

# CARING FOR MOTHERS AND NEWBORNS AFTER UNCOMPLICATED DELIVERY: TOWARDS INTEGRATED POSTNATAL CARE





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## LIST OF ABBREVIATIONS

ABBREVIATION	DEFINITION
AIM-IMA	Agence Intermutualiste - Intermutualistisch Agentschap
APR-DRG	All Patient Refined Diagnosis Related Group
CPAS-OCMW	Public municipal welfare centre ('Centre Public d'Action Sociale'/'Openbaar Centrum voor Maatschappelijk Welzijn')
DFK	Dienst für Kind und Familie (Service for Child and Family)
ED	Early Discharge
EPS	Permanent sample / Échantillon permanent / Permanente steekproef
FPS-FOD-SPF	Federal Public Service / Federale OverheidsDienst / Service Publique Fédéral
GP	General Practitioner
INAMI - RIZIV	National Institute for Health and Disability Insurance ('Institut National d'Assurance Maladie-Invalidité'/'Rijksinstituut voor Ziekte- en Invaliditeitsverzekering')
K&G	Kind & Gezin (Child & Family)
LOS	Length of stay
M bed	Maternity bed
NICU	Neonatal Intensive Care Units
O.J.	Official Journal (Belgisch Staatsblad/Moniteur Belge)
OECD	Organisation for economic cooperation and development
ONE	Office de la naissance et de l'Enfance (Office of childbirth and childhood)
SOI	Severity of illness
TCT	'Cellule Technique de traitement de données relatives aux hôpitaux'/'Technische Cel voor de verwerking van de gegevens met betrekking tot de ziekenhuizen'
UK	United Kingdom



## ■ SCIENTIFIC REPORT

### 1 INTRODUCTION

#### 1.1 Postnatal care matters for many

The total number of deliveries for the most recent available year (2011) is 120 657 (source: N documents, INAMI-RIZIV). There are 99 maternity units in Belgium. In 2011, the number of deliveries per ward varied from 208 to 4979 and was on average 1190:

- the 10 maternity units in Brussels had on average 2230 deliveries (median = 2156),
- the 34 Walloon wards had on average 1009 deliveries (median = 748),
- the 55 Flemish wards had 1112 deliveries (median = 868).

Most women deliver in hospital (n = 119 163 or 98.8% in 2011); the number of outpatient deliveries, i.e. deliveries either at home, in a birth centre, or in one-day hospitalisation<sup>a</sup> is rather stable around one percent of the total number of deliveries (n = 1494 or 1.2% in 2011). Taking a closer look, there is a slight increase in outpatient deliveries (+11% from 2003 to 2011, or 71 extra outpatient deliveries).

For Belgium, the total proportion of caesarean sections (CS) was 20.4% in 2011 (n = 23 997, Belgium, IMA-AIM). The proportion of caesarean sections varies widely between hospitals from 12.7% to 31.5%. In Flanders instrumental deliveries (forceps and vacuum extraction) represented about 10% of all deliveries, in Wallonia 7.5% and Brussels capital 8.4%<sup>1-3</sup>. The proportion of normal vaginal deliveries was 70.3% for Flanders, 72.6% for Brussels capital and 73.3% for Wallonia in 2011%<sup>1-3</sup>.

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a No stay overnight.



## 1.2 The trend towards shorter hospital stay after childbirth in its societal context

### 1.2.1 *Shorter length of stay after childbirth*

The international literature describes reductions in the length of hospital stay after childbirth as a trend in the postnatal care provision in almost all industrialised countries. In the 1950s hospital stays of 11 to 14 days were not unusual, while currently average stays of 3 days or less are common in many western countries<sup>4</sup>.

In Belgium the length of postnatal stay (after normal delivery) has declined as well. In 1991 the national average length of stay after a delivery was 6.9 days. In 2000 this decreased to 5.6 days and 4.1 days in 2011<sup>5, 6</sup>. This average length is among the highest ones in OECD countries. The OECD average in 2011 was 3.0 days with the shortest average length of stay (for normal deliveries) in the UK with 1.6 days<sup>6</sup>.

### 1.2.2 *The formalisation of support resources during the transition to parenthood*

Over the 3 last decades, women's experiences with care following childbirth have changed substantially. By the reduction of length of hospital stays, postnatal care in practice returns to the homes. However women have today little chances to get familiar with pregnancy, birth and the care for babies<sup>7</sup>: nuclear families are small and women have no or few role models. In addition, intergenerational proximity<sup>8</sup> is limited: parents and grown-up children do not live as close to each other as a few decades ago. Furthermore, female employment can play an important role: the mothers benefit from maternity leave, but they are at home alone, since their partner,

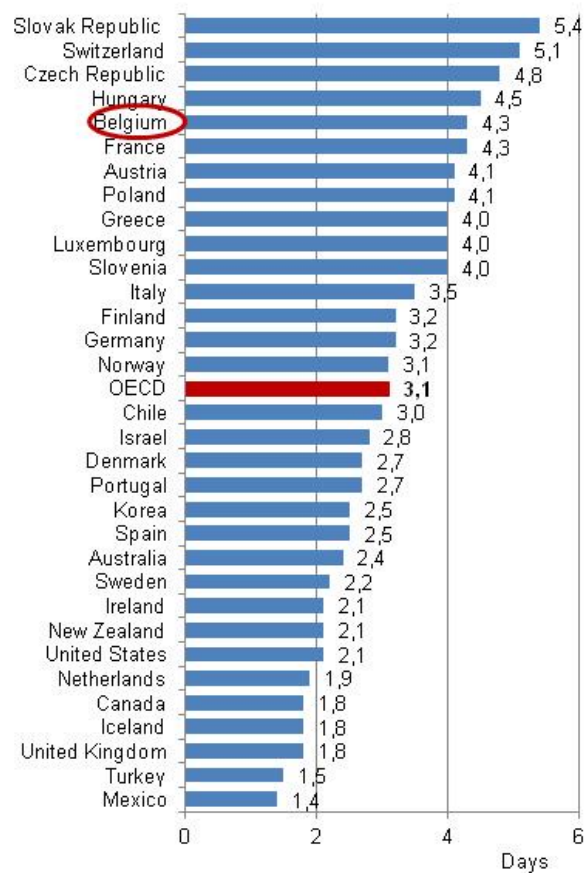
their peers, even their mother are at work during the day. Finally, northern and central European countries, including Belgium, are being characterised by weak family ties, meaning that individual values have priority over family loyalties<sup>9</sup>. These societal developments have resulted in limited informal support resources, leaving mothers and fathers alone with the responsibility of taking care of their newborn.

At the same time, strong welfare states like Belgium, offer welfare benefits (e.g. maternity leave, child allowance) and health care to support families. Today informal support (e.g. from family members or friends) is partially replaced by formal support resources (e.g. from health care professionals) during the transition to parenthood. A shortening of the hospital stay after birth should not entail a reduction of this formal support and quality of care.

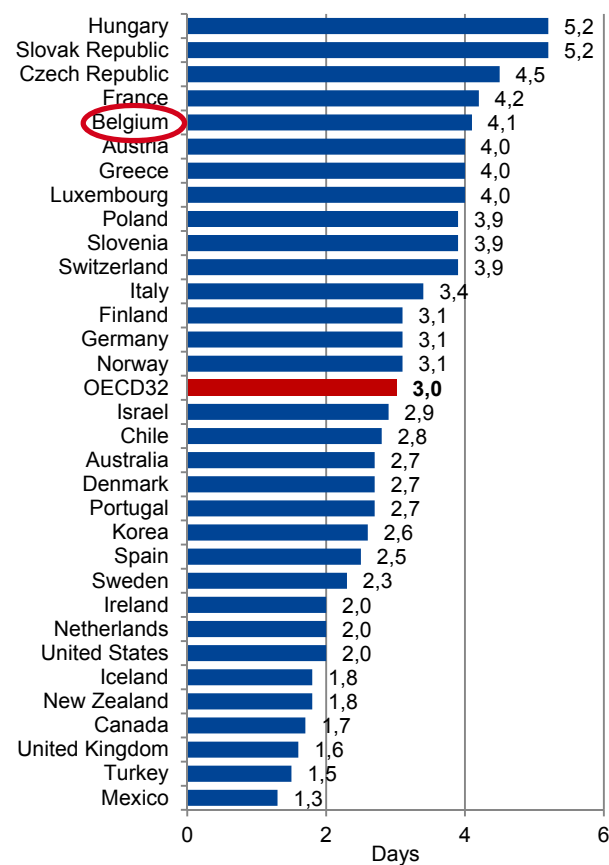
The way a society welcomes its children, reflects its dominant social values and beliefs<sup>10</sup>. In Belgium, like in most western countries, childbirth is highly medicalised and institutionalised. Previous research<sup>11</sup> into Belgian women's childbirth preferences revealed that many feel comfortable with medical care around pregnancy and childbirth and are satisfied with hospital stay after childbirth. Most women actively seek professional care and support during childbearing, a period characterised by increased feelings of uncertainty, fragility and sensitivity, and in which coping resources and adaptability are heavily challenged. This critical life stage is often experienced as overwhelming, as changes in many facets of life come together: the body, identity, family, work, relationships etc. The importance of feeling well cared for and of knowing where to go in case of problems, is therefore extremely important. Good postnatal care lays the foundations not only for a healthy new life, but also for solid families and happy parents and children.



Figure 1 – Average length of stay for normal delivery, 2009 and 2011 (or nearest year) <sup>6, 12</sup>.



Source: OECD, 2011, *Health at a Glance 2011*



Source: OECD, 2013, *Health at a Glance 2013*





### 1.2.3 Relevance of studying postnatal care

To further emphasise the relevance of studying the organisation of postnatal care, another observation described in the international literature is that postnatal care does not get the attention it deserves from scientists, nor policy makers and care providers. Citations from publication in international scientific journals are for example: “*Postnatal care has been dubbed the ‘poor cousin’ or ‘Cinderella’ of midwifery care*”<sup>13-15</sup>, or “*Of the entire maternity care cycle, the postnatal period occupies the lowest priority in practice, teaching, and research*”<sup>16</sup>.

Finally, many scientific papers conclude that women’s evaluation of postnatal care has consistently been more negative than their assessment of other episodes of maternity care postnatal care<sup>17</sup>. Few attempts have been made to understand the poor evaluations and search for innovative approaches to improve postnatal care provision<sup>13, 18, 19</sup>.

### 1.3 Scope of the study

This report presents the current organisation and use of postnatal care in Belgium, its weaknesses and recommendations on how it can be improved, taking into account the Belgium health care system and cultural values of all parties involved (mothers included). The following research questions are addressed:

1. How is postnatal care in Belgium organised, used, and financed?
2. How is postnatal care organised in a selection of other countries, more specifically the UK, the Netherlands and Sweden?
3. Are there consequences of shorter postnatal hospital stays (with follow-up at home) for the quality of care?
4. What are the financial consequences of shorter postnatal hospital stays with follow-up at home?
5. What are the drivers and barriers regarding shorter postnatal stays with follow-up at home among health care providers and mothers?

This report focuses on interventions related to the “normal” postnatal trajectory, including screening and breastfeeding practices. However, unplanned consultations for post-partum related complications or health problems of the mother (e.g. depression after delivery, wound infection) and/or the baby are not the main focus of this study. Physiotherapy has been incorporated in the description of the postnatal care landscape and the chapter on cost-estimations, but is not considered in the literature review on consequences for quality of care, nor in the chapter on the postnatal care in the UK, the Netherlands and Sweden.

## 1.4 Definitions

To have a sound understanding of the concepts used in the report, definitions are primordial. Some concepts stem from the literature; others, however have been adapted to the scope of the report.

### 1.4.1 Healthy mothers and term infants

Women who have an uncomplicated vaginal delivery and give birth to a healthy infant of at least 2500 gr at term (i.e. at 37 to 42 weeks of pregnancy).

### 1.4.2 Postnatal period

For the purpose of the study postnatal care was defined as *the care for mother and newborn(s) after an uncomplicated vaginal birth and starting from the moment mother and newborn(s) leave the delivery room, up until six weeks after birth*<sup>20</sup>. The notion ‘uncomplicated’ refers to the delivery itself. The use of pharmaceuticals to induce labor or epidural anaesthesia are not considered as complicating factors, while caesarean sections, pre-term deliveries, low-birth weights and multiple births are out of scope. Because ‘postnatal’ is most commonly used in the international scientific literature, and to enhance readability we will use ‘postnatal’ and not ‘postpartum’ consistently throughout the report.



### 1.4.3 Postnatal home care (*Kraamzorg / Soins postnataux*)

For this report postnatal care is defined as the medical or hygienic care provided to the newborn or the mother by midwives, physicians, nurses, physiotherapists or other health care professionals during the postnatal period.

### 1.4.4 Maternity home care assistance (*Kraamhulp / Soutien maternel à domicile*)

For this report, the non-medical part of home care is called maternity home care assistance. It is defined as the help or support in hygiene, household, psycho-social wellbeing for the mother, the neonate and the family during the postnatal period by professional caregivers (e.g. maternity home care assistants).

### 1.4.5 Early discharge

The concept of 'early discharge' refers to a hospital stay shorter than the 'accepted standard length of time for women to stay in hospital after giving birth'<sup>21</sup>. Definitions of early discharge vary between countries according to what has been the standard pattern of care<sup>21</sup>. At the same point in time, the standard length of stay, for example 48 hours, in country A may be considered a short stay in country B. This international variation is reflected in the literature on early discharge, with mothers discharged a few hours after childbirth as well as mothers discharged three to four days after birth, being considered in the early discharge group<sup>21</sup>. In France, early postnatal hospital discharge refers to discharge after up to 72 hours after a vaginal delivery<sup>22</sup>. According to the OECD Health Data (2011)<sup>5</sup>, the average length of stay for normal delivery for 2009 was the same in Belgium and in France. Therefore, in this report, the term 'early discharge' will refer to a length of stay of three days or less, unless further specified.

<sup>b</sup> "Justified" beds (*verantwoorde bedden / lits justifiés*) are the beds that are actually financed based on the activity level of a hospital ward.

## 2 ORGANISATION, UPTAKE AND FINANCING OF POSTNATAL CARE IN BELGIUM

### 2.1 Organisation of postnatal care and maternity home care assistance in Belgium

Depending on the postnatal trajectory diverse health care professionals and supporting services can intervene in the process. The competences of the health care professionals potentially involved and the organisation of postnatal care and support are described in the following section.

#### 2.1.1 Postnatal care.

##### 2.1.1.1 Maternity units in Belgium

There are 99 maternity units in Belgium: 10 of them are located in Brussels, 34 in Wallonia and 55 in Flanders. In 2011, maternity units in Brussels perform on average 2230 deliveries (median = 2174), Walloon wards on average 1009 (median = 758) and Flemish wards 1112 (median 866). In 2011, the number of deliveries per ward varied from 208 to 4979 and is on average 1190.

For this report we focus on the number of deliveries and "justified", hence financed beds<sup>b</sup> rather than on recognised beds as the number of recognised beds is not an adequate indicator of the activity level of a ward.

The occupancy rate of maternity beds varies between wards. It depends on the birth rate and market share in the catchment area on the one hand and on the number of maternity beds on a particular ward on the other hand. The data analysis provides further details on maternity beds occupancy rates and lengths of stay (See section 2.2).

Some hospitals provide postnatal home care by a midwife shortly after early discharge. Different organisational modalities are possible (See section 2.1.4.1).



### 2.1.1.2 Health care professionals engaged in postnatal care

Health care professionals providing care in maternity services and in the outpatient setting are mainly the obstetrician, the paediatrician, midwives/nurses and physiotherapists. The respective health care professionals' competences are described by law. Generally medical care (both in- and out-patient) is regulated and financed by the federal government.

#### Midwives

- **Organisational settings:** midwives can work in different organisational settings. The majority are salaried employees in a hospital, and a small group are primary care midwives working in a solo or group practice<sup>c</sup>, or in a birth centre. A birth centre is a particular kind of group practice, where midwives offer maternity care services ranging from ante- to postnatal care. In some birth centres women can also give birth in an outpatient setting. Most birth centres are not linked to a hospital. There is no legal framework that defines the activities of birth centres in Belgium. There is no recognition, nor a registration, nor subsidizing, nor quality control of birth centres. The care provided in a birth centre is reimbursed by the NIHDI as is other out-patient midwifery care, but there is no reimbursement for the stay in the birth centre. Today, to our knowledge, there are 4 birth centres in Flanders, 1 in Brussels and 3 in Wallonia<sup>d</sup>.
- **Competences and domain:** the practice of the profession of midwives is legally framed (Royal Decree nr. 78<sup>e</sup> (modified by Law 13 December 2006) and Royal Decree 1 February 1991<sup>f</sup>). In general, the field of competence is merely situated in the medical care during "normal" pregnancy, delivery and/or the postnatal period (art. 1 §1 Royal Decree 1 February 1991 exercise of the profession of midwife). There is no legal

definition of what is considered to be normal, yet indirectly, we can deduce that it implies the absence of any risk or pathology for the mother and the baby. If midwives detect a pathology, referral to a physician is required (art. 1 §2 Royal Decree 1 February 1991). In case of neonatal or maternal death, midwives immediately need to call a physician. Furthermore the law also requires midwives to apply strict hygiene rules. It is not specified, however, which specific actions should be fulfilled. In a hospital environment, an urgency network and hygiene policy are guaranteed, as hospitals need to comply with the requirements regarding these issues specified in law.

- **Autonomous versus under supervision:** a distinction has been made between the activities that midwives can perform autonomously and activities that need to be carried out under the responsibility of a physician<sup>g</sup>. The activities underneath apply to the postnatal care period:
  - **Autonomous activities:**
    - Surveillance, care and advice to women after delivery.
    - First aid to neonates and healthy babies.
    - Taking preventive measures and screening for risks in mother and child.
    - In case of urgency, necessary actions can be performed awaiting expert medical care.
    - The law also empowers the Crown, after the advice of the Federal Council of Midwives to define the particular qualification requirements and –criteria based on which midwives can perform pelvic floor reeducation or functional, non-morphological echographies. The indications and the situations in which midwives can perform such an echography can be listed, following the advice

<sup>c</sup> Contact data of group practices or solo practices in Flanders can be found at the website of the Vlaamse Organisatie voor Vroedvrouwen ([http://www.vlov.be/vroedvrouwen/Zoek\\_een\\_vroedvrouw\\_in\\_de\\_buurt/index.html](http://www.vlov.be/vroedvrouwen/Zoek_een_vroedvrouw_in_de_buurt/index.html)) and in Wallonia-Brussels on the website of the Professional Union of Belgian Midwives (<http://www.sage-femme.be/>).

<sup>d</sup> <http://www.geboortehuizen.be/>

<sup>e</sup> Royal Decree n°78 of 10 November 1967 related to health care professions practice, O.J. 14 November 1967

<sup>f</sup> Royal Decree of 1 February 1991 related to the practice of the profession of midwife, O.J. 6 April 1991.

<sup>g</sup> art. 21 octodécies §1 Royal Decree n°78 of 10 November 1967 related to health care professions practice



of the Federal Council of Midwives and the Royal Academie for Medicine.

- **Activities under supervision:**

Midwives can collaborate with physicians to care for neonates in life threatening or particular disease conditions, under the physicians' responsibility.

Apart from the specific tasks, midwives can perform nursing activities that are allowed by graduated nurses (RD n° 78 and RD 18 June 1990<sup>h</sup>).

- **Pharmaceuticals:** the law empowers the Crown to define which pharmaceuticals midwives can autonomously prescribe in the follow-up of normal pregnancies and care for healthy neonates in and out of the hospital, after the advice of the Federal Council of Midwives<sup>i</sup>. Since januari 2014, there is a Royal Decree defining which pharmaceuticals midwives can prescribe<sup>j</sup>.

For epidural anesthesia, midwives are entitled to prepare and provide the doses in an epidural catheter, inserted by a physician, to maintain anesthesia in the postnatal period. This medication needs to be prescribed by a physician and specific requirements are to be met in terms of presence and acts performed by the anesthetist him- or herself.

- **Competence profile midwives:** a competence profile "Beroepsprofiel van de Belgische vroedvrouwen" has been drafted by the Federal Public Service (FPS) and updated and approved by the National Midwives Council in 2012<sup>k</sup>. This list of competences elaborates and interprets the midwives' competences defined by the legal framework, though it has no legal binding force. Furthermore ethical principles are included in the text.

h Royal decree of 18 July 1990 related to list of technical nursing services and the list of services that may be assigned by a physician to a nurses, as well as implementing rules to these services and these acts and the qualification must meet by nurses, O.J. 26 July 1990.

i art. 21 octodécies § 3 Royal Decree n°78 of 10 November related to health care professions practice.

Royal Decree of 15 December 2013 defining the list of pharmaceuticals that can be autonomously prescribed by midwives in the scope of the follow-up of

- **Chief midwife:** the presence of at least one chief midwife/nurse responsible for the organisation, continuity and the quality of the nursing activity of the team is required at a hospital maternity department<sup>l</sup>.

Several specific tasks have been defined in law:

- Aligning the nursing activity in the team to the strategic vision of the nursing department as well as the societal deployments and expectations.
- The organisation and coordination, the supervision and the evaluation of the activities within the team.
- Collaboration with the supervisor in order to achieve the required personnel, quantitatively as well as qualitatively.
- Optimal use of means in the scope of qualitative patient care.

### Obstetricians and paediatricians

- **Physicians' general competences:** physicians have an overall competence to practice any medical act, including delivery and postnatal care. In theory any physician can thus perform a delivery and supervise care in the postnatal period. In practice, however, mostly obstetricians, paediatricians and general practitioners are involved.

There is no description in law of the particular activities falling within the responsibilities of obstetricians or paediatricians. Health care professionals need to act according to "*the professional standard of care*" implying that they need to provide the care that would be provided in comparable circumstances by a reasonable, careful health care professional of the same kind. Jurisprudence gives an indication of what

normal pregnancies, the practice of normal deliveries and the care to healthy neonates in and outside the hospital, O.J. 14 January 2013.

k <http://enzu.vlov.be/media/filebook/files/Beroeps-profiel%202006.pdf>

l Royal Decree of 13 July 2006 related to the execution of art. 17bis of the hospital act, coordinate 7 August 1987, for head nurse function, O.J 26 August 2006.



can be considered as good clinical practice with regard to postnatal care by these specialties.<sup>m</sup>

- **Physician responsible of the maternity department:** at the maternity department an obstetrician and a paediatrician, exclusively working at the hospital are in charge of the management and surveillance (department chief). They are responsible for the optimal functioning and the scientific quality of the service. The law also specifies that the department chief needs to ensure the optimal care within the shortest period of stay. Furthermore the continuity of care at the hospital as well as the seamless transition to follow up care needs to be guaranteed by the department chief. A list of afterhours services needs to be drafted, posted at the maternity, delivery and neonatal department and handed over to the physician responsible for the permanencies. The collaboration with a paediatrician supervising the neonates and an anaesthetist needs to be ensured by the department chief<sup>n</sup>.

### Nurses

Nurses are not allowed to do the follow-up of women after a normal delivery since this is legally reserved for physicians and midwives<sup>o</sup>. However, nurses are allowed to provide delegated care tasks and to carry out technical tasks following a medical prescription or without medical prescription in the postnatal phase as far as these are related to a pathology or complications<sup>p</sup>. Nurses are thus for instance allowed to provide care to women having delivered by caesarean. The care for the baby, however, can be carried out by nurses, regardless whether the baby was born by normal delivery or not. The same intervention can have different modalities according to the health care professional. A Guthrie test, for instance can autonomously be performed by a midwife whereas only on prescription by a nurse.

Furthermore the pricing of the same intervention can differ according to the type of health care professional.

### Physiotherapists

After a normal vaginal delivery physiotherapists provide pelvic floor re-education exercises. Depending on the hospital policy, this can take place in or out of the hospital. The question rises, however, whether the role of physiotherapists in hospitals will remain unchanged as in the future midwives will be allowed to perform pelvic floor re-education.

#### 2.1.1.3 *Postnatal care after hospital discharge or after home delivery (Kraamzorg / Soins postnataux)*

The follow up of the baby and the mother in the postnatal period after hospital discharge or after home delivery is provided by paediatricians, midwives or general practitioners (GPs).

Paediatricians and GPs can provide preventive care in local community settings (cfr. consultation ONE and Kind & Gezin). For curative care, obstetricians, paediatricians and GPs can also be consulted. The care is partially reimbursed by the mandatory health insurance. Out-of-pocket payments for newborn care is sometimes eligible for coverage by the complementary health insurance offered by private associations or sickness funds. Finally, physiotherapists provide pelvic floor re-education exercises after childbirth. The number of reimbursed sessions is limited to 9 including those provided during the antenatal period (see nomenclature art. 7 §1, 4°, I a) Procedure related to perinatal physiotherapy).

<sup>m</sup> For an overview of related jurisprudence: M. Eggermont, Arts versus vroedvrouw: wie is aansprakelijk bij medische onzorgvuldigheden binnen de verloskunde? in Eggermont, M., De verloskunde in beweging. De relatie patiënt-zorgverlener in juridisch perspectief, Die Keure, Brugge, 2013, p. 59-103<sup>25</sup>.

<sup>n</sup> art. 5 N, 1° Royal Decree of 23 October 1964 related to the standards-setting for hospitals and wards, O.J. 7 November 1964.

<sup>o</sup> See art. 1 physicians and art. 21 octodécies for midwives Royal Decree n°78 related to health care professions practice.

<sup>p</sup> Royal Decree of 18 June 1990 related to list of nursing technical services, the list of acts entrusted by physician to nurses, their execution modalities and the required qualifications for nurses, O.J. 26 July 1990.



**Key points**

- **Health care professionals providing care in maternity services are mainly obstetricians, paediatricians, midwives, nurses and physiotherapists.**
- **The follow up of the baby and the mother in the postnatal period after hospital discharge or after home delivery is provided by (often self-employed) midwives, paediatricians or general practitioners.**

**2.1.2 Maternity home care assistance**

Maternity home care assistance includes non-medical family support encompassing domestic work, child care and personal hygiene such as washing, clothing, nursing of the newborn and assisting in breastfeeding.

While the medical postnatal follow-up is regulated by the Federal Government, maternity home care assistance is organised at the Community level (gemeenschappen-communautés) (see Appendix 1).<sup>9</sup> This introduces some extra complexity and explains the differences in service provision in the Flemish Community, The French Community (Federation Wallonia-Brussels), the German speaking Community and Brussels.

**In the Flemish Community**, maternity home care assistance is integrated in organisations accredited and subsidised by the Flemish Community offering family support services for varying target populations such as elderly or chronically ill. This is also the case for the Dutch speaking organisations offering family support services in Brussels (cfr. *Infra*). Maternity home care assistance can also be offered by public services such as the Public Centers for Public Welfare (OCMWs / CPAS) of the municipalities and cities or by private services, which are non-profit organisations (VZW/ASBL). Some private family support services are associated with a sickness fund and/or an expert centre for maternity care (Expertisecentra voor kraamzorg, cfr. *infra*).

<sup>9</sup> Yet the exercising of the competence to organise maternity home care assistance ('person related matters') in the French Community was transferred to the Walloon Region and to the French Community Commission for Brussels.

A number of subsidised hours are allowed for maternity home care assistance, based on an assessment of the needs. The user is charged a tariff per hour based on the net income and the composition of the family. Most sickness funds partly reimburse up to 30 hours of maternity home care assistance. Some complementary insurance packages also reimburse the costs of maternity home care assistance. Families with triplets (or more) get more advantageous tariffs to make support more accessible.

We retrieved data on 11 large private organisations accounting for 82% of the hour quota installed by the Flemish government in 2011 for both public and private family support services. These services provided maternity home care assistance in 13% of the deliveries in Flanders.<sup>26</sup>

**In the French community**, maternity home care assistance is non-existent, only general family support services are available. A very limited number of the sickness funds, provide financial interventions to buy service vouchers for general family support services during the postnatal period.

**In Brussels**, the regulatory bodies of the Flemish and the French speaking communities, the Flemish Community Commission (FCC), the French Community Commission (COCOF) and the Common Community Commission (CoCom) are responsible for the regulation of maternity home care assistance. Not all organisations or initiatives operate as accredited bodies by a competent government (e.g. home care assistance operating with service vouchers). The multitude of competent governments renders the organisation of maternity home care assistance complex, fragmented and sometimes overlapping. The French and Flemish Community Commissions in Brussels have competences for unilingual French-language or Dutch-language institutions. The Common Community Commission is competent for the bilingual institutions, being either public institutions which are bilingual by definition, such as the OCMW / CPAS and public hospitals, or private institutions which have not opted for either Community.

**At Federal level**, self-employed mothers can benefit from 105 free service vouchers for (general) family support, resulting in 15 full time days<sup>r</sup>. These vouchers should be requested within 15 days after birth. They are paid by

<sup>r</sup> Royal degree of 17 January 2006 setting up maternity support services for self-employed workers and modifying the Royal Degree of 12 December 2001 related to service vouchers, O.J. 23 January 2006].



the sickness fund the mother is affiliated to. These general family support services are restricted to domestic work and rarely used during the postnatal period.

### Key points

- **Maternity home care assistance encompasses domestic work, personal hygiene, nursing the newborn and assisting with breastfeeding.**
- **In Belgium maternity home care assistance is organised at the community level. In the Flemish Community and for the Dutch unilingual institutions in Brussels maternity home care assistance services are integrated in general family support services accredited and subventioned by the Flemish Community, while in the French Community and in the French unilingual institutions in Brussels specific maternity home care assistance is non-existent.**

#### 2.1.3 *Agencies for prevention and support to young children and their parents*

After the 1980 governmental reform, an agency for prevention and support for young children and their parents was created in each linguistic community: Kind & Gezin (Child & Family), in the Flemish Community, Office de la Naissance et de l'Enfance (ONE), in the French Community, and Dienst für Kind und Familie (DKF), in the German speaking Community.

The missions of those agencies are the following:

##### 1. To provide universal antenatal care

Disadvantaged families are a large part of the population that benefits from ONE services. In 2011, antenatal care was provided to 16 280 mothers in the French community while less mothers were seen during pregnancy by K&G in the Dutch Community.

In DKF, no antenatal care is provided but guidance and financial support are proposed during the pregnancy. Each year, approximately 80 women receive needs-based support during their pregnancy. In addition, these women receive the financing of their antenatal consultations.

##### 2. To provide postnatal follow-up

The postnatal follow-up consists of a first contact at the maternity ward and/or home visit(s).

###### First contact at the maternity ward

In 2013, 68 660 acquaintance visits were provided by Kind & Gezin community nurses. The vast majority occurred at the maternity ward (n=63 653). The others visits were organised at home (n=5249) or less often at district offices (n=64). In addition, 299 acquaintance visits were realised by both community nurses and obstetricians. These acquaintance visits at maternity units covered 95.9%.

Almost all maternity units in Brussels and in the French Community have ONE liaison staff. A medico-social worker from ONE visits the mother and gives her information about the consultations for children. During this first contact, the medico-social worker collects epidemiologic data and sends a birth notification. In 2011, 54987 birth notifications were collected representing 98.5 % of all the French community births. During the mother's and baby's hospital stay, ONE provides supporting services in neonatal centres including, amongst others, preparation to return home. DKF provides the same services.

After this first visit, both in Flanders and Wallonia, children are issued a "Child's Follow-up Booklet" (Kindboekje / Carnet de l'Enfant) where each child's medical history is recorded. It is used as a liaison instrument between primary and secondary care givers.

###### Home visit(s)

After discharge, a home visit is proposed to all families. The purpose is to observe mother and child in their home environment and provide parental education on topics such as feeding, parenting, safety and health. In 2011, 73% of new mothers had a contact with ONE soon after discharge (61% of the babies were less than 2 weeks old and 84% less than 3 weeks).

More than only one visit is proposed by DKF in the German speaking Community. Moreover, a telephone hotline is available during working days.



### Deafness screening (Otoacoustic Emission testing)

Deafness screening is organised during the postnatal period. In Brussels, ONE is only present in French hospitals, and Kind & Gezin in Flemish hospitals. What concerns the hearing test, this is organised by ONE at the maternity, while Kind & Gezin does the hearing test within the first weeks after mother and child discharge at home or during a consultation. This leads to the strange situation that newborns from French-speaking mothers who gave birth in a Flemish hospital, do not get any hearing test (not in hospital, nor at home), while newborns from Dutch-speaking mothers who delivered in a French hospital, get tested twice, once in the hospital (by ONE), once at home (by Kind & Gezin).

### To provide preventive care

Preventive care consists of monitoring the growth and development of the baby during consultations at district offices. Tests are performed according to age (eye test, developmental tests...) and the child receives the recommended vaccinations.

Physician's missions in the French Community are described in the Order of 9 June 2004<sup>s</sup>. They are in charge of the medical section of the infant's follow-up booklet and have to refer to the preventive medicine guide (Guide de médecine préventive). ONE's actions are based on public health programs that promote breast feeding, vaccinations, dental care, and healthy eating habits to prevent obesity, as well as infant mortality prevention, accident prevention, and abuse prevention. ONE conducts research and collects data in order to get a better image of family demographics and adapt its mission to population needs.

In the German speaking Community, the physicians' missions are described in the appendixes of the labour contract. The same preventive medicine guide as in the French Community is used.

### 3. To support parents

This last mission is about maternal and child protection and actions related to parenting and health promotion. This mission covers a wide range of interventions from pregnancy up until eighteen years after birth. Because most of these interventions occurred outside of the postnatal period, we will not describe them further.

### **Specificities of Kind & Gezin**

- Organisation and structure

Kind & Gezin (Child & Family) was founded in 1984 after the federalisation of Belgium. It is an independent agency (Intern Verzelfstandigd Agentschap met Rechtspersoonlijkheid (IVArp)) that works actively in 'Public Health, Welfare and Family' policy area<sup>t</sup>. The agency exercises the tasks defined in the Founding Decree and other regulations. A management agreement (beheersovereenkomst) between Kind & Gezin and the Flemish government specifies the services needed to be offered by Kind & Gezin. This agreement lasts for one legislature and is tuned to the responsible Minister's policy<sup>u</sup>. This Flemish agency focuses on preventive treatment and guidance of young children geared to good outcomes in the future. The purpose is to enable children to achieve their full developmental potential, physically, mentally, emotionally and socially, with respect for diversity and children's rights.

- Collaboration with midwives

Regional teams of Kind & Gezin collaborate with midwives providing home care about mutual referral of patients, communication on collaboration and service provision to families in need of supplemental care. In 2009 this collaboration has been formalised in the 'Protocol for structural collaboration between midwives and regional teams of K&G in the postnatal period'<sup>v</sup>. Furthermore common information sessions and the transfer of scientific knowledge is agreed upon in central and regional discussion meetings<sup>w</sup>.

s Order of French-speaking Community Government 9 June 2004 establishing reform of consultations for children, O.J. 26 August 2004.

t Decree of 30 April 2004 setting up the internal independent agency with legal personality Kind en Gezin, O.J. 7 June 2004.

<sup>u</sup> <http://www.kindengezin.be/img/beheersovereenkomst-2011-2015.pdf>

<sup>v</sup> <http://www.kindengezin.be/img/protocol-samenwerking-vroedvrouwen-29juni2009.pdf>

<sup>w</sup> [http://www.kindengezin.be/img/Jaarverslag\\_Kind\\_en\\_Gezin\\_2012.pdf](http://www.kindengezin.be/img/Jaarverslag_Kind_en_Gezin_2012.pdf), p. 67





- Expert centers for postnatal care (Expertisecentra Kraamzorg)

Since 2003 expert centers for postnatal care (Expertisecentra Kraamzorg) were installed after the integration of maternity home care in general services for family care. The aim was to safeguard and develop knowledge regarding maternity home care including, on the one hand, the postnatal care for mother and newborn, and on the other hand, the maternity home care assistance. The expert centers for postnatal care were created as partner organisation of “Kind en Gezin”.

Six expert centers for postnatal care, one in each Flemish province and one for Brussels, realise actions in six areas<sup>x</sup>:

- Collection and distribution of scientific information, specialised documentation and methods regarding maternity care.
- Welfare- and health promotion and education regarding pregnancy, childbirth and postnatal period.
- Disclosure and awareness raising regarding maternity care.
- Evidence-based education and promotion of expert knowledge through advice, support and guidance.

Signaling function and the provision of input for policy making based on unified registration.

Alignment of different actors involved in maternity care and facilitation of networks and collaboration.

### Specificities of ONE

- General definition

ONE is a public institution that develops birth and childhood policies. ONE is an independent organism under the Minister for Childhood of Wallonia and the Brussels Federation. The core values guiding the actions of ONE are: “quality, equity, ethics, continuity, and ‘good-treatment’”. ONE has a mission statement and management guidelines in order to help employees in their missions. Its two main missions as defined by the decree are: 1) to support children's development within their family and social environment; to advise and support pregnant

women, parents and families medically and socially in order to ensure the global wellbeing of their children; 2) to ensure that childcare centres operate correctly and provide quality care for children outside of the home environment. ONE also has cross-disciplinary missions such as parenting support.

- Organisation and structure

The daily management of ONE is provided by a central administration and 6 subregional administrations, all of which are headed by the board. To pilot its strategies related to children and families, ONE is supported by scientific and advisory bodies (scientific council, advisory council, medical colleges, medical council). The double mission of the ONE is defined by a decree<sup>y</sup> as providing medical services and care for children (after the post-partum period) and childcare. ONE also has cross disciplinary missions such as parenting support and the creation of a Medical Social Data Base (BDMS). This data helps determine future public health care programs.

- Staffing

The staff of ONE is mainly composed of medical social workers who work at the consultations and do home visits. Few midwives are available. The physicians employed by ONE are mainly general practitioners and some paediatricians. There are 850 Medical Social Workers, 4400 volunteers and a staff of more than 1000 physicians.

Collaboration with midwives is secured by the inclusion of midwives within ONE's College of Obstetricians and midwives and collaboration with the Union for Belgian midwives (Union professionnelle des sages-femmes belges (UPSfB)).

### Specificities of DKF

- Organisation and structure

In September 2014, DKF disappeared and was integrated in a structure encompassing DKF, school medical services, psycho-social and medical centres, and preventive dental health. This new organisation covers the 9 municipalities of the German speaking community.

<sup>x</sup> <http://www.expertisecentrakraamzorg.be>

<sup>y</sup> Decree of the 17 July 2002 establishing reform of the Birth and Children Office (ONE), O.J. 2 August 2002.



- Staffing  
The staff of DKF is composed of nurses, social nurses, or midwives. The physicians employed at DKF are GPs and paediatricians

#### Key points

- **Since the early 80's, the agencies for prevention and support to young children and their parents are organised at community level; Kind&Gezin in the Flemish Community (K&G) and Brussels (Flemish speaking services), Office de l'enfance et de la naissance (ONE) in the French Community and Brussels (French speaking services) and Dienst Für Kind und Familie (DKF) in the German speaking community.**
- **They provide antenatal care to low income mothers, postnatal follow-up for all newborns at the maternity ward, at home and/or during ambulatory consultations.**

#### 2.1.4 *Coordination initiatives at early discharge from the maternity clinic*

##### 2.1.4.1 *Hospital – midwife coordination initiatives to ensure follow-up after short hospital stay*

The procedures for follow-up after early discharge vary between maternity units (see Figure 2). From the study of Moreau et al. (2013), which covers Wallonia and Brussels, not Flanders, we know that nearly half (47.7%) of the maternity units have a structured procedure to organise postnatal follow-up at home by a midwife<sup>27</sup> (p. 91 and p. 117). For Flanders such information is not available.

