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NOTES FROM THE FIELD

Bridging Between Professionals in Perinatal Care: Towards Shared Care in The Netherlands

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Abstract Relatively high perinatal mortality rates in the Netherlands have required a critical assessment of the national obstetric system. Policy evaluations emphasized the need for organizational improvement, in particular closer collaboration between community midwives and obstetric caregivers in hospitals. The leveled care system that is currently in place, in which professionals in midwifery and obstetrics work autonomously, does not fully meet the needs of pregnant women, especially women with an accumulation of non-medical risk factors. This article provides an overview of the advantages of greater interdisciplinary collaboration and the current policy developments in obstetric care in the Netherlands. In line with these developments we present a model for shared care embedded in local 'obstetric collaborations'. These collaborations are formed by obstetric caregivers of a single hospital and all surrounding community midwives. Through a broad literature search, practical elements from shared care approaches in other fields of medicine that would suit the Dutch obstetric system were selected. These elements, focusing on continuity of care, patient centeredness and interprofessional teamwork form a comprehensive model for a shared care approach. By means of this overview paper and the presented model, we add direction to the current policy debate on the development of obstetrics in the Netherlands. This model will be used as a starting point for the pilot-implementation of a shared care approach in the 'obstetric collaborations', using feedback from the field to further improve it.

Keywords Shared care · Integrated care · Joint care · Combined care · Collaborative care · Innovation · Pregnancy · Prenatal healthcare · Care pathways · Collaboration

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Background

The midwife plays a key role as provider of obstetric care in the Netherlands. About 84 % of pregnant women start with a first antenatal visit to the community midwife. At the start of the delivery about 50 % of pregnant women are under responsibility of a midwife [1].

The midwife and the obstetrician work autonomously and generally play a complementary role. Yet complementarity requires an intensive mutual relationship with a common point of departure in the management of pregnant women. The nature and quality of this collaboration has come under scrutiny as perinatal mortality rates in the Netherlands are higher than in the surrounding countries and are showing a slower rate of decline [2]. The latest confirmed statistics describe a fetal mortality rate (deaths

from 22 weeks of gestation) of 6.4 and neonatal deaths (up to 7 days postpartum) of 2.7 per 1,000 births [1].

Explanations for these adverse outcomes have been put forward at the level of the mother, the unborn child, the organization of care, including the Dutch 3-tier system, and the area of living [3]. At the organization level, a nationwide study suggested a key role for low hospital performance at off business hours [4]. Neighborhood inequalities seem to play an additional role, with higher risks for adverse outcomes for women living in deprived areas, in particular in the four largest cities in the Netherlands. In some of these neighborhoods, perinatal mortality is beyond 30 per 1,000 births [5, 6].

As a response to public concern, the Ministry of Health installed an Advisory Committee on 'Good care during pregnancy and child birth' in 2009. Based on stakeholders' opinions this committee presented a set of recommendations on the direction in which the Dutch obstetric field should evolve [7]. This report was followed shortly by a scientific report with a comprehensive analysis of national perinatal data, an overview of knowledge gaps and a proposition for a research agenda in the perinatal health field [3].

Both reports underscored the need for organizational improvement, in particular closer collaboration between community midwives and obstetricians. This was also emphasized by the recent recommendations of the Foundation for Perinatal Audit in the Netherlands, after audit analyses of perinatal mortality at term [8]. Furthermore, both professional organizations for obstetricians and midwives endorse the necessity of an integrated obstetric care system.

