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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CHAPTER 2

The Development of Evidence Based Midwifery in the Netherlands

The Journey from Midwifery Knowledge to Midwifery Research to Midwifery Standards of Practice

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**Introduction**

This chapter describes Evidence Based Midwifery as seen from the Dutch perspective. After an introduction and a discussion of evidence based midwifery, we look at the way midwifery care is organised in the Netherlands, including the current referral system between the levels of care. The background and methodology of midwifery guideline development are then addressed and illustrated with a description of the midwifery standard that addresses anaemia in (first-line) midwifery practice. In the conclusion section, we describe the status of midwifery research in the Netherlands, addressing the main obstacles and challenges it faces.
Evidence, experience and expertise

The diary of Catharina Schrader is an important milestone in the history of Dutch midwifery. Schrader was a midwife who worked in the northern province of Friesland between 1669 and 1745. She kept a diary which documented all the 3060 births she attended. While some births received only a short note in the diary, special cases were written up as case reports.\(^1\) She describes how she was called on 4 August 1712 to help a woman who had been in labour for two days.

\begin{quote}
When I came there, I found no people but her husband standing before the door. The labouring woman was on a wet bundle of straw and was stiff with cold. Water and flooding, it had all flowed out of her. She lay unconscious. I was angry with the man, saying how could people live with a woman vomiting to her death. He said two midwives, also a man-midwife, had already been there with her, who had all left her with the women of the neighbourhood. I said he should immediately call the women of the neighbourhood again, which came to pass and I scolded those people who would give someone up to a miserable death without assistance or pity. Immediately the people got fire from the neighbours and I threw away the wet straw and made her a place to lie, put a cap on her. She lay stark naked. I positioned her, and examined how it was with the case. Found that the child lay with its stomach before the birth canal. It was dead. I turned it and delivered it by the feet in half of a quarter of an hour. The woman got so much strength again, sat up and wanted to kiss my hand. I comforted her, helped her to bed, where I revived her with some drops of warm beer, because there was nothing else to give
\end{quote}

(Case number 1975 of the Memory Book).

This old story illustrates a number of aspects of the work of a midwife. It depicts typical midwifery skills: making the woman comfortable, giving her emotional support and comforting her. It also depicts the midwife’s attitude towards the woman: the vision that a woman giving birth is not a case, but a person who deserves care and attention and dignity. The story demonstrates the expertise of a good midwife. Catharina succeeds where others, even nature, had failed: she got the baby out in a few minutes.

It is most unlikely that in those days any study had been carried out looking neither at the influence of wet straw on the progress of labour nor on the influence of wearing a cap. We now know that the woman’s sense of well-being is an important factor in determining the critical release of a balance of hormones necessary to facilitate the birth process.\(^2\) There is compelling evidence for the benefits of ‘continuous...
support for women during childbirth’ as well. Catharina’s practice was rooted in common sense, experience, vision and skilled tradesmanship, traits still considered to be essential in modern-day midwifery as the characteristics that identify the uniqueness of the profession today. These aspects form the basis for the claim that midwifery differs from other professional groups, including obstetricians who have a more medical-technical approach to the field of obstetrics/midwifery.

Many of the underlying principles and values of midwifery practice as demonstrated by Catherina Schrader now have an evidence base and although she was not aware of it at the time, in many ways she carried out evidence-based practice ‘avant la lettre’.

**Evidence Based Medicine**

In all health-care professions, the implementation of new evidence has proven to be a tedious and slow process. Much resistance to change is seen, especially when the evidence calls for an unsolicited change in practice. In the 1990s, when the term ‘evidence based medicine’ (EBM) spread to all areas of medicine, and thus also to obstetrics and midwifery, serious discussions took place. People worried that EBM would limit the care providers in their professional autonomy, would lead to cookbook medicine, would provide insufficient attention to individual variations, could be used as a basis for funding cuts, could be misused for liability claims and that it was imposed from ivory towers. Some examples of the practical problems of EBM implementation for the care provider are as follows: you must learn new skills and practices, you are not allowed to carry out certain practices, you must discard some of the knowledge previously learned, and you must accept the fact that, in hindsight, you may have carried out suboptimal or even harmful practices. In fact, the implementation of new interventions and practices is generally more easily accepted by care providers and patients than the de-implementation of interventions proven to be ineffective. When one has been used to shaving the perineum or massaging the perineum during the second stage of labour, it is difficult to suddenly have to refrain from carrying out these practices because of new research findings that suggest this should not be done.