The midwives doing the follow-up at home may have different statutes: some are employed by the hospital, some are self-employed, and a third group combines the two previous ones in two part-time jobs. In the study of Moreau et al. (2013, p.93)<sup>27</sup> 23.7% (n=9) of the hospitals only work with their own salaried midwives, 31.6% (n=12) only referred to self-employed midwives external to the hospital and 44.7% (n=17) used combinations of salaried, self-employed and mixed staff profiles.

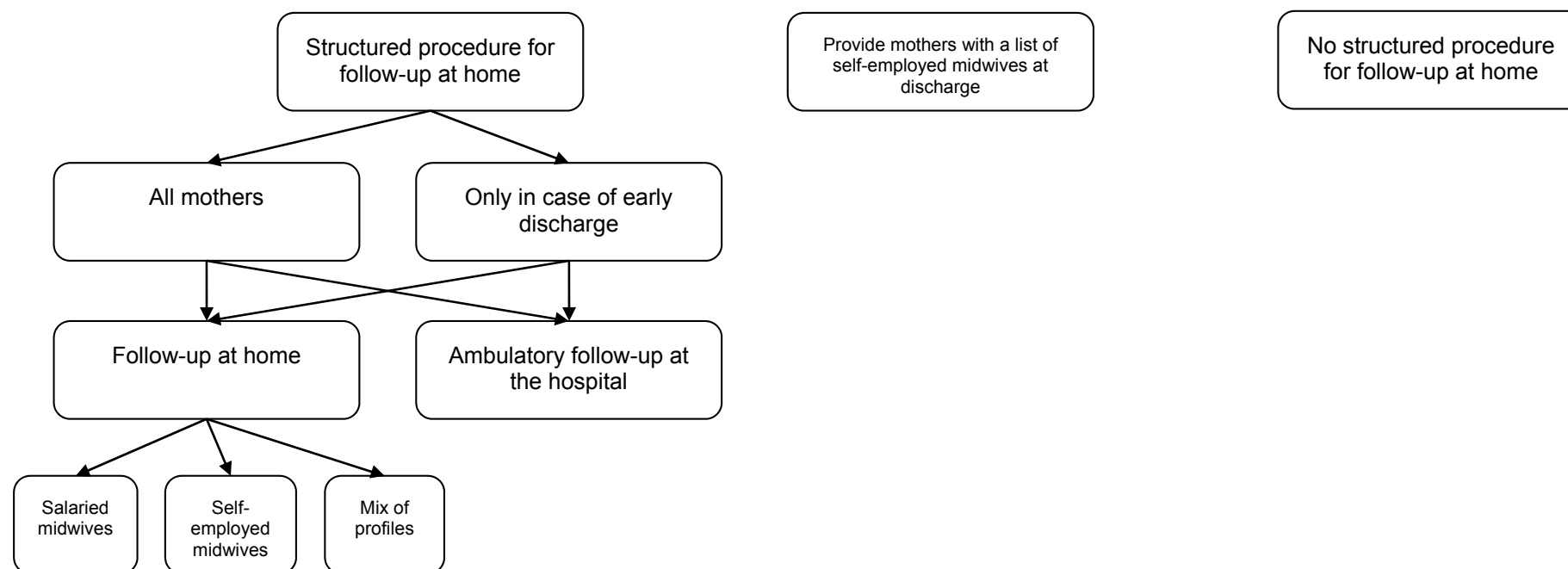
The continuity of the carer from hospital to follow-up at home depends on the place of residence of the mother. Outside of the catchment area of the hospital, postnatal women are mostly referred to self-employed midwives.

Besides the presence of a structured procedure for follow-up at home and which midwife profiles they work with, variability in working practice is also increased by the fact that:

- Some hospitals offer maternity care follow-up at home to all mothers, others only to early discharged mothers.
- Some hospitals organise maternity care follow-up during outpatient in-hospital consultations.
- Some hospitals just inform mothers about the possibilities of maternity care follow-up at home and provide a list of self-employed midwives offering maternity home care.



Figure 2 – Variability among hospitals regarding the provision of structured postnatal follow-up at home





### 2.1.4.2 Clinical pathway for delivery with short stay

A clinical path<sup>z</sup> for delivery with short stay was developed in Flanders<sup>28</sup> to support information sharing between secondary (intramural) and primary (extramural) postnatal care providers. The clinical path aimed at more involvement of primary health care professionals, especially general practitioners. According to a study in 2009,<sup>29</sup> implementation of this clinical path was primarily hampered by a weak collaboration between GPs and specialists. Furthermore, pregnant women are often not aware of the role GPs can play in postnatal care.<sup>29</sup>

- **Some hospitals appoint a team of midwives to provide follow-up at home.**
- **In the French speaking part of Belgium, 47.7% of the maternity units have a structured procedure to organise postnatal follow-up at home by a midwife. For Flanders such information is not available.**
- **The midwives providing follow-up at home may be employed by the hospital, be self-employed, or combine the two previous ones in two part-time jobs.**
- **A clinical path for delivery with short stay has already been developed in Flanders to support information sharing between secondary (intramural) and primary (extramural) postnatal care providers. However it was only implemented in the area around Leuven.**

## 2.2 Patterns of care use during the postnatal period

The objective of this chapter is to describe the patterns of health care use related to childbirth and the postpartum period, including hospital stays and follow-up at home.

### 2.2.1 Data selection

For the definition for uncomplicated vaginal deliveries we refer to Chapter 1.4. In this section we describe the translation of this definition into data selection criteria. To capture the patterns of care use, two databases have been used: the IMA-AIM (Intermutualistisch Agentschap – Agence Intermutualiste) database and the TCT (Technische Cel – Cellule Technique) coupled data.

Most of the Belgian residents are affiliated to one of the seven sickness funds (verzekeringsinstellingen/organismes assureurs) to cover the majority of their health expenditures with the compulsory insurance. The sickness funds collect administrative and billing data so that affiliates can have health services reimbursed. The AIM-IMA centralises the data from all sickness funds for study purposes. There are three administrative databases containing data at the individual level:

- the population database containing population characteristics
- the health services database containing billing data for all reimbursed health care services
- the reimbursed drugs database containing reimbursed pharmaceuticals from public pharmacies

The health services database contains reimbursement codes of medical procedures, health care services, hospital admissions, drug use, etc. It also includes dates, providers, institutions and costs.

The permanent sample<sup>aa</sup> (EPS, Échantillon permanent – Permanente steekproef), which is a subset of the AIM-IMA data accessible to a limited number of Belgian government agencies (including the KCE), has also been used.

<sup>z</sup> Available at [www.debakermat.be](http://www.debakermat.be)

<sup>aa</sup> The EPS (version R7 was used) contains 323 121 individuals for 2010 and 326 070 individuals for 2011.



Records from women who gave birth between 1 January 2010 and 31 December 2011 were selected from the AIM-IMA dataset (the same selection was done for the EPS). Deliveries were selected based on the nomenclature<sup>bb</sup> codes found in Appendix 2. A distinction was made between vaginal deliveries and caesarean sections.

Note that the AIM-IMA data refers only to persons registered to the compulsory health insurance from a Belgian sickness fund (97,4% of the population). The proportion of uninsured persons in Belgium is estimated at around 2.6% (source: Eurostat, INAMI – RIZIV, 2011). However, the proportion of uninsured mothers followed by ONE for the French speaking part of Belgium is far greater (7.5% in 2011; 9.10% in 2013)<sup>cc</sup>. In addition, this figure seems to grow over the years. Uninsured mothers are among the groups at risk.<sup>27</sup> Since their health expenses are not registered in a centralised database (i.e. AIM-IMA data), it is very challenging to study this subpopulation.

For the period under study, 241 367 stays have been selected, 48 818 of them were caesarean sections (20.2%). Among the women who delivered, 15.3% were beneficiaries of preferential intervention (BIM-RVV, bénéficiaire de l'intervention majorée - rechthebbenden op de verhoogde verzekeringstegemoetkoming); the median age of women was 30 years (p<sub>25</sub>=27; p<sub>75</sub>=34) and the mean was 30.4 years.

One of the advantages of the IMA-AIM database is that data is not limited to hospital related health care consumption, also outpatient health care use can be studied by means of the recorded administrative data; the downside however is that there is no possibility to isolate uncomplicated deliveries, because no medical information is included. Data have been explored and most programming has been done on the EPS. Afterwards the syntaxes have been run on the IMA-AIM database. Other limitations of the data are

the lack of data on parity, the fact that newborns without complications usually do not get a hospital invoice (by consequence services are billed on the mother's invoice) and the lacking link between mothers and newborns. Linking mother and child could theoretically be done by means of the composition of the maximum billing<sup>dd</sup> households, but data constraints prevented us from doing so (for some households, there are beneficiaries from several sickness funds, preventing the coupling of mothers and newborns data). In the cost-estimation study (See Chapter 7), hospital stays have been limited to uncomplicated vaginal deliveries using TCT coupled data (SHA-AZV and RHM-MZG).

### 2.2.2 Total number of deliveries

The total number of deliveries for the most recent available year (2011) is 120 657<sup>ee</sup>.

### 2.2.3 Place of childbirth

Most women deliver in hospital (n=119 163 or 98.8% in 2011) (see Appendix 3); the number of outpatient deliveries, i.e. deliveries either at home, in a birth entre, or in one-day hospitalisation<sup>ff</sup> is around one percent of the total number of deliveries (n=1494 or 1.2% in 2011). Over time there is a slight increase in outpatient deliveries, with an increase of 11% in eight years (from 2003 to 2011).

### 2.2.4 Type of delivery

The total proportion of caesarean sections (CS) was 20.4% in 2011 (n=23 997, Belgium, IMA-AIM). The proportion of caesarean sections varies widely between hospitals from 12.7% to 31.5%. Appendix 4 shows, for each

<sup>bb</sup> The nomenclature is the official list of reimbursed health care services.

<sup>cc</sup> Figures from K&G for the Dutch speaking part of Belgium are unavailable.

<sup>dd</sup> The maximum billing (maximum à facturer – Maximumfactuur, MAF) gives the beneficiary and his family the guarantee that the annual amount for the personal share of the medical costs cannot exceed a fixed ceiling; the costs for further care are entirely reimbursed by the mutual insurance funds. The amount of the ceiling depends on the beneficiary's social category, his age and the family income.

<sup>ee</sup> This number was retrieved from the N documents of the RIZIV-INAMI. N documents contain data transmitted each quarter by the sickness funds to the RIZIV-INAMI. For each (pseudo)code of the nomenclature, the N documents specify for each year the number of health care services (verstrekkingen/prestations), the expenses for the INAMI-RIZIV and the number of days that patients stayed in an institution.

<sup>ff</sup> No overnight stay.



hospital, the number of deliveries and the proportion of vaginal births and caesarean sections.

## 2.2.5 Characteristics of inpatient postnatal care use

### 2.2.5.1 Number of deliveries per maternity

The number of deliveries per year varies over tenfold between the largest and the smallest maternity. Note that about half of the maternity units have less than 1000 deliveries per year.

### 2.2.5.2 Number of maternity beds per maternity

The number of maternity beds (M beds) per maternity is presented in Appendix 4. (The ranking of the hospitals in A and B). From the comparison of A and B it is clear that the distribution of M beds only partially follows the distribution of number of deliveries per year. The hospitals with the smallest number of deliveries do not necessarily have the smallest number of M beds.

### 2.2.5.3 Number of deliveries per M bed per year for each maternity

We have calculated the number of deliveries per M bed per year, called the deliveries per M bed ratio. Table 1 shows a summary by region: while Brussels has bigger maternity units and a higher deliveries per bed ratio, the disparity within region is quite important (the highest ratio in each region is at least twice the lowest ratio).

**Table 1 – Maternity characteristics per region**

Region	Number of maternity units	Number of deliveries per maternity, 2011 median (min, max)	Number of M beds per maternity, 2012 median (min, max)	Deliveries per bed ratio, 2011 median (min, max)
<b>Brussels</b>	10	2156 (1133-3475)	43.50 (26-100)	44.93 (34.75-69.70)
<b>Wallonia</b>	34	748 (208-3965)	24.00 (10-81)	33.40 (13.02-53.63)
<b>Flanders</b>	55	868 (354-4979)	23.00 (10-88)	35.88 (18.71-56.58)
<b>Belgium</b>	99	893 (208-4979)	25.00 (10-100)	35.66 (13.02-69.70)

Source: IMA, INAMI-RIZIV

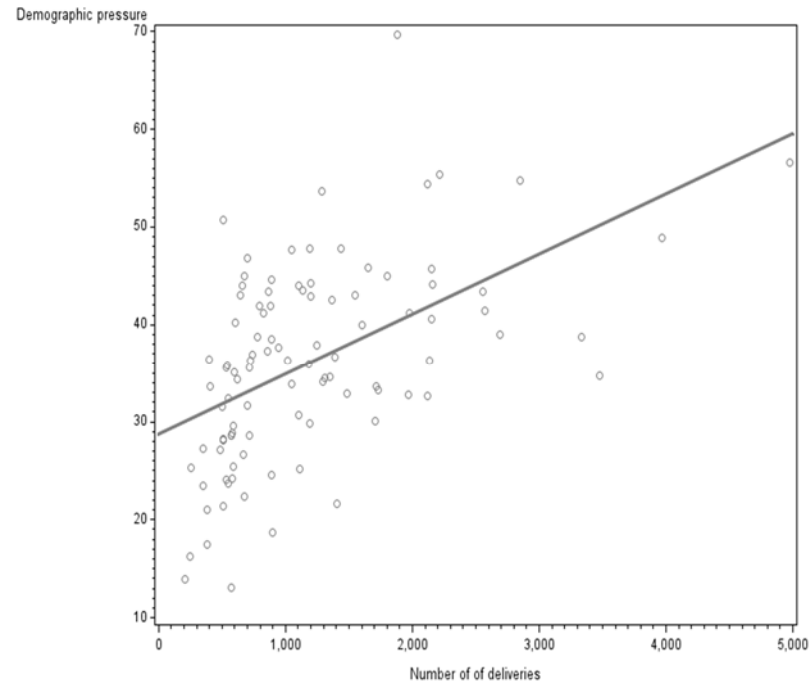
From Figure 3 we learn that among hospitals with a certain number of deliveries per year, there is a lot of variation in the number of deliveries per bed (per year). For example, for hospitals with 1100 deliveries per year, the number of deliveries per bed varies between 21 and 44; for hospitals with 2100 deliveries per year, the number per bed varies between 32 and 54.

Also, the national average number of deliveries per bed (in 2011), which is 35.66 (see Table 1), applies to maternity units with 400 deliveries per year as well as 2000 deliveries per year.

By consequence, although the number of deliveries per year and the deliveries per bed ratio seem to be moderately correlated ( $r^2=0.27$ ,  $p<0.001$ ), which means that more deliveries per year correspond with higher number of deliveries per bed, it is clear that a lot of variation remains unexplained.



**Figure 3 – Number of deliveries per year and deliveries per M bed ratio (2011)**



Regression Equation:  
births per bed2011 = 28.68093 + 0.006169\*nb\_acc\_2011

Source: IMA-AIM, 2011; RIZIV-INAMI, 2012

#### 2.2.5.4 Average length of hospital stay

##### Evolution over time

Since the hospital payment system reform of 2002 hospitals are incentivised for shorter stays. Hospital payment depends on the national average length of stay instead of actual length of stay.

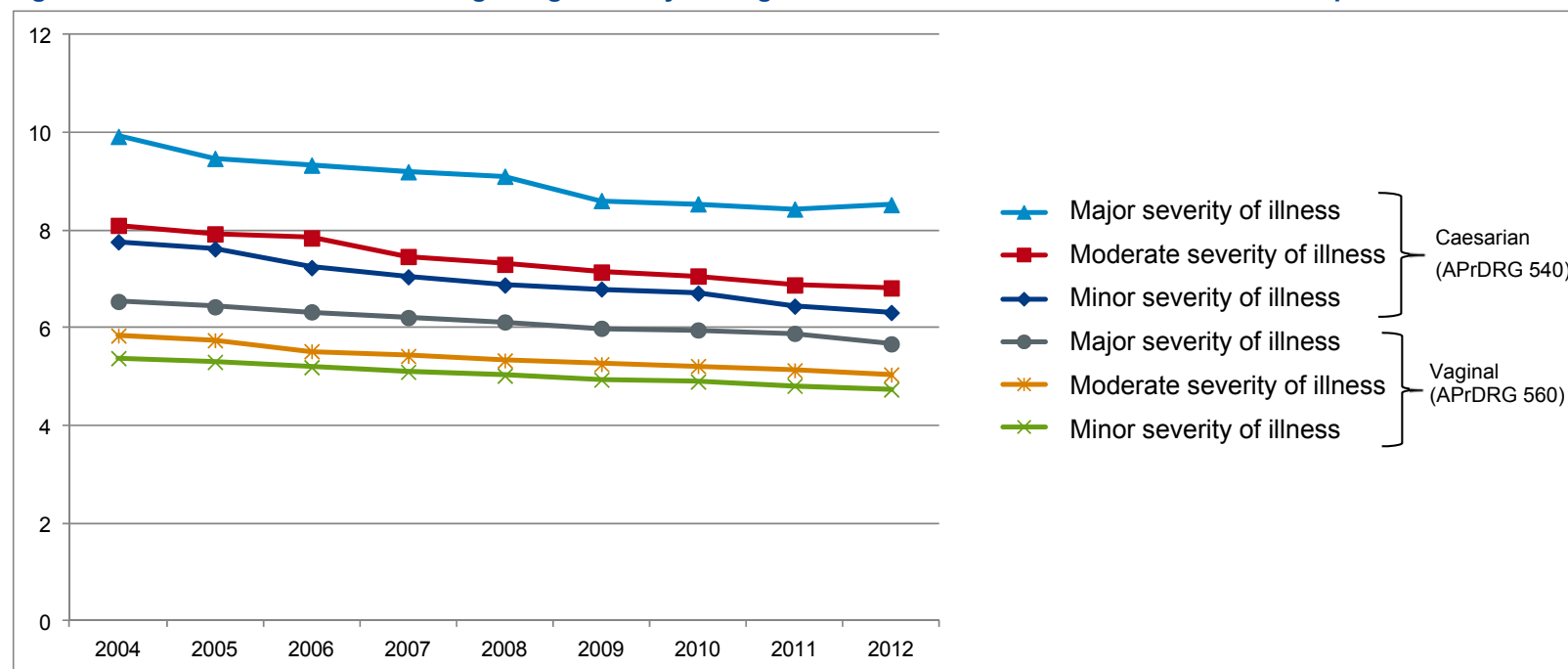
Over the last 8 years, length of stay for normal vaginal births (lowest severity of illness (SOI)<sup>99</sup>) decreased from 5.4 to 4.7 days translating into a 12% decrease. The evolution of length of stay for caesarean births (lowest severity of illness, SOI = 1, minor) evolved from 7.8 to 6.3 days (or a 19% decrease - see Figure 4).

<sup>99</sup> The Severity of Illness (SOI) is defined as the extent of organ system derangement or physiologic decompensation for a patient. It gives a medical classification into minor (1), moderate (2), major (3), and extreme (4). Patients are assigned their SOI based on their specific principal and secondary

diagnoses and procedures performed during their hospital stay. For Belgian hospital financing, SOI is used to refine DRGs to APR-DRGs. For each APR-DRG (further split by age for SOI 1 and 2) a justified length of stay is determined which forms the basis for part of the hospital financing.



Figure 4 – Evolution of national average length of stay for vaginal and caesarean deliveries in classical hospitalisation



Source: FPS Health, Food chain safety and Environment



Compared to the evolution of length of stay in general in hospitals, the decrease in length of stay in maternity is smaller than in other types of beds. The (normal) average length of stay in all beds with severity of illness 1 decreased nationally from 8.9 to 6.1 days in the same period. This means a reduction by 30%. For severity of illness 2, there was a 25% decrease (source: FPS Health, Food chain safety and Environment<sup>hh</sup>).

#### Variation in average length of stay between region and provinces

With 8.8% of all hospitalizations, deliveries are one of the most common reasons for hospitalisation. Table 2 depicts the Belgian situation for 2010 and 2011, by region and by type of delivery. Variations between regions are small, vaginal deliveries having a median length of stay of 5 days, compared to 7 days for caesarean sections, except for Brussels (6 days).

**Table 2 – Deliveries by region and type for 2010 and 2011**

Deliveries	Entity	n	p <sub>25</sub>	Median	p <sub>75</sub>	Mean	Std dev
<b>All</b>	Brussels	45 255	4	5	6	5.66	3.89
	Flanders	126 525	4	5	6	5.46	3.24
	Wallonia	69 587	5	5	6	5.79	3.93
	<b>Belgium</b>	<b>241 367</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>5.59</b>	<b>3.58</b>
<b>Vaginal deliveries</b>	Brussels	36 338	4	5	6	5.20	2.76
	Flanders	101 445	4	5	6	5.01	2.48
	Wallonia	54 766	4	5	6	5.39	3.41
	<b>Belgium</b>	<b>192 549</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>5.15</b>	<b>2.83</b>
<b>Caesarean sections</b>	Brussels	8 917	6	6	8	7.54	6.45
	Flanders	25 080	6	7	8	7.29	4.89
	Wallonia	14 821	6	7	8	7.25	5.19
	<b>Belgium</b>	<b>48 818</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>7.32</b>	<b>5.30</b>

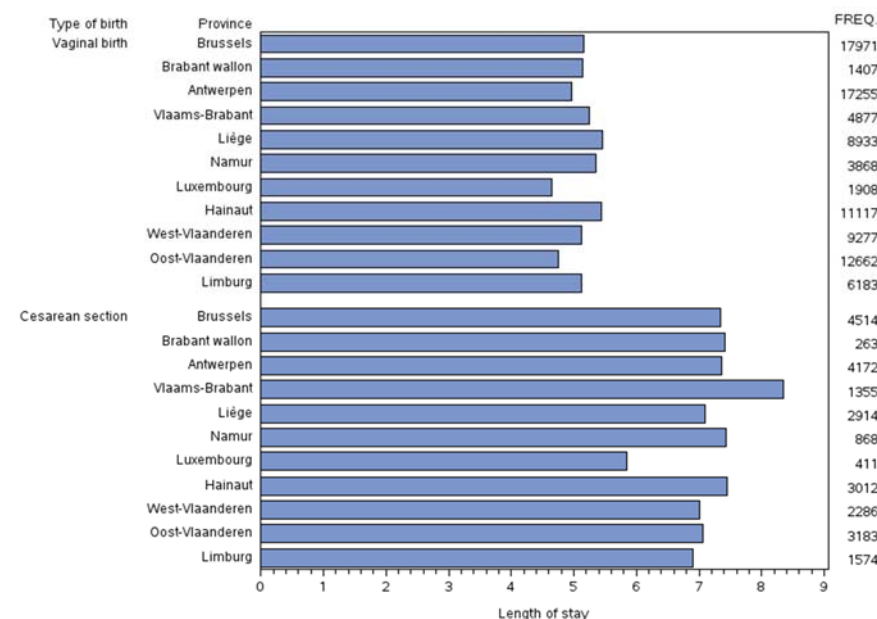
Source: IMA-AIM, 2010-2011.

hh

[www.health.fgov.be/eportal/Healthcare/Healthcarefacilities/Financing/Hospitals/w](http://www.health.fgov.be/eportal/Healthcare/Healthcarefacilities/Financing/Hospitals/w)

Figure 5 shows the mean length of stay by province. There are few differences for vaginal deliveries; for caesarean sections, mothers from the province of Luxembourg have a shorter stay, while Vlaams-Brabant has a longer one.

**Figure 5 – Mean length of stay in hospital for the mother by province and by type of birth**



Source: IMA-AIM, 2011; the figures in the column on the right side represents the number of stays in the given province.



### Correlations with number of deliveries

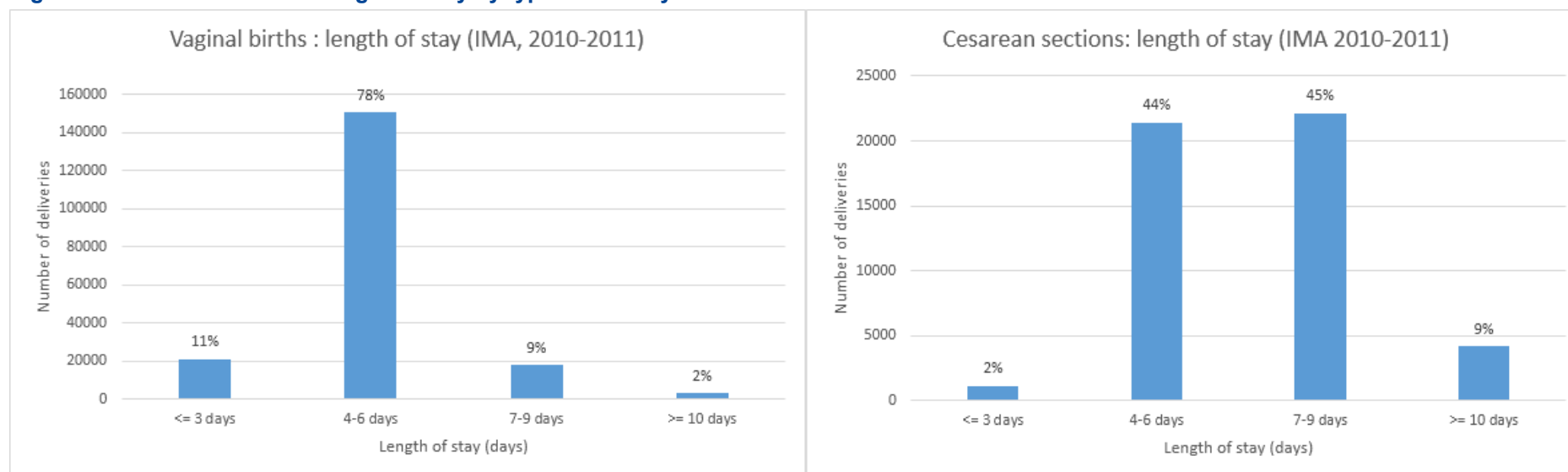
The average length of hospital stay<sup>ii</sup> is not determined by the number of deliveries per year, nor by the number of deliveries per bed, nor the caesarean section ratio (See Appendix 6, 7 and 8).

In Appendix 6 the mean length of stay per hospital is presented in function of the deliveries per bed ratio for 2011<sup>iii</sup>. There is no significant linear association between deliveries per bed ratio and length of stay ( $p=0.0754$ ). A higher the number of deliveries per year in a maternity, does not result in a shorter length of stay.

### 2.2.5.5 Number of short stays

For 2010 and 2011, of all women with a vaginal delivery ( $n=192\,549$  for 2010-2011) 11% ( $n=21\,069$ ) was discharged within 72 hours (see Figure 6).

**Figure 6 – Distribution of the length of stay by type of delivery**



Source: IMA-AIM, 2010-2011

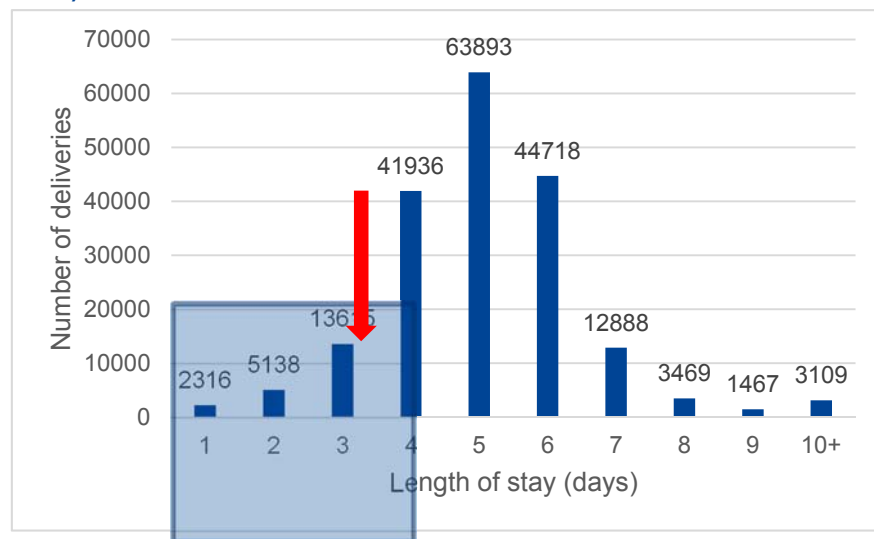
<sup>ii</sup> calculated on the EPS

<sup>iii</sup> The equation of the regression is  $LoS = 5.88 - 0.00861 \text{ deliveries per bed ratio}$



Figure 7 represents the number of short stays by day: more than half of the short stays have a length of stay of 3 days.

**Figure 7 – Number of vaginal deliveries per length of stay (IMA, 2010-2011)**



### Regional variation in number of short stays

Table 3 shows the repartition for Belgium and by region. Flanders has a higher proportion of short stays (12%) than Brussels (10%) and Wallonia (8%). The difference is bigger for one- and two-days stays than for stays of three days. Still, in each region short stays account for a very small proportion of the hospital stays for vaginal deliveries.

The ADELE study<sup>27</sup> showed that one out of five maternity units with high occupancy rate in Wallonia-Brussels strongly encourages a short stay, compared to none of the maternity units with low occupancy rate. The existence of a structured procedure in maternity units was also correlated with the occupancy rates of the maternity units. The researchers concluded

that one out of two maternity units in Wallonia-Brussels has a structured procedure for home follow-up by a midwife in case of early discharge.

**Table 3 – Short stays: length of stay by day and by region (IMA, 2010-2011)**

Length of stay (days)	Region	n	proportion
1	Brussels	245	0.67%
	Flanders	1806	1.78%
	Wallonia	265	0.48%
	<b>Belgium</b>	<b>2316</b>	<b>1.20%</b>
2	Brussels	662	1.82%
	Flanders	3646	3.59%
	Wallonia	830	1.52%
	<b>Belgium</b>	<b>5138</b>	<b>2.67%</b>
3	Brussels	2780	7.65%
	Flanders	7517	7.41%
	Wallonia	3318	6.06%
	<b>Belgium</b>	<b>13615</b>	<b>7.07%</b>
Total	Brussels	3687	10.15%
	Flanders	12969	12.78%
	Wallonia	4413	8.06%
	<b>Belgium</b>	<b>21069</b>	<b>10.94%</b>

### Length of hospital stay for vulnerable mothers

To know whether vulnerable mothers are overrepresented in the group of mothers with a hospital stay shorter than 72h, we looked at the beneficiaries of preferential intervention (BIM-RVV, bénéficiaire de l'intervention majorée - rechthebbenden op de verhoogde verzekeringstegemoetkoming). Table 4 shows that 13% of the vulnerable (BIM-RVV) mothers are discharged within 72 hours, while this is only 8.6% for other mothers (non-BIM-RVV). Note that at the other end of the continuum, 4% of the vulnerable (BIM-RVV) mothers stay 10 days or more, while this is 2.7% for other (non-BIM-RVV) mothers, hence also in the longer stays they represent a larger group.

**Table 4 – Distribution of the length of stay by type of beneficiary**

Beneficiaries	1-3 days		4-6 days		7-9 days		10+ days		Total	
	n	%	n	%	n	%	n	%	n	%
Ordinary beneficiaries	8797	8.6%	73901	72.5%	16512	16.2%	2733	2.7%	101943	100.0%
BIM-RVV	2461	13.3%	12462	67.6%	2785	15.1%	734	4.0%	18442	100.0%
Total	11258	9.4%	86363	71.7%	19297	16.0%	3467	2.9%	120385	100.0%

Source: IMA-AIM, 2010-2011

### Key points

- Over the last 8 years, the length of stay for uncomplicated vaginal deliveries shortened by less than 15%, evolving from 5.4 to 4.7 days for patients with the lowest severity of illness; this shortening of hospital stay is less pronounced in maternity units than in other hospital services.
- Shorts stays (3 days or less) represented 11% of the hospital stays after vaginal deliveries.
- The deliveries per beds ratio, measured by number of deliveries per M bed per year, is higher in Brussels than in Flanders and Wallonia, but the variation in ratios is high within regions.

### 2.2.6 Characteristics of outpatient postnatal care use

When mothers leave the hospital with their baby, midwives are the primary health care providers to continue postnatal care at home. Some hospitals have a team of midwives doing home visits or ask self-employed midwives to do the follow-up at home. Other hospitals only provide mothers with a list of self-employed midwives' coordinates.

#### 2.2.6.1 Current use of postnatal follow-up by midwives

In Flanders, mothers have more postnatal midwife consultations (median=3 contacts per mother) than in Brussels (median=2) and Wallonia (median=1) (See Table 5).

**Table 5 – Mother's consumption of postnatal midwifery care after vaginal deliveries for each region**

Region	n	Contacts per mother		
		mean	std dev	median
Brussels	9 252	2.42	2.01	2
Flanders	41 444	4.16	3.13	3
Wallonia	13 949	2.22	2.28	1
Belgium	64 939	3.49	2.96	3

Source: IMA-AIM, 2010-2011.

#### 2.2.6.2 Evolution in the use of postnatal follow-up by midwives

Over the last years there was a considerable increase in postnatal midwife consultations after hospital discharge. Postnatal ambulatory consultations are consultations given to non-hospitalised patients. They can take place either at home, in hospital or elsewhere (taken into account in the nomenclature since 2012, not shown in Figure 8).

From 1996 to 2011 the number of postnatal midwife consultations increased from less than 10 000 to more than 180 000. Breastfeeding consultations accounted for 16% of the postnatal consultations in 2011 (See Figure 8).

The increase in postnatal outpatient midwife consultations was supported by an expansion of RIZIV-INAMI billing codes. Figure 8 shows the evolution in the number of consultations from 1996 to 2011 (See Appendix 3 for the



explanation of the codes mentioned in Figure 8). Over the examined period codes have changed. Some codes were deleted (deleted in 2001 except for 422730 in 2008, see 'old codes' in Figure 8) and new ones were created. The content of some codes also changed. The code 422435 for instance could previously be billed only 6 times while currently it can be billed 7 times.

Specific codes for consultation for breastfeeding were created end 2007. Before that date, midwives also provided breastfeeding support, but these consultations were then billed with a general code.

**Figure 8 – Evolution in the number of postnatal midwife consultations from 1996 to 2011 (all deliveries included))**

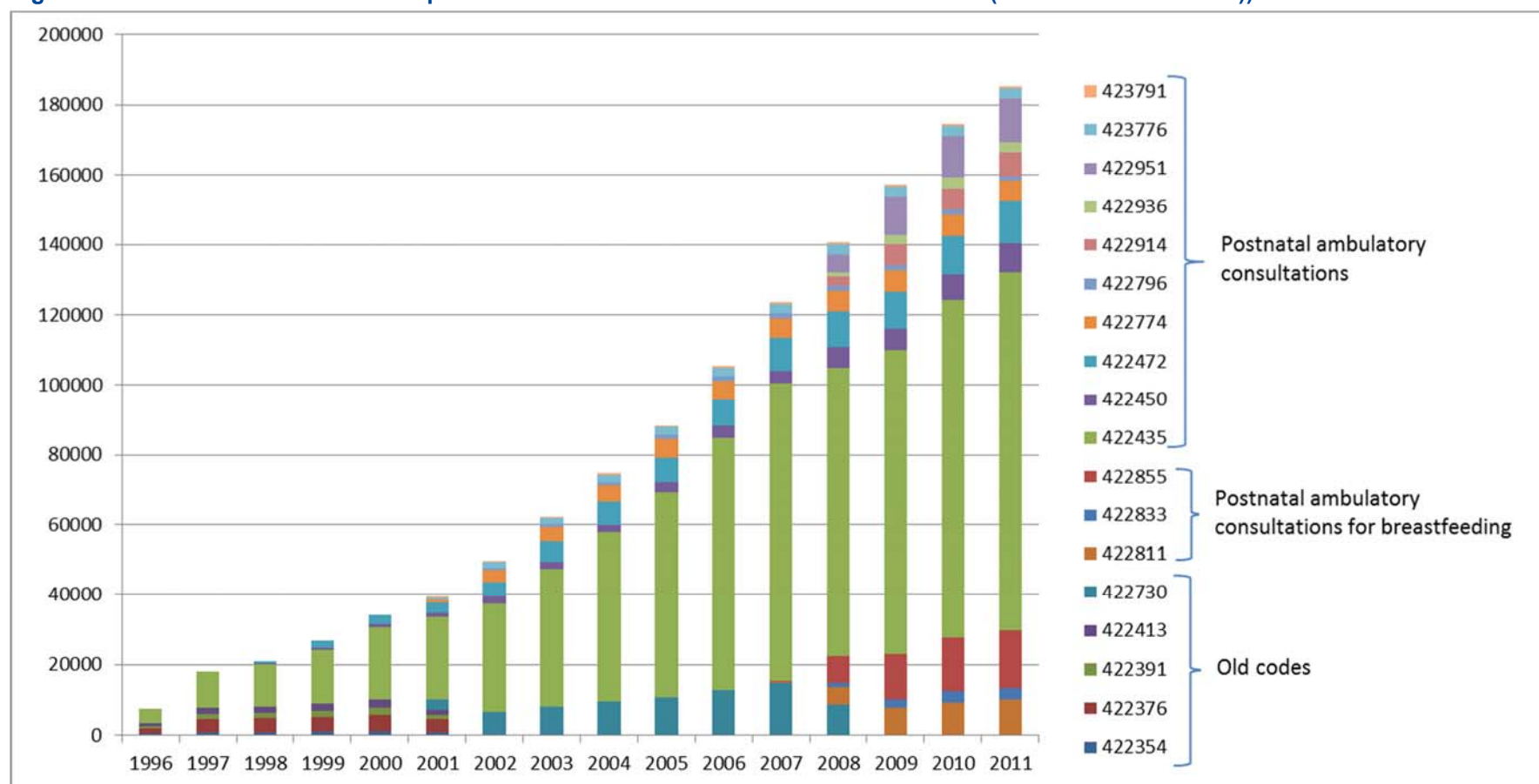
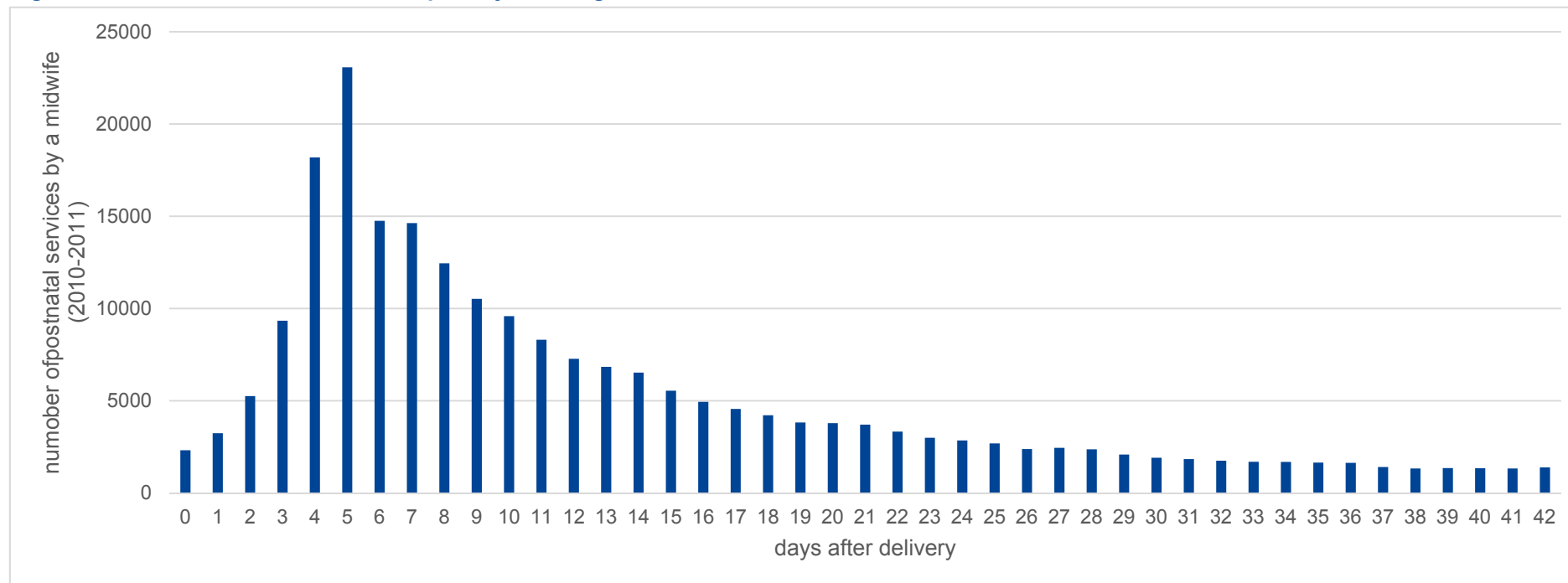




Figure 9 shows the number of midwives' contacts for postpartum care with women who had a vaginal delivery for each day of the postpartum period. The number of contacts by day grows to peak at the fifth day after the

delivery, then decreases slowly until the end of the 6 weeks. Contacts are concentrated on the first two weeks (70% of the contacts took place between day 0 and day 15), especially between days 4 to 8.