The Current Situation

The Dutch obstetric system is unique in the world. It consists of three levels of care which function mainly autonomously. The primary level of care is provided by independently practicing community midwives who care for estimated low-risk pregnant women from the early prenatal until the postpartum period. Pregnancy, birth and the puerperium are traditionally perceived as fundamentally physiologic processes [9]. If pregnancy and childbirth occur without complications, women can choose to either deliver at home or in a hospital, both under the supervision of their community midwife. If complications (threaten to) occur, midwives refer women under their care to an obstetrician at the secondary care level. Tertiary care takes place in centers for perinatology with a neonatal intensive care unit and an obstetric 'high care' department. The latter is reserved for severely ill women, severe fetal pathology and (threatening) prematurity (<34 weeks of gestation) [10]. Approximately

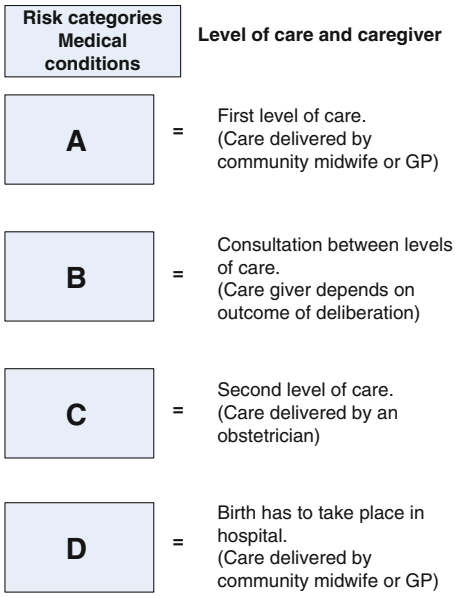

Fig. 1 The obstetric indication list

15–18 % of women have their first antenatal visit directly at a secondary or tertiary care hospital because of their high-risk medical or obstetric history [3, 11].

Referral is based on the 'List of Obstetric Indications' which is a risk selection list [12]. This list consists of medical conditions divided into risk categories. These different categories are shown in Fig. 1. Depending on the severity, either a community midwife (category A) or an obstetrician (category C) is eligible to deliver care. Category B covers consultation and category D for a hospital based midwife-led delivery.

The current classification system does not facilitate shared responsibility by both professionals. Moreover, it implies that thorough risk selection of pregnant women is always possible, resulting in a high-risk versus low-risk dichotomy with a 'demarcation-of-responsibilities' between community midwives and obstetricians [13]. However, several studies have shown that the occurrence of adverse perinatal outcomes often depends on the presence of a number of smaller risk factors rather than a single greater one that may be easier to detect. This is known as risk accumulation [6, 14, 15]. The presence of this risk accumulation and the under-detection of conditions such as intrauterine growth restriction make it harder to state that a woman exclusively belongs in one level of care or the other [14]. This may indicate that the current system needs adjustment.

Some of the problems experienced in the relationship between community midwives and obstetricians might reflect broader system issues such as negative financial incentives caused by the insurance policy, e.g. referring a patient to another professional for consultation may result in loss of income for the initial caregiver. More specific

factors that seem to play a role but are not explicitly described in the literature include a lack of communication between midwives and obstetricians which can be an important problem when transferring patients during labor. The authors believe providers from different disciplines feel a lack of mutual respect and support for the contributions that they make in providing obstetric health care. This is supported by preliminary results from interviews we have conducted with obstetric caregivers. The resulting fragmentation of care between the different professionals makes the system vulnerable to the occurrence of substandard care.

Local obstetric collaborations (OC's) have been important starting points for new developments in obstetrics in the Netherlands. Starting in 1987, OC's were founded across the country, consisting of obstetricians of a single hospital and all surrounding community midwives referring to this hospital. OC's are meant to evoke better collaboration between primary and secondary obstetric care.

A recent investigation by the Dutch Health Care Inspectorate found that OC's were in place in 91 % of the 92 hospitals providing obstetric care. In these OC's, midwives and obstetricians regularly have meetings to deliberate about the care in their geographical area. Next to the OC's, all hospitals providing obstetric care have implemented local multidisciplinary perinatal mortality audits [16]. Collaboration during these audits and on guideline development stimulates the cooperation between obstetric caregivers on a policy level [8, 17].

