were outlined in the Dutch Practice of Medicine Act of 1865 (*Wet Uitoefening Geneeskunst*). Ever since then, the scope of the midwife’s duties has been ‘normal pregnancy and delivery’. The midwife plays a crucial role in looking after pregnant women (antepartum, intrapartum and postpartum) and in performing risk assessment. Contrary to her colleagues in other Western countries, the Dutch midwife has maintained considerable professional independence.

**Chapter 1** outlines how the Dutch midwife’s remarkably independent position has always evoked much discussion, and provides an insight into the assessment of primary-care midwives’ performance, based on an overview of post-war scientific peer-reviewed literature published until the year 2005.

We found that such assessments were usually conducted by non-midwives, generally obstetricians. Until 1994, no midwives were involved in research on evaluation of midwives’ performance. In the fifteen years which followed, they did contribute to such studies, but only marginally. We also found that descriptions of midwives’ work tended to focus on the place of delivery, and that they were generally defined in terms of mortality or morbidity, with the emphasis usually being on neonatal outcomes rather than maternal outcomes. However, perinatal mortality is too imprecise an outcome measure to measure quality and differences in quality, especially in the low-risk population that is managed by primary-care midwives.

Having reviewed the scientific literature on the subject, we feel that it is high time midwives took it upon themselves to assess their own performance. Furthermore, we feel that they need outcome measures to show what exactly midwifery care is, how their services rate and which aspects of their services leave room for improvement. Like all health-care professionals, they have a moral and legal obligation to evaluate the care they deliver.

**Chapter 2** provides an overview of the development of evidence based midwifery in the Netherlands. It also focuses on the implementation of a quality management policy involving standards to be met in midwifery, and the practical contribution midwives can make to research on the Dutch midwifery-care system, using their professional expertise.
This thesis aims to present several methods for the assessment of primary midwifery care, ranging from general types of evaluation to more specific evaluation methods geared towards individual health-care providers. It seeks to answer the following questions:

1. Dutch midwives’ core business is the care of women who are expected to have a normal pregnancy and delivery. But what is considered ‘normal’, how stable is the concept of ‘normality’, and which changes in midwifery practice can be attributed to changes in our understanding of ‘normality’?

2. The primary-care midwife examines pregnant women for risk factors. If complications occur or threaten to occur, she will refer the patient to an obstetrician in secondary care.
   a. Which trends can be identified in referrals from primary care to secondary care?
   b. What are the causes contributing to such trends in referrals?
   c. What is the nature of intrapartum referrals?
   d. What are the outcomes of intrapartum referrals?

3. A professional midwife must be transparent about the quality of the care she can be expected to deliver and has to be prepared to give account of it. Which raises the following questions:
   a. Is it possible to identify a set of indicators for monitoring the quality of maternity care for low-risk women?
   b. In the event of an adverse outcome, the quality of the care delivered will be subject of evaluation by outsiders. Do care providers object to external evaluators giving feedback on such cases?
   c. Which sorts of critical incidents with adverse outcomes are reported to the Dutch Health Care Inspectorate, and what factors contributing to the delivery of substandard care have been found to play a role in these incidents?

Chapter 3 addresses the first research question: If the scope of Dutch midwives’ field of work is defined as ‘the normal pregnancy and delivery’, then what is considered normal, and how stable is the concept of ‘normality’? Which changes in midwifery practice can be attributed to changes in our understanding of ‘normality’? We addressed this question by analysing the various Lists of Obstetric Indications issued over the years, a guideline, which outlines the role division between primary-care midwives and obstetricians.
The first List of Obstetric Indications, dating from 1958, listed 39 indications for a hospital birth; all other conditions were attended to by primary-care midwives or general practitioners. Over the years, the number of conditions defined in the successive lists increased to 143 in 2003. In the course of time, the nature and the content of many indications changed thanks to new insights, new diagnostic methods, new treatments and social developments. For instance, breech presentation, which used to be considered normal, is now considered a pathological abnormality which requires secondary care. On the other hand, advanced maternal age (35+) used to be considered a pathological condition, but is now considered normal. With the change of risk-status, the assignment to the most appropriate care provider often changed as well.