There is also an additional bottleneck to the implementation of EBM in midwifery. According to the midwifery scope of practice, midwives use an individual

*Although the Dutch language has two words for midwife (vroedvrouw and verloskundige) there is no word for midwifery. The word ‘verloskunde’ refers to the broader discipline of obstetrics including midwifery and refers to the work domain of midwives and obstetricians. In this chapter, we have chosen to translate the broader term *verloskunde* into ‘obstetrics/midwifery’ when used in general, using midwifery only when specifically referring to the work domain of midwives.
approach with respect to the women in their care. Is it possible to develop general rules for such individual processes as pregnancy and childbirth? Munro and Spiby have eloquently said *Midwifery care recognises that for a woman, labour is not ‘just normal’ but actually extraordinary.*

Besides this is the fear that the emphasis on evidence will override the specific midwifery characteristics that were demonstrated in Catharina Schrader’s case report. The fear is that the foundation of evidence will take preference over pillars of experience and that this will eventually undermine the midwifery profession.

EBM requires a change in attitude: one must be prepared to assess clinical practice in light of scientific developments and to follow those developments critically. This calls for education in the methodology of critical reading and in the interpretation of research results.

In 1993, the development of EBM led to the expansion of the midwifery programme in the Netherlands (a higher vocational direct-entry programme offered in four schools throughout the country) from a 3-year to a 4-year programme. One of the motives for the expansion of the educational programme was stated as: ‘The midwifery profession itself shall critically evaluate first-line obstetrical and midwifery practice and shall play a central role in carrying out scientific research in obstetrics/midwifery, especially first-line midwifery. The preparation for this is based in the pre-service educational programme and therefore the curriculum must contain research methodology and interpretation of scientific research’.

**Evidence Based Medicine versus Evidence Based Midwifery**

Generally speaking, it appears that the implementation of EBM in professional practice is especially difficult for midwives. This sentiment was reinforced by the initial strong emphasis on a medical-technical and epidemiological approach in EBM as indicated in Walsh’s definition (1995): *Moving away from decisions based on opinion, past practice and precedent towards making more use of science, research and evidence to guide decision-making.*

This definition does not take the significance of expertise in care giving into consideration. The suggestion that ‘real’ evidence can only be found through epidemiology, and preferably with randomised controlled trials (RCTs) or meta-analysis, emphasised the medical approach. Besides midwifery-technical practice, ‘relational care giving’ is an equally important part of the midwife’s work. This term introduced by the Dutch midwife/sociologist Leonie van der Hulst is defined as ‘the professional
and systematic carrying out of directed activities directed towards the creation of
a trusting relationship between care provider and care seeker, in which equality,
self motivation and open communication are important elements’.17 An RCT study-
ing this ‘soft’ aspect of care provision is more difficult to carry out than one that
studies a ‘hard’ outcome measure such as routine perineal shaving on admission
during labour.9 It has, however, been accepted more recently that ‘soft’ aspects can
be studied in a trial design. This trend is confirmed by systematic reviews such as
Continuous support during childbirth 3 and Psychological interventions for prevent-
ing postpartum depression,18 both available in the Cochrane Library.

The definition of EBM has evolved rapidly. In his 1996 article, Evidence Based
Medicine: what it is and what it isn’t, David Sackett, the ‘EBM-godfather,’ defined
EBM as: The conscious, explicit, and judicious use of current best evidence in
making decisions about the care of individual patients.7 In his clarification, he
placed emphasis on the integration of expertise and evidence: Good doctors use
both individual clinical expertise and the best available external evidence, and
neither alone is enough.7

The evolution of the term EBM is ongoing. In recent years, there has been increas-
ing recognition of the fact that the view of the client must also be taken into consid-
eration.15,19,20 In addition to this, there is a growing realisation that, when translating
research findings into clinical practice, organisational, social and financial implica-
tions could also be considered. In other words, one must consider the applicability
of the findings to the practice setting.21

Another important development is the realisation that there is a difference between
‘statistical significance’ and ‘clinical relevance’. The comparison of one interven-
tion to another can result in a statistical difference but if that difference is consid-
ered to have little or no clinical consequences, it can be difficult defending the need
for the implementation of these results into clinical practice.22

Interestingly enough, because of these realisations, the possibility and need for
the inclusion of profession-specific elements into the definition of ‘evidence’ as an
addition to the general principle of EBM have been addressed.

The specific characteristics and values of the midwifery profession are a good starting
point for defining Evidence Based Midwifery as a specific area of EMB. By incor-
porating the vision of professional midwifery services, the ‘midwifery values’ of the
profession and the views of childbearing women into the evidence found in scientific
literature, EBM then becomes a valuable and indispensable concept for midwives,
which justifies the use of the term ‘Evidence Based Midwifery’. This concept still
has not taken definite shape, and a generally accepted definition of Evidence Based Midwifery has not yet been developed. This book may contribute towards this development. In light of the continuous evolution of the concept of EBM, it can be assumed that Evidence Based Midwifery will also be a continuously evolving concept.