**Figure 9 – Number of midwife contacts per day after vaginal deliveries**



Source: IMA-AIM, 2010-2011.



### 2.2.6.3 Number of women who had at least one outpatient ante- or postnatal midwife consultation

One mother out of three with a vaginal delivery has an outpatient contact with a midwife before the delivery while four out of ten have a postnatal consultation. While antenatal outpatient midwife consultations are more frequent in Brussels (51%) than Wallonia (43%) or Flanders (38%), postnatal consultations are more frequent in Flanders (39%) and Brussels (36%) than in Wallonia<sup>kk</sup> (23%).

Only 18% of the mothers consulted a midwife before and after the delivery (Table 6). The proportion of mothers who had both antenatal and postnatal consultations with a midwife is bigger in Brussels (22%) and Flanders (20%) compared to Wallonia (14%).

**Table 6 – Outpatient midwife consultation before and after vaginal delivery by region**

Region	Antenatal		Vaginal deliveries: number of mothers with at least one midwife contact				Total vaginal deliveries
	n	%	n	%	Both ante- and postnatal	%	
Brussels	13 036	<b>50.9%</b>	9 252	36.1%	5 756	<b>22.5%</b>	25 601
Flanders	40 746	38.4%	41 444	<b>39.0%</b>	21 179	19.9%	106 183
Wallonia	25 802	43.4%	13 949	23.4%	8 203	13.8%	59 512
Belgium	80 053	41.6%	64 939	33.7%	35 287	18.3%	192 549

Source: IMA-AIM, 2010-2011.

The same figures are presented by province (Table 7). In Flanders, Limburg counts most women who had both antenatal and postnatal midwifery consultations with 37%, In Wallonia this is the case for Brabant-Wallon with 24.5%. Note the high proportion of antenatal (but not postnatal) midwifery consultations in Luxembourg (64%), the least densely populated province of the country.

<sup>kk</sup> Geographical repartition according to the mother's residence location.

**Table 7 – Outpatient midwife consultations before and after vaginal delivery by province**

Vaginal deliveries: number of mothers with at least one midwife contact								
Region	Province	Antenatal		Postnatal		Both ante- and postnatal		Total vaginal deliveries
		n	%	n	%	n	%	
Brussels	Brussels	13 036	50.9%	9 252	36.1%	5 756	22.5%	25 601
Flanders	Antwerpen	9 523	29.6%	10 941	34.0%	4 814	14.9%	32 221
	Limburg	7 100	<b>55.1%</b>	7 399	<b>57.5%</b>	4 742	<b>36.8%</b>	12 878
	Oost-Vlaanderen	8 649	34.4%	9 962	39.6%	4 359	17.3%	25 151
	Vlaams-Brabant	7 826	44.6%	5 192	29.6%	3 064	17.5%	17 551
	West-Vlaanderen	7 648	41.6%	7 950	43.2%	4 197	22.8%	18 382
	Brabant Wallon	2 676	43.4%	2 543	<b>41.3%</b>	1 510	<b>24.5%</b>	6 163
Wallonia	Hainaut	9 156	40.3%	4 407	19.4%	2 302	10.1%	22 713
	Liège	8 513	47.3%	4 228	23.5%	2 876	16.0%	18 011
	Luxembourg	2 487	<b>63.8%</b>	853	21.9%	633	16.2%	3 899
	Namur	2 950	33.8%	1 897	21.7%	873	10.0%	8 726

Source: IMA-AIM, 2010-2011.

#### 2.2.6.4 Physiotherapists

Among the 192 549 vaginal deliveries in 2010-2011, about half of the women had at least one physiotherapists session in the postnatal period; physiotherapists sessions are more common in Brussels (median=3 sessions) than in Flanders (median=2) or Wallonia (median=1). Most of the sessions happen during the hospital stay (80% before day 5).

**Table 8 – Postnatal consultations with physiotherapists (vaginal deliveries only)**

Region	n	%	Mean	Std dev	Median
Brussels	26 321	72.4%	2.92	1.65	3
Flanders	51 458	50.7%	2.26	1.43	2
Wallonia	26 821	49.0%	1.79	1.18	1
Belgium	98 109	51.0%	2.03	1.1	2

Source: IMA-AIM, 2010-2011.

#### Key points

- **Postnatal midwife consultations are provided to 34% of mothers who had a vaginal delivery. On average 3.49 consultations take place per consulting mother.**
- **Breastfeeding consultations accounted for 16% of the midwifery consultations in 2011.**
- **Only 18% of the mothers consulted a midwife before and after the delivery**
- **Most of postnatal midwifery consultations (70%) take place within two weeks after vaginal delivery.**
- **Postnatal physiotherapists sessions are more frequent in Brussels than in the other regions and take place mostly during hospital stays.**





### 3 PRESENT REGISTRATION OF PERINATAL DATA

#### 3.1 Registration of perinatal data

Since 2005 perinatal data are registered by eBirth, an application for electronic birth registrations. Maternity units<sup>II</sup> upload socio-demographic and medical data regarding each mother and newborn to the eBirth website. After centralisation at the eHealth platform, respective parts of the data are transmitted to four actors: the Crossroads Bank for Social Security, the municipality where the birth took place, the municipality where the parents are domiciled and the National Register, which in turn add information to each Mother-Newborn's record. Next, the eHealth platform transfers the completed data to the three regions Flanders, Brussels and Wallonia.<sup>30</sup> For Flanders the perinatal epidemiological data is managed and analysed by the "Studiecentrum voor Perinatale Epidemiologie" (SPE), for Wallonia and Brussels this is done by the "Centre d'Epidemiologie Perinatale" (CEPiP).

#### 3.2 Registration of neonatal (re)admissions

Currently only admissions to Neonatal Intensive Care Units (NICU) are monitored to enable the evaluation of neonatal outcomes and the quality of neonatal care. In 2005 the newborn's section of the College of physicians for mother and newborn started a yearly audit and benchmarking of all NICU admissions in Belgium. The global record load was estimated at or around 6000 records per year for all 19 Belgian NICUs. All Belgian NICUs are invited yearly to upload the data on all their NICU-admitted patients on the website [www.colnic.be](http://www.colnic.be). A validation error report is sent to the participating NICU by e-mail within a few minutes with suggestions for corrections to the non-validated records. The NICaudit® database is estimated to be representative for at least 95% of all NICU-admitted newborn infants in Belgium during 2005. The participating NICUs can download an annual report regarding their own data, as well as a global anonymised report regarding data of all participating units. Each NICU can compare his profile

to globalised and anonymised data, benchmark profiles, trends and survival analyses. Health authorities have their own access to the site where all compiled data and anonymised benchmark profiles are available. This way NICUs can evaluate their own progression over years. Authorities can anticipate future requirements in health care provision and costs<sup>31</sup>.

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<sup>II</sup> eBirth is not yet implemented in all maternity units. By the end of 2012 47 maternity units (out of 99) used eBirth for the registration of perinatal data (source: <http://www.fedictactivities2012.be/indexL.htm#10>).



## 4 POSTNATAL CARE IN BELGIUM THROUGH THE EYES OF HEALTH CARE PROFESSIONALS AND MOTHERS: A FOCUS GROUP STUDY

### 4.1 Introduction

This chapter describes the results of a qualitative research about the current organisation and utilisation of postnatal care. The general aim was to identify the weaknesses of the current organisation of postpartum care in Belgium. In addition, we also collected ideas on what is needed to manage a postnatal care system in which the share of maternity clinics decreases.

### 4.2 Methods

A national, bilingual qualitative study with focus groups was conducted in Belgium and analysed by means of inductive content analysis with constant comparison.

#### 4.2.1 Design

In this research a **qualitative, inductive content analysis with constant comparison** was used. Inductive content analysis is a qualitative research method which is used to make replicable and valid inferences from data to their context, with the purpose of providing knowledge, new insight, a representation of facts and a practical guide to action.<sup>32,33</sup> In inductive content analysis, the categories are derived from the data and this approach therefore moves “from the specific to the general”. This facilitates the observation of particular instances and points of view which are then combined into a larger whole or general statement.

This design met our aim to observe personal drivers and barriers, make generalisable inferences to the Belgian context, and eventually provide new insight, facts and practical guidelines for organising a postpartum system with earlier discharge and follow-up at home.

**Focus groups**, based on the strategy of Krueger and Casey<sup>34</sup> were used to gather the data. We chose focus groups for their usefulness in exploring people’s knowledge and experiences about an issue.<sup>35</sup> One of its main advantages is that it allows interaction between members of a group and

encourages to bring about ideas and perspectives that would otherwise remain implicit. We did not identify indices of either competition, power struggles, or difficult relationships that may endanger free speech within focus groups.

As the aim of a qualitative research is to identify a diversity of views, **purposive maximum variation sampling** was used. This is a non-probability sampling method in which the researcher selects participants who will be the most informative and with a wide variation on dimensions of interest.<sup>36</sup> Beforehand, a ‘field map’ was made, which consist of the identification of key players who have an interest in the problem under study. As such, we aimed to cover all possible perspectives on the organisation of postpartum care in Belgium. Our field map consisted of:

- Mothers
- Medical doctors (obstetricians and paediatricians; general practitioners)
- Midwives
- Representatives of institutions for maternity home care assistance

#### 4.2.2 Data collection

##### 4.2.2.1 Procedure

Ten focus groups were conducted between February and March 2014. There were four focus groups with mothers, two with obstetricians and pediatricians, two with midwives, one with general practitioners and one with representatives of institutions for maternity home care assistance. All focus groups lasted approximately two hours and they were held either in Dutch, in French or were bilingual. All focus groups were moderated and assisted by researchers of the external research team. Moderators were experienced and well-trained, and lead the discussion between participants of the focus groups. Assistants observed non-verbal interactions and took notes. Occasionally, a member of the KCE research team was present to observe. It was assured that the presence of additional observers did not endanger free speech and interaction between focus group participants. Before the start of each focus group, objectives, focus group rules, and the roles of moderator, assistant, and observer, when present, were explained to the participants. In addition, confidentiality was assured and permission to



audio-record the discussion was requested. All participants signed full informed consent prior to the start (Appendix 9 – informed consent form).

#### 4.2.2.2 *Participants and recruitment*

##### **Mothers**

Mothers were eligible to participate in the study when they met the following inclusion criteria:

- Being 2 to 5 months post-delivery: this period was chosen to balance recovery time after delivery with recall bias
- Having delivered at the hospital: this was chosen as the report is meant to optimise the post-partum trajectory hospital-home care and does not concern home deliveries

The exclusion criterion was having had a caesarean section: as this report only covers 'uncomplicated' deliveries. We aimed at conducting four focus groups with mothers, namely two in the Flemish and French Community and one of these should be with mothers who had a short postnatal hospital stay (i.e. less than 72 hours) while the other focus groups had to be with mothers who stayed in hospital longer than 72 hours postnatal.

Eligible mothers were recruited with the help of institutions for the prevention and support to young children and their parents. In the Flemish community, support was provided by two regional teams of 'Kind & Gezin', while in the French community, two regional teams of 'ONE' were contacted. These regional centres were chosen based on the mean length of hospital stay after birth in their region. Thus one Flemish and one French community centre were asked to recruit mothers with a short hospital stay after delivery (both in areas with a shorter length of stay), while the other two regional centres were asked to invite mothers with a long hospital stay (both in areas with a longer length of stay). They agreed to invite eligible mothers during their consultation at the centre by giving them an invitation leaflet with information about the study. Women who were interested to participate could fill in their contact details and drop them in a closed box to guarantee anonymous participation. One of the external researchers emptied the box regularly and contacted eligible mothers for further practical information

about the focus groups. Due to difficulties in recruiting a sufficient number of Dutch speaking mothers with a short hospital stay after delivery, mothers were also recruited through regional expert centres for postnatal care following the same procedure.

While participating in the focus group, it appeared that one of the mothers had had a caesarean section. During data-analysis, the researchers felt however that this mother did not express divergent experiences in comparison with fully eligible mothers. Furthermore, there was one focus group in which most mothers were of non-Belgian origin.

An overview of the details from the four focus groups with mothers can be found in Table 9.

##### **Obstetricians and paediatricians**

Obstetricians and paediatricians were eligible to participate when they actively practiced as a obstetrician or paediatrician in Belgium. Two focus groups (one in the Flemish and one in the French Community) were organised in which both obstetricians and paediatricians were present. The selection procedure was different in the Flemish and the French community.

In the Flemish Community we selected hospitals from which obstetricians and paediatricians could be recruited. Twelve hospitals were selected through the IMA database<sup>mm</sup> to ensure a wide diversity with regard to five criteria: (1) mean length of stay after a vaginal delivery, (2) geographic location, (3) number of deliveries a year, (4) whether the hospital organises postpartum home care or not and (5) whether the hospital is a university hospital or not. From six randomly chosen hospitals, the head of obstetrics was contacted, from the remaining six, the head of paediatrics was contacted. These obstetricians and paediatricians were initially invited to participate by e-mail which also included the necessary information on the study and the date of the focus group. When they did not respond within a week they were contacted and invited by telephone. If the head of the ward was unavailable, he/she could appoint a substitute.

In the French community, names of obstetricians and paediatricians which were able to provide a diversity of views with regards to postpartum care were suggested by the "Office de la naissance et de l'enfance" (ONE).

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<sup>mm</sup> <http://nic-ima.be/nl/imaweb/DT/content/imaweb/datas/care>



These obstetricians and paediatricians were then invited and given information as described above in the Dutch speaking focus group.

An overview of the details from the two focus groups with obstetricians and paediatricians can be found in Table 9.

### **General practitioners**

General practitioners with a role in institutions for medical postpartum care, or with known expertise in medical postnatal care were eligible for inclusion. One focus group was organised with participants from both communities. To recruit general practitioners, six participants for the French-speaking general practitioners were suggested by ONE and six possible participants for the Dutch-speaking general practitioners were suggested by Kind & Gezin and Domus Medica (professional organisation of general practitioners). These twelve general practitioners were then invited and given information as described in the focus group of the obstetricians and paediatricians.

The intention was to hold a bilingual focus group, however since all Flemish participants were fluent in French, the focus group was held in French and we did not observe language issues to be a barrier in interaction and conversation within the focus group.

An overview of the details from the focus group with general practitioners can be found in Table 9.

### **Midwives**

Midwives were eligible for inclusion in the study when they were actively practicing midwifery in Belgium. For the Dutch speaking focus group, six midwives working in a hospital were selected based on the same list as used to select the Dutch speaking obstetricians and paediatricians. From each of the five provinces of Flanders and from Brussels one hospital was thus selected and the head midwife was contacted. Furthermore six self-employed midwives (one from each province in Flanders and one from Brussels) were selected from the list of self-employed midwives of the Flemish professional organisation for midwives (VLOV, Vlaamse Organisatie voor Vroedvrouwen). These selected midwives were then contacted and given information as described above.

The selection and recruitment of the French speaking midwives was the same as for the focus group of the Dutch speaking midwives; from each province of Wallonia and from Brussels one hospital was selected based by

means of the IMA data and the head midwife was contacted. For the self-employed midwives, the list of the Wallonian professional organisation for midwives (UPSfB; Union Professionnelle des sages-femmes Belges) was used.

An overview of the details from the two focus groups with midwives can be found in Table 9.

### **Representatives of institutions for maternity home care assistance**

Only one focus group was organised and held solely in Dutch since there are no organisations for home care assistants in the French speaking part of Belgium.

Twelve organisations were selected based upon geographic location (at least one from each province and one from Brussels) and on whether providing postpartum maternity home care assistance is their core business or not. These organisations were invited and received information by e-mail. They received a date and time for the focus group and were asked to send a representative of their organisation to attend the focus group. When they did not respond to the e-mail within a week they were contacted by telephone. If the representative was unavailable, he/she could appoint a substitute.

An overview of the details from the focus group with representatives of institutions for home care assistance can be found in Table 9.

#### **4.2.2.3 Materials**

To guide the focus groups, three interview guides (i.e. one for medical doctors and midwives, one for representatives of home-care assistance, and one for mothers) were developed consisting of several types of questions. The type of questions varied with regard to the target sample assessed (See Appendices 10 – 12 - Interview guides). However, recurring themes across focus groups were: strengths and weaknesses of the current postnatal care system in Belgium, perceptions on the trend towards a shorter hospital stay, perceptions on the (dis)advantages of a shorter hospital stay after delivery with follow-up at home, perceptions on the (dis)advantages of the organisation of aftercare services (home care, midwifery support, home-care assistance, and (psycho)social support), and perceived solutions for an effective postnatal care system characterised by a shortened hospital stay and home follow-up. Interview guides were developed in close collaboration



with the external research team, and questions were mainly based upon a review of the international literature on the evaluation of postnatal care in other countries. During the course of the focus groups, topics that were discussed naturally were marked. Topics that did not evolve naturally from the discussion, were explicitly asked. This was taken into account in analysing the data.

#### 4.2.3 Ethical approval

Ethical approval was obtained from the ethical committee of the University Hospital Leuven (Belgian number B322201421337).

#### 4.2.4 Data-analysis

The focus groups were digitally recorded and transcribed verbatim by either the external research team (transcripts in Dutch), or an outsourced team (transcripts in French). Transcription rigor was verified by the external researchers by listening to the interviews while reading and, when needed, correcting the transcripts. Data were stored and managed through the software package NVIVO 10®. Data were analysed in their original language, but the names were given in English from the start.

The data of the mothers and the professionals (medical doctors, midwives and representatives of home-care assistance services) were analysed separately.

As for the coding of the data of the mothers, a basic node structure was created by two external researchers independently, and open coding was discussed. As such, an initial node structure was created. Peer debriefing was conducted by another researcher of the external research team, experienced in qualitative data-analysis and well-acquainted with the topic of postnatal care. As for the data of medical doctors, midwives, and representatives of home-care assistance services, a KCE researcher performed the open coding of all transcripts together, and created an initial node tree. Initial node trees were discussed among a KCE researcher and the external research team in order to validate coding and detect whether similar themes were generated out of both groups of the data. Next, open coding was continued for each of the groups separately and the node structure was further developed. A member of the external research team performed the axial coding for the data of the mothers, generating broader themes and relationships between themes. This was discussed and

supplemented by another member of the external research team, and results were written down. A KCE researcher independently did the axial coding for the data of the medical professions, midwives, and representatives of home-care assistance services, and wrote down the results. On the basis of the results of the data groups, a synthesis chapter was written by a KCE researcher linking concepts together out of the two data groups. The results reported are thickly and vividly described and exemplified by verbatim quotes (See Appendices 14.1 and 14.2) to provide a link between the results and the text of the focus groups. Original text fragments (in Dutch/French) are provided but described in the results section to allow English readers to understand the findings without understanding the quotes. Lastly, the text was presented to the stakeholders group (see colophon) who were involved from the start of the project. Based upon their feedback and comments, the text was adapted and finalised.

**Table 9 – Overview of focus group details.**

Participant group	Language of the FG	Number of participants	Date of the FG	Duration of the FG	Place of the FG
<b>Mothers – short stay</b>	Dutch	3	26-3-14	1h40min	Regional expert center for postnatal care
<b>Mothers – short stay</b>	French	5	18-3-14	1h20min	Regional office ONE
<b>Mothers – long stay</b>	Dutch	5	24-3-14	1h46min	Regional office Kind en Gezin
<b>Mothers – long stay</b>	French	5	17-3-14	1h23min	Regional office ONE
<b>Obstetricians and paediatricians</b>	Dutch	6	12-3-14	1h48min	KCE





Participant group	Language of the FG	Number of participants	Date of the FG	Duration of the FG	Place of the FG
Obstetricians and paediatricians	French	9	27-2-14	1h47min	KCE
General practitioners	Bilingual	5	10-3-14	1h43min	KCE
Midwives	Dutch	8	20-2-14	1h55min	KCE
Midwives	French	11	13-3-14	1h47min	KCE
Representatives of home care assistance organisations	Dutch	5	24-2-14	1h45min	KCE

### 4.3 Findings from the focus groups with professional care providers

#### 4.3.1 Mothers are not well prepared for and stand alone in the postnatal period

Interviewed midwives and general practitioners emphasised numerous times that many mothers stand alone in the care for their newborn and do not anticipate the difficulties and worries arising after birth. Especially the impact of fatigue and intensified emotions due to hormonal changes are underestimated (1). Mothers are on their own, not only because informal social support networks are lacking (2), but also because, apart from a nurse from K&G/ONE at 2 and 6 weeks, and the obstetrician at 6 weeks, they do not see any health care professional during the first weeks after discharge (3). General practitioners added that if mothers consult them, it is mostly in function of the baby, but not for themselves. Moreover, general practitioners

and obstetricians told that even if they ask mothers about their own health, they are very reluctant to talk about their physical or psychological problems. They especially expressed their worry about hidden postnatal depression and domestic violence (4). Some women even hop from one doctor to another and actively use the lack of collaboration between health care professionals to hide this kind of problems (5).

#### Key point

- According to health care professionals many mothers stand alone in the care for their newborn and do not anticipate the difficulties and worries arising after birth.

#### 4.3.2 Postnatal care starts during pregnancy

In the context of the current tendency towards shorter hospital stays, the postnatal period needs more preparation during pregnancy (6), especially for first-time mothers and fathers. 'Antenatal preparations' are a **very strong theme** as it is one of the most cited themes during the focus group interviews. It relates to the future parents' need for accurate information. The preferred moment of discharge should be agreed upon during pregnancy and the follow-up at home should also be planned. In addition, parents need complete and accurate information early in pregnancy to build their preferences and look for additional information. It takes a pregnancy to grow self-confidence and awareness among future parents. It was emphasised that only if parents are informed about the different opportunities, they are able to make choices and develop a birth and postnatal plan. Also, antenatal screening for conditions of vulnerability has been mentioned. Finally, it has been suggested to shift parental education and information about for example baby care, breastfeeding (positions), and recognising alarm signals<sup>nn</sup>, from post birth to pre-birth to unburden the hospital stay and avoid an information overload during the first two or three days post birth.

The following concrete ideas have been launched during the focus group interviews with care providers:

nn See ONE leaflets at [http://www.one.be/uploads/txtproducts/datasheet/Post\\_Partum\\_-\\_Brochure\\_ONE-\\_WEB.pdf](http://www.one.be/uploads/txtproducts/datasheet/Post_Partum_-_Brochure_ONE-_WEB.pdf)



- Most mentioned was **the establishment of trimestrial antenatal midwife consultations**. They should be a self-evident part of the antenatal care trajectory. In some hospitals one midwife consultation is already organised at 36 weeks of pregnancy. This was often felt as a compromise that resulted from a struggle between midwives and obstetricians, with the former emphasizing that midwife consultations are complementary to obstetricians' consultations and the latter fearing loss of clientele (7)(8). A single one hour consultation was estimated as insufficient because it is not feasible to have information transmission, parental education, but also some medical controls (e.g. monitoring of weight, blood pressure) done in one hour. In addition, parents need time during pregnancy to develop their preferences based on the provided information.
- The **development of a birth and postnatal care plan** (9) could be embedded in the midwife consultations, and a page could be added to the pregnancy follow-up booklet developed by K&G/ONE to communicate the plan to all caregivers involved. However, care providers also underlined that parents should be made aware that things might turn out differently and that they should prepare for the unexpected.
- In addition to antenatal midwife consultations, also **antenatal workshops** were mentioned, organised by hospitals or self-employed midwives. These workshops already exist, and although very valuable, they only reach a rather small group of mostly highly educated women (and their partner).
- Specifically for underprivileged families **perinatal coaching** by means of buddies was mentioned. This model is already implemented in Ghent en Leuven.<sup>37</sup> "In the Buddy Near the Crib model, midwifery and social care students take on the role of a buddy and assist an underprivileged family during a period of 18 months. As a buddy, they offer basic emotional support and assist the family in obtaining health and social care, empower the family's sense of self-sufficiency and strengthen the family's social network".<sup>37</sup>

However, some focus group participants cautious about the idea of antenatal preparation of postnatal care, because they experienced that pregnant women are focused on the delivery and often not receptive for information about postnatal period (10).

#### Key points

- **The postnatal period needs more preparation during pregnancy, especially for first-time mothers and fathers:**
  - **the preferred moment of discharge should be agreed upon**
  - **the follow-up at home should also be planned**
  - **parents need complete and accurate information early in pregnancy to build their preferences**
  - **shift parental education and information from post birth to pre birth to unburden the hospital stay and avoid an information overload during the first two or three days post birth.**

#### 4.3.3 Problems related to the length of hospital stay

##### 4.3.3.1 Pressure to shorten hospital stay after childbirth

Care providers felt the pressure from hospital management to discharge earlier, and the pressure from mothers wanting to stay longer. Practices like changing the hour of admission were reported to satisfy them both. Financial pressure was judged to be an inappropriate reason for discharge. Discharge criteria should rather be medical, social or psychological (including readiness for discharge), and the preference of the mother should be taken into account (11) (12).

##### 4.3.3.2 Worries about medical consequences of shorter hospital stays

In the context of decreasing length of stay, focus group participants expressed their worry about medical problems not being detected timely (e.g. bilirubinemia), the revival of eradicated medical problems (e.g. infections) and about these two factors leading to **more newborn readmissions** (13).

From what the care providers told, there seems to be no uniformity between or even within hospitals regarding readmissions of newborns and their





mother. There seems to be a need for a readmission protocol, including how the stay for the mother should be organised and paid (14).

In addition, care providers feared that more newborns would drop out of **neonatal screenings**: if hospital stay becomes shorter the postnatal screenings will no longer be done in hospital, hence should be done during follow-up at home. However if the follow-up is on a voluntary basis as is the case now, the groups most vulnerable for drop out, could be missed. This issue connects with a more general concern about how to make sure that families actually follow the foreseen and planned care pathway? For example, a midwife home visit could be scheduled before discharge, but what in case of a wrong address or what if a family does not allow the midwife entrance to their house? What are the limits of freedom of choice of parents regarding the follow-up of their child?

Finally, **breastfeeding** demands special attention. In hospital mothers can get help and support for every feed, but at home the midwife will pass by at most once a day. Some respondents feared this would not be enough to support mothers with breastfeeding. However, in the expert group of this project, when we presented the finding coming out of the focus groups, midwives mitigated this fear by emphasising that care at home demands a completely different approach. Midwives at home anticipate problems by providing information on what to do in case of. Also currently midwives are available by telephone.

#### 4.3.3.3 *Social considerations about shorter hospital stays*

Participants to the focus groups expected resistance from mothers toward shorter hospital stays after childbirth. They mentioned the need for a change in mentality, since many mothers (and fathers) appreciate the safety and luxury of the maternity ward, including the non-stop availability of hospital staff, the possibility to receive visitors in hospital, hence avoid to have that burden at home, the time to rest and get to know the baby in tranquility (without disturbance of for example older children) (15)(16). Some mothers fear their return home and therefore try to postpone that moment (17) by claiming the right to stay longer (18).

In addition, participating general practitioners feared that if the length of hospital stay is further reduced, mothers will experience even more pressure than is already the case (19) making them more vulnerable for feelings of failure.

On the contrary some partners might welcome shorter hospital stays. Sometimes partners are the ones who demand the discharge of their spouse, because they cannot cope with the household and older children by themselves (20).

#### Key points

- **Care providers felt the pressure from hospital management to discharge earlier and pressure from mothers who want to stay longer.**
- **Care givers expressed their worry about medical problems not being detected timely (e.g. bilirubinemia), the revival of eradicated medical problems (e.g. infections) and about these two factors leading to more newborn readmissions, if the length of hospital stay continues to decrease. Also care providers feared that more newborns would drop out of postnatal screenings and that more mothers would stop breastfeeding early.**
- **Overall, focus group participants expressed their concern about adverse consequences of shorter hospital stays in particular for vulnerable families. They emphasised that whatever structure is developed, it should pay particular attention to vulnerable families, as they become more vulnerable if the current support they receive in hospital weakens.**



#### 4.3.4 *Answers to shorter hospital stays after childbirth*

In order to prevent medical and social problems as a consequence of shorter hospital stays after childbirth, a solid organisation of postnatal care outside the hospital and a seamless transfer are needed (21).

##### 4.3.4.1 *The systematic organisation of postnatal care outside the hospital*

Repeatedly care providers explicitly pointed out that in Belgium most building blocks for good quality postnatal care are available, such as home visits by midwives, maternity home care assistance etc., but yet they are not systematically organised, unstructured and dispersed over the country. According to care providers, the stay at the maternity ward lends structure to parents' postnatal experiences. For most parents postnatal care is even limited to the care they receive during their hospital stay, complemented with the follow-up by K&G/ONE, with one introductory visit, mostly during hospital stay, two home visits, usually one at two and one at six weeks post birth. Many other organisations and care providers offer postnatal care and support, but parents do not find them if they do not actively search for additional care.

In the light of the current tendency towards shorter postnatal hospital stays and the current weaknesses in the organisation of outpatient postnatal care in Belgium, there is **a clear call for a systematic organisation of follow-up at home** for mother and baby, especially if the shortening of hospital stays continues. It was clear that follow-up should principally be provided at home, mostly by midwives. However, ambulatory mostly secondary care is an important complement, especially paediatric consultations.

##### **Follow-up at home by midwives**

For some families, in some regions, midwives already bridge the gap between hospital discharge and the first home visit of K&G/ONE by doing home visits immediately after discharge. Follow-up at home already exists in **two organisational variations**:

- **Self-employed midwives** are contacted by mothers (mostly during pregnancy) or by hospital staff (before discharge) to do a number of home visits after discharge. This model is mostly used by mothers who want to go home early and prepare early discharge in advance.

Alternatively hospital staff arranges this kind of the follow-up for mothers who must leave the hospital notwithstanding that they are not yet ready to go home (e.g. problems with breastfeeding, difficult social situation).

- Some **maternity units offer a home follow-up service** to facilitate discharge. They appoint a team of midwives doing home visits. Some offer the service only to mothers going home early, others to all mothers. The reasons to start with the service can be diverse ranging from trying to shorten the average length of stay without losing quality of care to offering an extra service as marketing strategy (22). Some hospitals limit the follow-up at home to the first five days after birth, because after that tariffs for midwives go down significantly (23).

In theory a third organisational model of follow-up could be imagined:

- **Ambulatory midwifery consultations** at the hospital after discharge. It is not clear whether this model is feasible or desirable in Belgium. Midwife tarification (nomenclature) foresees reimbursement of ambulatory midwifery consultations at the hospital only from the sixth day post birth to encourage home visits (24) in the early days after childbirth.

During the focus group interviews especially midwives emphasised the advantages of home visits. They allow for a more accurate assessment of the family needs and potential risks. In addition, from experience they knew that even a limited number of home visits leads to better outcomes. However, some mothers do not allow health care professionals in their home. This barrier is especially prevalent among vulnerable families.

Regarding the **duration and intensity of postnatal follow-up** by a midwife the care providers' propositions converged:

- Daily follow-up should be provided during at least the first five days after birth at hospital or at home;
- One home visit within 24 hours after discharge should be foreseen for those who stayed less than three days in hospital. In case of discharge within 24 hours, several home visits might be advisable to cover the first 24 hours;
- At least one home visit within the first week after discharge should be planned for those who had a hospital stay of more than three days;
- Postnatal follow-up is needed up until 10 days after birth.



### Paediatric consultations

Also regarding the follow-up of the baby by a paediatrician there was a high degree of agreement. In hospital, neonates are usually seen by a paediatrician immediately after birth and the day before discharge. However if the child leaves the hospital at day 3, this strategy does no longer make sense, since a few days in between two check-ups are necessary to see how the child evolved (e.g. in terms of weight gain). Overall there was consensus among care providers that in case of discharge at day 3 or earlier a baby should be seen by a physician (by preference a paediatrician) at one week post birth.

#### Key points

- **There is a clear call for a systematic organisation of postnatal follow-up for mother and baby, especially if the shortening of hospital stays continues.**
- **Postnatal follow-up should principally be provided at home by midwives.**
- **In case of discharge at day 3 or earlier,**
  - **the postnatal follow-up should consist of at least one home visit by a midwife within 24 hours after discharge. Ideally the follow-up should continue until day 10;**
  - **the baby should be seen by a physician (by preference a paediatrician) between day 7 and day 10.**

#### 4.3.4.2 A seamless return home

##### The need for more care coordination

Also after discharge, the non-stop availability of health care professionals should be continued. Focus group participants agreed that independent of length of stay, the follow-up at home should be organised before discharge for every mother and child according to their individual care needs. This means that home visits (by a midwife) as well as ambulatory paediatric visits should be scheduled before discharge. Most often the maternity clinic was mentioned as the most appropriate actor to plan and organise this follow-up at home, by preference within a common framework of discharge procedures. Other propositions were the establishment of multidisciplinary

centres for mother and child care, following the Scandinavian model (See Chapter 5), or K&G/ONE.

#### Need for collaboration between care providers

Care providers called for a new postnatal care structure built around an integrated network of care providers. Many midwives and GPs complained about the current lack of cooperation between the health care professionals involved in perinatal care (25). This lack of cooperation was especially clear from the lack of information transfer, which leads to fragmentation in care, overtreatment for some, undertreatment for others (e.g. babies receiving two hearing tests, versus babies receiving no hearing test at all), and contradictory information to parents.

Especially information exchange between the maternity clinic and the care givers providing follow-up at home has been emphasised during the focus group interviews. For example, general practitioners are seldom notified if a patient has delivered or has been discharged (26).

Several suggestions have been done about ways to improve information exchange:

- The generalised use of the pregnancy **follow-up booklet** of the mother or the follow-up booklet of the baby by all caregivers involved would be a first step in the right direction, but it is not enough (27);
- A **coherent (unique) team/network** should be put in place around each mother and baby. A team could consist of obstetrician, paediatrician, general practitioner, midwife, nurse from K&G/ONE and maternity home care assistant. The team should facilitate information exchange, but also lower the threshold to arrange for alternating home visits. The workload can then be divided and two visits the same day can be avoided (28);
- A **liaison form or clinical pathway** is used by some care providers, but there was no consensus about whether this should be a document that is passed from one caregiver to another, or should be given to the mother, who then gives it to the caregivers she sees. In the latter situation, the document may get lost or forgotten;
- Availability of a **list of names and telephone numbers** of all care givers involved;

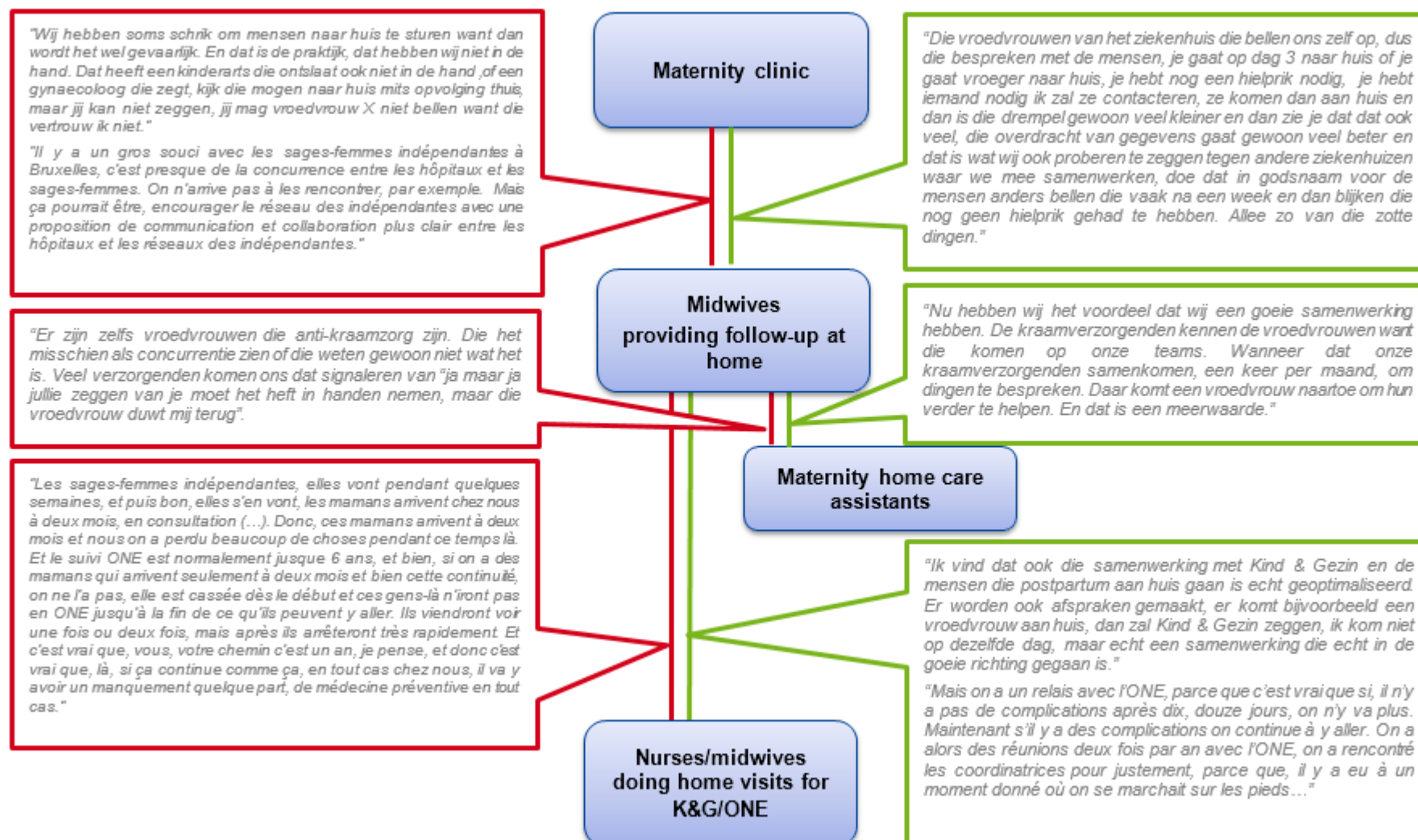


- **Electronical medical record** accessible to all caregivers involved (29);
- **Planification of follow-up by personel of the maternity ward**, might already solve part of the problem: direct contact with the midwife responsible for follow-up at home may facilitate information exchange (30).