The Advisory Committee has expressed the aim of increasing collaboration between the obstetric levels for patient care. This aim has only been incorporated into the targets of a quarter of the OC's. Multidisciplinary collaboration for individual patients has so far only taken place on a small scale. Other recommendations by the Committee including local execution of multidisciplinary protocols developed on a national level and prevention of caregiver delay, are embraced by almost all OC's. The Committee also emphasized the importance of timely identification and assessment of medical but also of nonmedical risk factors, by all professionals involved in perinatal care [7].

A precondition for this is a risk selection instrument focusing on both types of risks, including psychological, social, lifestyle, obstetric and non-obstetric care related risks. The Rotterdam Reproductive Risk Reduction (R4U) checklist could fulfill these criteria and is based on the concept of risk accumulation [18]. During the first antenatal visit (at the community midwife or obstetrician) risks can be assessed with the R4U and subsequently a (weighed) score can be calculated for the (combination of) risk factor(s) identified. If the total score of a pregnant woman is higher than a given cut-off point, she can be prioritized for a 'shared care' approach within the OC. Shared care can be defined as interdisciplinary collaboration with a joint sense of responsibility for the individual patient and the ability to learn from each others skills and knowledge [19]. Such an approach to care can help to improve the current system.

Aim of This Paper

Even though a number of recommendations have been made, a clear-cut model that ensures tailored shared care for the individual pregnant woman in the Dutch obstetric health system is not available.

We fill this gap by presenting an overview paper that: (1) highlights the advantages of greater collaboration between community midwives and obstetricians in the Netherlands, (2) describes a model of shared care in which the expertise of caregivers is endorsed and a range of practitioner behaviors, practices, and policies which can contribute to collaborative obstetric health care are provided, and (3) describes the pilot implementation of shared obstetric care in clinical practice.

Towards a Shared Care Model: First a Theoretical Framework

We propose a reappraisal of the care provided by community midwives and obstetricians. Based on the arguments outlined above, starting points are improved tailored care for the individual woman and the involvement of the expertise of both community midwives and obstetricians.

We searched for descriptions of different forms of collaboration between obstetric professionals in other countries, such as Canada, Australia, New Zealand and the United Kingdom [20–25]. There were a number of different approaches: shared care provided by midwives and obstetricians for low and/or high risk cases, a form of case management or community antenatal care combined with intrapartum care delivered by hospital-based professionals. However, as the Dutch obstetric system is different from the systems abroad, there is no precedent for a model of shared care that can be fully implemented in the Dutch context [11, 26].

We then performed a broad literature search on shared care and its synonyms in all fields of medicine. These synonyms are numerous. Examples are 'integrated care', 'joint care', 'combined care' and 'collaborative care'. These terms indicate differences in the intensity of collaboration between health care professionals.

By reviewing studies that explicitly describe models of care, elements of these models were identified that satisfied

Table 1 Overview with the specific categories and elements of the new model for shared care

Category	Elements
Continuity of care [27]	Case manager oversees the care from booking visit to postnatal period [7, 31].
	Templates for standardised care pathways [47].
	Interdisciplinary electronic patient notes [7, 32].
	Short waiting times for referral to other health care professionals [30].
	Scheduled frequent meetings to discuss care plan [7, 30].
Patient centeredness [38]	Frequent and thorough communication with the pregnant woman [31].
	Self-management of the woman is fostered [32].
	Cultural (and socio-economic) background of the woman is taken into account [30].
	Care provider is close to the community of the pregnant woman [30].
	Efforts are made to combine appointments to different care providers.
	Home visit by one of the care providers to each pregnant woman [7].
	Interdisciplinary individual care plan for the pregnant woman [7, 37].
Interprofessional collaboration [39]	Shared sense of responsibility for the individual pregnant woman [7, 36].
	Clear definition of roles of different health care professionals [32].
	Joint set of aims and ambitions for collaboration [32].
	Stimulation of trust among the care providers [7, 32].
	Strong leadership in the implementation of shared care [40].
	Trainings on team work and sessions for interprofessional education [7, 41].
	Continuous evaluation and feedback on the shared care approach [32].
	Opportunity for experimentation and pilot-projects [32].

the following requirements: (1) compatible with the recommendations of the Advisory Committee, (2) contribute to the development and sustainability of shared care and (3) can be applied to the Dutch health care system.