Levels of care provision

The health-care system in the Netherlands distinguishes between three levels (or lines) of care provision: first, second and third. First-line care is based outside of hospital institutions and characterised by autonomous practice. Examples of first-line care providers are general practitioners, dentists and midwives.* In general, second-line care is provided in peripheral hospitals and third-line care in academic hospitals. First-line care is always the entry point into the health-care system and all insured persons have free access to this. The first-line care provider is seen as the ‘gatekeeper’ for second- and third-line care and only in cases where a health problem cannot be treated or cured in the first line, will a patient be referred to a higher level of care.

Table 2.1 - Index data of Dutch midwives as of 1 January 2008

<table>
<thead>
<tr>
<th>Total number of practicing midwives</th>
<th>2315</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of male midwives</td>
<td>50 (2 %)</td>
</tr>
<tr>
<td>Midwives in first-line practice</td>
<td>1763 (76 %)</td>
</tr>
<tr>
<td>Midwives working in hospital</td>
<td>552 (24 %)</td>
</tr>
<tr>
<td>Age</td>
<td></td>
</tr>
<tr>
<td>&lt; 40</td>
<td>1416 (61 %)</td>
</tr>
<tr>
<td>40-50</td>
<td>538 (23 %)</td>
</tr>
<tr>
<td>&gt; 50</td>
<td>361 (16 %)</td>
</tr>
<tr>
<td>Number of first-line midwifery practices</td>
<td>490</td>
</tr>
<tr>
<td>one-person practice</td>
<td>78 (16 %)</td>
</tr>
<tr>
<td>two-persons practice</td>
<td>94 (19 %)</td>
</tr>
<tr>
<td>group practice</td>
<td>318 (65 %)</td>
</tr>
<tr>
<td>Midwifery density (one first-line midwife per number of women in the age of 15-39)</td>
<td></td>
</tr>
<tr>
<td>average for the Netherlands</td>
<td>1 : 1.639</td>
</tr>
<tr>
<td>maximum (province of Gelderland)</td>
<td>1 : 1.439</td>
</tr>
<tr>
<td>minimum (province of Zeeland)</td>
<td>1 : 2.949</td>
</tr>
</tbody>
</table>

Source: NIVEL

*Midwives in the Netherlands follow a 4-year direct-entry educational programme after which they are qualified to practice as independent care providers in first-line care. They can practice alone or in partnership with other midwives (Table 2.1). In this chapter, the word midwife refers to the independent, self-employed practicing midwife.
In obstetrics/midwifery, the division in the levels of care described above means that at the beginning of her pregnancy, a woman books with a first-line midwife for care provision during pregnancy, birth and puerperium. (In areas, where no midwifery practice is established, the care is provided by a general practitioner [GP]). When no problems have occurred during the course of pregnancy, the women can choose between home, birth clinic or hospital birth. In all three scenarios, she will be cared for by her own midwife without an obstetrician becoming involved.

In the event of complications or the threat of complications, the midwife refers the woman to second-line care. The obstetrician (and in some cases second-line midwife *) subsequently assumes care for the woman as long as necessary and can refer the woman back to first-line care if the condition has subsided or has adequately been treated. In the event of very serious complications, the woman may be referred to third-line care.

The division of tasks and responsibilities implies that one of the most important aspects of midwifery care is risk selection. After all, in the Dutch obstetric/midwifery system, it is the midwife in her role as gatekeeper who determines which cases of pregnancy and birth are considered ‘normal’, remaining under her care and supervision, and which cases are not, therefore needing referral to another level of care provision.

The organisation of obstetrics/midwifery care as described requires well-functioning collaboration between the various care professionals (midwives, obstetricians, GPs, neonatologists, etc.). The Obstetric Handbook (Verloskundig Vademecum) is a guideline that has been ratified by all the organisations of professionals involved with care provision for mothers and newborns. It contains rules of conduct for collaboration and also agreements pertaining to the quality and efficiency of obstetric care. In order to facilitate a streamlined risk selection and referral process, the handbook contains a list of referral indications, the Obstetric Indication List (VIL). A decision analysis based on the highest possible level of scientific evidence was developed for 143 obstetric and medical indications. These medical indications are classified into one of four categories that reflect the responsible care provider (Table 2.2).

* There are a growing number of midwives who choose, either directly after finishing their programme or after a number of years of first-line practice, to take employment in a hospital (either second or third line care). We refer to these as clinically employed midwives, see table 2.1. Clinically employed midwives often train resident doctors and sometimes carry out research. They see themselves as a bridge between first- and second-line obstetrical care. 

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4,24
The basic underlying assumption for the classification procedure is that the childbearing woman must receive optimal care while there is also optimal use of the specific knowledge and skills of the various obstetric care providers.