The focus group interviews gave us insight in barriers impeding cooperation between health care professionals. Often these problems were specific to a relationship between certain professionals, for example collaboration problems between midwives and K&G/ONE are different from those between midwives and maternity home care assistants. Lack of confidence is a recurrent problem mentioned by all caregivers. “We do not know them, therefore we do not trust them”, seems to be a recurrent theme (31). In Figure 10 we give an overview of the relationships between the actors in the field: maternity clinic, midwives providing home care, maternity home care assistants and nurses or midwives from K&G/ONE. We added examples of both positive experiences of partnership and cooperation (green) and negative experiences characterised by competition and distrust (red).



Figure 10 - Overview of positive and negative relationships between care givers in the field of postnatal care







### Key points

- **The non-stop availability of care givers should be continued outside the hospital.**
- **Home visits by a midwife as well as ambulatory paediatric visits should be scheduled before discharge.**
- **The maternity clinic was mentioned as the most appropriate actor to plan and organise the follow-up at home by preference within a common framework of discharge procedures.**
- **Today the information exchange between the maternity clinic and the care givers providing follow-up at home is insufficient.**

#### 4.3.5 *Requirements to provide integrated postnatal care in outpatient settings*

##### 4.3.5.1 *Supply and training of general practitioners, midwives and maternity home care assistants*

Generally, participants worried about the human resource capacity in primary care (midwives and general practitioners) and maternity home care assistance. If more mothers and babies leave the hospital early, primary care must also be strong in numbers and competences. Several problems have been mentioned specifically for each profession.

#### **General practitioners**

There was no consensus about the role of the general practitioner in postnatal care. Some participants thought that general practitioners are not interested in the care for neonates, nor adequately trained to examine a neonate of one or two weeks old (32). Others expected that general practitioners should be able to filter and refer to a paediatrician if necessary (33). General practitioners who are interested in perinatal care could play a more explicit role in postnatal care. They advocate a holistic approach, know the family, do home visits, have built a trusting relationship with the family, and can therefore anticipate problems.

<sup>oo</sup> Note to readers: No specific training is required to work as maternity home care assistant. However, some expertise centres for postnatal care and some

#### **Midwives**

Only a small number of graduated midwives choose for a job as midwife in primary care. During their training they have too little traineeship opportunities, especially in primary care (34).

#### **Maternity home care assistants**

Not all people working as a maternity home care assistant got a specific training to do so. Some are trained as a domestic help (polyvalent verzorgende of zorgkundige), but have no skills in child care or breastfeeding support<sup>oo</sup>.

##### 4.3.5.2 *Registration of newborns*

In Belgium newborns do not receive their personal administrative social security code immediately after birth. During their stay at the maternity ward they are filed with their mother. This means that when readmitted, the admission is administratively treated as the first admission and this cannot be linked to the stay at the maternity ward, since at that moment from an administrative point of view the baby did not yet exist. To be able to follow children from the start, baby's need an **administrative identification number** from the moment they are born.

##### 4.3.5.3 *Quality control and clinical guidelines are needed*

A structured well-organised postnatal care also implies mechanisms of quality control. The development of clinical guidelines regarding postnatal care would be a precondition to allow for quality control (35). In addition, focus group participants plead for the development of quality criteria for postnatal care in hospital as well as the follow-up at home.

maternity home care providers arrange short trainings. In French-speaking Community, a secondary school (Institut Saint-Sépulcre – Liège) offers a non-



#### 4.3.5.4 Adequate hospital and home care financing

In some focus groups it was explained that current hospital payment incentivises hospitals to have an average length of stay at maternity units below the national average. Hence the national average goes further down (36).

Some focus group participants feared that a well-organised mainly home based postnatal care structure will be more expensive (37) compared to the current situation, others were convinced that it would be cost saving. The former argued that more staff will be needed at maternity wards to be able to get mothers and babies ready for discharge in a shorter period of time (38).

##### Key points

- **If more mothers and babies leave the hospital early, primary care must also be strong in numbers and competences.**
- **Focus group participants plead for the development of quality criteria for postnatal care in hospital as well as the follow-up at home.**
- **The newborn currently does not receive an administrative identification number immediately after birth.**
- **Focus group participants had divergent expectations regarding the cost consequences of shorter hospitals stays complemented with follow-up at home.**

#### 4.3.6 Support for parents

##### 4.3.6.1 Maternity home care assistance

##### **Maternity home care assistance lacks uniformity**

Maternity home care assistance is a service that is only delivered in Flanders, but even in Flanders some physicians participating in the focus group interviews were not aware of its existence. Among the French speaking care providers, maternity home care assistance was welcomed as **a very promising idea**.

We noticed a lot of **heterogeneity between organisations** providing maternity home care assistance. For example, some organisations narrowed it down to household help, while others strongly valued the assistance of mothers in caring for their baby, some limit the care in time, some offer their employees training, others do not (39).

A **clear definition** is lacking. There are no norms, no regulations, there is no job description. Maternity home care assistant is not a recognised profession in Belgium. By consequence organisations fill in maternity home care assistance in diverse ways, which makes it difficult for care givers and parents to know what to expect. In addition, an agreed upon definition would be the foundation for the development of a clear description of the maternity home care assistants' tasks and competences. Uniformity in the duration and content of training programmes could be a first step towards quality improvement and control. Currently the quality of maternity home care assistance depends on the goodwill of the organisation and the maternity home care assistant (40) (41).

##### **Maternity home care assistants turn home into a hotel**

Maternity home care assistance is more than household help. Maternity home care assistants unburden mothers, turn home into a hotel like environment and help mothers out with care for the baby or other children in the family. In Table 10 various roles of maternity home care assistants are described.

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recognized training to childcare students. The training incorporates dimensions regarding to parenthood, fatherhood, motherhood, sibling and other social aspects linked to birth.



**Table 10 – The roles of maternity home care assistants**

<b>Maternity home care assistants</b>	
<b>make sure mothers take time to rest</b>	<i>“Iets heel belangrijk dat is dat de ouders, de mama's helpen tot rust komen. Dat is iets dat tegenwoordig een zeer grote opdracht is. Want het is een gejaagd leven, de kraamverzorgsters zeggen vaak, ook in vorming, van het is zo moeilijk, je moet echt bijna gaan forceren om te zorgen dat de mensen eens een uur of twee in hun bed gaan, dat wij voor de baby zorgen. Het is zo een beetje eigen aan de tendens van de huidige maatschappij, zo een beetje tot rust komen.” (FG maternity home care assistance services)</i>
<b>take away uncertainty and help mothers to become more confident</b>	<i>“Ik ben er zeker van overtuigd dat als je dat doet, preventief, echt preventief werkt. Want het is maar als ze naar huis komen, de eerste dagen dat je merkt van het lukt niet, het overvalt hen allemaal. En als er dan een kraamverzorgster zegt van je doet het goed, super, je bent goed bezig. Het is eigenlijk alleen maar dat wat ze moeten horen. Dan kunnen ze verder.”</i>
<b>are a role model for parents</b>	<i>“En wat belangrijk is in die kwetsbare gezinnen, bij andere gezinnen ook, maar bij die kwetsbare nog veel meer, dat zij eigenlijk een soort rolvoorbeeld zijn voor die ouders. Hoe behandel ik die baby, hoe spreek ik daar tegen, ze kunnen voor eens tuk een spiegel zijn, een soort rolvoorbeeld over de manier van omgaan, om de baby vast te pakken, om ertegen te spreken, om hem te verzorgen. En dat is heel belangrijk bij die kwetsbare gezinnen.”</i>
<b>build a trusting relationship</b>	<i>“Zij zijn ook, als enige zorgverlener, als enige hulpverlener 4 uur aanwezig in een gezin. Dus zij zien alles, dat is anders dan een therapeut die komt, dat is anders dan de huisarts die komt. Ze kunnen een half uur zich goed houden, maar zij zijn de personen die veel detecteren en die ook het vertrouwen krijgen van de mensen, vind ik.” “Het is zeer laagdrempelig, ze komen heel laagdrempelig binnen. Dat vertrouwen is er vrij rap bij de mensen en ze kunnen dan ook wel iets bereiken.”</i>
<b>prevent problems</b>	<i>“Wij zouden zeker meer uren kunnen presteren bij jonge gezinnen en ik denk dat dat naar preventie toe een heel belangrijke rol kan spelen. Niet alleen de zorg van die baby maar op termijn dat ook de organisatie van dat gezin dat dat beter loopt. Er is een rechtstreeks verband. Zeker bij probleemgezinnen.”</i>
<b>replace the hotelfunction of the hospital</b>	<i>“Het is eigenlijk in combinatie met de medische zorg door de vroedvrouw of door de huisarts, is de kraamverzorgster, samen met de vroedvrouw en de huisarts, de ziekenhuisvervangende zorg. Met hotelfunctie, die moeder moet kunnen rusten, moet kunnen genieten van een fijne kraamtijd en daar zorgt dan die kraamverzorgster dat die ouders kunnen wennen aan het ouderschap en kunnen tot rust komen zonder huishoudelijke beslommingen en dat er hen geholpen wordt.”</i>
<b>detect problems provide parents with advice</b>	<i>“Ze zijn ook een heel goeie aanvulling op de medische nazorg. De vroedvrouw, de huisdokter die komt een half uur, een uur om de medische zorg, maar die zien niks. Een kraamverzorgster is daar 4 uren, die ziet hoe dat ze met mekaar omgaan, die ziet hoe dat ze met de baby kunnen omgaan, die zien zoveel meer, die kunnen zoveel signaleren en opvangen.”</i>
<b>give parents the time to adapt to parenthood</b>	<i>“Eigenlijk is het hoofddoel, vind ik zelf, dat is eigenlijk een sfeer creëren waarin dat mensen kunnen wennen aan het ouderschap in een periode, waar dat op hoop van zegen, ook de hechting en het moederschap en het vaderschap ten goede komt. “</i>
<b>do more than household chores</b>	<i>“En je doet dat zowel via de huishoudelijke taken een stukje maar zeker ook de verzorgende taken, observatie van de baby, verzorging van de baby, verzorging en observatie van de mama, de andere kinderen. Dus dat zit er ook allemaal bij. En dan heb je zeker ook de ondersteuning van de borstvoeding. Dat is dan een beetje het derde. Een luisterend oor, tips geven, signaalfunctie.”</i>



### Small rewards for a demanding job

A lot of flexibility is asked from maternity home care assistants but little recognition and rewards are given in return. They are often stand-by during weekends and must adapt to a new family at least every two weeks. In addition maternity home care assistants sometimes work in difficult circumstances or complex family situations (42)(43).

From the point of view of the organisations offering maternity home care assistance, also a number of difficulties have been reported. Maternity home care assistants with a lot of experience can offer high quality support, but are very expensive for the organisation who pays them. In addition, the number of hours they are subsidised is often not enough to cover the demand (44)(45)(46).

Finally, a number of barriers for parents to ask for maternity home care assistance were highlighted: the price, lack of information and the cultural norm that mothers should be able to manage their household themselves without external support or the misbelief that this service is only available for vulnerable groups. Finally, a number of households have a cleaning lady, also during pregnancy and postpartum, and are therefore less likely to ask for maternity home care assistance, especially if they define it as pure household help.

### Maternity home care assistance: luxury or necessity?

The tone of the focus group interviews with the care providers regarding the usefulness of maternity home care assistance for all mothers, was that it is not a matter of yes or no but rather about how much. Care providers plead for a diversification of the number of hours along the needs of a family. However to enable tailoring to family needs it is useful to plan maternity home care assistance during pregnancy. By means of an intake home visit a first needs assessment can be done (47)(48).

It seems useful to distinguish between hospital replacing care during the first days post birth, and supplementary care or support to make the transition to parenthood, which includes finding a new life balance and routine in daily life (49).

### 4.3.6.2 Need for informal support networks

Professional care and support are more than ever needed, because informal support networks are lacking. Hence parents have no role models to show them the way, and to learn parenting skills (regarding childcare, breastfeeding etc). In addition, parents have limited emotional and instrumental support resources. Health care professionals pointed out that parents prepare for the arrival of a newborn in a material way (e.g. installing a baby room, buying equipment), but not so much in a social and emotional way. Also, accurate knowledge about childbirth, child care, parenthood is lacking and a lot of false beliefs exist.

Finally, they noticed that professional care and support can only partly compensate for the lack of informal support, and certainly not replace it. Sharing experiences and knowledge, feeling emotionally and instrumentally supported, knowing that you are not the only one facing a certain problem, are the mentioned added values of peer support (50). Many initiatives invite parents to leave their cocoon, meet other parents and encourage informal networking, for example mama cafés, baby massage, antenatal workshops, but often they do not reach the parents who would benefit the most.

### Key points

- **Maternity home care assistance lacks a clear definition. There are no norms, no regulations and there is no job description. In consequence, the sector is characterised by heterogeneity in the types of services offered.**
- **Maternity home care assistants unburden mothers, turn home into a hotel and help mothers out with care for the baby or other children in the family.**
- **A lot of flexibility is asked from maternity home care assistants but little recognition and rewarding is given in return.**
- **Maternity home care assistance is on the one hand hospital replacing care during the first days post birth, and on the other hand support to make the transition to parenthood. The latter is a luxury for some, but a necessity for others. The number of hours should be tailored to family needs.**



- **Professional care and support can only partly compensate for the lack of informal support, and certainly not replace it. Sharing experiences and knowledge, feeling emotionally and instrumentally supported, knowing that you are not the only one facing a certain problem, are the mentioned added values of peer support.**

#### 4.3.7 Vulnerable families

The majority of the female population experiences at least one pregnancy, delivery and postnatal period. Therefore postnatal care is everyone's concern, also the most vulnerable in society. Postnatal care needs to be available and accessible for every family. Care providers participating in the focus group interviews expressed great concern about how to avoid that vulnerable families drop out of care, especially in a context of shortening hospital stays (51).

Families are vulnerable for a large array of reasons:

- Poverty
- Psychological problems
- Substance abuse (e.g. drugs, alcohol)
- Family violence (including partner violence, child abuse and neglect)
- Teenage parents
- Illegality
- Homelessness

These problems usually already exist during pregnancy. Depending of the kind of vulnerability another specialised care and support network should be put in place.

##### 4.3.7.1 Disadvantaged mothers have a shorter hospital stay

Vulnerable groups are more likely to leave the hospital within a few hours after birth either because they cannot afford to pay for a hospital stay, or because they fear getting discovered by authorities (52). Some physicians report keeping mothers facing miserable living conditions, with their baby in hospital until a convenient solution has been found (53). However, nobody can be forced to stay in hospital. Some women leave the hospital very early

without a trace (54). Problems are signalled with the granting of urgent medical care. In addition, physicians told about hospitals refusing mothers if it is suspected that they will not be able to pay the bill (55).

##### 4.3.7.2 Factors rendering vulnerability complicated to prevent, detect and remediate

The postnatal follow-up of vulnerable families can be complicated because

- they frequently change care providers (to hide their vulnerability)
- some have no home address
- they are difficult to reach (for example to inform or educate them)
- some do not allow care providers in their home (56)
- they often postpone care seeking until they see no other way. At that point often problems are difficult to remediate.

In addition, care providers warned for the unexpected vulnerability of ordinary families (e.g. postnatal depression) (57)(58).

##### 4.3.7.3 Strategies to improve postnatal care for vulnerable families

Care providers suggested the following strategies to take into account when organising postnatal care for vulnerable families:

- a multidisciplinary, specialised and tailored approach, because each vulnerability has its own challenges.
- early detection, because detection during pregnancy facilitates anticipation, and preparation of the postnatal period. Additional support can then more easily be organised, which avoids that mothers and babies are kept in hospital because alternatives are lacking. However, obstetricians report that women do not easily talk to them about their problems, not even when they actively screen women. Antenatal midwife consultation could help early detection (59).
- sensibilisation and easily accessible information for families, but also for care providers about who to contact for help or advice.
- the development of specialised care centres to which care providers like obstetricians can refer to or contact to ask for advice.



- an integrated approach implying cooperation and information transfer between care professionals in order to avoid that vulnerable situation remain undetected because nobody sees the whole picture.
- take away thresholds impeding families to seek for help
- facilitate long term care trajectories, because often it is about long lasting problems that cannot be solved overnight. For example, through projects like 'a buddy near the crib', perinatal coaching for deprived families (See also section 4.3.2).
- further development of cooperation with K&G/ONE
- investment in residential care for example for mothers with psychological problems (60).
- to stimulate the development of informal support networks, for example through 'CenteringParenthood' (<http://www.centeringhealthcare.org>) (61) (See also section 5.3.3.3).

#### Key points

- **Care providers expressed great concern about how to avoid that vulnerable families drop out of care, especially in a context of shortening hospital stays.**
- **Currently, financial deprivation implies a shorter instead of longer hospital stay.**
- **Strategies to improve postnatal care for vulnerable families include early detection, a multidisciplinary approach, long term care trajectories, information and parental education, investment in specialised residential care, and the development of informal support networks.**

## 4.4 Findings from the focus groups with mothers

The findings from the four focus groups with mothers – both short and long stay and Dutch and French speaking- are presented below. The four major themes are presented in a chronological order: postnatal hospital stay, length of hospital stay, discharge from hospital and the first weeks at home with a new baby. Exemplifying quotes for each theme and sub-theme can be found in Appendix 14.2 and are marked in the text with a number between (brackets).

### 4.4.1 Postnatal hospital stay

Overall, the women in the four focus groups were happy and satisfied with the care they received in hospital (1).

#### 4.4.1.1 Medical care

The fact that every morning their vital signs, blood loss et cetera were checked was experienced as reassuring by the mothers (2). Although they did not use the word "safety" explicitly in their descriptions, it appeared that the medical follow-up in hospital of themselves and their baby gave them a safe feeling (3).

#### 4.4.1.2 Staff availability and support

Virtually all mothers agreed that the **availability** of hospital staff was very important. In their descriptions availability and support were mostly linked to the midwives on the ward. Women defined availability as the possibility to call for someone at all times should problems arise (4). This was especially important for the first time mothers who had a lot of questions, mostly about breastfeeding (5). Although most calls were answered quickly, some women complained that it could take a long time before the midwives answered a call. In rare instances, women were hesitant in calling for help, mostly because they did not want to increase workload for the midwives.

Availability of staff, mostly midwives, also concerned emotional **support**. Most women reported that the midwives really took the time to care for them, answer their questions and give breastfeeding support. Women experienced a difference in support between the midwives. More specifically, younger midwives were experienced as more patient and considerate than older midwives and women therefore found themselves more at ease with younger midwives (6, 7). Midwives working nightshifts appeared to be less available than those working at daytime, possibly due to low staffing levels at night (8). However, it should be stated that those differences were only reported by Dutch-speaking women with a long hospital stay after delivery. Some experienced mothers said that the need for the availability was not lower than with their first child. They found that since each child is different and has other needs, hence availability of care and support remains important (9).



#### 4.4.1.3 *Hotel hospital*

Many mothers found the hotel services of the hospital important. They appreciated the rooms and the fact they did not have to clean or tidy (10). The only complaints were from women who did not have a private room. When they shared a room with another mother, this often caused difficulties with regard to the use of the bathroom, or when the other baby cried and woke their own baby (11). Furthermore, the fact that their food was served was experienced as a major advantage, both for the mothers themselves, as for their partner. In some hospitals, the partner was allowed to spend the night in hospital, which was highly appreciated (12).

#### 4.4.1.4 *Hospital routine*

In hospital mothers experienced a certain routine, moreover a strictness in time schedule and the way in which care for mother and baby was provided (e.g. breastfeeding, taking blood samples). Mothers experienced this routine as both positive and negative. The routine was found to be positive since it also entailed strict visiting hours. Most women wanted to have a lot of visitors in hospital, but they did not want them to stay for too long. Routine however appeared to have also a negative connotation. Women complained, for example, about the ward being very busy which made their own day also very busy. Staff (midwives, doctors, cleaning lady...) was constantly walking in and out of the room which was found to be tiring (13). Because of the routine in hospital women felt they did not have a lot of say in their care. For instance, if washing the baby the day after birth was part of the routine no questions were asked to the mother whether she wanted this or not. It was part of routine care and therefore it was done (14).

#### 4.4.1.5 *Conflicting and missing information*

A complaint expressed by mothers from all four focus groups was that information, mostly given by midwives, was often not uniform. Breastfeeding was the most cited source of conflicting information (15) and mothers described various situations where one midwife would advise against something that was advised by one of her colleagues. For most mothers, receiving conflicting information caused stress because they did not know whose advice to follow in the end (16).

Next to conflicting information first time mothers said they missed information about how things went in hospital. Despite the fact that there was an obvious routine, this was not always clearly communicated (17). Since it was their first baby, they did not always know what to expect from a stay in hospital whereas multiparous women could relate to earlier experiences. First time mothers therefore would have appreciated it if they were given correct information about the routine at their admission to the ward. Some women had had a guided tour in the maternity unit during their pregnancy which they all found very useful.

#### 4.4.1.6 *Protective for their partner*

The mothers wanted their partners to be genuinely involved in caring for their baby. Therefore, mothers believed that the possibility for a father to spend the night and to stay with his new family, even after visiting hours, should be granted. At the same time, they thought the role of fathers in caring for the baby in hospital was only minimal. They expected that the involvement of their partner in baby care would increase over time and therefore they were very protective for their partner. The mothers urged their partner to get enough rest and sleep so that he would be fit enough to take over if necessary when they got home (18).

#### Key points

- **Postnatal hospital stay was satisfactory for the women in the focus groups. They especially appreciated the medical care, the immediate availability of staff and the hotel services of the hospital.**
- **Midwives were seen as important caregivers who not only provide care but also emotional support.**
- **Receiving conflicting information about several aspects of care was found to be disturbing.**





## 4.4.2 Length of postnatal hospital stay

### 4.4.2.1 The ideal length of stay

With regards to the ideal length of postnatal hospital stay, women were unanimous: they strongly believed there is no ideal length of hospital stay that is suited for everyone. They thought it should not be standardised as it depends on the personal needs of every individual mother and baby (19). Nevertheless, they expressed a clear preference for the length of hospital stay they had experienced themselves and with a next baby they would choose this length of stay again. More precisely, women with a long hospital stay of four to five days preferred this length of stay, while women with a short hospital stay of less than three days strongly believed in the advantages of this shorter stay.

### 4.4.2.2 Why mothers preferred a longer hospital stay

Most mothers in the two focus groups with a longer postnatal stay choose a longer hospital stay because of the availability of the staff in case of problems or a difficult breastfeeding. Moreover, a longer stay meant that all tests could be carried out in hospital and it also prevented a readmission for phototherapy in case of jaundice. Furthermore, with a longer hospital stay they could receive most of their visitors in hospital and also their partner had more time to celebrate with friends.

Some of the women who choose a longer hospital stay said they had always wanted to stay in hospital for as long as possible after their delivery. One of the reasons for this was that the costs for their hospital stay were fully covered by their hospital insurance.

Main reasons for not choosing a short hospital stay were less availability of support, less rest due to visitors, the care for other children at home and more stress and uncertainty at home because of unavailability of immediate support.

It is noteworthy that these women did not cite any disadvantages concerning a longer postnatal hospital stay.

### 4.4.2.3 Why mothers preferred a shorter hospital stay

The mothers who stayed less than three days in hospital after their delivery appeared to have explicitly chosen this length of stay. These mothers did not think it was necessary to stay in hospital any longer in case everything goes well. They acknowledged the fact that it sometimes takes a while to get used to a life with a new baby, but they were also convinced of the fact that a longer hospital stay would not help in finding a new balance more quickly. Most mothers wanted to go home early because they wanted to be close to their other children and/or their partner. They said the bond between father and baby was much more intense at home than in hospital where the partner was merely a spectator. Another advantage of a short stay was that at home you could organise your life the way you wanted and you did not have to settle in the hospital routine (23). They felt more at ease at home where they could be themselves. One mother also stated it was much less costly for society.

#### Key points

- **The mothers in the focus groups thought that the length of postnatal hospital stay should not be standardised.**
- **All mothers preferred the length of hospital stay they had experienced themselves.**

## 4.4.3 Discharge from hospital

### 4.4.3.1 Last minute decision

For most mothers the exact date and time of discharge from hospital was unknown until the day itself and it appeared to be a last minute decision. Whether a mother and her baby could go home depended primarily upon the condition of the baby (24). If he or she was not gaining weight or needed phototherapy for jaundice, hospital stay was extended. Although also the obstetrician had to give approval for discharge, no mother mentioned having to stay longer in hospital for obstetric complications. In practice it appeared that the paediatrician was the one to give the green light for discharge. When there were no medical reasons for the mother or the baby to stay in hospital, often the mother herself could decide whether she would like to stay in hospital or not.



Although this was not the case for all women, several mothers mentioned communication problems regarding the moment of discharge. These mothers were not informed about the length of their hospital stay at the moment of admission to the ward. As a consequence, those mothers often felt unsure about the moment of discharge. Other mothers believed they could go home, but were, for instance, not informed about the need of a paediatrician's approval. Because the moment of discharge from hospital was not well communicated most mothers described it as rather chaotic. Some also mentioned long waiting times to see the paediatrician and/or obstetrician for their discharge consultation in hospital.

#### 4.4.3.2 *Little information (discharge information)*

In general, the information provided to the mothers upon discharge was very limited. Some women were given written information describing the care for themselves and their baby when at home. In some cases, these leaflets were discussed together with the midwife. However, this information was often considered too vague or incomplete (25).

Most women left hospital with at least an appointment with the obstetrician and paediatrician. Some women also received leaflets with information about home care midwives. Women who got this information were very satisfied with it. In some cases mothers were urged from hospital to contact a home care midwife for follow-up. This was mostly so when there were breastfeeding problems although some women who reported breastfeeding problems did not receive information about who to contact. Arrangements for postnatal follow-up appeared thus not to be standardised across hospitals.

#### 4.4.3.3 *Readiness for discharge*

All the mothers who had a short hospital stay felt ready to go home. This was not the case for the mothers who stayed longer. Most of them also felt ready for discharge, but some had wished to stay even longer (26).

##### **Key points**

- **Discharge from hospital appeared to be a last minute decision, primarily depending on the condition of the baby.**
- **Women felt they received little information when they were discharged from hospital.**
- **Not all mothers with a longer hospital stay felt ready to go home at the time of discharge.**

#### 4.4.4 *The first weeks at home with a new baby*

##### 4.4.4.1 *Strange and lost*

Most mothers described the moment they arrived at home with their baby as "strange" or "bizarre" (27, 28). Some mothers had a sort of alienated feeling and others said they felt lost in their own home (29, 30).

##### 4.4.4.2 *Being tired*

The feeling of being tired was a constant in all focus groups (31). Mothers were tired because they had to breastfeed during the night, because they were unable to get sleep because of other children or found it impossible to sleep during the nap time of the baby. Virtually all mothers found getting up at night to be very tiring. Often, their partner was not willing to get up at night, or he needed to get enough sleep to function at work. For most women, this tiredness caused significant distress. The appreciation for the support they received was often related to the fact they had been able to sleep because of the help they had gotten. At the same time, women also seemed to acknowledge tiredness was a logic consequence of giving birth and caring for a new baby. Admitting this, however, felt counterintuitive as most women wanted to immediately go on with their new life. In this sense, some women would have appreciated being given the message that rest was essential and there is no need in going too fast in trying to organise their new life.





#### 4.4.4.3 *Getting organised*

The adaptation process women went through during the first weeks was not only a psychological adaptation, but also a very important practical one. Most women described these first weeks as chaotic. First time mothers found it difficult at first to incorporate the care for the baby in their daily routine. Or in fact vice versa, because they felt they spend all their time caring for the baby and no time appeared to be left for themselves or for housekeeping. This often resulted in a cluttered house which was an important source of stress for some mothers. These first time mothers said they had underestimated the care for the baby and thought they should be better prepared.

Multiparous women already had had the experience and they tried to prepare themselves during pregnancy for these first chaotic weeks (32). For instance by filling the freezer with food so that this was something they did not have to worry about after the delivery. For multiparous women, getting organised was more about adjusting the daily routine and activities with the older children to the new baby. They described several peak moments such as breakfast, getting older children to school and preparing dinner where breastfeeding or a crying baby completely turned over their schedule (33).

For some women getting organised meant “letting go” and accepting that the house is not as tidy as it used to be. This appeared to be more difficult with a first baby than with the next ones.

#### 4.4.4.4 *Gaining confidence in caring for a new baby*

Some mothers described feeling unsure in taking care of their baby at first. From the moment they left the routine care in hospital, some women expressed uncertainty regarding undertaking daily care for their baby. Some mentioned difficulties in interpreting and responding to signals from their baby, for instance, what it meant when their baby cried (34). Others experienced practical problems, such as how to change diapers, how to give a bath, how to arrange their baby to sleep well or how to breastfeed (35). First time mothers said they could not have anticipated this because you do not know what it is like until you really have a baby (36). This uncertainty, however, appeared to apply only to the Dutch-speaking groups. In the two French-speaking groups, women generally expressed more confidence in

daily care, possibly due to having learned it through taking care of their little brothers or sisters.

#### 4.4.4.5 *Finding a new balance*

During the first weeks at home, mothers went through an adaptation process. Especially first time mothers had to adapt to the fact of becoming a parent, being responsible for a baby and getting used to not being alone with their partner anymore. They felt that their “life with two” had suddenly come to an end and they needed to find a new balance between staying at home, caring for a baby and going out with their partner and friends. For the experienced mothers, the adaptation process was more about finding a balance between the care for the baby and their older children.

In the process of finding a new balance, several mothers said they went through an emotionally difficult period in which they felt blue and down. Most mothers who reported feeling blue after the delivery said it was more than merely the “baby blues” and they referred to several weeks or even months of feeling down.

The mothers believed that society has created an image whereby mothers should be living the happiest of all times when they have a baby. As much as they wanted to adhere and conform to this societal expectation, they thought it was incorrect and women should be able to discuss negative feelings and emotions after birth more openly.

The mothers in the focus groups did indeed find their balance after a month or a few months. They thought women should be better informed and prepared for this. To their opinion, the information in antenatal classes mostly ended with the delivery and breastfeeding, but it should also contain information about the first weeks at home and moreover about the impact of a baby on your personal and emotional life (37).

#### 4.4.4.6 *Support*

Support during the first weeks after the delivery was considered very important by all women. Support could be both practical and emotional, and concerned both informal/intimate as well as professional support.



### Partner

Support from the partner was seen as extremely important (38). The mothers particularly enjoyed the first days at home with their partner and genuinely regretted the moment their partner had to go back to work. Some fathers were able to take extra paternity leave and this was experienced as very positive. Women expected support from their partner to be more emotional than practical support. The mothers often longed for their partner to come home from work so that they had someone to talk to after having been alone with the baby all day (39).

### Family and friends

Women also highly valued both practical and emotional support from their friends and family. Most women got help in one way or another from their own mother or their mother in law (40, 41). Mothers found it very unfortunate when their parents still worked themselves and they could therefore not give a lot of practical support.

Family culture regarding care around birth appears to differ significantly. In some families the whole family is engaged when a baby is born. In other families, having a baby is something that stays in the little cocoon of the parents. In these families, grandparents are much less involved even though the mothers would want it otherwise.

Also friends are seen as important in getting support, mostly in exchanging experiences and asking questions you rather not ask a professional.

### Physicians

Most mothers had little contact with physicians during the first weeks. They saw their obstetrician at the “six weeks” consultation and the paediatrician when their baby was sick. Women said they would rather go to see a paediatrician with questions about their baby than their general practitioner (42).

### Midwife

Most mothers in the short stay focus groups and some mothers in the long stay focus groups had received visits from a midwife at home. These mothers were all very satisfied with the midwifery care they received. The visits from the midwife were particularly appreciated because the midwife gave them positive feedback about medical aspects, answered their questions and most importantly, gave reassurance on whether they were “doing a good job as a mother” (43, 44).

### Maternity home care assistant

The concept of having a maternity home care assistant was presented in all focus groups, regardless of whether they have had experience with it or not. For the French speaking mothers this was a new concept, but also some Dutch speaking mothers did not know it existed.

Generally, there were two opinions about maternity home care assistants in both the Dutch and the French speaking focus groups. Most women thought it was a very good initiative and it should be available and reimbursed for all women. These mothers believed it would rescue them from a cluttered house and sleep deprivation. On the other hand there were also mothers who either did not want a “stranger” in their house all the time or women who believed the family should do this and not some “strange” person.

Furthermore mothers felt that in the current culture where you have to keep up the appearance that all is fabulous after giving birth, you are considered weak when you need help for your housekeeping or help in caring for a baby. Although the mothers thought it was fully justified to ask for help when needed, they also believed this could be a barrier for women to hire a maternity home care assistant.

Women who had had a maternity home care assistant were all very satisfied. They appreciated the practical support, such as housekeeping and helping with bathing the baby, but it also gave mothers the reassurance that all went well. Some first time mothers with a long stay in hospital said that there was not a lot of work to be done for the maternity home care assistant and they therefore ended it early (45,46).



## ONE / Kind en Gezin

Most of the French speaking mothers were happy with the care they received from the nurses and doctors of ONE. Especially because they had visited them very quickly after the delivery and because they answered all their questions (47). In one particular case however, a mother was very unhappy about the lack of follow-up soon after discharge: she had been discharged between Christmas and New Year and had therefore not seen anyone for 10 days. It was a first time mother with a difficult breastfeeding. Her baby had lost 1/5 of its weight and needed to be admitted to hospital (48).

In the Dutch speaking focus groups there were mixed opinions about Kind en Gezin. Most mothers were satisfied; however, some complained about the nurses giving conflicting information and being not very breastfeeding minded (49).

### Key points

- **The first weeks at home with a new baby were very tiring and chaotic, in which the mother had to gain confidence in the care for her baby, get organised and find a new balance.**
- **All mothers found support to be very important these first weeks. Support could be both practical and emotional, and concerned informal/intimate as well as professional support.**

## 4.5 General conclusion

### 4.5.1 Limitations

Due to time and budgetary restrictions, the number of focus groups was fixed from the start of the study and therefore data saturation was not fully achieved.

The recruitment procedure of the obstetricians and paediatricians was different in the Dutch and French speaking region. In the Dutch speaking region, participants were purposively selected based upon the characteristics of the hospital they worked in (region, number of births per year, university hospital or not and mean length of stay after vaginal birth) whereas in the French speaking region, participants were recruited through ONE. This may have caused selection bias in the French speaking group.

Although we aimed at including at least 5 to 8 participants in each focus group, one focus group consisted of only three participants. Particularly mothers with a short hospital stay after delivery appeared to be more difficult to recruit. Although 7 mothers had eventually agreed to participate, 4 had to cancel last minute due to unforeseen circumstances, resulting in a small-numbered focus group. Literature on focus groups demonstrates however that such a small focus group can be considered as a mini-focus group and that these data are not less valuable.<sup>34</sup>

### 4.5.2 The views of health care professionals and mothers compared

The topics addressed in both the focus groups with health care professionals and the focus groups with mothers related to the characteristics of postnatal hospital stay, including its length, the importance of social support, and early postnatal experience. The focus groups with health care professionals was broader in scope and also included potential answers on shorter hospital stays, requirements to reduce hospital stays and organise follow-up at home, and the specific needs of vulnerable families.

Regarding the topics health care professionals and mothers have in common (See Table 11), several parallel findings were identified. Both groups stressed the importance of social support: mothers expressed their appreciation for the support from partner, family and friends during the first weeks after birth. Health care professionals emphasised that it is very



important to feel supported, but from their experience many mothers stand alone and cannot rely on a social network.

Another common topic is the difficulties experienced during the early postnatal period. The mothers' experiences described the first weeks as very chaotic and tiring, and the time it took to find a new balance in their daily life as a parent. From the perspective of the health care professionals, parents are not well-prepared and do not sufficiently anticipate the difficulties they face after childbirth.

The third parallel relates to the characteristics of the hospital stay after birth. Health care professionals' impressions about what mothers valued the most were in line with what mothers themselves told us: the immediate availability of hospital staff and the hotel service at the maternity ward. Mothers defended the length of hospital stay they experienced themselves, some did not feel ready to go home at the moment of discharge. From the literature about patient satisfaction we know that *"service users tend to value the status quo over innovations of which they have no experience"* (p.75).<sup>38</sup> Health care professionals did not agree about the most optimal length of stay. Some of them reported a tendency to shorten the length of stay, but their evaluation of this tendency differed: for some this was a worry, for others it was a logical shift from secondary to primary care. Health care providers agreed that a solid organisation of postnatal follow-up at home was necessary to prevent a reduction in quality of care. They especially worried about adverse medical and social consequences, especially for vulnerable families. Solutions to prevent adverse outcomes were the systematic organisation of seamless postnatal care outside the hospital, with information exchange between the maternity clinic and the home care as the anchor point. Preparation before discharge was addressed by both groups. Although health care professionals were aware of the importance of preparing the moment of discharge, some mothers reported that they experienced discharge as a last minute decision not sufficiently supported with information.