For purposes of clarity we organized these elements into three categories: continuity of care, patient centeredness and interprofessional collaboration. The categories of the proposed shared care model are summarized in Table 1 and a visualization of the model is given in Fig. 2.

Continuity of Care

The first element of our shared care model is 'continuity of care'. This concept is defined by Haggerty et al. as: "the degree to which a series of discrete healthcare events is experienced as coherent and connected and consistent with the patient's medical needs and personal context." Three types of continuity can be distinguished: relational continuity (e.g. a limited number of different care providers directly involved with the patient), informational continuity (e.g. patient information known to an individual care provider) and management continuity (e.g. care protocols) [27]. Our model foresees that case management can help to improve the latter two forms of continuity [28].

The case manager—either a community midwife or an obstetrician, depending on the risk profile—should guide a woman through pregnancy from the first antenatal visit to the postpartum period coordinating the necessary care [7, 29–31]. He or she is the primary caregiver and the primary point of contact for the pregnant woman and for all other involved caregivers.

To further enable continuity of information, a number of facilitating factors should be addressed, such as uniformity in shared information and electronic patient notes that are accessible to all involved health care professionals [32–35]. On a small scale experiments with shared electronic notes already take place in the Netherlands. Ideally, the notes alert caregivers to scheduled tasks for an individual patient or the availability of new results. Furthermore web based applications allow for the sharing of non-patient information such as shared protocols, schedules and care plan templates [36].

If a pregnant woman scores above the cut-off point of a given risk-assessment tool, such as the abovementioned R4U, a customized care plan based on the care plan template is made by the case manager and discussed within the OC [37]. The care plan includes predesigned care pathways [12, 32]. A care pathway focuses on a specific need or risk of the pregnant woman. Often the pathways address non-medical issues that form an (indirect) risk for the pregnant woman, such as domestic violence or being uninsured. Moreover, the pathways consist of steps that need to be taken by the caregiver (including relevant referral procedures). The predesigned pathways should therefore be adapted to the local settings. Examples of a non-medical