**Table 2.2** - Explanation of the codes in the Obstetric Indication List, indicating the most appropriate care provider in relation to the indication

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Care provider</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Primary obstetric care</td>
<td>The responsibility for obstetric care in the situation described is with the primary obstetric care provider.</td>
</tr>
<tr>
<td>B</td>
<td>Consultation situation</td>
<td>This is a case of evaluation involving both primary and secondary care. Under the item concerned, the individual situation of the pregnant woman will be evaluated and agreements will be made about the responsibility for obstetric care.</td>
</tr>
<tr>
<td>C</td>
<td>Secondary obstetric care</td>
<td>This is a situation requiring obstetric care by an obstetrician at secondary level for as long as the disorder continues to exist.</td>
</tr>
<tr>
<td>D</td>
<td>Transferred primary obstetric care</td>
<td>Obstetric responsibility remains with the primary care provider, but in this situation it is necessary that birth takes place in a hospital in order to avoid possible transport risk during birth.</td>
</tr>
</tbody>
</table>

**Standards for first-line midwifery care**

The Obstetric Indication List described above has the status of a professional guideline. The list has its limitations as it concentrates mainly on collaboration in obstetrics/midwifery and does not go into detail about the content of care.

It is becoming increasingly evident that midwives need explicit criteria to assess the content of the care they provide. One way to achieve this is by drafting standards that are based on evidence in which clear statements are provided about practices that are well founded and can be either recommended or discouraged. A ‘standard’ has been defined as a compilation of evidence based guidelines, each concerning a different aspect of a central problem or condition. This strong evidence base to the guideline implies that it is a standard for practice. Nevertheless, it is understood that, in providing best practice, the midwife is obliged to take into careful consideration the individual circumstances and preferences of those whom she provides care for. It is also understood that this may lead to a different course of actions that may deviate from the standard.
The drafting of standards is actually a part of the process of professionalisation within midwifery. The process of finding reasons for and consciously thinking about one’s own practice gives a professional body more insight, knowledge and voice concerning their own area of work and, because of this, more confidence. A good standard results in transparent choices in care, also for the client, and leads to clear policy making. Through standards, the professional group profiles itself not only internally but also externally to clients, insurers and other care providers.²⁸

It was this need for professionalisation and profiling of the midwifery vision that influenced the decision made by the Royal Dutch Organisation of Midwives (KNOV) to begin with the development of KNOV-standards. These are called ‘KNOV-standards’, after the Dutch Professional Association of Midwives (KNOV). Initially, these were mono-disciplinary but the KNOV is currently developing multidisciplinary guidelines and standards as well.

In 1998, the Dutch midwives formulated ‘Basic principles for carrying out first-line midwifery care’.⁵ One of these reads, ‘The midwife will consistently and carefully take into consideration whether or not to perform an obstetric procedure (or let one be performed) and/or whether or not to perform an examination (or let one be performed)”. This assumption was utilised as the basic philosophy during the development of the KNOV-standards. It is our opinion that this is also a basic philosophy in the concept of Evidence Based Midwifery.

The methodology used in developing the standards contains six steps. These are summarised in Table 2.3.

**Table 2.3 Steps taken in the development of KNOV-standards**

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td><strong>Preparatory</strong>: prioritisation; forming a working group; formulating research questions; determining search terms</td>
</tr>
<tr>
<td>2.</td>
<td><strong>Draft standard</strong>: structured literature search including allocation of level of evidence to the studies used; writing the draft version; formulating ‘other considerations’ that will play a role in the conclusions; formulating the conclusions and recommendations</td>
</tr>
<tr>
<td>3.</td>
<td><strong>Comments round</strong>: present draft version to experts both within and outside of the profession; testing of practical feasibility</td>
</tr>
<tr>
<td>4.</td>
<td><strong>Final standard</strong>: incorporation of comments; finalising final text into standard with three publication formats: a report with extensive scientific underpinning, the actual standard (= a short summary, with concrete recommendations) and a practice card in A-4 format containing a step-by-step plan</td>
</tr>
<tr>
<td>5.</td>
<td><strong>Implementation into practice</strong></td>
</tr>
<tr>
<td>6.</td>
<td><strong>Actualisation</strong>: in principle after 5 years</td>
</tr>
</tbody>
</table>

Source: Methodology for the development of KNOV-standards²⁸
An important starting point of the KNOV standards is that they are written ‘by midwives for midwives’. The professional field is highly involved in the process of standard development: there is a field consultation regarding prioritisation of possible topics for standard development; the project group is made up of a substantial number of midwives; the translation of evidence into practice is developed in consultation with a working group of practicing midwives and midwife educators; during the commentary round, the concept is presented to a number of midwifery practices. Attention is paid to ensuring an easy-to-read style of writing. The standard is published in three different documents (Table 2.3, final standard). A standard and practice card are sent to all midwifery practices and the scientific evidence is available upon request. The publication of the standard is accompanied by articles in the Dutch Midwifery Journal (*Tijdschrift voor Verloskundigen*) and an educational trajectory has been developed. These measures are meant to create optimal and wide support of the standard by midwives.