Table 11 – Main results from the focus groups with health care professionals and the focus groups with mothers

Topic	Health care professionals	Mothers
	<p><b>Mothers are not well prepared and feel alone in the postnatal period</b></p> <p>Many mothers stand alone in the care for their newborn and do not anticipate the difficulties and worries arising after birth.</p>	<p><b>First weeks at home with a new baby</b></p> <ul style="list-style-type: none"><li>• All mothers found support to be very important these first weeks. Support could be both practical and emotional, and concerned informal/intimate as well as professional support.</li><li>• The first weeks at home with a new baby were very tiring and experienced as chaotic weeks, in which the mother had to gain confidence in the care for her baby, get organised and find a new balance.</li></ul>
<b>Postnatal care starts during pregnancy</b>	<p>The postnatal period needs more preparation during pregnancy, especially for first-time mothers and fathers:</p> <ul style="list-style-type: none"><li>• the preferred moment of discharge should be agreed upon</li><li>• the follow-up at home should also be planned</li><li>• parents need complete and accurate information early in pregnancy to build their preferences</li><li>• shift parental education and information from post birth to pre birth to unburden the hospital stay and avoid an information overload during the first two or three days post birth.</li></ul>	
<b>Postnatal hospital stay</b>	<p><b>Pressure to shorten hospital stay after childbirth</b></p> <p>Care providers felt the pressure from hospital management to discharge earlier and pressure from mothers who want to stay longer.</p> <p><b>Worries about medical consequences of shorter hospital stays</b></p> <p>Care givers expressed their worry about medical problems not being detected timely (e.g. bilirubinémie), the revival of eradicated medical problems (e.g. infections) and about these two factors leading to more newborn readmissions, if the length of hospital stay continues to decrease. Also care providers feared that more newborns would drop out of postnatal screenings and that more mothers would stop breastfeeding early.</p>	<p><b>Postnatal hospital stay</b></p> <ul style="list-style-type: none"><li>• Postnatal hospital stay was satisfactory for the women in the focus groups. They especially appreciated the medical care, the immediate availability of staff and the hotel services of the hospital.</li><li>• Midwives were seen as important caregivers who not only provide care but also emotional support.</li><li>• Receiving conflicting information about several aspects of care was found disturbing.</li></ul>



Topic	Health care professionals	Mothers
	<p><b>Social considerations about shorter hospital stays</b></p> <p>Focus group participants expressed their concern about adverse consequences of shorter hospital stays in particular for vulnerable families. They emphasised that whatever structure is developed, it should pay particular attention to vulnerable families, as they become more vulnerable if the current support they receive in hospital weakens.</p>	<p><b>Length of postnatal hospital stay</b></p> <ul style="list-style-type: none"> <li>• The mothers in the focus groups thought that the length of postnatal hospital stay should not be standardised.</li> <li>• All mothers preferred the length of hospital stay they had experienced themselves.</li> </ul> <p><b>Discharge from hospital</b></p> <ul style="list-style-type: none"> <li>• Discharge from hospital appeared to be a last minute decision, primarily depending on the condition of the baby.</li> <li>• Women felt they received little information when they were discharged from hospital.</li> <li>• Not all mothers with a longer hospital stay felt ready to go home at the time of discharge.</li> </ul>
<b>Answers to shorter hospital stays after childbirth</b>	<p><b>The systematic organization of postnatal care outside the hospital</b></p> <ul style="list-style-type: none"> <li>• The maternity clinic was mentioned as the most appropriate actor to plan and organise the follow-up at home by preference within a common framework of discharge procedures.</li> <li>• Today the information exchange between the maternity clinic and the care givers providing follow-up at home is insufficient.</li> </ul> <p><b>A seamless return home</b></p> <ul style="list-style-type: none"> <li>• The non-stop availability of care givers should be continued outside the hospital.</li> <li>• Home visits by a midwife as well as ambulatory paediatric visits should be scheduled before discharge.</li> </ul>	
<b>Requirements to provide integrated postnatal care in outpatient settings</b>	<p><b>Supply and training of general practitioners, midwives and maternity home care assistants</b></p> <p>If more mothers and babies leave the hospital early, primary care must also be strong in numbers and competences.</p> <p><b>Registration of newborns</b></p>	



Topic	Health care professionals	Mothers
	<p>The newborn currently does not receive an administrative identification number immediately after birth.</p> <p><b>Quality control and clinical guidelines are needed</b></p> <p>Focus group participants plead for the development of quality criteria for postnatal care in hospital as well as the follow-up at home.</p> <p><b>Adequate hospital and home care financing</b></p> <p>Focus group participants had divergent expectations regarding the financial consequences of shorter hospitals stays complemented with follow-up at home.</p>	
<b>Support for parents</b>	<p>Maternity home care assistance</p> <ul style="list-style-type: none"><li>• Maternity home care assistance lacks a clear definition. There are no norms, no regulations, there is no job description. By consequence, the sector is characterised by heterogeneity in the kinds of services offered.</li><li>• Maternity home care assistants unburden mothers, turn home into a hotel and help mothers to care for the baby or other children in the family.</li><li>• A lot of flexibility is asked from maternity home care assistants but little recognition and rewarding is given in return.</li><li>• Maternity home care assistance is at the one hand hospital replacing care during the first days post birth, and support to make the transition to parenthood. The latter is a luxury for some, but a necessity for others. The number of hours needs to be tailored to the needs of a family.</li></ul> <p>Need for informal networks</p> <ul style="list-style-type: none"><li>• Professional care and support can only partly compensate for the lack of informal support, and certainly not replace it. Sharing experiences and knowledge, feeling emotionally and instrumentally supported, knowing that you are not the only one facing a certain problem, are the mentioned added values of peer support.</li></ul>	





Topic	Health care professionals	Mothers
<b>Vulnerable families</b>	<ul style="list-style-type: none"><li>• Care providers expressed great concern about how to avoid that vulnerable families drop out or receive lower quality of care, especially in a context of shortening hospital stays.</li><li>• Currently, financial deprivation implies a shorter instead of longer hospital stay.</li><li>• Strategies to improve postnatal care for vulnerable families include early detection, a multidisciplinary approach, long term care trajectories, information and parental education, investment in specialised residential care, and the development of informal support networks.</li></ul>	



## 5 ORGANISATION OF POSTNATAL CARE IN THE UK, THE NETHERLANDS AND SWEDEN

This chapter highlights features of countries with a short average length of stay; the objective is to learn lessons about the optimal organisation of postnatal care.

### 5.1 Methods

#### 5.1.1 Selection of countries

This description analyses three European countries: the Netherlands, the United Kingdom (UK) and Sweden. In the OECD classification [2011],<sup>5</sup> their average length of post-partum stay was below the OECD average of 3.1 days, hence much lower than the Belgian average. In the UK it has even been further declining since 2011. Therefore we selected these countries to see how postnatal care is organised in countries with short average hospital stays and systematically organised follow-up at home. Also in the international literature they take a leading position and are well-known for their organisation of maternity care.

The description of the organisation of postnatal care in these countries highlights how these countries changed their organisation of postnatal care in line with a shorter length of stay i.e. by creating alternative care pathways at home. All countries have a large array of services: the description below focuses on mainstream care practices and mentions some alternatives that may be relevant for the Belgian context.

#### 5.1.2 Data sources

Electronic databases, websites of guidelines developers, governmental websites and grey literature were searched (See 6.2 Methods).

### 5.2 Organisation of childbirth and postnatal care in the UK, the Netherlands and Sweden: results

#### 5.2.1 Main birth attendants and place of birth

In the three countries midwives play an important role in perinatal care. They attend nearly all normal deliveries in Sweden, more than half of the deliveries in the UK and about 27% in the Netherlands. Home deliveries are almost non-existent in Sweden, rather exceptional in the UK (2.8% of all UK deliveries) and more common in the Netherlands (15.8%).

##### 5.2.1.1 Sweden

Almost all deliveries in Sweden (99%) take place in hospital and are attended by hospital midwives when labour and birth are normal.<sup>39, 40</sup> When obstetrical factors are observed, parturient receive specialized care. There is continuity of midwifery philosophy throughout pregnancy, birth and postnatal care, though not continuity of care provider.<sup>40</sup>

The postnatal period in hospital is short and healthy mothers with healthy babies are encouraged to use early discharge options.<sup>40</sup> In Sweden intrapartum and postnatal care are financed by means of taxes within the public sector.<sup>41</sup>

##### 5.2.1.2 United Kingdom

In the UK midwives are the main birth attendants: in 2012, 56.6% of all deliveries were midwife-led, although this percentage has steadily declined over years (in 1990 it was 75.6%).<sup>42</sup> Almost all maternity care is free of charge, provided by the National Health Service (NHS).

In 2007 around 8% of deliveries occurred in other settings than maternity.<sup>43</sup> 2.8% at home, around 3% in alongside midwifery units, and just less than 2% in freestanding midwifery units.<sup>43</sup>

##### 5.2.1.3 The Netherlands

The Dutch system of maternity care is unique in Europe and is often referred to as an example of how the maternity services could be improved in industrialised countries.<sup>44</sup> In 2012, about 85% of all pregnant women started antenatal care in primary care, 15% started in secondary care. More than 52% started labour in primary care (47.6% in secondary care), and about



one third (30.5%) of the deliveries were attended by a primary caregiver, mostly a midwife (69.5% with a secondary caregiver). These deliveries take place at home with a midwife (15.8%) or general practitioner (0.1%), in hospital (12.6%) or in a birth centre (1.5%).<sup>45</sup> This implies that from the 85% starting antenatal care with a primary caregiver, nearly 55% is referred to secondary care during either pregnancy (32.8%) or labour (22%). During the immediate postpartum another 1.2% is referred to secondary care.<sup>45</sup>

Women who deliver in hospital or in a birth centre usually go home within a few hours after birth. Therefore, home care is the cornerstone of Dutch maternity care. A midwife will do four to six home visits of approximately 30 minutes during the following 10 days. Standard maternity care is concluded with a visit to the midwife after six weeks.<sup>46</sup>

Next to midwives and – to a lesser degree GPs – maternity home care assistants play a key role. The maternity home care assistant takes care of the mother and the new baby, provides health education, looks after other children in the family and does housework for a variable number of hours during the first eight to ten days after birth.

### 5.2.2 Length of hospital stay and definition of early discharge

The definitions of early discharge vary between countries.<sup>21</sup> The standard length of stay in country A, for example 48 hours, may be considered as a short stay in country B. The literature reflects the various definitions of early discharge, ranging from mothers discharged a few hours after childbirth to mothers discharged three to four days after birth.<sup>21</sup>

#### 5.2.2.1 Sweden

The Swedish national definition of early discharge after childbirth is discharge between 6 and 72 hours post delivery.<sup>47, 48</sup> The official statistics of the Swedish Medical Birth Register shows that the average length of stay evolved from 6 days (1973) to less than 2 days 2011 for vaginal deliveries.<sup>49</sup> Corresponding figures are 9 to 3 days for caesarean sections. The average length of stay for first-time mothers is 2.4 days, while it is 1.5 days for multiparous women with a vaginal birth. In 2011, approximately 74% of all women having a vaginal birth went home within 48 hours after birth.

#### 5.2.2.2 United Kingdom and the Netherlands

The literature on the organisation of maternity care in the UK and the Netherlands did not give any standardised definition of early discharge. This absence of national definition of early discharge could be the logical consequence of the fact that most women, especially those who had a normal delivery, stay only a few hours up to two days at the hospital.

The NICE guideline<sup>50</sup> does not provide any definition of early discharge, but prescribes for postnatal care that first of all, “Length of stay in a maternity unit should be discussed between the individual woman and her healthcare professional, taking into account the health and well-being of the woman and her baby and the level of support available following discharge”. And in case of longer stay: “Where a woman remains in hospital following delivery, her postnatal care plan should be reviewed on a daily basis until her transfer home”.

In the UK in 2011, overall 20.2% of all women (all deliveries, not only vaginal births) left the hospital the same day, 37.8% the first day and 23.9% the second day post delivery; only 18.1% stayed three days or more<sup>51</sup>. The NICE guideline states that after discharge “Women and their babies should receive the number of postnatal contacts appropriate to their care needs<sup>50</sup>. A postnatal contact is a scheduled postnatal appointment which may occur in the woman or baby's home or another setting such as a GP practice or children's centre... All women should also be provided with a contact number that can be used at any time of the day or night to seek urgent maternity advice (for example, the labour ward triage number)”.<sup>52</sup>

### 5.3 Answers to short postnatal hospital stays

Going home within 72 or even 48 hours after birth is acceptable if the following conditions highlighted by the literature are fulfilled:

1. Early discharge is prepared during pregnancy;
2. Early discharge criteria for mother and newborn are clear;
3. A high quality postnatal follow-up is in place.



### 5.3.1 Preparation for early discharge during pregnancy

The French guideline related to early discharge ( $\leq 72$ h) recommends to provide information related to the possibility of an early discharge (including follow-up at home and choice of professionals) during the clinical interview at 4 months of pregnancy.<sup>53</sup> This information should focus on follow-up modalities, indications and contra-indications, advantages and disadvantages of an early discharge to ensure that the patient's decision is an informed choice.<sup>53</sup> The care team in charge of the pregnancy follow-up should prepare the early discharge during the antenatal period. In particular the demand for home support is planned to optimise the return home.<sup>53</sup>

#### 5.3.1.1 Continuity of care and care provider

Continuity of caregiver is an important issue in the literature on maternity care. The importance of having the same midwife throughout the different stages of pregnancy, birth and the postnatal has been widely addressed in the literature.<sup>54</sup> Continuity of caregiver throughout the antenatal phase, birth and postnatal, is likely to facilitate preparation for the early postnatal during pregnancy, including the moment of discharge and how women want care to be organised afterwards. The (team of) caregiver(s) keeps an overview over the whole process. It is unclear when in the childbearing cycle continuity matters most.<sup>54</sup> Known care models aiming at maximising continuity of caregiver are team midwifery, caseload midwifery, one-to-one midwifery and medical-led shared care models.

#### Team midwifery

*"Midwife-led continuity of care can be provided through a team of midwives who share the caseload".*<sup>55</sup> In this case, women receive care from a **team of midwives**.<sup>55</sup> NICE defines team midwifery as *"a group of midwives providing care and taking shared responsibility for a group of women from the antenatal, through intrapartum to the postnatal period"*.<sup>56</sup> It is not recommended in the NICE Guideline 55 regarding intrapartum care.<sup>56</sup>

#### (Partnership) case load midwifery

Caseload midwifery also provides midwife-led continuity of care. It aims *"to ensure that women receive all care from one midwife or her or his practice partner"*.<sup>55</sup> Caseload midwifery adds a greater relationship continuity to team

midwifery as **one midwife or her/his partner** (instead of a team of midwives) provides all ante, intra and postnatal care.<sup>57</sup>

#### One-to-one midwifery

One-to-one care is a characteristic of midwife-led continuity of care models. Mostly it is applied in the context of intrapartum support, but one-to-one time could also be valuable in the early postnatal period. Schmied et al. (2009) report on an Australian study which aimed *"to design, implement and evaluate strategies to improve hospital-based postnatal care"* (p. 1851).<sup>15</sup> The key strategy focused on providing one-to-one time or an uninterrupted period of time when a midwife would be available for one woman in a hospital context. No improved postnatal outcomes were demonstrated, but midwives did not implement the key strategy of one-to-one time in a consistent manner. The intervention had little impact on established routines and change was difficult to accommodate.

#### 5.3.1.2 Benefits of midwife-led continuity of care models

There is debate about the risks, benefits, and costs of midwife-led continuity of care.<sup>58-62</sup> Two recent Cochrane reviews (2013) support continuous care models.<sup>55, 63</sup>

- The review by Sandall et al. (2013) analysed the models of care where midwives provided care throughout the pregnancy, and during labour and after birth for low risk women.<sup>55</sup> The main benefits of **midwife-led continuity of care throughout the childbearing cycle** were a reduction in preterm births, less baby losses before 24 weeks, less use of epidurals, fewer episiotomies or instrumental births and an increase in spontaneous vaginal births. There was no difference regarding the risk of losing the baby after 24 weeks, nor in the number of caesarean births. They conclude that *"most women should be offered midwife-led continuity models of care, although caution should be exercised in applying this advice to women with substantial medical or obstetric complications"* (p. 2).
- The review by Hodnett et al. (2013) focused on continuous one-to-one support during childbirth for all women.<sup>63</sup> They concluded that women with **continuous one-to-one intrapartum support** were more likely to have a spontaneous vaginal birth, were less likely to have analgesia, to have a caesarean or instrumental vaginal birth or to report



dissatisfaction. In addition, their labour was shorter and the newborn was less likely to have a low five-minute Apgar score. The general conclusion was: *“Continuous support during labour has clinically meaningful benefits for women and infants and no known harm. All women should have support throughout labour and birth.”*

A recent randomised controlled trial published after the Hodnett et al. (2013) Cochrane review,<sup>63</sup> also compared caseload midwifery care versus standard maternity care of women of any risk.<sup>64</sup> It concluded that caseload midwifery care is safe and cost-effective for women of any risk.”

#### 5.3.1.3 *Antenatal preparations for short hospital stay in the UK, the Netherlands and Sweden*

Several studies highlighted the importance of adequate preparation and information during pregnancy, especially with regard to safety and positive parental experiences in early discharge.<sup>65, 66</sup> Parents felt that it was important to know the care alternatives and what to expect after the delivery.<sup>66</sup>

Both UK NICE guidelines<sup>50</sup> and the Dutch steering group for pregnancy and childbirth<sup>67</sup> recommend to develop a postnatal care plan, if possible before, otherwise as soon as possible after birth.

#### **Dutch initiatives to optimise the organisation of maternity care**

The Dutch steering group (Stuurgroep Zwangerschap en geboorte) developed three initiatives.<sup>67</sup>

- The goal of a **compulsory antenatal home visit around the 34<sup>th</sup> week of pregnancy** is to observe the family situation and to identify social problems, to provide antenatal education and health promotion, to assess whether the home situation is suited to give birth and spend the postnatal period, to decide which adaptations are necessary to make the home a safe environment. The case manager is responsible for the home visit, but does not necessarily have to do the visit him/herself. In addition to the antenatal home visit, an intake takes place for the organisation of the maternity home care assistance. This should also take place before the seventh month of pregnancy, preferably by means of a home visit.

- The **appointment of a case manager**: every pregnant woman needs a reference care provider, who guides her through pregnancy, childbirth and the postnatal period. In principle the case manager role is fulfilled by the woman’s own midwife, general practitioner or obstetrician. The case manager is responsible for the coordination of the care needed and should guarantee continuity of care.
- The **development of a birth plan**: the case manager together with the pregnant woman develops a tailored care plan before the 12<sup>th</sup> week of pregnancy, postnatal care is included.

These three new initiatives are now being implemented, but not systematically and with a lot of regional variation.

#### **Sweden: primary antenatal care with the midwife as the primary caregiver**

Almost all pregnant women have antenatal care with a midwife.<sup>54, 65</sup> Usually parents meet the same midwife during 9 to 10 individual antenatal care visits during a normal pregnancy. There is no routine visit to a medical doctor. Midwives refer women to specialised care if necessary.<sup>54</sup> Ninety-nine percent of all antenatal care is free of charge.

**Antenatal classes** are offered to all first time parents.<sup>54</sup> They meet 4 to 5 times and are informed about the progress of a normal pregnancy, delivery and the first postnatal period.<sup>65</sup> In a national Swedish survey<sup>68</sup> on antenatal education, it was shown that 74% found antenatal classes helpful for birth, 40% for the first weeks with the newborn and 39% still met with class participants two months after birth.<sup>54</sup>

#### 5.3.2 *Clear early discharge criteria for mothers and newborns*

Care providers must pay attention to selection criteria of mothers and newborns with low medical risk who can benefit from early discharge.<sup>69, 70</sup> According to Bernstein 2007, the postnatal discharge decision has to be taken jointly by mothers, paediatricians and obstetricians.<sup>71</sup> Therefore, medical professionals need clear and undoubted criteria to discharge as mentioned in French (ANAES)<sup>53</sup> or American guidelines.<sup>69</sup> For more details on discharge criteria, see section 6.3 Literature overview (discharge criteria).





### 5.3.3 High quality follow-up in the early postnatal period

Darj and Stalnacke (2000) conclude that a healthy well-prepared woman with a healthy child, born at term after an uncomplicated pregnancy and delivery can be discharged as early as after 6-12 hours, if there is a well-established programme for continued care at home.<sup>65</sup>

The section below describes several ways to organise the follow-up during the early postnatal period. We distinguish between postnatal care on the one hand and assistance with daily care for the newborn and housekeeping on the other hand.

#### 5.3.3.1 Organisation and impact of postnatal follow-up by midwives in other countries

In response to the shortening of the length of stay after childbirth, home-visiting programmes are developed to provide support at home by health professionals or skilled attendants. Home-visiting programmes provide assessment of the mother and newborn, health education, infant feeding support, emotional and practical support to families, and if necessary, referral to other health professionals.<sup>72</sup> Home visits also involve assessment of family circumstances and the home environment. Early postnatal discharge of healthy mothers and term infants does not appear to have adverse effects on breastfeeding or maternal depression when women have at least one nurse-midwife home visit after discharge.<sup>21</sup>

#### United Kingdom

The hospital informs the midwife about the woman's discharge. She schedules a home visit the following day (except in case of problems, e.g. with feeding. Then the midwife home visit is provided on the discharge day). The discharge documents provide the community midwife with relevant information about the birth and subsequent recovery.<sup>73</sup> There is no set number of visits: postnatal care by a midwife is "not less than 10 days and for such longer period as the midwife considers necessary"<sup>74</sup> (p. 4). Most women receive about seven midwife home visits in the first 10 to 14 days postnatal<sup>75</sup>. Also the GP does a home visit and a final maternity check 6 to 8 weeks after birth<sup>76</sup>. The mother's care is transferred to a health visitor when her postnatal care needs have been addressed.<sup>73</sup>

#### The Netherlands

As in the United Kingdom maternity care for low-risk women is situated in primary care, mainly done by midwives and to a small extent by GPs (about 0.5% of all births). This organisation gives a high standard of care and is also cost-effective.<sup>77</sup> In case of problems, the midwife refers to an obstetrician.<sup>77</sup> Midwives are mostly (80%) organised in teams of three or four. 15% of Dutch midwives work in duo practices, 5.4% have a solo practice.<sup>78</sup> There are 519 independent midwifery practices in the Netherlands. Each practice has a midwife on call 24/7.<sup>77</sup> During a 24h shift, a midwife combines postnatal visits at home and intrapartum care, at home and in hospitals. Often midwives see women about ten to twelve times during pregnancy. Some practices also do a home visit at around 35 weeks of pregnancy. This is recommended by the government but comes without financial compensation for now.<sup>77</sup>

Women can give birth in hospital with a primary care midwife. A policlinical birth starts at home, but the midwife accompanies the woman to the hospital. This goes with an additional cost for the client (of about 490 €).<sup>79</sup> This additional cost is not covered by the compulsory health insurance unless the birth was medium or high risk, but it is covered by most complementary insurances.

Often women who deliver in hospital ask their midwife or team of midwives to go on with postnatal care. Women who give birth in hospital are visited by a midwife after discharge. The first visit is often scheduled every other day for seven or eight days after birth and takes up to one hour to complete. The financial compensation for postnatal care is fixed, no matter whether the midwife visits the client only once or several times.<sup>77</sup>

#### The Swedish early discharge programme

Mothers and newborns go home within 72 hours after birth. The follow-up consists of home visits, daily phone calls and a final check-up by a midwife.<sup>47</sup> Follow-up visits at home are done by midwives from the maternity ward or by midwives working in early discharge teams.<sup>80</sup> When the baby is about one week old, the primary health-care organisation takes over the contact with the family.<sup>80</sup>





Home care by midwives is only available in a few places, but nurses at the Child Health Clinics usually make one home visit during the first week, at least to first-time mothers.<sup>41</sup> In Sweden the decrease in length of stay after childbirth led to more outpatient and home care for most mothers. Shorter length of stay has shifted the immediate postnatal care from the hospital to home. Today the traditional maternity ward is mainly intended for women who had complicated pregnancy or delivery<sup>47</sup>). Swedish midwives practise in community maternal-child health clinics (there are also a few private clinics), or in a hospital, but not in both settings. A pregnant woman usually sees the same midwife throughout pregnancy, but once in hospital she is cared for by hospital midwives. Women return to the antenatal midwife six weeks after birth for a check-up and contraceptive services.<sup>39</sup>

### Impact of follow-up by midwives in the early postnatal period

- Effectiveness of different types of home-visiting programs

Several systematic reviews assessed the impact of postnatal follow-up by midwives in vulnerable families e.g. on child abuse and neglect,<sup>81-83</sup> on maternal and neonatal morbidity and mortality, especially in low-income countries.<sup>84</sup> Also effectiveness and cost-effectiveness of intensive home-visiting programs<sup>85-87</sup> have been reviewed.

Despite many studies, there is little evidence regarding the effectiveness of different types of home-visiting programs in the early postnatal period. An optimal schedule has been proposed by WHO/UNICEF in 2009, without clear evidence underpinning the recommendations.<sup>88</sup> Home-visiting programs differ substantially in frequency of home-visits (how many home visits), timing (when started the home visits), duration (when ended the visits), intensity (how many visits per week) and the type of intervention (content of care, and type of health professional). Also outcome measures vary between studies and the effects of home-visiting are context bound (e.g. low versus high income countries), making it difficult to draw definite conclusions.

- Impact on depression, satisfaction, breastfeeding

The Yonemoto Cochrane review of studies involved studies with more versus fewer home visits.<sup>72</sup> They found overall that women receiving additional visits had higher mean depression scores, higher satisfaction scores, babies were less likely to have emergency medical care and women

were more likely to be exclusively breastfeeding up to six months postnatal.<sup>72</sup> The higher depression scores were explained by the possibility that women who had more contact with health professionals were more willing to disclose their feelings, or alternatively that increased provision of formal support may somehow disrupt women's usual informal support networks. Yonemoto et al. (2013) further concluded that mothers preferred home visits rather than ambulatory hospital care.<sup>72</sup>..

### Importance of early introduction of the programme

Askelsdottir et al. (2013)<sup>89</sup> mention a Iceland study<sup>90</sup> concluded that the success of the Iceland early discharge/home care programme (up to eight home visits by a midwife during the first 10 days postnatal) was highly dependent on early introduction to the programme during pregnancy, 'word of mouth', positive remarks from mothers and a sense of normalisation in society. The literature<sup>21, 91</sup> on early discharge emphasises that:

- follow-up programmes should start early,
- newborns and mothers with risk factors should be identified,
- information (both oral and written) should be well-implemented before discharge,
- care providers should be easy accessible if problems arise.

Escobar et al. (2001)<sup>92</sup> concluded from their cost-effectivity study that home care visits may be one of the best ways to give individualised care: it increases maternal satisfaction at a lower cost than hospital-based care.<sup>89</sup> MacArthur et al. (2003) came to a similar conclusion after a randomised trial comparing redesigned community postnatal care led by midwives and delivered over a longer period of time with standard care: women's mental health improved at four months postnatal and persisted at 12 months, at equivalent overall cost.<sup>76</sup>

### 5.3.3.2 Family hotels

Family hotels are an alternative to a hospital stay after childbirth, in countries such as the Netherlands and Sweden. Family hotels and the early discharge programme are intended for mothers and newborns after normal childbirth.

In Sweden family suites are rooms in a hotel-like or home-like setting near the hospital, allowing the family to stay together. The healthy mother and newborn are transferred to this hotel after at least 4 hours post delivery.



Midwives offer support during the day and a nurse is available at night.<sup>47</sup> Note that in Sweden distances to a maternity unit may be long and not comparable to the Belgian context.

In a study of Hildingsson et al. (2011), women in traditional postnatal wards and hotel wards reported deficient care in all studied variables.<sup>93</sup> Explanations suggested by the authors are that:

- women's expectations about postnatal care were too high;
- women did not receive enough information about the early post-partum period during pregnancy;
- the condensed information given during the short hospital stay without any time left to the parents to adjust to their parental role.

They conclude that further studies are needed to assess the best model of postnatal care to give the best opportunities to provide satisfactory care for women and their families.

Ellberg et al. (2005) compared three models of maternity postnatal care: standard care at the maternity ward, care in family suites and care in the early discharge programme.<sup>94</sup> Care at the maternity ward often took place when mother or newborn needed special medical or nursing care. The early discharge programme consisted of home visits and daily phone calls for mothers who were discharged during the first 24 hours postnatal. No differences in readmissions, complications or breastfeeding outcomes were found. The study was "*unable to demonstrate any medical risks associated with care in the family suite or the early discharge program*" (p. 60).

#### 5.3.3.3 Assistance in care tasks and housekeeping

##### Maternity home care assistants

The Netherlands add maternity home care assistants to the care of the community midwife. These assistants play a double role:

- they assist the midwife during birth,
- they provide care and support to the family during the early postnatal.

In case of a home birth the maternity care assistant is present at the time of birth to assist the midwife or GP. He/she stays for at least two hours after the placenta's evacuation. In case of a hospital birth the maternity care

assistant is expected to be present when mother and baby return from the hospital.<sup>46</sup>

Maternity home care assistants take care of mother and baby during at least 24 hours. Standard maternity care assistance includes an average of 6 hours a day during seven or eight consecutive days, but it can be more or less depending on the care needs (to a maximum of 80 hours spread over 10 days). The care need is defined by a protocol describing indications for care (Landelijk Indicatie Protocol). Care needs are assessed at three points in time: the first one takes place during pregnancy, the second one within a few hours after birth and the third one during the early postnatal period.<sup>45</sup>

These needs go beyond the medical ones. They cover help at home through the early days, together with information and advice about the new baby.<sup>44</sup> The maternity home care assistance includes care, support and education of the mother and family. Early detection and prevention are part of this work: preventing problematic family situations and continuity with child and youth care is also present in other models from Northern countries (e.g. Denmark and Sweden).

Three types of maternity home care assistance are available:

- **Basic package:** within the standard package maternity home care assistance is offered during the first eight days of a normal postnatal: mother and child recover well without any additional care needs. The standard number of hours of care provided in this package is 49.
- **Minimal package:** the minimum of 24 hours of care is provided (no assistance during delivery included), also spread over the first eight days after birth.
- **Tailored package:** maternity home care assistance is tailored to specific needs of the family. More assistance is sometimes necessary than the one provided by the basic package: e.g. instability of the family situation, presence of two children younger than four years, or three children younger than six, absence of informal care resources, multiple birth, health problems of mother or child, feeding problems.

Less care than foreseen in the basic package might also be desirable. This could for example be the case if the mother and her partner explicitly want less care and are able to cope with the new situation or if mother or child are hospitalized.



Since 2006 (law on care insurance – “de Zorgverzekeringswet”) maternity home care assistance became part of the compulsory health insurance and hence accessible to everybody. About 95% of the families with a newborn make use of maternity home care assistance.<sup>95</sup>

### Family centres and CenteringParenting

Sweden has been a pioneer in the development of **family centres**. Family centres offer parents and children support throughout pregnancy and postnatal period. This service model brings together the services that promote the well-being and health of children and families: maternity health care, child health care, a pre-school (for children from 12 to 60 months) and social welfare activities are provided in one place.<sup>96</sup> Sweden counts today over a hundred family centres spread across the country. Family centres also developed in the other Nordic countries, although various terms are used to refer to family centres, e.g. in Norway it is called Family's house.<sup>97</sup> One fundamental idea behind family centres is that the well-being of children is strongly linked to that of their parents.

Family centres often function following the “Leksand model”,<sup>98</sup> meaning that support is offered to parents, primarily through parental education in groups. Parental support starts with a first antenatal appointment (future mother and father) with the midwife. Later they join the parent group. Initially parents meet in their groups around eight of nine times before the birth and an equal number of times afterwards, up until the child's first birthday. However, some groups choose to continue the meetings. Nurses from the child healthcare (paediatric healthcare) unit are responsible for the meetings up until the child's first birthday. Other professionals will also participate, including family law experts, nursery head teachers and dental hygienists.<sup>98</sup>

In the **UK Children's centres** are mostly oriented towards vulnerable families in disadvantaged areas. By linking maternity services to other types of care provided in children's centres, families are able to access a whole range of services that provide valuable support and advice before and after their baby is born (p. 15).<sup>99</sup>

The practice of family or children's centres focuses especially on parental education and the development of peer support. However, **CenteringParenting**<sup>100</sup> is an innovative dyad model for group mother-infant care that adds health assessment. Ideally CenteringParenting provides continuity of care for a cohort of women who have received care in

CenteringPregnancy, group antenatal care of 10 sessions throughout the entire pregnancy. CenteringPregnancy smoothly transforms into CenteringParenting because women who have given birth prior to the end of the group series often return to the group with their newborns.

CenteringParenting brings together a homogenous group of about ten mothers and infants during the first year of life. During 9 group sessions a clinician and cofacilitator together provide care for mother and baby. Three components of care are integrated: health assessment, education and support within the group environment.

- *Health assessment*: a cofacilitator (can be a midwife, but also a medical assistant, nurse or a social worker) helps women check in and assists them to do their own self-assessments (e.g. weight, blood pressure) and that of their infants (e.g. weight). The women then meet individually with the clinician (can be a midwife, GP or obstetrician) in a private space who asks about their health, examines the infant, does immunizations, monitors feeding, sleeping and other topics.
- *Peer support*: after the individual consultation, women join the group. The group setting offers the chance for women (and their partner) to express their worries and challenges they have confronted, ask questions about parenting and exchange information. Being able to contribute to the group (e.g. telling about own successes and problems) and acknowledging that they are not the only ones facing a certain problem, enhances feelings of self-confidence and self-efficacy. CenteringParenting, especially as the follow-up of CenteringPregnancy, offers peer exchange, mutual support and community building among mothers and their partners.
- *Parental education*: women learn to care for themselves and their children, they learn for example to interpret growth charts, results from lab tests or other tests. Mothers are also able to see how infants of the same age may have reached different developmental landmarks.

It is explicitly aimed to be a facilitative group, not a didactic class: the dominance shifts from the clinician and cofacilitator to the group itself with all group members as experts by experience.



### Key points from the UK

- In the UK midwives are the main birth attendants. In 2012 82% of all mothers stayed less than three days in hospital after birth.
- After discharge care is being transferred to a community midwife. There is no set number of visits. In the United Kingdom postnatal care by a midwife is “not less than 10 days and for such longer period as the midwife considers necessary”.<sup>74</sup>

### Key points from the Netherlands

- In the Netherlands 30.5% of the deliveries are attended by a primary caregiver, mostly a midwife, 69.5% by a secondary caregiver. Deliveries in primary care take place at home (15.9%), in hospital (12.4%) or in a birth centre (1.5%).<sup>45</sup> Women delivering in hospital or in a birth centre usually go home within a few hours after birth.
- A midwife will do four to six home visits of approximately 30 minutes during the following 10 days.
- The maternity home care assistant takes care after the mother and the new baby, provides health education, looks after other children in the family and does housework for a variable number of hours during the first eight to ten days after birth.

### Key points from Sweden

- Almost all deliveries in Sweden (99%) take place in hospital and are attended by hospital midwives when labour and birth are normal.
- The national definition of early discharge after childbirth is discharge at no less than 6 hours and no later than 72 hours post delivery.
- In 2011 approximately 74% of all women having a vaginal birth went home within 48 hours after birth.
- Apart from the traditional maternity ward, two maternity care options are available in Sweden:

- The family hotel is a home-like setting near the hospital, allowing the family to stay together.
- After early discharge parents receive follow-up visits at home by hospital midwives or by midwives working in early discharge teams.
- Family centres offer parents and children support throughout pregnancy and postnatal period.

### Key points

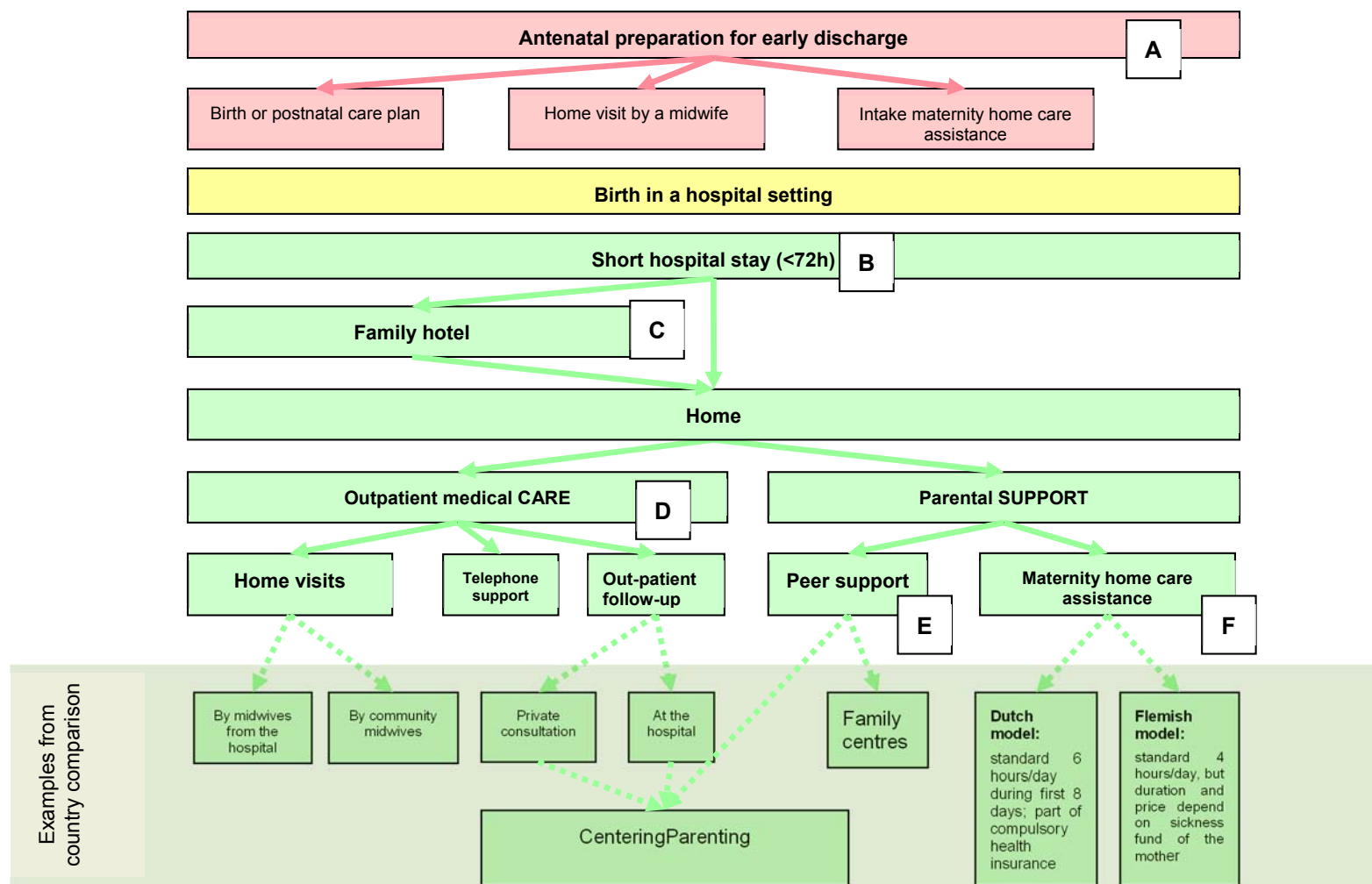
- The definition of early discharge is not standardised in these countries, but it is common to use 48 hours as the upper limit.
- In all three countries midwives do follow-up home visits during minimum the first ten days after early discharge.
- Home-visiting programmes usually provide assessment of the mother and newborn, health education, infant feeding support, emotional and practical support to families, and if necessary, referral to other health professionals.
- Mothers seem to prefer home visits rather than ambulatory care in medical settings.
- Some authors identified conditions for successful programmes: early start (during pregnancy), identification of newborns and mothers with risk factors, clear information (both oral and written) before discharge and accessible care providers in case of problem.
- Nevertheless, despite many studies, there is little evidence regarding the effectiveness of different types of home-visiting programmes in the early postnatal period.
- CenteringParenting integrates health assessment, parental education and peer support within the group environment.



#### 5.4 Building blocks for postnatal care

From the international literature and the country comparison we defined the following blocks to build scenarios for postnatal care (see Figure 11):

- Antenatal preparation for early discharge
- Short hospital stay (< 72h)
- Early discharge toward home versus family hotel accommodation
- Outpatient postnatal care (at home versus follow-up in a medical setting)
- Parental support: maternity home care assistance
- Parental support: peer groups

**Figure 11 – Scenarios for the organisation of a short hospital stay after childbirth**

The six building blocks (A to F) can be combined into scenarios. Basic assumption of each scenario is that blocks A and B are fixed i.e. antenatal preparation before short hospital stay. For the building blocks C to F the previous sections provided concrete illustrations on how to implement these models.