The available data sources show that in the same period the percentage of women who were referred to hospital for secondary care more than doubled from 24.7% in 1964, up to 59.5% in 2002. The most common indications for referral also changed over the decades, both in ranking and in absolute numbers.

Analysis of the lists and data shows that our perception of what is ‘normal’ has changed considerably over the years, in that the scope of what is considered normal, low risk, is decreasing, while the scope of what is considered abnormal, high risk, is increasing. This also means that the area of conditions which are considered normal is becoming increasingly homogeneous, whereas the area of conditions which are considered abnormal are becoming increasingly heterogeneous. In addition, the ‘number needed to refer’ to prevent complications is going up all the time. The conclusion drawn at the end of Chapter 3 was that the Dutch maternity care system really needs to look into new ways of determining each woman’s real risk status, individually and in the context of her specific situation, so as to be able to find her the optimal type of care and care provider.

Chapters 4 and 5 focus on the risk screening performed by midwives in order to address the second research question: What are the trends in referrals from midwifery care to obstetric care, what types of referrals take place during labour, and what are the outcomes of those deliveries? Chapters 4 and 5 aim to assess the performance of primary-care midwives at the national level, with an eye to an internal evaluation by the midwives themselves.

**Chapter 4** analyses trends in referrals on the basis of data from LVR-1 (*Landelijke Verloskunde Registratie eerste lijn*). Nearly two million pregnancies were registered with LVR-1 in the 1988-2004 period, of women who were under midwifery
care at the start of pregnancy. Our analysis covered all women registered with LVR-1, including those who were referred to specialist care after their first antenatal appointment, or after they had given birth.

The number of referrals from primary care to secondary care increased by 14.5% over the seventeen-year period covered by the analysis, to 51.4% in 2004, up from 36.9% in 1988. The greatest increase was related to antenatal referrals (+9%). The overall increase was larger among parous women (+16.6%) than among nulliparous women (+12.3%) ($P = 0.001$).

The most common indications for referral to obstetric care among nulliparae were failure to progress first stage or secondary stage, and fetal distress (defined as meconium-stained amniotic fluid or fetal heart rate irregularities). Half of the increase in the number of referrals can be attributed to an increased need for pain relief and the presence of meconium in the amniotic fluid. Among parous women the most common indications for referral were medical and obstetrical anamnesis and fetal distress. Altogether, these indications constituted half of the increase in referrals in multiparae.

Our findings seem to indicate that population characteristics play an important part in the changing trends for referral. The 1988-2004 period saw increased numbers of women with a complicated obstetric anamnesis (notably previous Caesarean sections), increased requests for pain relief, a marked increase in the prevalence of meconium-stained amniotic fluid (higher prevalence among women of non-Dutch descent) and advanced maternal age, with all the attendant risks of complications (the average maternal age went up by 2.3 years in the period of study).

The conclusion drawn in Chapter 4 is that antenatal counselling of pregnant women in preparation for the delivery, increased commitment to continuity of care during labour and primary prevention of Caesarean section are important interventions which may increase women’s chances of giving normal birth in a primary care setting.

Chapter 5 takes an in-depth look at risk screening by focusing on partus data. We analysed the data of 280,000 women who were classified as low-risk when their deliveries began in the 2001-2003 period, and who had planned to give birth either at home or in a hospital, under the supervision of a primary-care midwife. We found that 68.1% of these women did indeed give birth under the supervision of a primary-care midwife: 70.7% of women who had planned to give birth at home, and 62.8% of women who had planned to give birth in hospital ($P < 0.001$). Parous women more often gave birth under the supervision of a primary-care midwife than nulliparous women (82.8% versus 51.1%, $P < 0.001$).
28.3% of the women covered in the study were referred to obstetric care intrapartum or postpartum, for reasons which did not constitute an emergency. Three-quarters of these non-urgent referrals were made during the first stage of labour. An emergency referral was indicated in 3.6% of all deliveries, for fetal distress, HPP, AS <7 and congenital malformations. Nearly half of these emergency referrals were made postpartum. In women who were not referred to secondary care, the mean Apgar score was 9.82, with a peripartum mortality rate of 0.005%. In women who were referred to obstetric care for non-urgent reasons, the scores were 9.57 and 0.03%, respectively. The worst results were obtained in the population of women with emergency referrals: a mean Apgar score of 9.24 and a mean peripartum mortality rate of 1.09%. No maternal deaths were reported in either group.