The standard ‘Anaemia in first-line midwifery practice’

An example of a standard that was developed in accordance with the methodology described previously is the KNOV-standard ‘Anaemia in first-line midwifery practice’. In this section, a summary of the most important results is given. The standard ‘Anaemia in first-line midwifery practice’ was published in December 2000 and was the first KNOV-standard.29,30

Routine iron supplementation is not standard practice in the Netherlands. Dutch midwives periodically test hemoglobin (Hb) during the antenatal period and prescribe iron medication in cases of diagnosed anemia.31 Despite this, research shows that 72% of pregnant women in first-line midwifery care reported using iron supplementation even though 20-40% of these women reported having experienced adverse side effects. The anaemia in pregnancy standard was developed to find an evidence base to the prevalence of anaemia as indicated by the reported use of iron medication.

Physiology or pathology?

In the literature, the term anaemia is often used as a synonym for a ‘low Hb level’ and represents a group of conditions that cannot be compared with one other. A low Hb during pregnancy could indicate iron shortage or other disorders in the produc-

* The standard is based on a large amount of literature and it is not possible to cite all the references used. With a few exceptions, we refer to the scientific evidence part of the standard in this section.29
tion of blood, but it can also be caused by a completely normal physiological adaptation mechanism by the body to pregnancy.

There is no global consensus on the definition of anaemia and Hb level cut-off points vary: the WHO has determined a cut-off point of 6.8 mmol/l while other cut-off points are found in the international literature. In the Netherlands, a range was found from 7.5 to 6.8 mmol/l with 7.0 mmol/l being the most frequently used value.

The standard’s literature study concentrated on the question how to differentiate between ‘physiological’ and ‘pathological’ anaemia.

There is strong evidence to substantiate the phenomenon of haemodilution during pregnancy as means of meeting the greater need for oxygen during this period. This concept is essential when interpreting the Hb and other blood parameters, and implies that during pregnancy another set of values for blood parameters should be considered as normal.

On the basis of the data from two Dutch study populations of pregnant women (and in compliance with results from previously carried out international studies), one could conclude that there is no one fixed cut-off point for ‘low Hb level’ during pregnancy but that it is related to the length of the pregnancy. It appeared that the value - until then - most commonly used as the cut-off point in the Netherlands for diagnosing anaemia corresponded with the lowest value of the P50 in the U-shaped curve of Hb levels. Using a cut-off point that would result in half of the pregnant women being considered anaemic implies a high number of false positive cases.

On the basis of these results, it was decided to use pregnancy related cut-off points in the standard. This resulted in considerably lower cut-off points compared to what was being practiced at that time.

The standard further describes the different steps in the screening and diagnostic process and attention is paid to differential diagnosis and treatment policies.

The standard also addresses the pregnant body’s capability to absorb more iron from food in order to build up a ‘buffer supply’ to compensate the loss of erythrocytes that occurs during birth.

A plasticized job-aid in A-4 format was developed using bright colours to create diagrams of the various steps and cut-off points thereby creating an organised overview for use in the clinical setting.

* In the Netherlands, mmol/l is the measure normally used for hemoglobin level. The formula to convert millimole per litre value to gram per litre is cut-off point (mmol/l) / 0.062 (e.g. 6.8 mmol/l=110g/l; 7.5 mmol/l=120 g/l; 7.0 mmol/l=112 g/l;).
**The sum of the parts: one plus one is greater than two**

The results of the literature, brought together in the standard on ‘anaemia’ have led to recommendations that would require a number of policy changes in midwifery practice relating to diagnosis, treatment and nutritional advice regarding anaemia. Despite this, the standard was well-received, although midwives mentioned barriers to specific aspects of it, such as alternative iron supplementation and not prescribing iron supplementation if haemoglobin was low but mean corpuscular volume was normal.\textsuperscript{36,37}

One can only question how it is possible that such a large gap existed between practice and evidence concerning a subject as seemingly straightforward as anaemia. Noticeably, the standard’s recommendations were not the result of new research findings, knowledge or opinions, but quite the reverse. The experts and midwives who evaluated the draft version of the standard were already very much aware of phenomena such as haemodilution and increased iron re-absorption, and yet, the diagnosis, cut-off points, and nutrition and medication advice formulated in the standard are very different from those used at that time by midwives as well as GPs and obstetricians and in laboratories.

