CHAPTER 8

Summary
This thesis aims to contribute to our knowledge of the prenatal healthcare use of pregnant women receiving primary midwifery care and of its determinants. We assessed two types of health service use, namely use of care offered within prenatal care programmes (Chapter 2, 3, and 4) and ancillary care use (Chapter 5 and 6). Prenatal care programmes comprise care determined by professionals and mostly concern prevention. Ancillary care is care provided alongside care from a principal maternal healthcare provider.

Chapter 1 is the general introduction to this thesis. Descriptions of pregnancy care, prenatal healthcare use and the determinants of prenatal healthcare use are provided. Prenatal care use is an important determinant of maternal and foetal health. Timely and adequate prenatal care has been shown to be effective in reducing the likelihood of adverse pregnancy outcomes. Therefore, better use of prenatal healthcare could contribute to the prevention of adverse perinatal outcomes. In addition to the use of care offered within prenatal care programmes, the determinants of prenatal care use are studied to identify the characteristics of those pregnant women who underuse prenatal care. Furthermore, the use of other types of care is studied, e.g. care from GPs and CAM practitioners. We used the model proposed by Andersen as a theoretical framework. This model categorizes the determinants of seeking and receiving professional care, such as prenatal care, as characteristics of the patients themselves and of their context.

The design of the Dutch pregnancy care system creates an opportunity to study the use and determinants of prenatal care use in low-risk pregnant women. Dutch pregnancy care is distinct from almost all other high-income countries. Pregnancy care is split into primary and secondary care, similar to the overall organization of the Dutch healthcare system. For most women with uncomplicated pregnancies, primary care midwives provide routine prenatal, intrapartum and postpartum care, and act as gatekeepers to secondary obstetric care.

With respect to use of care offered within prenatal care programmes, the following aims were formulated:

1. To provide a systematic review of the determinants of late and/or inadequate use of prenatal healthcare in high-income countries.
2. To examine the determinants of inadequate prenatal healthcare use by low-risk women in primary midwifery-led care in the Netherlands, and to determine whether these differ for women who are referred to secondary prenatal care.
3. To compare prenatal healthcare use in Belgium and the Netherlands with differently designed pregnancy care systems, as measured by the Content and Timing of care in Pregnancy (CTP) tool and to identify its predisposing, enabling and pregnancy-related determinants.
With regard to use of ancillary care, the following aims were formulated:

4. To compare GP consultation rates, diagnoses and care management for pregnant women with those for non-pregnant women in the Netherlands.

5. To examine the prevalence and determinants for CAM use by low-risk pregnant women in the Netherlands.

Chapter 2 concerns a systematic review of the determinants of late and/or inadequate prenatal healthcare use in high-income countries. Three databases were searched, eight high-quality studies were included. Two of the authors independently screened, read and assessed all the potential studies. A narrative synthesis was prepared, since a quantitative synthesis was not possible due to the heterogeneity of the included studies.

Low maternal age (<20 years), low education level (<9 years), unmarried status, ethnic minority status (widely differing operationalisations), receiving planned care from a GP/midwife/midwifery team or hospital consultant compared to shared care, receiving planned care in urban teaching hospitals compared to urban non-teaching hospitals, unplanned delivery location, not having insurance, high parity, no previous premature births and late recognition of pregnancy were all identified as individual determinants of inadequate use. Several contextual determinants were also associated with inadequate healthcare use or entering care late (after six months). These included living in deprived areas (60% non-white and 30% low income), living in areas with high rates of unemployment, single parent families, being part of a medium-average income family, living in an area with low average education levels, and reporting Canadian Aboriginal status. Regarding health behaviour, inadequate use was more likely among women who smoked during pregnancy. We found that the evidence in terms of high quality studies of the determinants of prenatal care use was limited: only eight studies met the criteria for inclusion. None of the studies included Dutch data. Although all the studies included here assessed prenatal healthcare use, they employed twelve different definitions. Standardization is urgently needed to be able to integrate the findings.

In Chapter 3 we studied the determinants of inadequate prenatal care use by low-risk women in primary midwifery-led care in the Netherlands. The data for this study were obtained from the DELIVER study, conducted by the Department of Midwifery Science of the VU University Medical Center Amsterdam. Data came from a pregnancy questionnaire (<34 weeks of gestation), electronic client records and data from the Netherlands Perinatal Registry. Inadequate prenatal care use was measured with a revised version of the Kotelchuck Index modified for the prenatal care guidelines of the Royal Dutch Organization of Midwives. The index combines the timing of entry to care and the number of visits.
We included 3,070 pregnant women who started prenatal care in a primary midwifery practice at the beginning of their pregnancies. A prevalence of inadequate use of 24.7% was found, and 24.7% of the women included were also referred to secondary obstetric care. Overall, our results showed that women of non-Western origin (compared to native Dutch women), unemployed women, women reporting chronic illnesses or disabilities, and women who did not use folic acid periconceptionally were more likely to use prenatal care inadequately. Pregnant women who were not referred during pregnancy were more likely to use prenatal care inadequately if they intended to deliver at a hospital, if they did not use folic acid periconceptionally or if they were exposed to cigarette smoke during pregnancy. Among those who were referred to secondary care, women reporting a chronic illness or disability and women who did not use folic acid periconceptionally were more likely to use prenatal care inadequately. This study found that a relatively high percentage (24.7%) of low-risk pregnant women did not use care in time and/or did not make as many prenatal visits as recommended in the prenatal care guidelines. Furthermore, we found that inadequate prenatal healthcare use was associated with a limited set of determinants in a low-risk setting. Our results can be used to target interventions to women who are at risk of inadequate prenatal healthcare use.