## 6 CONSEQUENCES OF SHORT POSTNATAL HOSPITAL STAYS (WITH FOLLOW-UP AT HOME) FOR THE QUALITY OF CARE

### 6.1 Introduction

The transition from in uterine to extra uterine life (or the so called neonatal adaptation) involves biological mechanisms including respiratory, circulatory, gastro-intestinal and renal adaptation. This physiology of adaptation makes newborns, even at term, particularly vulnerable in the first week of life.<sup>101</sup> During this period, congenital disorders as serious neonatal disease may present as well.<sup>69</sup> Brown et al. 2009 state that the concept of early postnatal discharge (ED) implies that there is an accepted standard length of time for the mother/newborn pair to stay in hospital after birth<sup>21</sup>. The length of stay before early discharge varies largely between countries from some hours to three days. Differences between policies can be partially explained by the availability of community interventions to support an early postnatal discharge (i.e. post-discharge support, antenatal preparation for a shorter length of stay (length of stay)). However, the WHO recommends a minimum length of stay of 24 hours after an uncomplicated vaginal birth in a health facility (Grading recommendation by the WHO: weak recommendation based on low quality evidence).<sup>102</sup>

Economic considerations play a major role as well. The initial motivation for shorter length of stay was a less 'medical' and a 'more family centred and controlled' childbirth process. This motivation was twisted by economic considerations in the 80's and the 'drive-through' delivery (only some hours of postnatal in-hospital care) became the norm. Due to concerns arising from the recurrence of preventable adverse events, the Newborns' and Mother's Health Protection Act was enacted in 1996: the aim was to ensure 48-hours for vaginal deliveries<sup>pp</sup> (and 96-hours for caesarean sections) coverage by health insurance companies. Despite this federal law, shorter length of stay

is still common.<sup>104</sup> Health outcomes and economic impact of the above mentioned law is extensively debated in the literature.<sup>21, 69, 104-108</sup>

This section presents a narrative review of the literature on the consequences of a short postnatal hospital stay for mothers, newborns, vulnerable groups and organisation of care. This literature review includes two guidelines<sup>50, 53</sup> and 37 papers including three systematic reviews<sup>21, 72, 109</sup>, four non-systematic reviews<sup>69, 102, 110, 111</sup>, 10 retrospective studies<sup>70, 105-108, 112-116</sup>, nine surveys<sup>104, 117-124</sup>, five cohort studies<sup>41, 71, 103, 125, 126</sup>, four RCT<sup>127-130</sup>s and two qualitative research papers<sup>80, 131</sup>. Details on methods regarding literature search are provided in section 6.2.

### 6.2 Methods

A narrative literature review has been carried out. Afterwards, complementary information for specific countries has been added from the grey literature. A common discussion summarises and comments all findings.

#### 6.2.1 Search in the indexed literature

The main MESH term used in combination to assess the consequences of a shorter postpartum hospital stay were postpartum period, women, infant/newborn, length of stay and patient discharge. Next, the combination of the following MESH terms were used to describe the postpartum strategies with follow-up at home: Postnatal Care, Postpartum Period, Midwifery, Obstetrical Nursing, Maternal-Child Nursing, Ambulatory Care, Home Care Services, House Calls, Primary Health Care, Maternal-Child Health Centers, Maternal Health Services, Hospitals, Home Care Services, Hospital-Based. For the countries description, the main MESH terms were postnatal care and postnatal period in combination with the Netherlands, United Kingdom, Great Britain and Sweden. All these search terms were subsequently adapted in Emtree terms for the search in EMBASE. The search strategies are available upon request.

The following databases were systematically searched from January 2002 to July-August 2013:

pp The American Academy of Pediatrics/ American College of Obstetricians and Gynecologists indicated that it is unlikely that criteria for discharge after birth can be met in less than 48 hours after birth. These criteria included

physiological stability, maternal knowledge, ability, self-confidence, confidence in newborn care, home support, availability of continuing care post discharge.<sup>103</sup>



- World Health Organisation
- Cochrane library
- Nederlands Huisartsengenootschap
- CBO (Centraal Begeleidings Orgaan)
- Répertoire des recommandations de bonne pratique francophone (CISMeF-BP)
- Haute Autorité de Santé (France)
- EBMPPracticeNet
- Clinical knowledge Summaries (Prodigy)
- Guideline Finder UK
- National Guideline Clearinghouse
- New Zealand Guidelines Group
- OVID Medline
- EMBASE (Embase.com)
- PsycINFO
- EconLit
- Campbell Collaboration systematic reviews,

#### Inclusion and exclusion criteria

The selection criteria are summarised in Table 12. No a priori criteria for the comparators of the intervention or the study design were defined.

**Table 12 – In and exclusion criteria**

Selection criteria	Inclusion criteria
<b>Population</b>	Mother with a normal vaginal delivery at term Newborn <i>Excluded</i> : caesarean sections, pre-term delivery, low-birth weight, interventions dedicated to the fathers, multiple births
<b>Intervention</b>	Organisation of postpartum care including breastfeeding Best practices Early postpartum discharge Determinants of postpartum discharge Interventions related to social deprived population <i>Excluded</i> : interventions related to postpartum depression, physiotherapy, doulas, addiction management (smoke, alcohol, drugs) and fatherhood
<b>Outcome</b>	Quality of care Complications and patient readmission after short hospital stay Reduction in length of stay Satisfaction
<b>Design</b>	All type of design
<b>Language</b>	English, Dutch, French

#### Quality appraisal

No quality appraisal was performed



## 6.2.2 Search in the grey literature

Information from the grey literature was added for the Netherlands, United Kingdom and Sweden. The selection of countries is described elsewhere (see 5.1.1)

The following databases were searched:

- Driver
- HTA database (Wiley)
- OAlster
- OpenGrey

Additional information was search by establishing contacts with local professionals.

## 6.2.3 Selection process

For the selection relevant articles and reports, a first selection based on title and abstract was done by one reviewer (NBE). Selection criteria were discussed and verified with a second reviewer (WEC). Disagreements were resolved by discussion, and eventually discussed with a third reviewer (DOP). After this first selection, the full-text of the selected abstracts was retrieved. In a second selection round, these full-text publications were evaluated by two reviewers (NB and WEC) for their concordance with in- and exclusion criteria, and discussed with a third reviewer (DOP) in case of disagreement.

The results related to the search selection are available upon request.

# 6.3 Literature overview

## 6.3.1 Length of stay and quality of care for the mother

This section focuses on impact of length of stay on mothers' perception. It includes two systematic reviews<sup>21, 109</sup>, one non-systematic review<sup>110</sup>, three retrospective studies<sup>107, 112, 114</sup>, four surveys<sup>22, 104, 117, 124</sup>, one cohort study<sup>41</sup> and one RCT<sup>128</sup>.

### 6.3.1.1 Readmission rate

Brown et al. pooled eighth RTCs to estimate the risk ratio (RR) for maternal readmission rate within three to six weeks postnatal.<sup>21</sup> The authors found no difference between early discharge and conventional discharge [RR (95% CI) 1.10 (0.51 – 2.40)]. Cargill et al. showed that mothers discharged from hospital before 48h are less likely to be readmitted.<sup>110</sup>

However, Amporfu et al. showed that early policy discharge increase readmission rate in Canada.<sup>112</sup> The size of the increase is inversely proportional to the specialisation of the hospital. They concluded that the inadequacy of home care is the main probable reason of the negative impact of the early discharge policy.<sup>112</sup>

Discharge against medical advice is uncommon among postnatal women (0.10 % in California)<sup>114</sup>. However, these patients are more likely to be readmitted within 30 days post discharge [OR (95% CI) 2.7 (1.8 – 3.9)].<sup>114</sup> Lower income, drug abuse, psychotic illness are, amongst others, associated with significant higher rates of discharge against medical advice. Fiscella concluded that these women may benefit from additional maternal and /or child services.<sup>114</sup>

### 6.3.1.2 Breastfeeding

Brown et al. pooled eight RCTs to estimate the risk ratio (RR) for breastfeeding rate in the first eight weeks postnatal and found no difference between early discharge and conventional discharge (CD) [RR (95% confidence interval (95%CI)) 0.90 (0.76 – 1.06)].<sup>21</sup> The proportion of women not breastfeeding at six months postnatal was not significantly different between the two groups [pooled from 3 RCTs: RR (95%CI) 0.92 (0.80 – 1.05)]. Furthermore, infant feeding problems were not more reported in one group than in the other group [pooled from 2 RCTs: RR (95%CI) 0.89 (0.43 – 1.86)] and conflicting advice regarding breastfeeding remained the same [1 RCT: RR (95%CI) 0.90 (0.71-1.14)].

In the USA, Madden et al. showed no difference between breastfeeding rate and duration after the implementation of law related to 48h minimal stay.<sup>107</sup> The breastfeeding rate was also the same in France between early discharge (< 72h) and conventional discharge.<sup>22</sup> The literature review of Cargill et al. did not show impact of early discharge (<48h) on breastfeeding rate or duration (based on 3 papers).<sup>22</sup> However, Heck et al. 2003



demonstrated a slight increase of breastfeeding cessation within 1 week in the early discharge (< 48h) American postnatal women compared to CD.<sup>104</sup>

In Australia, no association is found between length of stay and formula feeding at 6 week postnatal in 1994 [OR  $\geq 5$  days 1; OR 3-4 days (95% CI) 1.35 (0.9 – 1.9); OR 1-2 days (95% CI) 0.93 (0.5 – 1.6)] and in 2000 [OR  $\geq 5$  days 1; OR 3-4 days (95% CI) 1.29 (0.9 – 1.8); OR 1-2 days (95% CI) 1.31 (0.9 – 2.0)].<sup>117</sup>

However, the success with breastfeeding during the 12 postnatal days was greater in early discharged Canadian mothers assisted by a certified lactation nurse than in mothers who received standard obstetrical care in hospital during a CD. The mothers are extremely satisfied with this early discharge procedure. Sixty percent of mothers included in this experimental protocol emphasise that longer length of stay should be an option for first-time mothers as well as situations including maternal or infant health problems, poor home-based support or stressful home environment.<sup>128</sup> The factors associated with breastfeeding rate are planned duration of breastfeeding and mother's dissatisfaction about the received assistance in France.<sup>22</sup> In USA, Madden et al. 2003 point out other factors as younger maternal age, primiparity and low socioeconomic status.<sup>107</sup>

#### 6.3.1.3 Mental health

Brown et al. pooled two RCTs using standardised tools to assess postnatal depression.<sup>21</sup> No difference is found between early versus standard discharge [RR (95%CI) 0.56 (0.21 – 1.51)]. The authors found two other RCTs that show no difference in emotional well-being between early discharge and conventional discharge. Only one RCT showed a difference at one month postnatal, favouring early discharge.

Tiredness and exhaustion in the first six weeks after birth are also studied in the Brown et al.'s review<sup>21</sup> and no difference between early discharge and conventional discharge is found after pooling three RCTs. Moreover, one RCT retrieved by Brown et al. do not highlight differences between early discharge and conventional discharge in anxiety<sup>21</sup>: these results are in contradiction with the conclusion of Cargill et al.'s review (based on 1 paper).<sup>110</sup>

Shaw et al. conducted a systematic review to measure the impact of postnatal support on parenting and maternal mental health.<sup>109</sup> The postnatal support is defined as interpersonal interaction(s) between women and trained individuals or health care professionals. The support can take several forms such as telephone calls, individual home or clinic visits, or group clinic visits. The authors did not find any RCT to endorse the positive effect of universal provision of postnatal support. According to the authors, there is some evidence that high-risk populations (family dysfunction, maternal depression or child abuse) may benefit from postnatal support.

#### 6.3.1.4 Satisfaction with length of stay

The association between satisfaction and length of stay was studied in Australia<sup>124</sup> and in Sweden.<sup>41</sup> Yelland et al. found no association between satisfaction and length of stay<sup>124</sup> in Australia. However, Waldenström showed that both very short stays (0-1 day) and very long stays ( $\geq 5$  days) are associated with being less satisfied with overall postnatal care (at hospital and at home)<sup>41</sup> in Sweden. The risk of being not satisfied with the family-oriented ward (which allow fathers to stay overnight) is 3 times higher [OR (95%CI) 3.2 (1.9 – 5.4)] in case of early discharge (length of stay  $\leq 1$  day) in comparison with classic discharge (length of stay=3 days).<sup>41</sup>

#### Key points

- **There is no association between early discharge and readmission rate when appropriate home care is organised.**
- **Early discharge is not associated with changes in breastfeeding frequency, breastfeeding duration or infant feeding problems.**
- **Early discharge is not associated with changes in postnatal depression, emotional well-being, tiredness and exhaustion. There is conflicting evidence regarding the association between early discharge and anxiety. The impact of postnatal support on parenting and maternal mental health is unclear.**
- **Mothers' satisfaction is only influenced by length of stay in case of very short stays (0-1 day) and very long stays ( $\geq 5$  days).**



### 6.3.2 Length of stay and quality of care for the newborn

This section focuses on impact of length of stay on newborns' perceptive. It includes one systematic review<sup>21</sup>, three non-systematic reviews<sup>69, 110, 111</sup>, six retrospective studies<sup>105, 106, 108, 113, 115, 116</sup> and one survey<sup>120</sup>.

#### 6.3.2.1 Jaundice

Hyperbilirubinemia is a normal part of transition from in to extra uterine live with approximately half of newborns demonstrating clinical jaundice.<sup>69</sup> Hyperbilirubinemia can lead to bilirubin-induced neurologic dysfunction (i.e. kernicterus). An increase in kernicterus incidence in apparently healthy newborns has been noted following the decrease in length of stay in the USA. Outpatient follow-up and parental observation could delay the diagnosis.<sup>69</sup> However, Madden et al. showed that increase in jaundice was not associated with early discharge (<48h) but with a more frequent evaluation of newborns during the critical day 3 and 4 (Massachusetts).<sup>108</sup>

Furthermore, Thakkar et al. showed the significant positive effect of a detection programme on hospital readmission rate and length of stay for jaundice in UK.<sup>116</sup> The pathway included intensive feeding support, a home monitoring of bilirubin level with transcutaneous bilirubinometers and total serum bilirubin to decide when patients have to be readmitted in hospital.

#### 6.3.2.2 Screening of newborns

Friedman and Spitzer (2004) proposed a minimum 48h stay to allow neonatal screening for phenylketonuria and hyperbilirubinemia.<sup>69</sup>

The best time to screen phenylketonuria ranges from 48 to 72 hours post-delivery and the peak of bilirubine level occurs at approximately 36 hours. An earlier discharge may result in abnormal screening result or may miss potentially treatable diseases.<sup>69</sup>

#### 6.3.2.3 Readmission rates

Brown et al. pooled 7 trials to estimate the risk ratio (RR) for infant readmissions occurring within three to eight weeks after birth.<sup>21</sup> The authors found no difference between early discharge and conventional discharge [RR (95%CI) 1.29 (0.60 – 2.79)]. This is confirmed in a UK study after adjusting for social deprivation.<sup>111</sup> However, Johnson et al. found an association between short length of stay and readmissions in the first 6 days

postnatal discharge in Canada (25 % greater in those < 27 hours compared to those > 48 hours) but not with readmission rate in the 28 days post discharge. The authors concluded that length of stay is a minor determinant of preventable newborn readmissions.<sup>115</sup>

Datar et al. and Evan et al. studied the impact of the Newborns' and Mother's Health Protection Act in California on readmission rate within 28 days after birth.<sup>105, 106</sup> Datar et al. found a significant decline in neonatal readmissions with the increase of length of stay but not in 1-year mortality.<sup>105</sup> Evan et al. confirmed the conclusions of Datar et al. for privately insured, vaginally delivered newborns (30 % of birth<sup>105, 106</sup>). However, the same study shows a significant reduction in readmission rates for privately insured c-section delivered, and Medicare-insured vaginally delivered newborns. Because the savings of readmission did not offset the costs generated by the increased length of stay, the economic model built by Evan et al. showed that the law was not cost saving.<sup>106</sup>

Ellberg et al. analysed the readmission rate within 28 days after birth in 48 Swedish hospitals between 1999 and 2002 (n=197898 healthy term-born infants).<sup>113</sup> The readmission rate is 2.1%. Jaundice is the main reason of early readmission (within 1 week) and infection caused the late readmission (after 1 week). The authors stress the role of post-delivery care options and the time policies for routine neonatal examination on hospital readmission rate as a measurement of morbidity. The risk of readmission can be reduced by a final newborn examination at 49-72h and an active follow-up programme.

The main reasons for readmission in early discharged newborns are neonatal hyperbilirubinemia<sup>105, 111, 115</sup> and feeding problems.<sup>110</sup> Therefore, home phototherapy could have an important role in decreasing readmission rates.<sup>111, 120</sup> In addition, Cargill et al. retrieved two Canadian papers<sup>132, 133</sup> showing a significant association between emergency department visits and the early discharged newborns (early discharge defined as < 36 hours in one paper<sup>133</sup> and as 1,66 day in the other<sup>132</sup>).<sup>110</sup> Readmission rate after an emergency department visit is 33 %.<sup>133</sup> Primiparous, young, and single mothers are more likely to present their neonates at the emergency room.<sup>133</sup>





### Key points

- **Home phototherapy is feasible and results in a decrease in readmission rates for jaundice.**
- **Early discharge before 48 to 72 hours may impair the neonatal screenings (jaundice and other preventable diseases).**
- **Primiparous, young and single mothers are more likely to present their neonates at emergency departments.**

### 6.3.3 Vulnerable groups

This section focuses on impact of length of stay on vulnerability perception. It includes two surveys<sup>118, 121</sup>, one RCT<sup>127</sup>, one retrospective study<sup>114</sup> and one qualitative study<sup>131</sup>.

Designing specific interventions for socioeconomically disadvantaged new mothers is a key point of postnatal care because they are more likely to be early discharged<sup>121</sup> or to be discharged against medical advice.<sup>114</sup> Bryant et al. studied the factors associated with compliance with postnatal visits to a doctor or midwife among low-income women in USA.<sup>118</sup> The authors found that the presence of a chronic condition [OR (95% CI) 2.49 (1.07 – 5.80)] and appointment reminders sent by provider's office [OR (95% CI) 2.37 (1.40 – 4.02)] are positively associated with the compliance with the postnatal visits while multiple moves during the pregnancy [OR (95% CI) 0.34 (0.18 – 0.67)], troubles with understanding the care provider [OR (95% CI) 0.65 (0.43 – 0.99)] and transportation problems [OR (95% CI) 0.59 (0.39 – 0.90)] are barriers for compliance with the postnatal visits.

In the USA, Hannan et al. compared in a RCT routine care (control group) versus routine care plus follow up telephone calls by an advanced practice nurse at 3, 7, 14, 21 days after discharge, month 1 and 2 (intervention group) in low-income first time mothers.<sup>127</sup> Intervention group mothers had significant lower stress, greater perceived maternal health and social support. Outcomes for newborns (immunizations, weight gain and health care consumption) are not significantly different between groups. However, total health care charges are significantly lower in intervention group compared to control group.

Kurtz Landy et al. compared reported health service needs and utilisation patterns of women in the first four weeks postnatal discharge between

socioeconomically disadvantaged women (SED) and socioeconomically advantaged women (SAD) in Ontario.<sup>121</sup> The authors find that SED women are more likely to be early discharged ( $\leq 24$ h) [OR (95% CI) 1.49 (1.01 – 2.18)]. Fewer SED women report very good or excellent health [OR (95% CI) 0.48 (0.35 – 0.67)] and more symptoms of postnatal depression are noted [OR (95% CI) 2.7 (1.64 – 4.4)]. The self-reported accessibility for health services is the same in the two groups. However, SED women are more likely to accept public health nurse home visits [OR (95% CI) 2.24 (1.47–3.40)]. Despite a poorer mental and overall health, SED women show the same needs and utilisation of services.<sup>121</sup>

The same first author conducted in-depth interviews in 24 SED postnatal women to explore their experiences in the first 4 weeks at home.<sup>131</sup> Feelings of loss of control, difference between reality of having a new baby and their expectations, hardness of the first week and fatigue are similarly experienced by SED and SAD women. However, the well-being of SED is altered by economic problems (significant amount of energy is spent to obtain basic necessities of life) and by chronic social problems (socioeconomic disadvantage impairs the capacity to rest, to recover, to integrate newborn and to self-care).<sup>131</sup>

### Key points

- **Among disadvantaged women, multiple moves during pregnancy, troubles with understanding the care provider and transportation problems are barriers for compliance to an adequate postnatal follow-up in physicians' or midwives' practices .**
- **Telephone calls may decrease stress and increase perceived maternal health and social support in low-income first time mothers.**
- **Symptoms of postnatal depression, capacity to rest, to recover, to integrate the newborn within the family and to self care require continuing attention in socioeconomically disadvantaged women.**





### 6.3.4 Building care models for early discharge

Early discharge policy implies a transformation in the postnatal care provision. This section is based on one systematic review<sup>72</sup>, two RCTs<sup>129, 130</sup>, one qualitative study<sup>80</sup> and three surveys<sup>119, 120, 122</sup>.

#### 6.3.4.1 Development of tools to support parents

In Sweden, the use of videoconferencing was tested as a support in early postnatal discharge, especially useful in sparsely populated areas. The findings suggest that parents feel empowered and are pleased with the equipment usage.<sup>80</sup>

#### 6.3.4.2 Development of new care organisation: illustrations from Canada

In Canada, different care models (telephone call, public health nurse home visit, institutional versus home care) were tested to ensure the follow-up of postnatal early discharge.

##### Home visits by public health nurses versus telephone call

O'Connor et al. conducted a RCT in Canada to determine whether home visits by public health nurses after early discharge ( $\leq 48$ h) result in different outcomes compared to a screening by telephone call.<sup>129</sup> The authors found no difference between the two interventions for maternal confidence at two weeks, newborns' health problems up to four weeks postnatal and in breastfeeding rate at 6 months. They concluded that it may not be necessary to provide a postnatal home visit to every low-risk women and infants and that a screening telephone call can be a cheaper alternative.

Sword et al. studied the acceptance of a postnatal public health nurse home visit in 1 250 women who give birth (vaginally) to a living singleton infant in Ontario. The factors positively associated with the acceptance of a home visit are first live birth, lower social support, lower maternal rating of services in labour and delivery, poorer maternal self-reported health, probable postnatal depression, lower maternal rating of services on the postnatal unit and breastfeeding initiation.<sup>122</sup>

##### Telephone call, nurse's visit or physician appointment

Gouley et al. compared three models of follow-up for ( $\leq 72$ h) in 2583 Canadian mothers.<sup>119</sup> Telephone call, nurse's visit were also considered but physician appointment was added as a possible modality. An early appointment with a physician is perceived as difficult because mother's fatigue and condition. Telephone call and nurse visit present the same rate of satisfaction. A sooner contact with health professional (within 72h) decreases significantly the newborn's readmission rate [OR (95%CI) 0.45 (0.21 – 0.97)] and the risk of postnatal depression at 1 month postnatal [OR (95%CI) 0.60 (0.45 – 0.79)]. The authors conclude that timing, more than the type, of early discharge follow-up can make a difference.

Paul et al. confirm that a single home nursing visit provides a greater parenting sense of competence at 2 weeks and at 2 month without more care utilization than with an office-based care follow-up.<sup>130</sup>

##### Community-based model, mixed hospital model and mixed ambulatory model

In another study, Gouley et al. compared three models of ( $\leq 60$ h) in Québec.<sup>120</sup>

- community-based model: nurses from a local community service centre follow mothers and child at home.
- mixed hospital model: hospital professionals decide which mothers need an outpatient follow-up organised in hospital or a follow-up at home by a local community service centre's nurse.
- mixed ambulatory model: professionals of a hospital ambulatory centre decide which mothers need a follow-up in the centre, a follow-up at home by centre nurses or a follow-up at home by a local community service centre's nurse. The hospital ambulatory centers can provide home phototherapy, contrary to hospitals or local community service centres.

The mixed ambulatory model for early discharged women is more stressful for mothers and does not seem to guaranty sufficient continuity of care. In this model, a higher proportion of not allayed maternal fear and a higher proportion perceiving their stay as too short are noted. Furthermore, the proportion of women knowing who to contact in case of health problems of the newborn is the lowest in the mixed ambulatory model. However, the



mixed ambulatory model avoids readmissions for jaundice by offering home phototherapy.

#### 6.3.4.3 *Impact of home care visits in the postnatal period*

The WHO recommends that mothers and newborns in low income countries should receive postnatal care in a hospital facility for at least 24 hours after birth or have a first postnatal contact within 24 hours of birth if the birth occurs at home.<sup>102</sup> For all mothers and newborns at least three additional postnatal contacts (on day 3 (48–72 hours), between days 7–14 after birth, and six weeks after birth) are recommended. (Grading of the recommendation by WHO: Strong recommendation based on moderate quality evidence for newborns and low quality evidence for mothers).<sup>102</sup> Moreover, the WHO recommends home visits in the first week after birth for care of mother and newborn (Grading of the recommendation by WHO: strong recommendation).<sup>102</sup>

Yonemoto et al. studied the impact of schedules for home visits in the postnatal period (up to 42 days after birth).<sup>72</sup> The authors do not find any evidence for the association between frequency, duration, intensity or modalities of home visits and newborns mortality or serious health problems for the mothers. No association is found between more intensive schedules of home visits and mothers' physical and psychological health or between the frequency of home visits and breastfeeding, on one hand, and on the other hand, the use of emergency medical care for the newborn.<sup>72</sup>

#### Key points

- **Midwives' visits provide more satisfaction and more parenting sense of competence than appointments with a physician or other office-base follow-up care.**
- **There is a lack of data regarding the association between frequency, duration, intensity or modalities of home visits and newborns' outcomes, mothers' health outcomes and care utilisation.**
- **Midwives' visits within 72 hours may decrease the newborn's readmission risk and postnatal depression risk for early discharged women. Furthermore, videoconferencing or telephone calls can be used as alternative to midwives' visits.**
- **Home phototherapy may decrease the risk of newborns' readmission for jaundice.**

#### 6.3.5 *Determinants of early discharge*

The determinants of early postnatal discharge are highly country dependant. One retrospective study<sup>70</sup>, one survey<sup>123</sup> and one cohort study<sup>126</sup> are included here.

In France, early discharge (<3 days) concerned 7% of the vaginal deliveries in 2002 but 66% of vaginal deliveries are discharged at day 3. The maternal determinants of early discharge are the following: multiparity, no pathology related to pregnancy, spontaneous labour, and spontaneous delivery (not instrumental, no haemorrhage nor perineal cut). Determinants of hospitals for early discharge are the presence of a neonatal ward or NICU, regional hospital, 2000 to 2500 deliveries/years and an urban setting.<sup>70</sup>

In Sweden, factors associated with earlier discharge are mothers characterised by an older age, multiparity, positive experience of the first breastfeeding after birth, low education, economic problems, smoking and lack of support from partner.<sup>123</sup>

In the US, early discharge ( $\leq 30$  hours) is associated with young age, multiparity, public payer source, low socioeconomic status, lack of readiness for discharge, bottle-feeding, and absence of neonatal clinical problem.<sup>126</sup>



### Key points

- **The determinants of early postnatal discharge are highly country dependent. Multiparity, low socio-economic status and the absence of perinatal complications are commonly noted.**

#### 6.3.6 Discharge criteria

This section focuses on the following question: 'Which criteria must be fulfilled to successfully discharge mother and newborn early?'. This section is based on two guidelines<sup>50, 53</sup>, one non-systematic review<sup>110</sup> and three cohort studies<sup>71, 103, 125</sup>.

Based on a non-systematic literature review, Cargill et al. made the following recommendations for ED<sup>110</sup>:

1. Follow-up programs should take into account the fact that early discharge from hospital increases the risk of neonatal mortality and morbidity. (II-2B)
2. The physical, psychological, and social wellbeing of the mother and newborn should be assessed to design the discharge planning. Primiparous, young, single women are most likely to return to emergency departments with their neonates. (II-2A)
3. Programmes for postnatal care in the community are well used and appreciated. Additional programs in the community may decrease neonatal mortality, morbidity, and readmissions. (II-2)

Discharge criteria for an early postnatal discharge are not mentioned in all guidelines. In the NICE clinical guideline 37 (Routine postnatal care of women and their babies), they only mention the following '*Length of stay in a maternity unit should be discussed between the individual woman and her healthcare professional, taking into account the health and well-being of the woman and her baby and the level of support available following discharge*'.<sup>50</sup>

Four axes are proposed in the American and French postnatal discharge guidelines,<sup>69</sup> to decide upon early discharge for mother and newborn pair at low medical, social and psychological risk<sup>53</sup>:

- Discharge criteria for mothers
  - Absence of infection signs

- Control of haemorrhage risk (postnatal anaemia, postnatal haemorrhage)
- Pain control
- Initiation of the relationship between mother and newborn
- Consideration of the psychic conditions (postnatal depression, puerperal psychosis)
- Consideration of precariousness
- Assessment of breastfeeding failure risk
- Discharge criteria for newborns
  - Consideration of jaundice and hyperbilirubinaemia related risk
  - Consideration of neonatal infection risk
  - Screening heart disease
  - Consideration of dehydration
  - Performing screening tests
- Mother's (and family's) learning and information
- Discharge criteria for the support
  - Organisation of the follow-up at home (transition between inpatient professionals and outpatient professionals)
  - Organisation of family (to avoid psychological distress related to tiredness)

The readiness of discharge is a key component for early discharge and can be measured with the 'Perceived Readiness for Discharge After Birth Scale'.<sup>103</sup> Bernstein et al. conducted a prospective cohort study in USA (2002) to evaluate the agreement between mothers and practitioners about readiness of discharge.<sup>125</sup> At the time of the discharge, the agreement level is as high as 92 % but 1 month later it has decreased to 59%. Maternal education level is positively associated with readiness ( $p < 0.01$ ). Unready mothers make more telephone calls for their baby's condition and place him (her) in prone sleeping position ( $p < 0.01$ ).

Bernstein et al. showed that the unreadiness of the mother-newborn dyad is associated with increased health care use and poorer health outcomes in first 2 to 4 weeks after discharge. Therefore, they advise that discharge plans should be individualised and jointly tailored to family's needs rather to



a set timescale.<sup>125</sup> Additionally, mothers, paediatricians and obstetricians must make decisions about postnatal discharge jointly, because their perceptions of unreadiness often differ.<sup>71</sup>

### Key points

- **Early discharge criteria have to encompass criteria for**
  - newborns (health, feeding and screening tests),
  - mothers (health, mental health, breastfeeding and socioeconomical issues),
  - mothers' (and families') learning and information (i.e. knowledge regarding warning signs for mother and newborn, feeding and care techniques, newborns' monitoring,...),
  - organisation of home follow-up and daily life,
- **Because their perception of the readiness for discharge often differs, mothers and clinicians (paediatricians, obstetricians) should take decisions about discharge jointly.**

## 6.4 Conclusion

This literature review analysed the impact of an early discharge for new mothers and newborns:

- **Length of stay and quality of care for the mother**
  - There is no association between early discharge and readmission rates when appropriate home care is available.
  - Early discharge is not associated with changes in breastfeeding frequency, breastfeeding duration or infant feeding problems.
  - Early discharge is not associated with postnatal depression, emotional well-being, tiredness and exhaustion. There is conflicting evidence regarding the association between early discharge and anxiety. The impact of postnatal support on parenting and maternal mental health is unclear.
  - Mothers' satisfaction is only influenced by length of stay in case of very short stays (0-1 day) and very long stays ( $\geq 5$  days).

- **Length of stay and quality of care for the newborn**
  - Home phototherapy is feasible and results in an decrease of readmission rate for jaundice.
  - Early discharge before 48h - 72h may impair the neonatal screenings (jaundice and other preventable diseases).
  - Primiparous, young and single mothers are more likely to present their neonates at emergency room.
- **Vulnerable groups**
  - Among disadvantaged women, multiple moves during the pregnancy, having problems with understanding the care provider and transportation problems are barriers for compliance to an adequate postnatal follow-up in the physicians' or midwives' practices .
  - Telephone calls may decrease stress and improve perceived maternal health and social support in low-income first time mothers.
  - Symptoms of postnatal depression, capacity to rest, to recover, to integrate newborn and to self care require continuing attention in socioeconomically disadvantaged women.
- **Determinants of early discharge**
  - The determinants of early postnatal discharge are highly country dependent. Multiparity, low socioeconomic status and the absence of perinatal complications are commonly noted.

Evidence was also searched to construct and manage an early discharge programme

- **Building care models for early discharge**
  - WHO recommends at least 4 postnatal contacts: one within 24 hours after birth, one at day 3 (48–72 hours), one between day 7–14 after birth, and one at six weeks after birth.
  - Midwives' visits provides more satisfaction and more parenting sense of competence than appointment with physicians or other office-based follow-up care.



- There is a lack of data regarding the association between frequency, duration, intensity or modalities of home visits and newborns' outcomes, mothers' health outcomes and care utilisation.
- For early discharged women, telephone call, videoconferencing or midwives' visits within 72 hours may decrease the newborns' readmission risk and postnatal depression risk.
- The extension of foreign experiences to Belgium must be taking into account the cultural differences in terms of health services organisation, training of care givers and habit of care consumption.
- The transfer of health care services from hospital setting to the primary care settings implies budget transfers (i.e. blood testing, home phototherapy) and new organisation of home care.
- New care models should pay attention to quality indicators for postpartum care in general and for early discharge in particular.
- **Discharge criteria**
  - Early discharge criteria have to encompass criteria for
    - newborns (health, feeding and screening tests),
    - mothers (health, mental health, breastfeeding and socioeconomical issues),
    - mothers' (and families') learning and information (i.e. knowledge regarding warning signs for mother and newborn, feeding and care techniques, newborn's monitoring,...)
    - organisation of home follow-up and daily live.
  - Because their perceptions of readiness often differ, mothers and clinicians (paediatricians and obstetricians) should take decisions about postnatal discharge jointly.

## 7 FINANCING OF POSTNATAL CARE

### 7.1 Financing and reimbursement of maternity stay

Belgian hospital financing is to a large extent a dual system:

Non-physician activities covering mainly the hotel function and nursing activities are financed through a prospective closed-end macro budget. This budget, the Budget of Financial Means (BFM), is distributed amongst the hospitals according to specific financing rules for each subpart of the BFM (A1, A2, A3, B1, B2, B3, etc.). Payment is consequently settled in part fixed and in part variable per type of stay (A, B, G, P, Pal, Sp stays). Maternity falls in the category acute (A) stays. In 2010, the national weighted average per diem price for acute beds was €388 (including both fixed and variable payment parts).

Physician activities and technical procedures are predominantly financed using a fee-for-service mechanism.

On top of the BFM and physician fees, hospitals can charge supplements and pharmaceutical products.

In what follows we focus on the B2 part, the main part of the BFM.

#### 7.1.1 B2 budget distribution over hospitals

Belgian hospital financing is designed in such way to incentivise shorter length of stay. The B2-part, the largest subcomponent of the BFM, is supposed to cover main costs for nurses and medical consumables. The B2 part accounted in 2013 for 42% of the total BFM. Other financing components, such as the A1 part for building investments and B1 for overhead are not further described here.

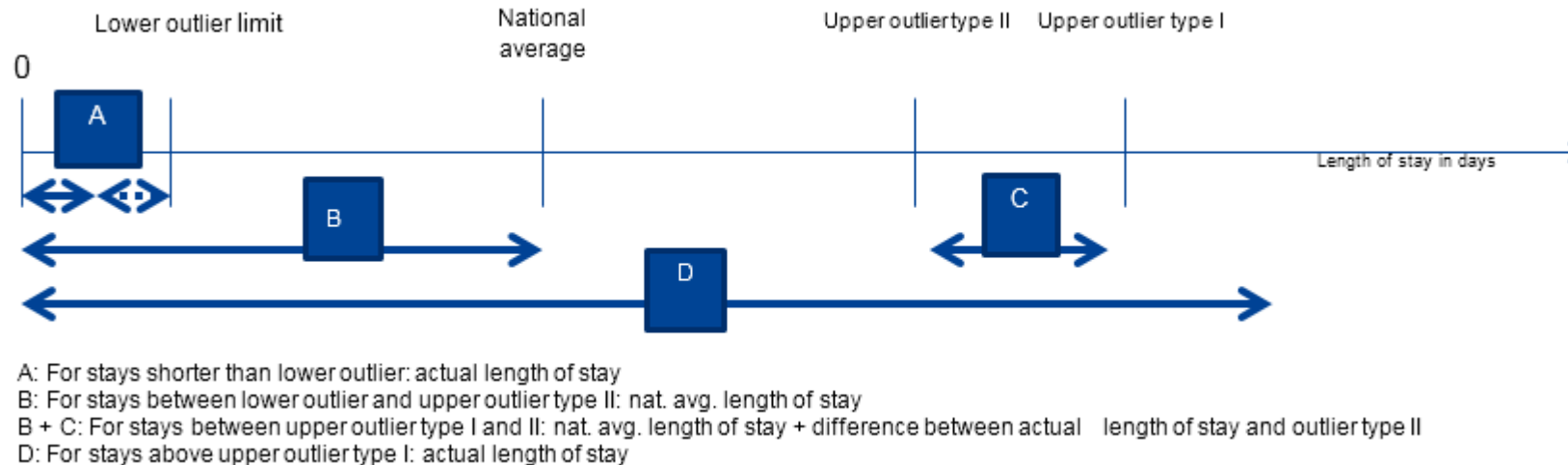
With the hospital financing reform of 2002, the B2 financing component basis switched from recognised beds to justified beds. Since then B2 financing is no longer predominantly based on infrastructure but on justified activity per type of patient. Justified activity is based on the justified length of stay, which is defined as the national average length of stay for the relevant diagnostic group (APR-DRG corrected for severity and age category), and thus not on the basis of the actual length of stay. Therefore if patients stay longer than the national average, hospitals are more likely to get a financial penalty in the BMF, whereas if patients stay shorter than average, hospitals are more likely to make profit for those patients. The aim





of this financing system is to make hospitals financially responsible for excessive length of stay, i.e. longer than the national average length of stay. Exceptions to this rule are however made for both upper and lower outliers. Very short stays, i.e. shorter than the lower outlier are financed on the basis of the actual length of stay instead of justified length of stay. A further exception to this lower outlier rule is made for APR-DRG 560 (vaginal delivery) where the financing basis for lower outliers equals the lower outlier. This financing mechanism is illustrated in Figure 12.

**Figure 12 – Illustration of B2 financing basis in function of length of stay**



For each hospital, the number of justified days are consequently mathematically transformed into justified beds and points. This transformation mechanism accounts for staff ratios and standard occupancy rates, both differentiated by type of hospital unit to which the APR-DRGs are assigned to. For the maternity ward, standard occupancy rate is 70% and personnel norms are 14 FTE per 24 justified beds. Finally every point has a euro-value (based on the macro B2-budget and total number of points nationally), which allows calculating the budget for each hospital. The value

of 1 point in 2012 was €24 556,62. This translates into B2 financing of €140.16 per justified day in maternity. Note that on top of this financing for justified days, the maternity service earns extra points and thus extra financing based on the number of deliveries they perform per year.



### 7.1.2 Room and health care professionals' fees and supplements

Obstetricians/gynaecologists, paediatricians and midwives fees can be charged during a maternity stay. Moreover, both physician and room supplements can be charged by hospitals and physicians. Room supplements can only be charged in case of single room and under specific conditions (e.g. not when the patient had no choice as there was no double or common room available). Physician supplements can be charged in case of single room by both physicians who agreed and did not agree to the convention. In double or common room, physician supplements can be charged only by physicians who did not agree to the convention in case of one-day hospitalisation (since 1 January 2013).

Since maternity stays often take place in single rooms (see KCE report 50) billing of hospital and fee supplements in maternity wards is relatively frequent compared to other hospital wards. A study of 2010<sup>qq</sup> showed that in maternity only 28% of stays is in a two-person or common room. This is particularly low compared to other types of beds. Across all beds, 77% of stays was in a two-person or common room.

For data on actual room and fee supplements paid, we refer to the MLOZ-study and other publications from the sickness funds<sup>rr</sup>.

### 7.1.3 Co-payments

If the mother is not covered by hospitalisation insurance (which is a private non-compulsory insurance), she will need to pay the co-payments, the room and fee supplements herself. Out of the total bill for a vaginal delivery, on average 3% consists of co-payments (MLOZ study).