There appears to be only one explanation for this gap between knowledge and implementation. Research is often narrow in scope and addresses a specific question or hypothesis. Singular research findings often seem to be left hanging as loose ends that do not sufficiently, or do not at all, lead to the integration of knowledge into practice. The development of a standard entails an extensive literature review that includes information from a large variety of sources. It brings together all the available information and evidence relating to one subject area, presenting a total overview of what is known and believed at that moment. The information is organised and singular results are woven together creating a strong evidence base that is sufficient to substantiate and facilitate change.

A standard is not only an aid in daily practice and a means of bringing all the information about a certain topic together. Besides this, it has the added value that could be called the ‘sum of the parts’. Combining the loose ends forms a strong thread: one plus one is greater than two.

The development of this first KNOV-standard resulted in another eye opener. Midwives throughout the world share a common vision that pregnancy and birth are, in principle, natural processes that do not need intervention as long as this is not called for, and there is growing movement towards using research, literature and discussion to prove and strengthen this vision.
Just the opposite process took place while writing the standard. The topic ‘anaemia in pregnancy’ seemed to be very suitable for a first standard because it addressed a common condition; one that was not expected to raise controversies. Initially, some voices were raised against using this topic for the first midwifery standard. It was argued that it would involve primarily technical and biological aspects and it would not address a typical midwifery topic (as for example, failure to progress in labour, the topic of a subsequently published standard). Once all the research findings were reviewed, it appeared that this certainly was not the case. It became increasingly clear that the problem of anaemia in pregnancy was actually not so common in the developed world. It only appeared so because there was not enough understanding of the ability of the body to adapt during pregnancy.

The main conclusion of the Anaemia Standard is that there is no reason to assume that pregnancy by definition leads to an iron deficiency and it must be acknowledged that a healthy and well-fed pregnant body is capable of physiological adaptation to the change. This conclusion was not anticipated at the beginning. On the basis of the literature, however, it is the only conclusion that could be made and one which complies perfectly with the core philosophy of midwifery. The seemingly uninspiring topic ‘anaemia’ unexpectedly turned out to be a true midwifery subject.

**Evidence Based Midwifery in the Netherlands: bottlenecks and challenges**

As previously mentioned, standards can be seen as the implementation of that which is already known about effective care provision and adequate practice. Standards are therefore an appropriate EBM instrument that summarise the current scientific evidence and interprets this in light of clinical practice where it will be implemented. But there is still a long way to go before midwifery care can be adequately based on scientific evidence, whether or not it is incorporated into official guidelines. There are large knowledge gaps in the field of obstetrics/midwifery. Furthermore, because of its unique system of obstetrics/midwifery care, the Netherlands is confronted with specific bottlenecks and challenges. Some of these will be discussed further.

**Not enough relevant research available**

The first challenge is the little available research that can be generalized to the specific Dutch system. One can identify several reasons for this.
Firstly, by definition, women in midwifery care in the Netherlands have a low obstetric risk profile. Women with obstetric complications or suspected pathological conditions are referred to second-line care. In contrast, study populations outside of the Netherlands often have a mixed risk profile and there is often also a different birth culture (in terms of use of pain medication, active management, interventions, caesareans and home birth). This implies that research results from studies carried out outside of the Netherlands cannot be generalized to the Dutch situation.

Secondly, following the concepts of epidemiology, the composition of a study group is very important for testing and screening in obstetrics/midwifery. The positive predictive value of a test is in fact dependent on the prevalence of the concerned abnormality in a population. This implies that a test deemed useful in a mixed risk population (second-line care in the example of the Netherlands) cannot in fact be extrapolated to a first-line population in which the abnormality or condition occurs less frequently.

Finally, some aspects of Dutch midwifery cannot be incorporated into studies carried out outside of the Netherlands because they hardly, or totally do not, play a role in other obstetric systems. Some examples of these are home birth and the system of risk selection; although this last mentioned example is increasingly found on the agenda of free-standing midwifery-led birth centres.

The difficulty with this is that some subjects are not easy to research. The safety of home birth, for example, provides a constant source of controversy. This is also true for the Netherlands despite the multitude of observational and descriptive studies that have been carried out. The relatively high position of the Netherlands on the PERISTAT perinatal mortality ranking list has rekindled this discussion recently. An RCT would be the ideal design for this but it is hard to imagine randomisation of women to home or (not medically indicated) hospital birth. Women make a motivated choice for the place of birth where they feel most comfortable and this can positively influence the birth process. The process of randomisation would ‘force’ some of the women to give birth in a setting where they do not feel at home. Furthermore, in this low-risk group, the number of participating women would have to be very large in order to show a difference in perinatal mortality between the study groups.

These methodological limitations, however, should not prevent further research into and evaluation of the Dutch system. Innovative methods will need to be found to overcome this.
Development of standards: a long term process
The second limitation to developing standards in the Netherlands is the very lengthy time frame which accompanies it. Undoubtedly, this phenomenon has been internationally acknowledged by all those who have been involved with standards.