Chapter 4 studies the content and timing of care during pregnancy for low-risk pregnant Dutch women in primary midwifery care compared to a sample of low-risk pregnant Belgian women. The data on the Dutch women were drawn from the DELIVER database. The data on the Belgian women were obtained from an observational study conducted in the Brussels Metropolitan Region. Low-risk pregnant women residing in an urban area were eligible for inclusion. A pooled dataset was constructed to be able to adjust for pre-existing differences between the two populations. Prenatal care use was operationalized using the Content and Timing of Pregnancy tool. This tool considers the timing of the initiation of care and the number and timing of three specific interventions during pregnancy (blood screening, ultrasound and blood pressure measurement). We included 642 women, consisting of 321 Belgian and 321 Dutch women.

We found that women residing in Belgium used prenatal care inadequately more often (9.7%) than Dutch women (5.6%). Irrespective of the country they were from, inadequate prenatal care content and timing was associated with lower education level, unemployment, lower continuity of care provider and non-attendance at prenatal classes. To our knowledge, this study is the first cross-border study measuring prenatal healthcare use and its determinants. Despite the value of this study, more cross-border studies are required to examine other potential determinants of prenatal care use. Systematic and routine data collection on pregnant women is required.
Chapter 5 examined GP consultation rates, diagnoses and care management for pregnant women compared to non-pregnant women in the Netherlands. Longitudinal data from the Netherlands Information Network of General Practice was used. This register holds longitudinal data on the consultations, prescriptions and referrals for all the patients listed at 84 practices in the Netherlands in the period 2007–2009. We included 15,123 pregnant women and 102,564 non-pregnant women of the same age range (aged 15–45).

Pregnant women contacted their GP on average 3.6 times, compared to 2.2 times for non-pregnant women. The most frequently recorded diagnoses were ‘pregnancy’ and ‘cystitis/urinary infection’ for pregnant women, and ‘cystitis/urinary infection’ and ‘general disease not otherwise specified’ for non-pregnant women. The mean number of prescribed medications was lower in pregnant women compared to non-pregnant women (2.1 against 4.4). For pregnant women, the most frequent referral indication concerned obstetric care; for non-pregnant women this concerned physiotherapy. GP consultation rates in pregnancy and postpartum showed that GPs are important providers of care for pregnant women. Therefore, the involvement of GPs in collaborative care during pregnancy and postpartum should be reinforced.

Chapter 6 concerns the prevalence and determinants of use of CAM practitioners by low-risk pregnant women in the Netherlands. Longitudinal data from the DELIVER study was used. CAM use was measured using patient-reported data from the third DELIVER questionnaire. Women who reported at least one consultation with a CAM practitioner were defined as CAM users.

We found a CAM use prevalence of 9.4%. Low-risk pregnant women were more likely to visit a CAM practitioner if they had supplementary healthcare insurance, if they rated their health as ‘bad/fair’, if they had reported chronic illnesses or handicaps, if they smoked during pregnancy, and if they used alcohol during pregnancy. We concluded that CAM is relatively frequently used in a sample of low-risk pregnant women. The determinants we found in this study differ from those found in other studies: these included more heterogeneous pregnant populations. Maternal healthcare providers must become more aware of CAM practitioner use and incorporate this knowledge into daily practice, actively discussing this subject with pregnant women.

Chapter 7 summarizes and discusses the main findings of this thesis, and addresses its methodological considerations and the implications for practice, education and future research.

We found that a relatively high percentage of low-risk pregnant women did not use care in time and/or did not get the right amount of prenatal care as prescribed by midwifery guidelines. We discussed whether this could be related to barriers that pregnant women
perceive, or to barriers midwives experience, or to midwives adapting their care to the preferences of the pregnant women. Our results imply that future research should focus on finding evidence for a prenatal care programme which would determine the optimal number of prenatal visits and which would include the needs of pregnant women and the demands of healthcare providers with respect to the content of prenatal care.

Compared to the number of determinants we found in a systematic literature review on pregnant women in high-income countries, we found only a limited set of determinants associated with inadequate prenatal healthcare use in low-risk pregnant women in the Netherlands. These determinants overlap with previously identified determinants of higher perinatal mortality. This suggests that there could be an association between perinatal mortality and care use. Research is needed to disentangle this possible association.

Ancillary healthcare use through GPs and CAM providers is substantial. This shows a need to coordinate care to prevent loss of information, and the receipt of more interventions than medically necessary. Midwives are the central care providers for low-risk pregnant women. However, GPs also have an important task in the pregnancy and postpartum period, which exposes a need to strengthen collaboration between midwives and GPs, e.g. through the use of joint electronic files, joint training, joint guidelines and actual proximity (i.e. collocation) of GPs and midwives.

The findings on the use of care offered within prenatal care programmes and additional ancillary care could have considerable implications for practice, policy, education and research into prenatal care. They could help improve care for women with low-risk pregnancies and the outcomes of their pregnancies.