Chapter 5 arrived at the conclusion that risk selection should be continued into the postpartum period and that pregnant women must be prepared for the possibility that this may result in intrapartum or postpartum referrals to specialist care. The percentage of emergency referrals within the referral category is relatively low (3.6% of all women whose deliveries started in primary midwifery care; i.e. 11.2% of all intrapartum referrals). This is an important finding, considering the fact that many people seem to believe that ‘referral’ equals ‘emergency referral’. We found that the emergency-referral deliveries had the worst neonatal health outcomes. However, the available data do not tell us whether these adverse outcomes could have been prevented if the patient had been referred to specialist care earlier or if the delivery had been scheduled to take place in secondary care from the beginning. We will have to inspect the medical records (e.g. by means of perinatal audit) to answer that question. It is important to gain a greater insight into how to predict the likelihood of complications requiring a referral to specialist care. Perinatal audit procedures are currently mainly used to evaluate perinatal deaths. The classification presented in chapter 5 provides a framework for the further evaluation of specific referral categories. Use of this framework to audit urgency referrals would seem to be particularly valuable.

Whereas Chapters 4 and 5 dealt with evaluations at the national level, Chapters 6 to 8 discuss the evaluation of individual health care professionals’ performance with an eye to helping them give an account of themselves to external parties (the third research question).

Chapter 6 outlines the development of a set of performance indicators for monitoring the quality of maternity care for low-risk women and make these visible to third parties. A Project Group comprised of health-care professionals involved in pri-
mary maternity care drew up a long-list of potential indicators, based on literature, guidelines and expert opinions. They then used the AIRE instrument (Appraisal of Indicators through Research and Evaluation) to select a set of draft indicators, which they presented in a two-round Delphi survey to a multidisciplinary group of stakeholders, rating both the relation between indicator and quality of care and the feasibility of collecting the necessary data. This resulted in a set of 26 indicators which were prioritised by the Project Group and the Delphi panel as indicators of the quality of midwifery care from the early stages of pregnancy to postpartum check-ups. The 26 indicators fall into three categories: eight structural indicators, twelve process indicators and six outcome indicators.

It is difficult to define valid outcome indicators for care in a low-risk population, given the low incidence of both interventions and adverse outcomes. However, good care provision is embedded in a sound structure within a quality system, and has to be performed in accordance to (evidence or practice based) processes and protocols agreed on. Our study found a strong correlation between structural, process and outcome indicators, so it seems that a well-chosen set of indicators can compensate for the lack of outcome indicators.

Chapter 6 arrived at the conclusion that it is apparently possible to come up with midwifery indicators which are endorsed by the midwives themselves. The set of indicators described above was initially intended for use by midwives (for self-analysis) and the Dutch Health Care Inspectorate (for monitoring purposes), but it is currently being adapted for use by third parties (such as clients and the health care insurers) by the Zichtbare Zorg (‘Transparent Care’) organisation.

Chapter 7 outlines an evaluation of the degree to which perinatal mortality audit is accepted. At the time of the study (2002), such audits were a relatively unknown phenomenon, and many preconditions were established to safeguard the anonymity of patients and health-care professionals alike. The selected cases were assessed by a panel of health-care providers who were not professionally involved in these cases. A generic report was then produced in which the results and assessments of the audit were all lumped together, without any mention of where each individual case had taken place and without identifying the care providers involved. Two participating hospitals then requested feedback on a patient-by-patient basis, which was given at two meetings attended by the primary-, secondary- and tertiary care professionals involved in the cases which had been selected for discussion. The study was designed to investigate whether the health-care professionals whose performance had been assessed agreed with the audit panel’s verdicts, how they
felt about the plenary discussions, and whether they felt that the feedback they had received was useful in helping them improve their perinatal care policies. To this end the participants in the feedback sessions completed an anonymous survey at the end of their meetings.