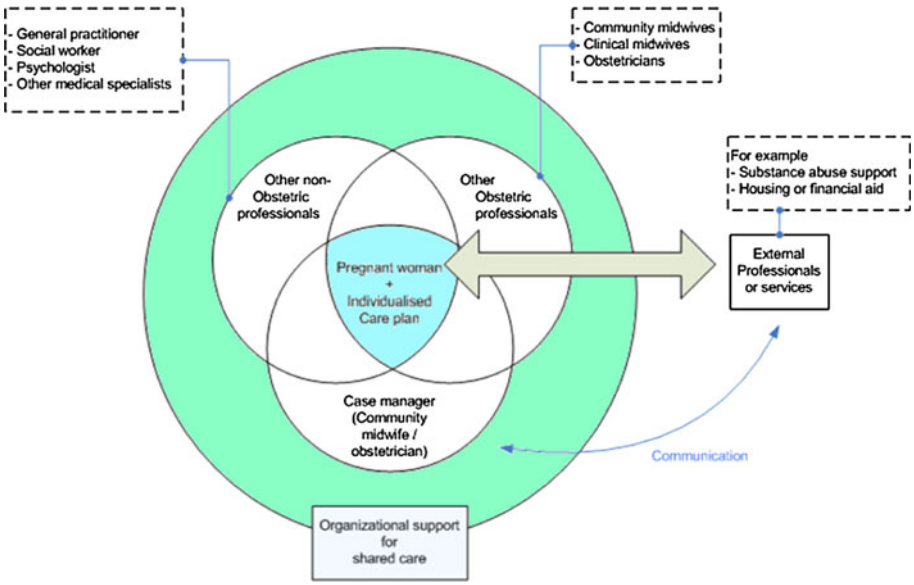

Fig. 2 Visualization of the shared care model

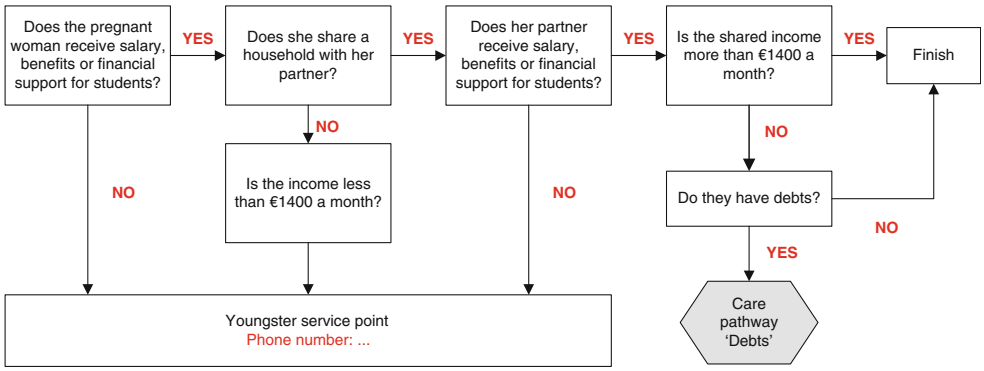

Fig. 3 Care pathway 'income and pregnant women (age 18–23 years)'

and medical care pathway are given in Figs. 3 and 4. We hypothesize that women with an accumulation of different risk factors will benefit from the care pathway approach.

Patient Centeredness

The Institute of Medicine defines patient centered care as "providing care that is respectful of and responsive to individual patient preferences, needs, and values, and ensuring that patient values guide all clinical decisions" [38]. This definition shows strong parallels to one of the aims of the Advisory Committee, namely a comprehensive approach to patient care. Currently, obstetric caregivers are mostly trained for and focused on the clinical aspects of pregnancy. When they identify complicated non-medical factors such as financial and psychological issues, they do not have the right tools and training to support the women, or referral options might be unknown or unavailable. In a shared care approach caregivers such as general practitioners, social workers and psychologists can help to meet those needs and reduce the related risks.

In order to acquire a more complete picture of the (non-medical) background of the pregnant woman, a home visit before 34 weeks of gestation is made by one of the obstetric caregivers [7]. If present, psychosocial issues can be assessed and prenatal information can be given (this assessment is carried out again after the woman has given birth). Furthermore, the inventory of the domestic situation is used to determine whether home birth is a safe option for the pregnant woman, unborn child and the caregiver.

In this shared care model, the self-management and empowerment of the pregnant woman should be encouraged, enabling her to make informed choices and to know what to expect during pregnancy and delivery and when to contact her caregivers. Efforts should be made to limit barriers (e.g. language) for this. A program in Rotterdam illustrates how this can be done. Here, perinatal health peer educators have been trained to support women from different socio-economic and cultural backgrounds. As stated before, obstetric care can only meet the needs of the individual woman when socio-economic, cultural and religious backgrounds are taken into account [30].