It was not possible to complete the picture on how many mothers are covered by hospitalisation insurance as this requires data from sickness funds as well as private insurers, along with (anonymous) patient identification to detect double coverage.

qq [http://www.cm.be/binaries/Zevende%20CM-barometer%20van%20de%20ziekenhuisfactuur\\_tcm375-102230.pdf](http://www.cm.be/binaries/Zevende%20CM-barometer%20van%20de%20ziekenhuisfactuur_tcm375-102230.pdf)

rr UNMS-NVSM: Dix ans de « Baromètre coûts hospitaliers », figure 5 (<http://www.mutsoc.be/Lists/PubDocs/Etude-Barometre-hospitalier-2012.pdf>).

### Key points

- **The per diem component of hospital financing is designed in such way to incentivise shorter length of stay. This incentive however is likely partly counterbalanced by the advantages of longer stay on other income channels, notably room and physician supplements. For marketing reasons, the hospital may also be incentivised not to reduce maternal length of stay in a drastic way.**
- **Since maternity stays often take place in single rooms, hospital and physician supplements are frequently billed in the maternity ward.**
- **It is not known how many mothers are covered by hospitalisation insurance. If they are covered, they have no financial incentive to choose for a shorter stay.**

## 7.2 Financing and reimbursement of postnatal midwifery care

### 7.2.1 Financing

National compulsory health insurance covers different types of postnatal consultations performed by midwives:

- A maximum of 2 consultations on the day of delivery. The consultations must be performed at home. A higher tariff (50% higher) can be charged if the consultation takes place during the weekend or on a legal holiday.
- One consultation per day starting from the first day after delivery until the 5th day after delivery. These consultations are performed at home. A higher weekend tariff can be charged except for the 5th day after the delivery.
- From the 6th day after delivery, 7 consultations (1 per day) can be charged without extra motivation. These consultations can take place

ANMC-LCM : 9ème Baromètre MC de la facture hospitalière (chiffres 2012), figure 13  
([http://www.mc.be/binaries/barometre\\_mc\\_facture\\_hospi\\_2012\\_dossier\\_tcm377-131345.pdf](http://www.mc.be/binaries/barometre_mc_facture_hospi_2012_dossier_tcm377-131345.pdf)).





at the patient's home, in hospital or elsewhere. In case of complications with breastfeeding, motivated by the midwife, 3 specific consultations for breastfeeding can be performed within those 7 consultations. For the first consultation on breastfeeding there is a higher (50%) tariff and a holiday tariff.

- After these 7 consultations, 3 extra consultations can be charged (1 per day); these extra consultations must be motivated by the midwife. These consultations can take place at the patient's home, in hospital or elsewhere. There is no weekend or holiday tariff.
- In case of complications and on prescription by a physician, an unlimited number of consultations (1 per day) can be charged. These consultations can take place at the patient's home, in hospital or elsewhere. There is no weekend or holiday tariff.

The postnatal consultations can be performed within the 1st year after delivery. The consultations are for non-hospitalised patients. All care of hospitalised patients is financed by hospital financing, compulsory insurance, supplements and out-of-pocket payment.

Tariffs per consultation vary from 25.52 to 89.31 euro according to type and day.

### 7.2.2 Reimbursement

The tariffs (100% honoraria) for postnatal midwifery care are fully reimbursed by national compulsory insurance for midwives who agreed with the convention. For midwives who do not agree with the convention, tariffs are only fully reimbursed for the patients in the category entitled to increased reimbursement (this category includes widows, disabled, orphans etc.) Also people at charge of people in this category are entitled to increased reimbursement. For other patients, tariffs for consultations by midwives who do not agree with the convention, are only partially reimbursed. On top of the consultations, midwives can charge transport costs to the patient. These transport costs are not reimbursed.

## 7.3 Financing and reimbursement of maternity home care assistance

### 7.3.1 Financing

In paragraph 2.1.2 we described the organisation of maternity home care assistance, which is limited to Flanders and Flemish organisations operating in Brussels. Maternity home care assistance is subsidised by the "Vlaams Agentschap Zorg en Gezondheid". The number of subsidised hours for the public and private services for home care is determined every year. The Minister consequently divides the envelope amongst the accredited services for home care assistance. When the number of subsidised hours is exceeded, they are at full cost of the service. When the number of subsidised hours is not reached in one year, it is reduced for the following year.

The subsidy level is 75% of costs. The average total cost per hour calculated based on results of 2010 was 34.75 euro.<sup>26</sup> The average client contribution was around 9 euro per hour.<sup>26</sup> We conclude that the resulting subsidy was about 26 euro per hour.

The subsidies are complemented with a client contribution. This fee is calculated for each client separately based on a contribution scale mainly based on the family constellation and the revenues.

### 7.3.2 Reimbursement

To make maternity home care assistance more affordable, several sickness funds partially reimburse home care as part of the complementary insurance package. The reimbursement by sickness funds varies in reimbursement level (in the range of 4 to 7.5 euro per hour) and hours covered (in the range of 20 to 60 hours).



### Key points

- **When performed by midwives who agree to the convention, postnatal midwifery care is fully reimbursed, except for transport costs and legal supplements. Over the last years RIZIV-INAMI financing gradually expanded and opened the opportunity to mothers to benefit more from midwifery care.**
- **Despite frequent partial reimbursement of maternity home care assistance by complementary insurance, it is not free of charge to the mothers.**

## 7.4 Cost consequences of short postnatal hospital stays with follow-up at home

### 7.4.1 Background

Longer hospital stays in Belgium for uncomplicated postnatal care compared to its neighbouring countries have given rise to a debate on how much could be saved by changing the current pattern of care and discharging patients from hospital earlier. In the context of increasing health care costs and limited resources this is clearly an important debate to engage in, while taking into consideration crucial factors such as the need for organising well-structured home care services and assistance, in order to ensure outcomes would, at the very least, remain the same. Furthermore, as already mentioned in the introduction of this report, over the last decades length of stay (LOS) has followed a diminishing trend likely to continue in the future. This reinforces the need for organising efficient home care and optimising outcomes by offering support to mothers and new borns in this changing context. There is therefore a need to estimate costs of postnatal care both in hospital and at home, following discharge, to gain an insight into the potential trade-offs which could be considered.

### 7.4.2 Methods

Reliable Belgian-specific outcome data on short hospital stays (<72 hours) are not available at present, given that such stays remain uncommon in this country (See section 2.2.1), which makes their outcomes not representative or generalizable.

Therefore, departing from the assumption that for uncomplicated births, there is a lack of association between early discharge (at 48-72 hours) and worse health outcomes, for as long as well-structured home care is provided, our economic analysis consisted of a theoretical costing exercise aimed at offering an approximation to the potential cost savings which could be linked to different postnatal care scenarios. The assumption on similar outcomes for shorter LOS was supported by the results of our international literature review (See section 6.4).

The scenarios focused on shorter lengths of stay (discharge within three days from birth) for mothers and babies following uncomplicated deliveries. Earlier discharge was combined with domiciliary postnatal care provided by midwives from hospital discharge up to day seven post birth, period most likely to require more intense care. Following this early post-birth period, further ambulatory care was assumed to be the same under all scenarios and to be delivered on an outpatient basis either at the hospital, in outpatient clinics or at home.

#### 7.4.2.1 Data sources

For hospitalisation costs: in order to select uncomplicated vaginal deliveries, the Technische Cel – Cellule Technique (TCT) delivered coupled SHA-AZV (séjour hospitalier anonyme – anonym ziekenhuisverblijf) data to RHM-MZG (résumé hospitalier minimum – minimale ziekenhuisgegevens), allowing us to refine the primary selection of stays made based on APR-DRG (all patient refined diagnosis related groups) and severity of illness (SOI) with pathology related information: ICD-9-CM diagnostic and procedure. Hospital stays for uncomplicated vaginal deliveries were selected by an internal data expert and checked by a clinical expert based on the presence of ICD-9-CM diagnostic codes (see Table 13) as principal diagnostic for the period 2008-2010. The selected codes accounted for 54% of all stays registered under (APR-DRG = 560) “vaginal delivery” with a severity of illness index (SOI) of 1 (minor) or 2 (moderate). Overall, a total of 141595 hospital stays were retained. While the selected proportion is far below the proportion of vaginal deliveries with SOI 1 and 2 (92.1%, source: TCT <https://tct.fgov.be/>), emphasis was put on selecting hospital stays that would not result in extra care or longer hospitalisations than necessary for uncomplicated deliveries, as this population would be the main target for shorter stays. In order to ensure that limiting our selection to 54% of all stays would not introduce a



bias in our analysis, we performed a check by calculating the mean per diem cost for all stays together (caesarean sections included) and compared these costs with the mean per diem costs obtained for the selection used in our analysis. Even including all complicated births, the difference was not large (€1790 for all births versus €1606 for our selection) and thus we can conclude that the results of our analysis should not be greatly affected by the limited sample size and should still offer a valid representation for uncomplicated births.

The following costs were extracted for our analysis:

- Hospital per diem rates
- Fees for services, (mainly provided by obstetricians and paediatricians in this case)
- Pharmaceutical costs
- Laboratory tests
- Other costs

Reported per diem hospitalisation costs were based on the 100% weighted average per diem price for all acute beds nationally. Although this 100% per diem price does not perfectly mirror the costs generated by the maternity service, it represents a pragmatic approach for looking at bed costs. Thus, in order to estimate the impact of a reduction in LOS, this 100% per diem price was used as an approximation to “real” hospital per diem costs at the maternity ward.

**Table 13 – Selected ICD-9-CM codes under DRG 560 (vaginal deliveries) and SOI 1-2**

ICD-9-CM code	Label
650	Normal delivery
64511	Pregnancy over 40 completed weeks to 42 completed weeks gestation
64521	Pregnancy which has advanced beyond 42 completed weeks of gestation
66401	First-degree perineal laceration
65951	First pregnancy in a woman who will be 35 years of age or older at expected date of delivery
65961	Second or more pregnancy in a woman who will be 35 years of age or older at expected date of delivery
65811	Rupture of amniotic sac less than 24 hours prior to the onset of labor
66201	Long labor: Prolonged first stage
66211	Long labor: Prolonged labor, unspecified
66221	Long labor: Prolonged second stage
65201	Malposition and malpresentation of fetus: Unstable lie
65211	Malposition and malpresentation of fetus: Breech or other malpresentation successfully converted to cephalic presentation
65221	Malposition and malpresentation of fetus: Breech presentation without mention of version
65231	Malposition and malpresentation of fetus: Transverse or oblique presentation
65241	Malposition and malpresentation of fetus: Mentum presentation
65251	Malposition and malpresentation of fetus: Failure of head to enter pelvic brim
65271	Malposition and malpresentation of fetus: Prolapsed arm
65281	Malposition and malpresentation of fetus: Other specified malposition or malpresentation
65291	Malposition and malpresentation of fetus: Unspecified malposition or malpresentation
65301	Disproportion: Pelvic deformity NOS
65311	Disproportion: Contracted pelvis NOS
65321	Disproportion: Inlet contraction (pelvis)
65331	Disproportion: Outlet contraction (pelvis)
65341	Disproportion: Fetopelvic disproportion
65351	Disproportion: Unusually large fetus causing disproportion
65381	Disproportion: Disproportion of other origin
65391	Disproportion: Unspecified disproportion

Source: <http://tct.fgov.be>



### TCT coupled data selection

The TCT data contain two datasets that have been coupled (the key being the patient ID) to have billing and medical data for each hospital stay:

- SHA-AZV (séjour hospitalier anonyme - anoniem ziekenhuisverblijf) are hospital billing data collected by sickness funds; data collected are grouped into categories, e.g. pharmaceuticals, medical imaging, fees linked to the nomenclature of health services (nomenclature des prestations de santé – nomenclatuur van de geneeskundige verstrekkingen).
- RCM-MKG (résumé hospitalier minimum-minimale ziekenhuisgegevens) are medical data related to a hospital stay; they are collected by hospitals and contains length of stay, procedures, diagnoses and patient characteristics.

For more details see KCE report 30, Inventory of Health Care Database<sup>135</sup>.

In this report, to select the “normal stays for vaginal deliveries”, we have used two classifications:

- APR-DRG (all patient refined diagnosis-related groups) to select all vaginal deliveries
- ICD-9-CM (International Classification of Diseases, 9th revision, Clinical Modification) where we selected diagnoses that would not extend the hospital stay; procedures were not used in the selection (no exclusion due to a specific procedure), the selection was made on the primary diagnosis.

*Note: The TCT dataset consists of hospital stays for deliveries from 2008, 2009 and 2010 (latest year available).*

For ambulatory costs, since data derived from the TCT only contain hospitalisation expenses, the analysis on midwife home care visits during the postnatal period for the same years previously mentioned was conducted using data retrieved from the Belgian health insurers (Intermutalistisch Agentschap; IMA). In addition to the impossibility of selecting only “uncomplicated” births a further limitation of this data source in relation to our analysis is the fact that infants cannot be linked to their mothers and as a consequence, data on emergency visits hospital readmissions for newborns as well as ambulatory visits to the paediatrician during the postnatal period are not available (See section 2.2.1). Although this represents a clear limitation, overall cost differences across the scenarios here studied should not be greatly affected by focusing purely on hospital stays and home care/assistance over the early postnatal period, bearing in mind that our departing point was the assumption that outcomes would be similar for shorter length of stay provided that well-structured domiciliary care is offered.

Standard fees for midwife domiciliary visits were extracted from the RIZIV-INAMI nomenclature (<http://www.riziv.fgov.be/care/fr/nomenclature/>) and are illustrated in Table 14. Transport costs have been excluded from the analysis given the difficulties in obtaining reliable mean estimates in this regard. At present, negotiations between the midwife and the patient are possible, even for midwives who have signed the convention, while there is a small part of such costs that can be subsidised (approximately 0.26€ per km). Nevertheless, these costs are likely to remain marginal (see the national convention for more details)<sup>ss</sup>.

Data analysis was performed in SAS 9.3.

<sup>ss</sup> National agreement between midwives and sickness funds; 01/02/2013 ([www.inami.fgov.be](http://www.inami.fgov.be)).

**Table 14 – Midwife care at home - Fees from RIZIV-INAMI nomenclature from 1 January 2014**

Midwife care at home - fees (RIZIV-INAMI nomenclature)	Working days	Weekend or public holidays
	<i>Midwife care at home - general</i>	
<b>Day 4</b>	60.37	90.55
<b>Day 5</b>	48.30	72.44
<b>Day 6</b>	48.30	48.30
<b>From Day 7</b>	25.87	25.87
	<i>Midwife care at home – breastfeeding complications</i>	
<b>First</b>	38.81	58.21
<b>Follow-up</b>	32.77	32.77

Note : Day 1=day of delivery

Source: <http://www.riziv.fgov.be>

#### 7.4.2.2 Perspective

The perspective considered is that of the public payer, and in particular that of the RIZIV – INAMI and FOD – SPF, for the main base case calculations in which maternity home care assistance is not considered. For the calculations in which the maternity home care assistance is included, community subsidies are considered, mirroring the current situation in Flanders, where these costs are partly paid for at the local level.

Furthermore, a specific reflection on the potential impact that shorter postnatal hospital length of stay could have purely from a hospital funding perspective is also offered later on in this chapter. Patient co-payments are not considered in the calculations.

Costs here mentioned refer to years 2008-2010.

#### 7.4.2.3 Time horizon

The time frame considered focuses on the early postnatal period, defined as the first week post birth, since potential savings should accrue primarily from shortening the length of hospital stay during those first days and replacing it by midwife home care. Following this early postnatal period, follow-up care is assumed to remain similar under all scenarios and to take place primarily in hospital outpatient services, outpatient clinics or at home.

#### 7.4.2.4 Scenario development

In order to develop theoretical scenarios or “packages” of care worthwhile exploring, the information gathered via discussions with focus groups (See chapter 4.3) was used to identify points in time when contact with a health professional would be suggested. Such information was completed and challenged with material gathered from clinical guidelines on postpartum care from countries where the mean hospital length of stay is  $\leq 72$  hours, or guidelines covering early discharge in case of countries with mean length of stay  $> 72$  hours (See Table 15).

Overall the focus group discussions showed a consensus among care providers about when a baby should be seen by a physician (by preference a paediatrician), which are in line with recommendations from those recent clinical guidelines on postpartum care, explicitly mentioning approximate schedules for visits (See Table 15). A first visit should take place within 24 hours after birth while a follow-up visit should be performed seven days post birth.

At present in Belgium neonates are usually seen by a hospital paediatrician immediately after birth. This should not change for the theoretical scenarios here analysed, given the consensus on the value of this first visit as well as the fact that all scenarios foresee a minimum hospital stay of 48 hours. Infants are also seen the day before discharge. Although this could change for scenarios with early hospital discharges, our estimations have followed a conservative approach under which a paediatrician would still see the infant twice during the hospital stay, even in case of an early discharge (within the first 72 hours): once within 24 hours of birth and again before discharge in order to exclude any potential pathologies.

Obstetrician services are primarily offered on the day of delivery and thus this should not change from one scenario to other.





Table 15 – Recommendations from clinical guidelines

Guideline	Coverage (population/care)	General	Recommendations on home care visits (most often by midwives but GPs also mentioned)
<b>NHS guidelines - Maternity care pathways - 2009 UK</b> <sup>50, 136</sup>	Postpartum care	<ol style="list-style-type: none"> <li>1. Within 24 hrs - 1st vaccination.</li> <li>2. Complete physical examination within 72 hrs of birth.</li> <li>3. 24 hrs after discharge first community based postnatal contact.</li> <li>4. Minimum three community contacts following discharge - location to be discussed with mother before discharge.</li> <li>5. Newborn bloodspots to be taken between days five and eight.</li> <li>6. Six to eight week check for both infant and mother</li> </ol>	<p>Minimum 1 postnatal contact at home within the first 10 days.</p> <p>Minimum three community contacts following discharge - location to be discussed with mother before discharge.</p>
<b>HAS guidelines - 2014 France</b> <sup>53</sup>	Postpartum care for mothers and infants after hospital discharge	NA	<p>Only for those with an early hospital discharge (<math>\leq 72</math> hrs), two-three home visits recommended:</p> <p>1st home visit, systematic at 24 hrs after discharge.</p> <p>2nd home visit, systematic. Timing to be decided by the healthcare professional taking care of mother and child.</p> <p>3rd third home visit, recommended. Timing to be decided by the healthcare professional.</p>
<b>State of Victoria, Department of Health - 2012 Australia</b> <sup>137</sup>	Postnatal care	At days 7-10 the woman should be checked for resolution of baby blues	Minimum 1 postnatal visit at home following discharge (24 hours after discharge). Further home visits should be scheduled depending on individual characteristics, clinical and psychosocial needs.



Regarding postnatal follow-up by a midwife, common patterns captured in published guidelines appear to recommend a minimum of one home visit for women and infants eligible for an earlier discharge. This visit should ideally take place 24 hours after discharge, with further home visits following depending on patient needs and characteristics. The Haute Autorité de Santé (HAS)<sup>53</sup> in France suggests a second systematic visit and recommends a third one. Their timing should be decided by the health professional performing the visits at home (usually a midwife). Focus groups discussions offered very varied views and opinions, which ranged from suggesting a visit every day post birth until day 10, to recommending a single home visit on the first week after discharge only for those staying less than 72 hours hospitalised. For the purpose of developing theoretical relevant scenarios, suggestions from the focus groups more in line with published clinical guidelines were taken into consideration. These reflected 2 or 3 midwife home visits for hospital stays of 3 or 2 days respectively, the first of which would take place 24 hours after hospital discharge. A minimum of 2 visits and a maximum of 5 were tested in our sensitivity analysis to see how different numbers of visits could influence the overall findings.

Two theoretical scenarios (scenarios 2 and 3) were developed and compared with the base case scenario (scenario 1) representing the current Belgian situation. Antenatal care visits were excluded from the scenarios since these should not differ from one scenario to another. An effective preparation should be available for all mothers and partners and thus costing pre-natal visits would not have an impact on the overall cost differences. The scenarios used in our analysis are described below and represented in Figure 13.

#### Scenario 1 - Current practice:

- Mean hospital LOS: 4.60 days, based on data from the Technische Cel/Cellule Technique – TCT - (<http://tct.fgov.be>).
- Professional services: contact with obstetrician mainly limited to the delivery phase, paediatrician services invoiced within the first 24 hours post birth (“clinical examination of the newborn”) and just before hospital discharge. Midwife/nursing inpatient services already covered by per diem rate and thus, not costed separately.
- No home care in the early postnatal period.

#### Scenario 2 - Hospital LOS= 3 days:

- Mean hospital LOS: 3 days;
- Professional services over the hospitalisation period: assumed equal to current practice scenario.
- Midwife home care visits: 2 in the early postnatal period.

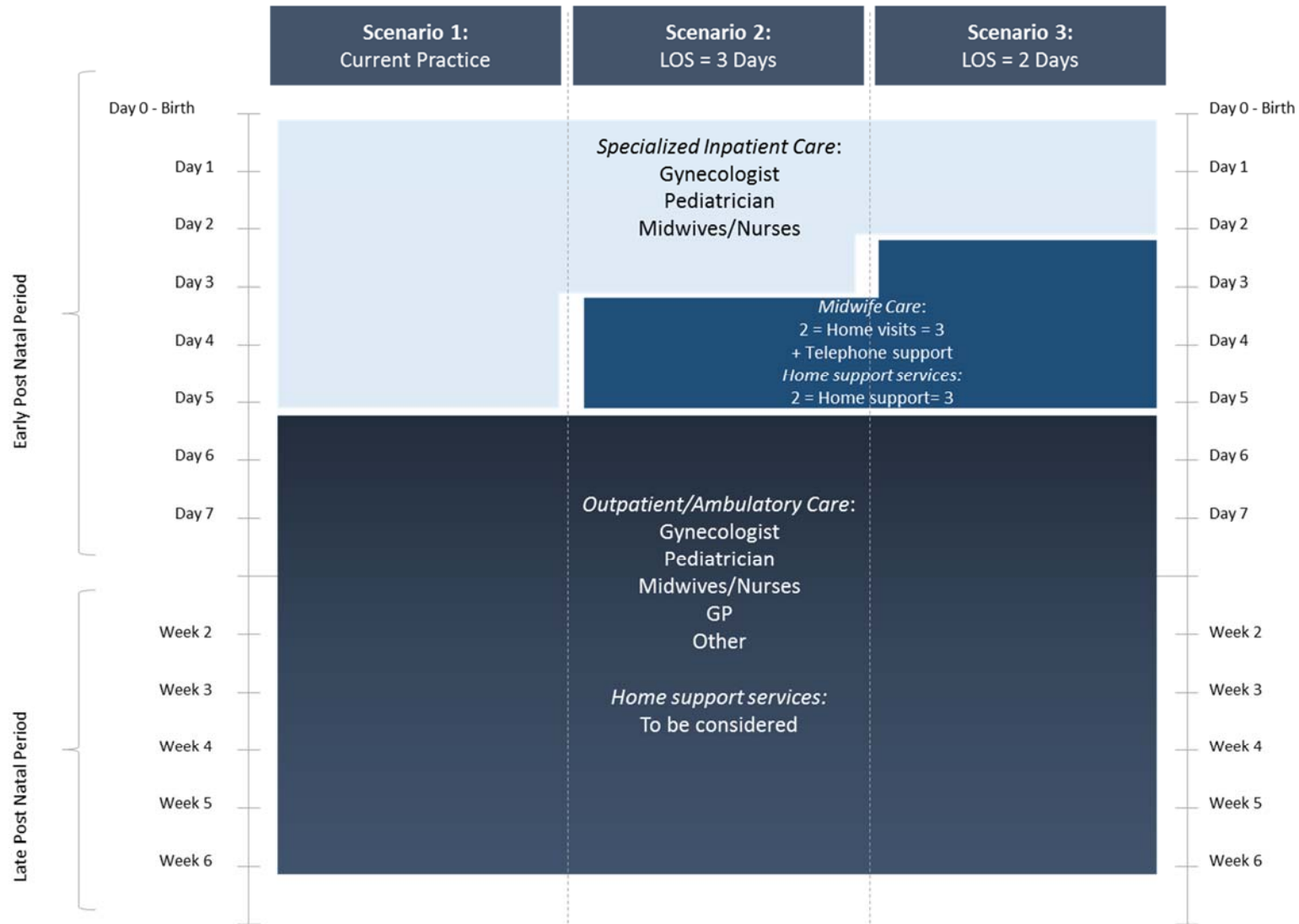
#### Scenario 3 - Hospital LOS= 2 days:

- Number of services over the hospitalisation period: assumed equal to current practice scenario.
- Midwife home care visits: 3 in the early postnatal period.

In addition to midwife home visits envisaged under the theoretical scenarios, 24 hours/7 days per week telephone support is also considered, given the importance of such support. However, no costing has been attached to this support given the difficulties to assign a price to it and the fact that at present this is not paid for. It is nevertheless an important factor that will be revisited in our recommendations.



Figure 13 – Illustration of the scenarios tested





The two theoretical scenarios (2 and 3) representing shorter LOS were estimated with and without maternity home care assistance (kraamhulp) in order to offer a more complete picture of the potential costs. When this was added, four hours per day were assumed and multiplied by the difference between the current length of stay and the length of stay of the specific scenarios tested. The four hours per day at an approximate subsidised cost of 26€ per hour and an approximate patient co-payment of 9€ per hour, represent the current situation in Flanders (Vlaams Agentschap Zorg en Gezondheid: [www.zorg-en-gezondheid.be](http://www.zorg-en-gezondheid.be)). After day five post birth, maternity home care assistance, whether offered or not, should be equal for all scenarios and thus, it has not been specifically costed since the overall cost differences across the scenarios should not be affected.

Costs for the scenario representing current practice were compared to those for the theoretical scenarios (2 and 3). An early discharge scheme would only be economically advisable when, assuming equivalent outcomes, the cost of the resources released by staying fewer days in hospital is over that of the additional domiciliary midwife visits required to be performed in those cases.

#### 7.4.2.5 Uncertainty

Because of the limited data currently available, the scenario calculations performed were based on values subject to an important degree of uncertainty. Possible minimum and maximum values for each variable were identified, and their impact on the overall costs calculated in a simple one-way sensitivity analysis, altering each variable independently in order to identify those most likely to influence the overall results. Costs for the 25th and 75th percentiles were used whenever possible to inform maximum and minimum ranges of costs.

### 7.4.3 Results

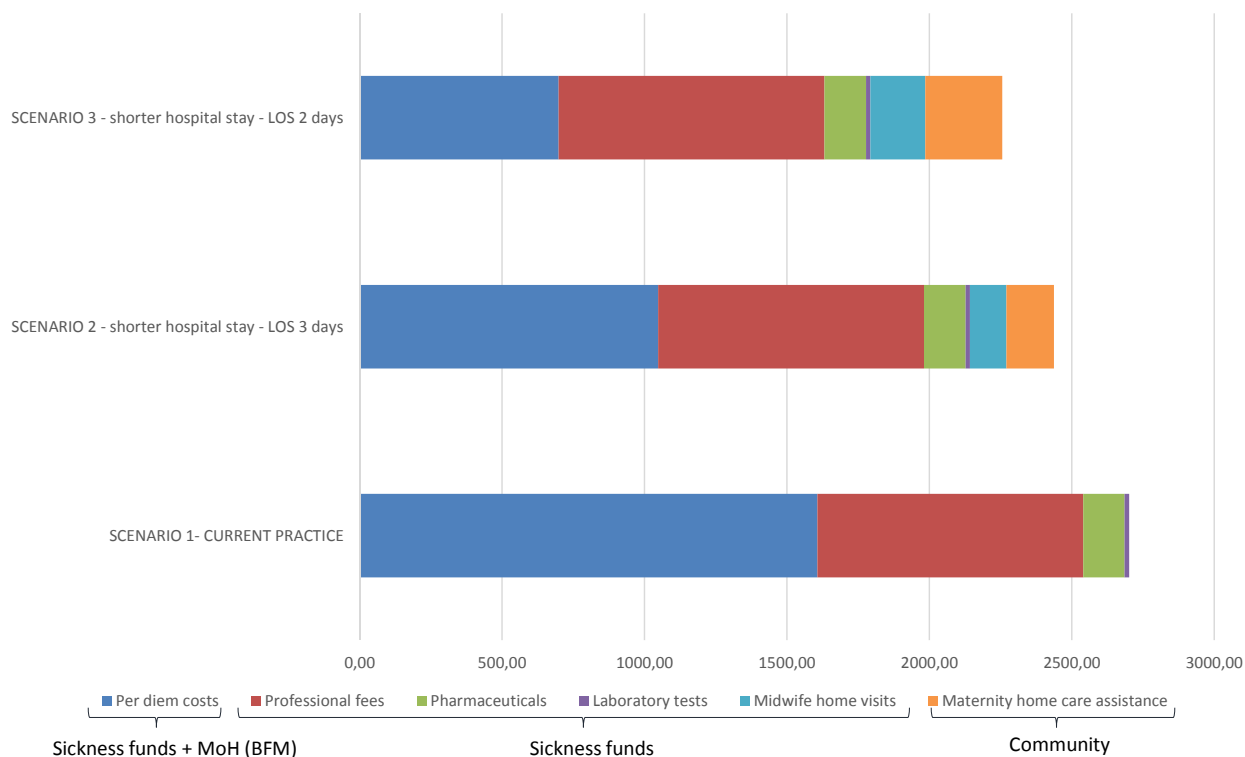
#### 7.4.3.1 Payer perspective

Table 16 shows the results from our estimations. Overall, leaving out the costs of maternity home care assistance (kraamhulp), the potential savings from moving from the current situation to a LOS of 3 days would be of approximately €431 per stay. Savings of €716 could be realised if the LOS was 2 days. Including maternity home assistance the potential savings would be reduced to €264 and €445 for a LOS of 3 and 2 respectively.

Figure 14 illustrates the weight that each component has on the overall cost per stay and signals the fact that home care visits represent a small proportion of the overall costs, with per diem costs and professional fees over the hospitalisation period having the most weight.


**Table 16 – Potential mean savings per stay derived from moving from current practice to shorter length of stay (LOS) scenarios (in euro)**

	Scenario 1: Current practice	Scenario 2: LOS=3 days	Scenario 3: LOS=2 days
<b>Overall per diem costs/stay – A = (a*b)</b>	<b>1606.26</b>	<b>1047.56</b>	<b>698.37</b>
Mean national length of stay (in days) –a-	4.60	3.00	2.00
Mean national per diem rate – b -	349.19	349.19	349.19
<b>Total professional honoraria/stay (inpatient) - B = (c+d+e+f+g+h)</b>	<b>933.53</b>	<b>933.53</b>	<b>933.53</b>
Obstetrician –c -	399.16	399.16	399.16
Paediatrician – d -	88.61	88.61	88.61
Fixed services – e -	214.83	214.83	214.83
Other (GP) –f -	176.52	176.52	176.52
Kine/physio –g -	15.68	15.68	15.68
Midwives+nurses (delivery) –h -	38.74	38.74	38.74
<b>Pharmaceuticals costs/stay - C</b>	<b>145.65</b>	<b>145.65</b>	<b>145.65</b>
<b>Laboratory tests/stay – D</b>	<b>15.96</b>	<b>15.96</b>	<b>15.96</b>
<b>Midwife home care visit costs – E = (i*j)</b>	<b>0.00</b>	<b>128.00</b>	<b>192.00</b>
# of home visits - i	0.00	2.00	3.00
Midwife fees for a home visit - j	64.00	64.00	64.00
<b>Home care assistance costs – F =(k*l*m)</b>	<b>0</b>	<b>166.40</b>	<b>270.40</b>
# of home care assistance visits - k	0	1.60	2.60
# of hours/visit - l	4.00	4.00	4.00
Cost/hour - m	26.00	26.00	26.00
Savings from moving from current practice to shorter length of stay scenarios w/o home care assistance (A+B+C+D+E)		430.70	715.89
Savings from moving from current practice to shorter length of stay scenarios with home care assistance (A+B+C+D+E+F)		264.30	445.49

**Figure 14 – Mean costs per scenario and cost component (in euro)**

#### 7.4.3.2 Hospital perspective

Focusing purely on the hospitalisation period the data used in our calculations are based on financing data. They represent an approximation to the price paid by the RIZIV-INAMI (sickness funds) and the FPS Health for services delivered during the hospital stay, but they do not necessarily reflect actual costs incurred by hospitals as these may be under- or over-funded. Financing data furthermore imply fixed costs per day, whereas actual costs may vary over length of stay. This second point is particularly

relevant in maternity care where dependency levels of mothers and babies tend to differ and diminish as length of stay progresses. Therefore, a correction of per diem bed costs on the basis of dependency levels and care requirements was introduced in our analysis, to offer a closer representation of hospital costs.

Such correction made use of data on nursing time in the context of the PACHA (Projet d'Analyse des Coûts des Hôpitaux Associés) project, retrieved by the DESULB (Département d'Economie de la Santé de l'ULB).





Data were based on items reported in the context of the Belgian Minimum Nursing Data Sets (BMNDS). Items were converted by the DESULB to minutes by using reference times per unit from the WELAME report.<sup>138</sup> Data considered 1 519 deliveries taking place between 2008 and 2010 in nine Belgian hospitals. Deliveries referred exclusively to Diagnostic 560 (vaginal delivery) of the APR-DRG classification, with severity of illness between 1 (minor) and 3 (major). Given the fact that the data sample represents less than 1% of all annual births in Belgium, conclusions drawn based on this sample should be interpreted with great caution. In addition to the small sample size a further drawback of the dataset is its limited coverage -only workload as registered in the BMNDS – approximately 48 % of all nursing work. Omitted tasks include items related to care to the patient (direct and indirect), administrative activities, communication, personal time and time spent on logistics.<sup>138</sup> In addition to this, for 22% of the patients analysed the delivery was not included in the data registration. Thus, these data offer a conservative representation of real time consumed. They illustrate nevertheless an important point regarding the potential for increasing workload intensity in the maternity ward, should shorter length of stay be generalised.

**Table 17 – Time consumption registered by nursing staff (minutes per day) by SOI (1: minor, 2: moderate, 3: major)**

SOI	Day 1	Day 2	Day 3	Day 4	Day 5
1	155	129	92	84	77
2	140	144	97	86	82
3	172	156	118	108	105

Source: ULB ESP (PACHA)

Despite the already mentioned limitations, a consistent picture showing a considerable decrease in workload over length of stay is shown in Table 17. Over half of the minutes of all nursing time consumed over the entire stay are concentrated on the first 48 hours. This is the case for all severity of illness categories.

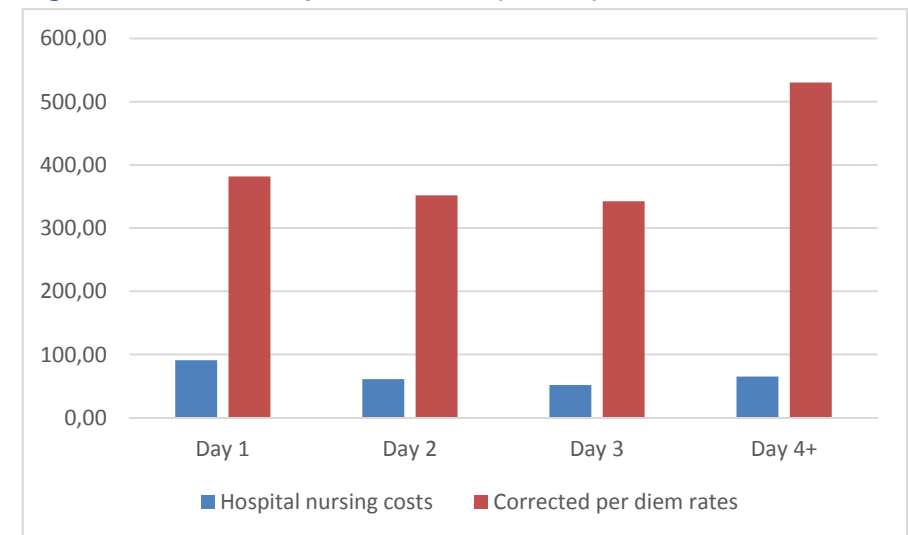
On day one, across all stays of 4-5 days and SOI 1-2 (n=912), on average 160 nursing minutes are reported, whilst on day two this goes down to 107

and to 91 minutes on day three. Nursing time consumed on days four and five is 78 and 36 minutes respectively.

The corrections performed are illustrated in Figure 15, while mean overall costs per scenario, using these corrections are summarised in Figure 13.

Potential savings, without maternity home care assistance (kraamhulp) from moving from scenario 1 (current practice) to scenario 2 (LOS=3 + 2 midwife visits) would be of approximately €402 per stay and a further reduction in the length of stay of one additional day (LOS =2) supplemented by three midwife visits would offer savings of €681. Adding maternity home care assistance the potential savings would go down to €236 and €410 for the scenarios with a length of stay of 3 and 2 days respectively.

**Figure 15 – Corrected per diem rates (in euro)**



Source: Total number of nursing hours from ULB ESP (PACHA); Per diem costs from the Technische Cel/Cellule Technique – TCT - (<http://tct.fgov.be>); Cost per hour of hospital nursing time in 2010 (€34,21) from KCE HSR report 178C<sup>139</sup>


**Table 18 – Corrected mean savings per stay derived from moving from current practice to shorter length of stay scenarios (in euro)**

	Scenario 1: Current practice LOS=4.60 days	Scenario 2: LOS=3 days	Scenario 3: LOS=2 days
<b>Overall CORRECTED per diem costs/stay – A</b>	<b>1606.26</b>	<b>1075.96</b>	<b>733.56</b>
<b>Total professional honoraria/stay (inpatient) - B = (a+b+c+d+e+f)</b>	<b>933.53</b>	<b>933.53</b>	<b>933.53</b>
Obstetrician –a -	399.16	399.16	399.16
Paediatrician – b -	88.61	88.61	88.61
Fixed services – c -	214.83	214.83	214.83
Other (GP) – d -	176.52	176.52	176.52
Kine/physio – e -	15.68	15.68	15.68
Midwives+nurses (delivery) – f -	38.74	38.74	38.74
<b>Pharmaceuticals costs/stay - C</b>	<b>145.65</b>	<b>145.65</b>	<b>145.65</b>
<b>Laboratory tests/stay – D</b>	<b>15.96</b>	<b>15.96</b>	<b>15.96</b>
<b>Midwife home care visit costs – E = (g*h)</b>	<b>0.00</b>	<b>128.00</b>	<b>192.00</b>
# of home visits - g	0.00	2.00	3.00
Midwife fees for a home visit - h	64.00	64.00	64.00
<b>Home care assistance costs – F = (i*j*k)</b>	<b>0</b>	<b>166.40</b>	<b>270.40</b>
# of home care assistance visits -i	0	1.60	2.60
# of hours/visit - j	4.00	4.00	4.00
Cost/hour - k	26.00	26.00	26.00
Savings from moving from current practice to shorter length of stay scenarios w/o home care assistance (A+B+C+D+E)		<b>402.30</b>	<b>680.70</b>
Savings from moving from current practice to shorter length of stay scenarios with home care assistance (A+B+C+D+E+F)		<b>235.90</b>	<b>410.30</b>



Although the overall results remain very similar to those obtained without the corrections, they serve as an illustration of the problem that not recording time spent by hospital midwives caring for mothers and infants could bring, since the last “avoided” days are those less resource-intensive. On the one hand by eliminating these less resource-intensive days, the hospital may experience an increase in workload intensity which should be considered. In fact, a point raised during the focus group discussions was that indeed by reducing length of stay, the workload on maternity wards could increase, because the same standard of care should be delivered over a shorter time period (See Chapter 4). On the other hand, given the reduction on length of stay and the more or less stable number of births on a per year basis in Belgium, some maternity ward beds may be eliminated and so the higher intensity of work required per bed may be to a certain extent balanced out by a reduced number of beds in the ward. Also tasks now performed at the maternity ward, may be transferred to on the one hand antenatal care and on the other hand postnatal follow-up at home. Nevertheless, this would simply shift the pressure somewhere else and the need for additional resources may become a reality whether in one department/sector or another. These are all factors that should be explored in some detail to better understand the implications that a change in the current system would have for the maternity ward unit.