This is primarily caused by the choice to begin at the beginning, carrying out a literature search from the physiological perspective. After all, the need to find scientific evidence for the practice of physiological obstetrics (midwifery practice) in a population of healthy pregnant women was identified. Because of this, it is not possible to quickly put together a number of meta-analyses (even if they are available). One could argue that this process involves ‘fundamental research’.

Another explanation is that the KNOV-standards contain information on all the various aspects pertaining to the chosen topic. This makes the standard a collection of guidelines. The Anaemia standard actually contains a guideline on – among others – diagnostics, treatment and nutrition.

The most important reason is that almost by definition, a standard addresses a difficult topic. There is less need to develop a standard to make a certain theme or topic more explicit when there is already sufficient unequivocal evidence to be found or when consensus has already been reached. Those topics considered unclear or those where there is a strong opposing opinion are precisely the ones that were prioritised by midwives as themes for a standard.

The challenges to first-line midwifery research
Carrying our first-line midwifery research involves addressing many bottlenecks that are undoubtedly similar to those encountered outside of the Netherlands.

First, the dramatic cutback in the funding of health research is an important obstacle that Evidence Based Midwifery is facing. Within the limited funding streams in the Netherlands and European subsidy programmes, there is a growing emphasis placed on cost-effectiveness and the savings that this will yield. This is difficult to demonstrate in studies with a low-risk population and is even more difficult when the studies address prevention measures or psycho-social outcomes with long-term effects. One can show a positive birth experience but translating that into terms of health gains, with a costing element, is asking for the impossible.

Organisational aspects may form an obstacle as well. The distinction of levels of care provision is one of the pillars of Dutch midwifery/obstetrics, but it can some-
times be a constraint to the development of the discipline. Research and the resulting evidence in this area need input from both midwifery and obstetrics. An understanding of both pathology and physiology is important and best practice (for the childbearing woman) involves a good understanding of interventions and their utilisation in both levels of care. It is not always the case of shared vision and sometimes it is a case of territory conflict or competition. A prerequisite to a multidisciplinary approach is good collaboration based on mutual respect with a shared vision. This is not always achievable.43

Although the decentralised organisation of first-line midwifery results in a large number of advantages for the client, it does have its drawbacks when carrying out research; in order to achieve a large study population, contact must be made and maintained with a substantial number of midwifery practices throughout the country. This demands a good deal of organisation, time and ingenuity on the part of the researcher.

Another challenge is the relatively young research tradition of studies looking at the effectiveness of existing and innovative practices in first-line midwifery.44 Compared to Great Britain, Dutch midwifery research is in its infancy. Research in the area of obstetrics/midwifery was traditionally developed and carried out by other health-care providers, most often obstetricians. This resulted in defining the discipline midwifery/obstetrics from the obstetrics viewpoint and not from the midwifery viewpoint and for a long time this fact determined the subjects and scope of research in the field. It was not until the 1990s that research studies were developed and carried out by midwives. The Dutch research institute TNO (Institute for Applied Scientific Research) established a research group that flourished in first-line midwifery. The first Dutch midwifery-led RCT studying active management of the third stage of labour (LENT study) was developed from within this group. Using data from the National Obstetrics/Midwifery Registration (LVR), first line-midwifery care was monitored and reported on. The course ‘Methods and techniques for scientific research’ developed for midwives has been followed by a large number of midwives throughout the country. The KNOV, until that time primarily an organisation representing the interests of midwives as practitioners, established a division of ‘Quality and Best Practice’ employing primarily midwives. The first midwife received a PhD in Utrecht in the same period (in 1996).45

In 2009, seven more midwives have successfully defended their dissertations and earned a PhD and more are in the final stages of their doctoral studies and some have made the first steps on the path towards a PhD. A Masters of Science in Midwifery programme was established in 2003 and about 60 midwives have successfully com-
completed this to date. The ‘Midwifery Student Research Collaborative Amsterdam’ (MSRCA) supervised by TNO, studies midwifery-specific and practice-related topics and offers midwifery students the opportunity to participate in the entire research process. The KNOV has expanded its Quality Division and has initiated and participated in research studies and has carried out its own research projects. TNO has broadened its scope of work and is carrying out a number of qualitative studies besides epidemiological studies. Recently, several papers were published e.g. about the referral system, the home delivery, the experience of women and the content of midwifery care. Thus, there has been considerable development in Dutch first-line midwifery in a short period, but there is still a great need for an evidence base for midwifery practice in the Netherlands.