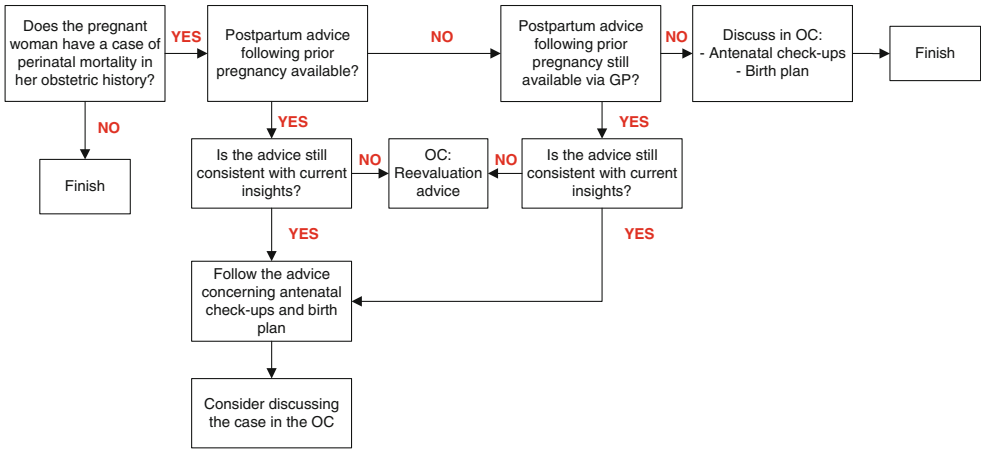

Fig. 4 Care pathway 'perinatal mortality in obstetric history'

Interprofessional Collaboration

Interprofessional collaboration is understood to be the process in which different professional groups work together to make a positive impact on the provision of health care [39]. The proposed model aims to create a shared sense of responsibility amongst caregivers for individual pregnant women prioritized for a shared care approach [36]. This can be stimulated by a number of different measures which will also help to increase mutual respect and trust between caregivers: First, a joint set of aims and ambitions [32]. Second, clearly defined roles and activities of different caregivers [32]. These should be complementary and should allow caregivers to be responsive to the changing needs of patients, their families, and other caregivers, as well as to resource availability [29, 32, 33]. A third measure is the deliberation amongst professionals on an individual patient level. A community midwife and an obstetrician are always involved in the design and evaluation of the care plan of pregnant women selected for the shared care approach, even though only one of these caregivers holds final responsibility. Depending on the specifics of the case, other healthcare professionals can be consulted, such as a general practitioner or a social worker. Other options include one-to-one meetings to reflect on difficult cases or shared rounds.

If a caregiver observes patient issues that may be of relevance to other providers involved, this is communicated in the meetings and, if necessary, at an earlier stage to the case manager [36]. For example, a general practitioner might notice in her consultations that the pregnant woman shows signs of depression and signal this to the involved obstetric caregivers. Collaboration could also be facilitated by locating all caregivers in close proximity of each other [30, 40]. In order to improve necessary teamwork skills, teamwork trainings can be introduced [41]. A fourth measure to improve collaboration could be interprofessional education [29, 41, 42]. The abovementioned shared rounds and case deliberation can also contribute to improved interprofessional education. A fifth measure could be frequently scheduled face-to-face meetings by members of the OC. Here, care for new and ongoing cases can be discussed and evaluated [29–31, 43]. A structured approach for these meetings is necessary, using a daily board consisting of a chairman (either one individual for a longer period of time or a rotating chairman) and a secretary to schedule the interdisciplinary meetings and to ensure that agreed tasks are carried out [32, 36]. In addition, the board can direct the ongoing monitoring, evaluation and adjustment of the shared care approach as a whole. The sixth measure we propose is creating opportunities for innovation and experimentation [32]. For example, pregnant women who in the current system are only treated by an obstetrician, would—according to this model—primarily be seen by a community midwife with some specific additional antenatal appointments with an obstetrician. An example is given in Box 1. Through such innovations the traditional barriers between the levels in the Dutch obstetric system can be overcome in order to become a truly shared care system.

Discussion

Adverse perinatal outcomes in the Netherlands have necessitated an orientation towards a shared care approach to adjust the current obstetric system. Based on our overview of the literature, it seems that shared care should lead to improved pregnancy outcomes and better use of the time and skills of community midwives, obstetricians and other caregivers.

We collected elements from shared care models outside the field to create a model that may suit the Dutch obstetric system. Because the model is based on an exploration of

Box 1 A case

Mrs. T is a 29 year old G2P1. In her first pregnancy intrauterine growth restriction occurred. Her son was born at 38 + 3 weeks of gestation with a birth weight of 2,350 g (<2.3 percentile). She was told that therefore in her next pregnancy her antenatal care should be given by an obstetrician in the hospital. Her midwife and obstetrician are members of the same OC. In the OC they have started an experiment for women with an intrauterine growth restriction in the prior pregnancy. They receive their care primarily from their midwife but are seen four times by an obstetrician for extra ultrasound fetal biometry measurements to check on fetal growth. If all is well Mrs. T can give birth under supervision of her midwife. She feels content with this option.

the literature there may still be elements that we have overlooked that could be a valuable addition. The elements we have included were categorized as pertaining to patient centeredness, continuity of care and interprofessional collaboration. Further investigation of these concepts could also lead to an inclusion of additional elements to the model in the future.