In order to look into the potential consequence of shortening the length of stay in terms of concentration of workload pressure, nursing time for short hospital stays ( $\leq 3$  days) was compared to nursing time for current stays by means of the ULB data previously described (see Table 19). The results show that no concentration of tasks is currently present in the case of shorter stays, during which less nursing time appears to be consumed overall. A possible explanation for this might be that mostly more independent women, often multipara choose to go home earlier and thus require less care, but this cannot be confirmed since no information on the mothers' status is available for this dataset. Thus, although no clear conclusions can be drawn until more data becomes available, this is a crucial factor that should be further explored if the system is to be changed.

**Table 19 – Mean minutes of nursing time depending on length of stay - DRG 560 - SOI 1-2**

Length of stay	Day 1	Day 2	Day 3	Day 4	Day 5
$\leq 3$	131	101	68	NA	NA
4-5	160	107	91	78	36

Source: ULB ESP (PACHA)

#### 7.4.3.3 Costs per payer

Moving from one scenario to another is not likely to unbalance current payer weights when no maternity home care assistance is assumed, with most basic costs falling on the RIZIV-INAMI. Differences between scenarios in patient co-payments during hospital stay will be limited to room supplements if a single room is chosen, since services and the honoraria derived from them are kept constant under all scenarios. Patient co-payments for home midwife visits will only include some transport costs for as long as the midwife has signed the convention.

However, when maternity home care assistance is considered, part of the subsidies would be paid for at the community level, while a patient co-payment of around €9 per hour of maternity home care assistance would be introduced. Currently, this co-payments can be partly covered by the complementary reimbursement of the sickness funds or by hospital insurance but it is an important factor to bear in mind in order to avoid introducing inequalities in the system since such co-payment could represent an important financial burden for vulnerable families.

Furthermore, although at first sight, the option of shortening the length of stay by one or two days would appear to be an attractive alternative to the current situation for women and babies following uncomplicated births, caution is needed when comparing these scenarios and the different settings where postnatal care is to be delivered, since needs are likely to differ on a case by case basis depending on different factors such as medical needs, primiparity status, home support by partners/relatives, mother's age, socioeconomic status, etc. Different care models may suit different patients depending on the specific circumstances surrounding them and thus, different postnatal care approaches may not be direct substitutes of each other. Accessing data on the medical and social characteristics of the mothers/infants in order to estimate the number of mothers who could



benefit from an early discharge in Belgium is not currently feasible by means of the data sources used in our analysis and previously described. A possibility could be to link an administrative database with a database containing such medical and social information, like the data from the Study Centres for Perinatal Epidemiology (*Studiecentrum voor Perinatale Epidemiologie*, SPE, in Flanders and the *Centre d'épidémiologie périnatale* (CEpiP) in the Wallonia-Brussels federation). This would allow us to get a better understanding of the characteristics of the mothers who had a short stay in Belgium in the last years but it would not allow us to refine the theoretical scenarios for short stays or to calculate the target population since, these women are at present, given the limited number of short stays in Belgium, not representative of the group of women eligible for a short stay. As a consequence, no attempt has been made to estimate overall potential savings for Belgium.

#### 7.4.3.4 Sensitivity analysis

A number of theoretical assumptions used in our calculations were not based on hard evidence (e.g. number of domiciliary visits from midwives), and some of the costs included in the analysis could vary within a range (e.g. cost of midwife domiciliary visits or amounts of home assistance reimbursed). These make our estimates subject to important degrees of uncertainty that were borne in mind in our sensitivity analysis.

The main results from the sensitivity analysis are displayed in Table 20. Although overall, the results appear to indicate a potential economic gain from shortening the current length of stay, savings differ depending on per diem costs, number of midwife home care visits or reimbursement per hour of maternity home care assistance offered. When these support services are added to the calculations the results are still positive towards shortening length of stay. However, this is purely assuming that from day 5 these services would be offered to all women and thus, no differences would be noticed in terms of cost savings across the scenarios from that specific point in time.


**Table 20 – Sensitivity analysis - scenarios 2 and 3 against current practice (uncorrected hospital per diem costs, in euro)**

	Baseline value	Minimum value	Maximum value	Overall savings (with baseline values)	Overall savings (with minimum values)	Overall savings (with maximum values)
Current practice vs Scenario 2 – Length of stay=3						
w/o maternity home care assistance						
<b>Per diem hospitalisation cost</b>	349.19	319.59	386.61	430.70	383.34	490.58
<b>Domiciliary midwife visits</b>	2.00	2.00	4.00	430.70	430.70	302.70
<b>Fees/ domiciliary midwife visit</b>	64.00	48.30	79.78	430.70	462.10	399.14
with maternity home care assistance						
<b>Per diem hospitalisation cost</b>	349.19	319.59	386.61	264.30	216.94	324.18
<b>Domiciliary midwife visits</b>	2.00	2.00	4.00	264.30	264.30	136.30
<b>Fees/ domiciliary midwife visit</b>	64.00	48.30	79.78	264.30	295.70	232.74
<b>Reimbursement per hour of home care assistance</b>	26.00	4.00	34.00	264.30	405.10	213.10
Current practice vs Scenario 3 – length of stay=2						
w/o maternity home care assistance						
<b>Per diem hospitalisation cost</b>	349.19	319.59	386.61	715.89	638.93	813.19
<b>Domiciliary midwife visits</b>	3.00	2.00	5.00	715.89	779.89	587.89
<b>Fees/ domiciliary midwife visit</b>	64.00	44.85	82.36	715.89	773.34	660.81
with maternity home care assistance						
<b>Per diem hospitalisation cost</b>	349.19	319.59	386.61	445.49	368.53	542.79
<b>Domiciliary midwife visits</b>	3.00	2.00	5.00	445.49	509.49	317.49
<b>Fees/ domiciliary midwife visit</b>	64.00	44.85	82.36	445.49	502.94	390.41
<b>Reimbursement per hour of home care assistance</b>	26.00	4.00	34.00	445.49	674.29	362.29



#### 7.4.4 Limitations

Our analysis is subject to important limitations and aims purely at offering and approximation to costs as well as to start a debate on the challenges ahead, since

- No Belgian-specific outcome data on short hospital stays (<72 hours) are currently available. Our starting assumption on similar outcomes (for uncomplicated births), following early discharge (at 48-72 hours) compared to conventional longer hospital stays, for as long as well-structured home care is provided was nevertheless, based on international literature.
- The reported per diem hospitalisation costs used in our calculations were based on the 100% weighted average per diem price for all acute beds nationally and may thus, overestimate real maternity ward bed costs and as a consequence the overall cost savings derived from shortening the length of stay.
- A limited time horizon was used in our analysis due to the lack of complete data on ambulatory care consumption. Nevertheless the first seven days after birth should capture most potential savings since these are likely to accrue primarily from shortening the hospital length of stay and replacing it by midwife home care.
- Although the scenarios used in the analysis remain theoretical given that up to date, short stays remain rare in Belgium and therefore the very limited data in this regard cannot be generalised, clinical guidelines on postpartum care and the results from the focus group discussions were considered when developing the scenarios in order to encourage relevance.
- Transport costs were excluded from the analysis, although they are likely to remain marginal.
- Costs and subsidies for maternity care assistance (Kraamhulp) were taken from the current situation in Flanders, since this system is not yet widely used at a national level in Belgium.

#### 7.4.5 Discussion and conclusions

Despite the current data limitations and the theoretical nature of our analysis, consistency of results for the scenarios studied and the sensitivity analysis conducted appear to indicate that shortening hospital length of stay in postnatal care and replacing part of the care currently offered at hospital with care at home by means of midwife home visits, could result in savings to the Belgian system. However, a number of factors should be carefully considered:

1. The current fees for midwife care at home may need to be revisited to ensure there are no incentives to concentrate all visits in a specific point in time (up to day 6 post birth, after which fees drop considerably). Some flexibility should be offered in terms of the schedule and the fees should incentivise such flexibility. Furthermore, limited increases of the current fees should not greatly modify the overall results (as shown in the sensitivity analysis), given the limited number of home midwife visits foreseen in our scenarios.
2. Potential workload pressures that could arise in the maternity ward as a consequence of shorter but more resource-intense stays should be studied to ensure potential savings are not offset by increases in staff needs. Working out the human resources necessary to switch to shorter hospital stays supplemented with midwife visits at home is an important task. There are a number of factors that would need to be considered, starting by the quantification of eligible women for shorter stays. This should be based on medical needs, primiparity status, socioeconomic characteristics, support at home and personal preferences. There are already some examples of Belgian hospitals offering home care by midwives which could be looked at in order to obtain a first approximation to workforce requirements. The rate of visits currently undertaken by a midwife on a daily basis appears to be of 5-6. In addition to those visits which last approximately an hour (first visit usually longer than follow-ups), midwives also need to fit in time for moving from one home to the next and for telephone consultations (personal communication with midwife from a Brussels hospital). In the UK, a country where short stays ( $\leq 48$  hours) combined with midwife home care have been common practice for a number of years a specific tool has been designed and used since 2007 to specifically calculate the required ratio of midwives to births: Birthrate Plus®





([www.birtherateplus.co.uk](http://www.birtherateplus.co.uk)). The ratios are used in combination with local data by most trusts. Ratios are calculated based on caseload, patient dependency and other considerations such as mileage covered by community midwives. The ratio for midwives working in the community with women who gave birth in a hospital is of 96 cases per FTE. midwife. This ratio does not reflect purely postnatal care but also includes antenatal consultations and education. Midwives in the UK can do home visits up to 28 days post birth period but often concentrates the visits in the first 10 – 14 days.

3. Maternity home care assistance for mother and infants going home earlier should be offered as an option, especially for those mothers with less support at home. However, bearing in mind the current costs of those services, careful consideration to the number of hours that should be offered under each specific case should be made. Although costs after day 5 should not differ from one scenario to another, should this support be generalised, the overall costs of postnatal care would go up and the need for community funding would increase. It is therefore important to engage into a debate on who should pay for these services and what proportion should be covered as well as in which cases, to avoid increasing costs unnecessarily or creating inequalities in access to such services.
4. Data on mothers and new-borns should be linked in order to facilitate a more complete overview of the overall postnatal follow-up period of both mother and child regarding ambulatory emergency visits and ambulatory consultations.

### Key Points

- **Our theoretical scenario analysis appears to indicate that savings could be obtained from shortening the length of stay of mothers and infants following uncomplicated births and complementing those earlier discharges with midwife home visits.**
- **The impact of adding maternity home care support (at current prices and mean hours per day offered in Flanders) for those being discharged from hospital earlier would reduce the potential savings but still result in a financially advantageous situation.**
- **Potential increases in workload intensity for midwives at the hospital as well as resources needed to implement the more generalised home care visit schedules for those with an early discharge (within 72 hours post birth) would need to be investigated.**



## 8 BUILDING BLOCKS FOR INTEGRATED POSTNATAL CARE IN BELGIUM

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The previous chapters analysed the organisation of postnatal care in Belgium. Based on this information we present the recommendations for an integrated postnatal care in the Synthesis of the study, which is published as a separate document on our website. It can be accessed from the same referral page as the current document.

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## ■ REFERENCE LIST

1. Cammu H, Martens E, Van Mol C, Jacquemyn Y. Perinatale activiteiten in Vlaanderen 2012. Brussels: Studiecentrum voor Perinatale Epidemiologie (SPE); 2013.
2. Leroy C, Van Leeuw V, Englert Y. Données périnatales en Wallonie - année 2011. Centre d'Epidémiologie Périnatale; 2013.
3. Leroy C, Van Leeuw V, Englert Y. Données périnatales en Région bruxelloise. Centre d'Epidémiologie Périnatale; 2013.
4. Ellberg L, Hogberg U, Lundman B, Lindholm L. Satisfying parents' preferences with regard to various models of postnatal care is cost-minimizing. *Acta Obstetrica et Gynecologica*. 2006;55:175-81.
5. OECD. Health Data, . In; 2011.
6. OECD. Health at a glance 2013: OECD Indicators. OECD; 2013. Available from: [http://dx.doi.org/10.1787/health\\_glance-2013-en](http://dx.doi.org/10.1787/health_glance-2013-en)
7. Zadoroznyj Maria BC, Berry Sarah Motherhood, Medicine & Markets: The Changing Cultural Politics of Postnatal Care Provision. *Sociological Research online*. 2012;17(3):24.
8. Isengard B. "The apple doesn't live far from the tree". Living distances between parents and their adult children in Europe. *Comparative Population Studies - Zeitschrift für Bevölkerungswissenschaft*. 2013;38(2):25.
9. Reher DS. Family ties in Western Europe. In: Zuanna GD, Micheli GA, editors. Strong family and low fertility: a paradox? New perspectives in interpreting contemporary family and reproductive behaviour; 2005. p. 45-76.
10. Oakley A. Social consequence of obstetric technology - The importance of measuring soft outcomes. *Birth - Issues in Perinatal Care*. 1983;10(2):99-108.
11. Christiaens W, Bracke P. Place of birth and satisfaction with childbirth in Belgium and the Netherlands. *Midwifery*. 2009;25:e11-e9.
12. OECD. Health at a glance 2009: OECD Indicators. In: OECD Publishing; 2009. p. 202.



13. Dykes F. A critical ethnographic study of encounters between midwives and breast-feeding women in postnatal wards in England. *Midwifery* 2005;21:241-52.
14. Schmied V, Everitt L. Postnatal care: poor cousin or priority area? in *Midwifery : trends in Clinical Practice in Australia*. Barclay LM and Jones L eds, editor. Melbourne: Churchill Livingstone; pp107-126; 1996.
15. Schmied V, Cooke M, Gutwein R, Steinlein E, Caroline H. An evaluation of strategies to improve the quality and content of hospital-based postnatal care in a metropolitan Australian hospital *Journal of Clinical Nursing*. 2009;18:1850-61.
16. Albers LL. Health problems after childbirth. *Journal of Midwifery & Women's Health*. 2000;45(1):55-7.
17. Rudman A, Waldenström U. Critical views on postpartum care expressed by new mothers. *BMC Health Services Research*. 2007;7(178).
18. Dykes F, editor. *Breastfeeding in Hospital: Mothers, Midwives and the Production Line*. . London; 2006.
19. Forster D MH, Yelland J, Rayner J, Lumley J. A Review of In-Hospital Postnatal Care in Victoria: Final Report. Victoria: La Trobe University; 2005.
20. World Health Organization. Postpartum care of the mother and newborn: a practical guide. *Maternal and Newborn Health/Safe Motherhood Unit WHO/RHT/MSM/98.3*; 1998.
21. Brown S, Small R, Faber B, Krastev A, Davis P. Early postnatal discharge from hospital for healthy mothers and term infants. *Cochrane database of systematic reviews (Online)*. 2009(3):CD002958.
22. Cambonie G, Rey V, Sabarros S, Baum TP, Fournier-Favre S, Mazurier E, et al. Early postpartum discharge and breastfeeding: An observational study from France. *Pediatrics International*. 2010;52(2):180-6.
23. Minten D, Dijkhoffz W. *Zorgzaam Recht? Recht voor vroedvrouwen en verpleegkundigen*. Antwerpen: Intersentia; 2009.
24. Staatsblad B. Koninklijk besluit tot bepaling van de nadere regels en de bijzondere kwalificatiecriteria die de houder van de beroepstitel van vroedvrouw de mogelijkheid geven om geneesmiddelen voor te schrijven. (<http://nvkvv.be/file?file=612100&ssn=12a9c4be0e4b1e1742a7d3005593401b1a84277a>) 2014.
25. Eggermont M. Arts versus vroedvrouw: wie is aansprakelijk bij medische onzorgvuldigheden binnen de verloskunde. In: Eggermont M, editor. *De verloskunde in beweging. De relatie patiënt-zorgverlener in juridisch perspectief*. Brugge: Die Keure; 2013. p. 59-103.
26. Bode A. - Familiehulp vzw. RE: KCE studie postnatale zorg. In: Obyn C, editor.; 2013.
27. Moreau N, Ruttiens M, Regueras N, Guillaume J, G.I.P., Alexander S, et al. Accompanyer le retour au Domicile de l'Enfant et sa mère : organiser les Liens et Évaluer (ADELE). Ecole de Santé Publique de l'ULB - Agence InterMutualiste (A.I.M.) - Groupe Interdisciplinaire de Périnatalité (GIP); 2013. Available from: [http://www.one.be/fileadmin/user\\_upload/professionnels/Recherche/Rapport\\_ADELE\\_2013\\_final.pdf](http://www.one.be/fileadmin/user_upload/professionnels/Recherche/Rapport_ADELE_2013_final.pdf)
28. Van Kelst L, Spitz B, Sermeus W. Bevalen met een kort ziekenhuisverblijf: geïntegreerde samenwerking tussen kraamzorg aan huis en ziekenhuis in de regio Leuven. Onderzoeksproject in opdracht van het Ministerie van Sociale zaken, Volksgezondheid en Leefmilieu. 2002.
29. Allewaert S. Klinisch pad voor bevallen met kort ziekenhuisverblijf: perceptie door huisartsen in Vlaanderen Gent: UGent; Academiejaar 2008-2009.
30. Van Tilborth L. Interbestuurlijk informatie delen: Use Case eBirth. Fedict; 2013. Available from: [http://soc.kuleuven.be/io/ned/vorming/studiedag/pdf/20130129\\_Van%20Tilborgh.pdf](http://soc.kuleuven.be/io/ned/vorming/studiedag/pdf/20130129_Van%20Tilborgh.pdf)
31. Vanhaesebrouck P, Charon A, Devlieger H, Haumont D, Langhendries J-P, Michel M, et al. NICaudit synoptic report 2000-2007. In; 2008.



32. Elo S, Kyngas H. The qualitative content analysis process. *J Adv Nurs*. 2008;62(1):107-15.
33. Graneheim UH, Lundman B. Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. *Nurse Educ Today*. 2004;24(2):105-12.
34. Krueger RA, Casey MA. Focus groups. A practical guide for applied research. 4 ed. California: Sage; 2009.
35. Kitzinger J. Qualitative research. Introducing focus groups. *Bmj*. 1995;311(7000):299-302.
36. Polit DF, Beck CT. Essentials of nursing research. Appraising evidence for nursing practice. Wolters Kluwer Health; 2010.
37. Hoogewys A. A buddy near the crib: perinatal coaching for underprivileged families. *Midwifery Today - International Midwife*. 2012;101:60-1.
38. Van Teijlingen E, Hundley V, Rennie AM, Graham W, Fitzaurice A. Maternity satisfaction studies and their limitations: "What is, must still be best". *Birth*. 2003;30(2):75-82.
39. McKay S. Models of midwifery care. Denmark, Sweden and the Netherlands. *Journal of Nurse-midwifery*. 1993;38(2):114-20.
40. Hildingsson I, Thomas JE. Women's Perspectives on Maternity Services in Sweden: Processes, Problems, and Solutions. *Journal of Midwifery and Women's Health*. 2007;52(2):126-33.
41. Waldenstrom U, Rudman A, Hildingsson I. Intrapartum and postpartum care in Sweden: Women's opinions and risk factors for not being satisfied. *Acta Obstetrica et Gynecologica Scandinavica*. 2006;85(5):551-60.
42. The Health and Social Care Information Centre HES. Government statistical service, NHS, Maternity Statistics, England, 2011-2012. 2012. Available from: <http://www.hscic.gov.uk/catalogue/PUB09202>
43. Redshaw M RR, Schroeder L, Puddicombe D, Macfarlane A, Newburn M, et al. Mapping maternity care. The configuration of maternity care in England. Birthplace in England research programme. Final report part3: NIHR service delivery and organisation programme. 2011. Available from: [www.sdo.nihr.ac.uk/projdetails.php?ref=08-1604-140](http://www.sdo.nihr.ac.uk/projdetails.php?ref=08-1604-140)
44. Van Teijlingen E. The profession of maternity home care assistant and its significance of the Dutch midwifery profession. *International journal of Nursing Studies*. 1990;27(4):355-66.
45. Stichting Perinatale Registratie Nederland. Perinatale zorg in Nederland 2012. Utrecht: 2013.
46. Wiegers TA. Adjusting to motherhood: maternity care assistance during the postpartum period: how to help new mothers cope. *Journal of Neonatal Nursing*. 2006;12(5):163-71.
47. Ellberg L. Postnatal care – Outcomes of various care options in Sweden. 2008.
48. Socialstyrelsens [The National Board of Health and Welfare]. Socialstyrelsens allmänna råd om tidig hemgång efter förlossning. [Guiding principles for early discharge after childbirth]. SOSFS. 1993;1.
49. National Board of Health and Welfare. Pregnancies, deliveries and newborn infants. The Swedish Medical Birth Register 1973-2011. Assisted Reproduction, treatment 1991-2010. 2012. Available from: [www.socialstyrelsen.se](http://www.socialstyrelsen.se)
50. NICE. Routine postnatal care of women and their babies - NICE clinical guideline 37. 2006.
51. Health and Social Care Information. NHS Maternity Statistics: England, 2011-2012. Available from: <http://www.hscic.gov.uk/catalogue/PUB09202/nhs-mate-eng-2011-2012-rep.pdf>
52. NICE. Postnatal care: Quality statement 1: Continuity of care [Web page]. 2013 [cited 3/12/2013]. Available from: <http://publications.nice.org.uk/postnatal-care-qs37/quality-statement-1-continuity-of-care>
53. ANAES. Recommandations pour la pratique clinique: Sortie précoce après accouchement - Conditions pour proposer un retour précoce à domicile 2004.
54. Hildingsson I HH, Cross M, Pallant JF, Rubertsson C. Women's satisfaction with antenatal care: Comparing women in Sweden and Australia. *Women and Birth* 2013;26:e9-e14.



55. Sandall J SH, Gates S, Shennan A, Devane D. Midwife-led continuity models versus other models of care for childbearing women (Review). The Cochrane Library. 2013(8).
56. NICE. Intrapartum care. Care of healthy women and their babies during childbirth. 2007. NICE clinical guideline 55
57. McCourt C SS, Sandall J, Brodie P. Working with women: developing continuity in practice. In: The New Midwifery. McCandlish R editor. Churchill Livingstone; 2006 (2<sup>nd</sup> edition).
58. Ashcroft B EM, Boreham N, Holm S. Prospective semistructured observational study to identify risk attributable to staff deployment, training, and updating opportunities for midwives. *BMJ* 2003;327(7415):58.
59. Benjamin Y WD, Taub N. A comparison of partnership caseload midwifery care with conventional team midwifery care: labour and birth outcomes. *Midwifery*. 2001;17(3):234-40.
60. Green J RM, Curtis PA. Continuity of carer: what matters to women? A review of the evidence. *Midwifery*. 2000;16:186-96.
61. Johnson M SH, Langdon R, Kelly P, Yong L. A comparison of the outcomes of partnership caseload midwifery and standard hospital care in low risk mothers. *Australian Journal of Advanced Nursing*. 2005;22(3):21-7.
62. Waldenstrom U, Turnbull D. A systematic review comparing continuity of midwifery care with standard maternity services. . *BJOG: an international journal of obstetrics and gynaecology* 1998;105:1160-70.
63. Hodnett ED GS, Hofmeyr GJ, Sakala C. Continuous support for women during childbirth (Review). The Cochrane Library. 2013;2013(7).
64. Tracy SK, Hartz DL, Tracy MB, Allen J, Forti A, Hall B, et al. Caseload midwifery care versus standard maternity care for women of any risk: M@NGO, a randomised controlled trial *The Lancet*. 2013;382(9906, 23-29):1723-32.
65. Darj E SB. Very Early Discharge from Hospital after Normal Deliveries. *Upsala J Med Sci*. 2000;105:57-66.
66. Fredriksson GE, Hogberg U, Lundman BM. Postpartum care should provide alternatives to meet parents' need for safety, active participation, and 'bonding'. *Midwifery*. 2003;19(4):267-76.
67. Advies Stuurgroep Zwangerschap En Geboorte. Een goed begin : Veilige zorg rond zwangerschap en geboorte. 2009. Available from: <http://www.rijksoverheid.nl/documenten-en-publicaties/kamerstukken/2009/12/30/een-goed-begin-veilige-zorg-rond-zwangerschap-en-geboorte.html>
68. Fabian H. R, I., Waldenström, U. Childbirth and parenthood education classes in Sweden. Women's opinion and possible outcomes. *Acta Obstetricia et Gynaecologica Scandinavica*. 2005;84(436-43).
69. Friedman MA, Spitzer AR. Discharge criteria for the term newborn. *Pediatric Clinics of North America*. 2004;51(3):599-618.
70. Vendittelli F, Boniol M, Mamelle N. Early postpartum hospital discharge in France. *Revue d'Epidemiologie et de Sante Publique*. 2005;53(4):373-82.
71. Bernstein HH, Spino C, Finch S, Wasserman R, Slora E, Lalama C, et al. Decision-making for postpartum discharge of 4300 mothers and their healthy infants: The life around newborn discharge study. *Pediatrics*. 2007;120(2):e391-e400.
72. Yonemoto N, Nagai S, Mori R. Schedules for home visits in the early postpartum period. *Cochrane Database of Systematic Reviews* 2013;Issue 7.
73. Baston H. Midwifery basics: postnatal care. *Postnatal care in the community. Practising Midwife*. 2005;8(3):35-40.
74. Nursing & Midwifery Council. Midwives rules and standards 2012. London: 2012.
75. MacArthur C. Winter HR, Bick D.E, Lilford RJ, Lancashire RJ, Knowles H, et al. Individualized postpartum care by midwives resulted in improved mental health. *Evidence-based Obstetrics and Gynecology*. 2002 4(4):175-6.
76. MacArthur C, Winter HR, Bick DE, Lilford RJ, Lancashire RJ, Knowles H, et al. Redesigning postnatal care: a randomised controlled trial of protocol-based midwifery-led care focused on





- individual women's physical and psychological health needs. Health Technology Assessment. 2003;7(37):1-98.
77. Koninklijke Nederlandse Organisatie van Verloskundigen. Midwifery in the Netherlands. 2012.
78. Hingstman L, Kenens RJ. Cijfers uit de registratie van verloskundigen, peiling 2011. Utrecht: 2012.
79. DeBakermat. Pratiijk voor verloskunde [Web page].2009 [cited 17/02/2014]. Available from: <http://www.verloskundigenwageningen.nl/?page=Plaatsbevalling&mn=5>
80. Lindberg I, Christensson K, Ohrling K. Parents' experiences of using videoconferencing as a support in early discharge after childbirth. Midwifery. 2009;25(4):357-65.
81. Donovan EF AR, Besl J, Atherton H, Khoury JC, Altaye M, et al. Intensive home visiting is associated with decreased risk of infant death. Pediatrics 2007;119(6):1145-51.
82. Olds DL EJ, Henderson CR Jr, Kitzman H, Powers J, Cole R, et al. Long-term effects of home visitation on maternal life course and child abuse and neglect. Fifteen year follow-up of a randomized trial. JAMA 1997;278(8):637-43.
83. Quinlivan JA, Box H, Evans SF. Postnatal home visits in teenage mothers: a randomised controlled trial. Lancet. 2003;361(9361):893-900.
84. Lassi ZS HB, Bhutta ZA. Community-based intervention packages for reducing maternal and neonatal morbidity and mortality and improving neonatal outcomes. Cochrane Database of Systematic Reviews. 2010(11).
85. Barlow J DH, McIntosh E, Jarrett P, Mockford C, Stewart-Brown S. Role of home visiting in improving parenting and health in families at risk of abuse and neglect: results of a multicentre randomised controlled trial and economic evaluation. Archives of Disease in Childhood 2007;92(3):229-33.
86. McIntosh E, Barlow J, Davis H, Stewart-Brown S. Economic evaluation of an intensive home visiting programme for vulnerable families: a cost-effectiveness analysis of a public health intervention (Structured abstract). Journal of Public Health. 2009;31(3):423-333.
87. Carabin H CL, Beebe LA, Skaggs VJ, Thompson D, Agbangla C. Does participation in a nurse visitation programme reduce the frequency of adverse perinatal outcomes in first-time mothers? Paediatric and Perinatal Epidemiology. 2005;19(3):194-205.
88. WHO/UNICE. Joint statement. Home visits for the newborn child: a strategy to improve survival. WHO/FCH/CAH/09.02 2009. 2009.
89. Askelsdottir B L-dW, Edman G, Wiklund I. Home care after early discharge Impact on healthy mothers and newborns. Midwifery. 2013;29:927-34.
90. Sigurdardottir H. The scope of midwifery homecare in Iceland. Ljósmaeorablaio (the Midwifery Journal). 2010;88:7-12.
91. Johansson K, Aarts C, Darj E. First-time parents' experiences of home-based postnatal care in Sweden. Upsala Journal of Medical Sciences. 2010;115(2):131-7.
92. Escobar GJ BP, Ackerson L, Odouli R, Coleman-Phox K, Capra AM, et al. A randomized comparison of home visits and hospital-based group followup visits after early postpartum discharge. Pediatrics 2001;108:719-27.
93. Hildingsson IM, Sandin-Bojo AK. 'What is could indeed be better'-- Swedish women's perceptions of early postnatal care. Midwifery. 2011;27(5):737-44.
94. Ellberg L, Lundman B, Persson ME, Hogberg U. Comparison of health care utilization of postnatal programs in Sweden. JOGNN Journal of Obstetric, Gynecologic, & Neonatal Nursing. 2005;34(1):55-62.
95. CC\_Zorgadviseurs MV. Instrument voor toekenning van kraamzorg: Partusassistentie en kraamzorg gedurende de kraamperiode. 2008. CC/mv/ln/ik/100240/0083/06-0130d
96. Abraha A, Bing V, Löfström M. An Evaluation of Family Centres in Region Västra Götaland, Sweden [Web page].Region Västra Götaland;2009 [cited 17/02/2014]. Available from: <http://www.vgregion.se/upload/Folkh%C3%A4lsa/rapporter/Family%20centre.pdf>



97. Kekkonen Marjatta MM, Viitala Riitta Family centre in the Nordic countries – a meeting point for children and families [Web page]. Copenhagen Nordic Council of Ministers; 2012 [cited 17/02/2014]. Available from: [http://www.expoo.be/sites/default/files/kennisdocument/fam\\_eng\\_anp701\\_web1.pdf](http://www.expoo.be/sites/default/files/kennisdocument/fam_eng_anp701_web1.pdf)
98. Johansson T. The Swedish Leksand model – family preparation as a starting point for the family centre *in* Family centre in the Nordic countries – a meeting point for children and families. In: Kekkonen Marjatta MM, Viitala Riitta, editor. Family centre in the Nordic countries - a meeting point for children and their families. Copenhagen: Nordic Council of Ministers; 2012.
99. Department of Health/Partnerships for Children Families and Maternity Matters: Choice, access and continuity of care in a safe service. London: 2007.
100. Bloomfield J, Rising S. CenteringParenting: an innovative dyad model for group mother-infant care. Journal of Midwifery & Women's Health. 2013;58:6.
101. Académie\_nationale\_de\_médecine. Sortie précoce de maternité. Des risques accrus pour le nouveau-né ? Journal de pédiatrie et de puériculture. 2005;18:362-5.
102. WHO. Assessment tool for the quality of outpatient antepartum and postpartum care for women and newborns. Sexual and Reproductive Health programme. Copenhagen: 2013.
103. Weiss ME, Ryan P, Lokken L. Validity and reliability of the Perceived Readiness for Discharge After Birth Scale. Journal of obstetric, gynecologic, and neonatal nursing : JOGNN / NAACOG. 2006;35(1):34-45.
104. Heck KE, Schoendorf KC, Chavez GF, Braveman P. Does postpartum length of stay affect breastfeeding duration? A population-based study. Birth. 2003;30(3):153-9.
105. Datar A, Sood N. Impact of postpartum hospital-stay legislation on newborn length of stay, readmission, and mortality in California. Pediatrics. 2006;118(1):63-72.
106. Evans WN, Garthwaite C, Wei H. The Impact of Early Discharge Laws on the Health of Newborns. Journal of Health Economics. 2008;27(4):843-70.
107. Madden JM, Soumerai SB, Lieu TA, Mandl KD, Zhang F, Ross-Degnan D. Effects on breastfeeding of changes in maternity length-of-stay policy in a large health maintenance organization. Pediatrics. 2003;111(3):519-24.
108. Madden JM, Soumerai SB, Lieu TA, Mandl KD, Zhang F, Ross-Degnan D. Length-of-stay policies and ascertainment of postdischarge problems in newborns. Pediatrics in review / American Academy of Pediatrics. 2004;113(1 Pt 1):42-9.
109. Shaw E, Levitt C, Wong S, Kaczorowski J. Systematic Review of the Literature on Postpartum Care: Effectiveness of Postpartum Support to Improve Maternal Parenting, Mental Health, Quality of Life, and Physical Health. Birth: Issues in Perinatal Care. 2006;33(3):210-20.
110. Cargill Y MM. Postpartum Maternal and Newborn Discharge. J Obstet Gynaecol Can 2007. 2007;29(4):357-9.
111. Scott-Jupp R. Readmission of neonates. Archives of Disease in Childhood. 2005;90(2):111-2.
112. Amporfu E. Quality Effect of Early Discharge of Maternity Patients: Does Hospital Specialization Matter? Forum for Health Economics and Policy. 2008;11(2):1-28.
113. Ellberg L, Hogberg U, Lundman B, Kallen K, Hakansson S, Lindh V. Maternity care options influence readmission of newborns. Acta Paediatrica. 2008;97(5):579-83.
114. Fiscella K, Meldrum S, Franks P. Post partum discharge against medical advice: Who leaves and does it matter? Maternal and Child Health Journal. 2007;11(5):431-6.
115. Johnson D, Jin Y, Truman C. Early discharge of Alberta mothers post-delivery and the relationship to potentially preventable newborn readmissions. Canadian Journal of Public Health. 2002;Revue Canadienne de Sante Publique. 93(4):276-80.
116. Thakkar D, Davies S, Callender N, Chalkley S, Phekoo K, Menakaya JO. Improving quality of care for healthy term jaundiced babies: Community based integrated care pathway reduce



- readmissions and length of stay. *Archives of Disease in Childhood*. 2012;97:A490.
117. Brown S, Bruinsma F, Darcy MA, Small R, Lumley J. Early discharge: No evidence of adverse outcomes in three consecutive population-based Australian surveys of recent mothers, conducted in 1989, 1994 and 2000. *Paediatric and Perinatal Epidemiology*. 2004;18(3):202-13.
118. Bryant AS, Haas JS, McElrath TF, McCormick MC. Predictors of compliance with the postpartum visit among women living in healthy start project areas. *Maternal and Child Health Journal*. 2006;10(6):511-6.
119. Goulet L, D'Amour D, Pineault R. Type and timing of services following postnatal discharge: Do they make a difference? *Women & Health*. 2007;45(4):19-39.
120. Goulet L, Fall A, D'Amour D, Pineault R. Preparation for discharge, maternal satisfaction, and newborn readmission for jaundice: Comparing postpartum models of care. *Birth*. 2007;34(2):131-9.
121. Kurtz Landy C, Sword W, Ciliska D. Urban women's socioeconomic status, health service needs and utilization in the four weeks after postpartum hospital discharge: Findings of a Canadian cross-sectional survey. *BMC Health Services Research*. 2008;8.
122. Sword WA, Krueger PD, Watt MS. Predictors of acceptance of a postpartum public health nurse home visit: Findings from an Ontario survey. *Canadian Journal of Public Health*. 2006;97(3):191-6.
123. Waldenstrom U, Aarts C. Duration of breastfeeding and breastfeeding problems in relation to length of postpartum stay: A longitudinal cohort study of a national Swedish sample. *Acta Paediatrica, International Journal of Paediatrics*. 2004;93(5):669-76.
124. Yelland J, Krastev A, Brown S. Enhancing early postnatal care: findings from a major reform of maternity care in three Australian hospitals. *Midwifery* 2009;25:392-402.
125. Bernstein HH, Spino C, Lalama CM, Finch SA, Wasserman RC, McCormick MC. Unreadiness for postpartum discharge following healthy term pregnancy: Impact on health care use and outcomes. *Academic Pediatrics*. 2013;13(1):27-39.
126. Weiss M, Ryan P, Lokken L, Nelson M. Length of stay after vaginal birth: Sociodemographic and readiness-for-discharge factors. *Birth*. 2004;31(2):93-101.
127. Hannan. APN telephone follow up to low-income first time mothers (Provisional abstract). *Journal of clinical nursing*. 2012;22(1-2):262-70.
128. McKeever P, Stevens B, Miller KL, MacDonell JW, Gibbins S, Guerriere D, et al. Home versus hospital breastfeeding support newborns: A randomized controlled trial. *Birth*. 2002;29(4):258-65.
129. O'Connor KS, Mowat D, Scott H, Larson M, Horton N, Galbraith A. Routine home visits may not be needed for postpartum care in low-risk cases. *Evidence-Based Healthcare*. 2003;7(4):182-4.
130. Paul IM, Beiler JS, Schaefer EW, Hollenbeak CS, Alleman N, Sturgis SA, et al. A randomized trial of single home nursing visits vs office-based care after nursery/maternity discharge: The Nurses for Infants through Teaching and Assessment after the Nursery (NITTANY) study. *Archives of Pediatrics and Adolescent Medicine*. 2012;166(3):263-70.
131. Kurtz Landy C, Sword W, Valaitis R. The experiences of socioeconomically disadvantaged postpartum women in the first 4 weeks at home. *Qualitative Health Research*. 2009;19(2):194-206.
132. Lock M JR. Higher neonatal morbidity after routine early hospital discharge. *CMAJ*. 1999;161:249-53.
133. Millar KR GJ, Wellington N, Jovbert GI. Early neonatal presentations to the pediatric emergency department. *Pediatr Emerg Care*. 2000;16(3):145-50.
134. Canadian\_Public\_Health\_Association. Public Health ~ Community Health Nursing Practice in Canada: Roles and Activities. In; 2010.
135. Van de Sande S, De Wachter D, Swartenbroekx N, Peers J, Debruyne H, Moldenaers I, et al. Inventaris van databanken gezondheidszorg. KCE Reports vol. 30A. Brussels: Federaal Kenniscentrum voor de gezondheidszorg (KCE); 2006.
136. NHS. Health care for London. Maternity care pathways. UK 2009. 2009. Available from: <http://london.mapofmedicine.com>



137. Department of Health State of Victoria, Australia. Postnatal care program. Guidelines for Victorian Health Services, 2012. Victoria, Australia: Department of Health, State of Victoria, Australia; 2012. Available from: <http://www.health.vic.gov.au/maternitycare>
138. Myny D, Defloor T, Alvarez-Irusta L, Annys D, Demeyere F, DeVreese I, et al. WELAME Rapport final Gent: FOD Wetenschapsbeleid; 2010 December
139. Swartenbroekx N, Obyn C, Guillaume P, Lona M, Cleemput I. Manual for cost based pricing of hospital interventions. Health Technology Assessment (HTA). KCE REport 178C. Brussels: Belgian Health Care Knowledge Centre (KCE); 2012.