The area of ‘physiological obstetrics/midwifery’

‘Evidence Based Midwifery research’ addresses the effectiveness of midwifery practice. However, it not only encompasses research carried out by midwives, but also relates to the entire area of ‘physiological obstetrics/midwifery’. There are various distinguished research streams in Evidence Based Midwifery: for example, the scope of physiology and pathology, determinants and applications that promote the normal process, and the epidemiology of obstetric problems in a low-risk population. Also, a part of the research agenda focuses on health promotion and the long-term health of mothers and children. Moreover, the quality and effectiveness of the health-care system is an important area of research especially in the Dutch situation. Especially, in relation to the last subject, the triad ‘monitoring, evaluation and feedback’ is essential. After all, a robust and accurate registration of care provision is an essential resource for Evidence Based Midwifery as it provides core data of current practice, which can be used for quality improvement programmes and for research agenda setting for the future. Research within the area of Evidence Based Midwifery does not necessarily need to be carried out by midwives themselves. Both in and outside of the Netherlands, we see research that is of utmost relevance to first-line midwifery being carried out by those other than midwives. However, it must not be forgotten that the vision behind the design of a study can influence the research questions and subsequent results. Commitment from midwives and a professional and academic tradition in midwifery are very important for Evidence Based Midwifery. It is up to the professional group to put the concept of Evidence Based Midwifery into practice. In order to do so, Dutch midwifery must define its own scientific
domain, formulate the relevant questions within this domain and follow up by compiling a research agenda. Midwives must initiate or carry out monodisciplinary as well as multidisciplinary research. They must take part in studies undertaken by other professionals; not only as data suppliers but also in the development phase when formulating research questions and outcome measures and basic principles for a literature search. The example of the Anaemia standard shows that a search carried out with a physiological perspective can result in unexpected findings.

Conclusion

Dutch obstetrics/midwifery is an outstanding example of the conception and development of ‘Evidence Based Midwifery’. The first condition for this is the realisation of the importance of this scientific domain throughout the entire profession including individual midwives, as they are the ones to argue the case to researchers and funding agencies. In this, there is no lack of enthusiasm, but that alone is not sufficient. It will need knowledge, daring and assertiveness. The midwifery educational programmes fulfil a crucial role in this realisation as they shape the midwives of the future in knowledge, as well as in attitude.

The second condition is a funding increase for research in the area of physiological obstetrics/midwifery. Although much progress has been made in the last decade, it has gone too slowly and is still not sufficient. In the Netherlands, most of the midwife-researchers have no choice but to carry out their research activities in their own time, combining it with their regular employment or work. Because of this, the research process is slow and it takes more time to achieve results. Many research questions are not incorporated into grant programmes because they do not conform to the strict programme criteria. Midwives should be more involved in defining the criteria of grant programmes.

The third condition is visibility. The midwifery profession is still struggling with gender issues. This is caused by both the gender composition of the profession (98% women) as well as the (still) existing hierarchical relationship with obstetricians. Midwives must stand up and deliver. They should publish and present. They need to manifest their knowledge and quality. This demands a daring that too often is not present, and the midwifery educational programmes could play an important role in this area. It does not stop with the midwifery schools: lifelong learning is essential because “the person who stops improving, stops excelling”.52
The overarching condition is the combining of strengths. Only when this is achieved can the other conditions be met and this should have the highest priority. The previously mentioned developments and initiatives are important and promising, but these are still too fragmented and without enough sustenance for Dutch midwifery to ‘make a fist’. It is high time for a Centre of Expertise for physiological obstetrics/midwifery, with a dedicated chair position for a professor in Evidence Based Midwifery. In 2009, preparations are being made in three Dutch universities to realize such a chair. Within this dedicated place, groups of researchers could combine expertise and vision and stimulate and motivate each other. It could facilitate structured contact and exchange with similar research groups from abroad. It could be the place where Evidence Based Midwifery could really develop and take shape. Here applies the same principle of joining together loose ends to make one strong thematic thread; one plus one is greater than two.

In closing
The Dutch midwifery profession still has a long way to go on its journey towards Evidence Based Midwifery. The Dutch midwives can find motivation for this journey in the vision of their profession: the conviction that pregnancy and birth are, in principle, physiological events in which unnecessary interventions must be prevented.4

On this journey, Dutch midwives can (and should) look for support from to their colleagues abroad. Despite the immense differences in the circumstances of midwives throughout the world, they are all united in the international definition of the midwife as formulated by the International Confederation of Midwives.5

The midwife is recognised as a responsible and accountable professional who works in partnership with women to give the necessary support, care and advice during pregnancy, labour and the postpartum period, to conduct births on the midwife’s own responsibility and to provide care for the newborn and the infant

This definition unites Dutch midwives with their international colleagues. It unites the midwives of today with Catharina Schraders from the past and reinforced with Evidence Based Midwifery, it will hopefully be a source of inspiration for the midwives in the future.
References


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