Excluding a number of the elements we encountered in the literature was inevitable as a choice needed to be made on which elements were suitable to the Dutch obstetric system. Most were not applicable because of being very specific for other fields of medicine. An example is the fluctuation of care intensity over time in long-time follow up for oncology patients [44].

Lastly, we are aware of the potential discrepancies between this theoretical model and clinical practice. However, the model we present is a starting point and feedback from the field will help to improve it.

Getting Started

The pilot-implementation of the model commences at the end of this year, taking place in OC's in the city of Rotterdam. In this city some important steps towards shared care have already been taken in the framework of the perinatal health program 'Ready for a Baby'. In this program, health researchers joined hands with municipal policy makers in order to develop a comprehensive program to improve perinatal health in the city [18]. One of the tools that we propose to use for the shared care model, the risk screening instrument R4U, is adopted from the 'Ready for a Baby' program.

Semi-structured interviews with obstetric caregivers in the Rotterdam region have been completed and will be used to obtain a clearer picture of the current challenges in collaboration and caregivers' opinions about shared care. Perceived success and failure factors of the shared care approach, changes in effectiveness of interprofessional collaboration, number of interdisciplinary referrals and patient satisfaction will be evaluated after the pilot-implementation of the model. This information will be used to further improve the model and the intervention.

The study in the Rotterdam region will focus on the implementation process and organizational perspectives of the development of shared care. The national program 'Healthy Pregnancy 4 All', which encompasses the same intervention, will focus on perinatal outcomes [45].

Shared care in obstetrics does exist in other forms abroad, but to our knowledge there is no literature available on the development and implementation of a model that meets the needs of the obstetric health system in the Netherlands. We believe that this study and the outcomes of the implementation in the field are therefore also of interest to (obstetric) health care systems abroad that show parallels to ours. In addition, it is relevant to other countries considering the implementation of a perinatal approach similar to the current Dutch system.

Possible Barriers

There are a number of barriers to be expected when implementing this model. These barriers will be explored in the pilot implementation. How extensive the change is that needs to be made to adopt the shared care model greatly depends on the current situation within the various OC's.

The shared care model will necessitate a different mindset for all involved health care professionals. The current system clearly divides the roles between primary and secondary obstetric care. Both professional groups are used to working fairly autonomously, yet many health caregivers realize that a change is necessary. This is shown by the fact that all hospitals and most of the community midwifery practices in Rotterdam have agreed to implement the R4U as a tool for a shared care approach.

Lack of time may be another challenge. If a woman has a number of different risk factors more time will be needed for the caregivers to arrange all necessary care pathways for her. Furthermore the OC's currently tend to meet on a (bi)monthly basis. To collaborate on an individual patient level, meeting more frequently is necessary. The physical separation of midwifery practices and hospitals may therefore form another barrier in the long run because caregivers will need to travel to attend face-to-face meetings. If the caseload is not too high, sending a single representative per midwifery practice and medical specialty may be a solution.

We also realize that a number of the required changes will necessitate additional financial means which may not be available in all participating OC's. The reimbursement in new models of collaborative care is currently an

important topic of discussion in the Netherlands. Recently the Dutch Healthcare authority published a report on the funding of integrated obstetric care, concluding that interprofessional collaboration needs to be established first before funding for integrated care will be provided [46]. If this model proves to be successful, the outcomes could be used in deliberations with insurance companies to obtain an alternative reimbursement model. For now we will need to find provisional solutions through dialogues with the OC's, the hospital boards, health insurance companies and regional support structures.

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