At the two meetings, 77 panel assessments were documented and discussed in a multi-disciplinary setting. Each case was analysed for the appropriateness of the referrals made and/or diagnostic methods used, to assess the care professionals’ performance, and to identify aspects which could be changed so as to improve matters in future. It turned out that the detailed case descriptions provided by the audited hospitals were vital to the correctness of the audit panel’s verdicts. In the end, the attendees took issue with seven panel verdicts. Five assessments were found to be too lenient, one was found to be too harsh, and in one case the reason for a particular score was felt to be incorrect, without this affecting the final score (Cohen’s K: 0.98). The provision of feedback on a patient-by-patient basis resulted in concrete suggestions for improved care, mostly in terms of medical aspects, the relationship between the patient and the health-care provider, and successful co-operation between different types of health-care providers. The investigators found that the care providers involved did not object to having their identities disclosed at the meetings, since the general atmosphere at the meetings was so constructive that no one made the mistake of interpreting ‘substandard’ to mean ‘avoidable’ or ‘culpable’.

Chapter 7’s conclusion is that perinatal audit, if defined and performed carefully, is not perceived by care providers as a threat, but rather as something which will motivate them to focus on high-quality care. In addition, Chapter 7 shows that feedback on and discussion of audited cases should be incorporated into the nationwide perinatal audit which was developed a while ago, and which was finally implemented in 2010. (It is worth mentioning that case descriptions are a vital part of the newly implemented auditing system, and that audit panels are no longer comprised of external evaluators but rather of care professionals affiliated to obstetric group practices.)

Chapter 8 provides a description of an analysis of the critical incidents in maternity care reported to the Dutch Health Care Inspectorate in accordance with the requirements of the Quality Assurance at Medical Facilities Act (Kwaliteitswet Zorginstellingen). The purpose of critical-incident reporting is to identify (structural) lapses which may have contributed to the adverse outcomes, and to make changes to one’s care system so as to prevent future recurrence. The Health Care Inspectorate considers critical incidents, assessments of reported cases and steps
taken to prevent recurrence, indicators for a medical facility’s quality management system.

To perform this analysis, we searched the Inspectorate’s database for all the maternity-care-related cases registered between 1 September 2006 and 1 September 2008. We identified all the critical incidents (maternal or perinatal mortality or morbidity), then analysed the files for factors which might have contributed to the outcomes, paying special attention to care involving multiple caregivers (‘chain-care’) and care delivered after hours. We found 165 maternity-care-related reports. Seventy of these involved critical incidents, with 47 perinatal and eight maternal deaths. In ten cases, the perinatal deaths occurred in primary care, and in nine cases the women had been referred from primary care to secondary care previously. The remaining critical incidents occurred in secondary or tertiary care (47 and four cases, respectively).

We found that there was seldom a single factor contributing to the delivery of substandard care; in the great majority of cases a string of events led to the adverse outcomes. In addition, we found that the reported cases turned out to be very heterogeneous. The main factors contributing to substandard care identified in the study were medical errors (54% of all cases), failure to recognise pathology in time (47%), lack of clarity as to which care provider was to take the lead (39%), and inadequate communication, referral and record-keeping (39%). In 19 cases (27%), substandard multidisciplinary co-operation (‘chain care’) was found to have contributed to the adverse outcomes, and in 18 cases (26%), the time of day was found to have played a part (fifteen critical incidents occurred after hours, while three occurred during business hours).

Chapter 8 arrived at the conclusion that perinatal mortality is a complex issue and that there is no easy, one-size-fits-all solution which will reduce the number of critical incidents or lower perinatal and maternal mortality and morbidity rates. Basic prerequisites for proper care, such as adequate communication and co-operation, a clear assignment of responsibilities, concrete treatment plans and attentiveness in fetal and maternal monitoring may yield great results in this respect.

Chapter 9 ties all the above subjects together, discusses current developments in maternity care and presents some final conclusions and recommendations.