

# HEALTH EVIDENCE REVIEW COMMISSION (HERC)

## COVERAGE GUIDANCE: PLANNED HOME BIRTH

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### HERC Coverage Guidance

**Planned home births for low-risk pregnancies are recommended for coverage (*weak recommendation*).**

To be considered low-risk, pregnancies must meet all of the following characteristics :

- Gestational age  $\geq$  36 weeks and  $\leq$ 41 completed weeks of pregnancy
- Singleton
- Vertex position
- Absence of preexisting or pregnancy-related maternal disease

**High risk conditions necessitating consultation or transfer include (but are not limited to) patients with:**

#### Complications in a previous pregnancy

- Unexplained stillbirth/neonatal death or previous death related to intrapartum difficulty
- Previous baby with neonatal encephalopathy
- Pre-eclampsia/ HELLP syndrome
- Placental abruption with adverse outcome
- Eclampsia
- Uterine rupture
- Postpartum hemorrhage requiring additional treatment or blood transfusion
- Retained placenta requiring manual removal
- Shoulder dystocia
- Cesarean section
- Blood group incompatibility
- Fetal growth retardation
- Preterm birth
- Cervical insufficiency/ prior cerclage
- Fourth degree laceration
- More than three first trimester spontaneous abortions, or more than one second trimester spontaneous abortion

#### Complications of current pregnancy

- Placenta previa, vasa previa, low lying placenta
- Eclampsia, pre-eclampsia or pregnancy-induced hypertension, hypertension (before or after delivery)
- Preterm labor or preterm prelabor rupture of membranes

- Placental abruption/ abnormal bleeding
- Anemia – hemoglobin less than 8.5 g/dl
- Confirmed intrauterine death
- Induction of labor
- Substance misuse
- Alcohol dependency requiring assessment or treatment
- Body mass index at first prenatal visit of greater than 35 kg/m<sup>2</sup>
- Recurrent antepartum hemorrhage
- Small for gestational age fetus
- Abnormal fetal heart rate/Doppler/surveillance studies
- Oligo- or poly-hydramnios
- Blood group incompatibility (including Rh sensitization)
- Prelabor rupture of membranes > 24 hours
- Life-threatening congenital anomalies
- No prenatal care
- Genital herpes
- Chorioamnionitis or other serious infection (including toxoplasmosis, rubella, CMV, HIV, etc.)
- Thick meconium staining of amniotic fluid
- Failure to progress/ failure of head to engage in active labor
- Prolapsed umbilical cord
- Laparotomy during pregnancy
- Cervical dysplasia requiring evaluation
- Hyperemesis gravidarum
- Thrombosis/ thromboembolism/ thrombopenia
- Uteroplacental insufficiency
- Molar pregnancy
- Uterine rupture, inversion or prolapse
- Family history of genetic/ heritable disorders
- Age < 14

**Transfer to a higher level of care is recommended in the following circumstances:**

Post-partum complications - maternal

- Hemorrhage (hypovolemia, shock, need for transfusion)
- Retained placenta
- Laceration requiring hospital repair
- Enlarging hematoma
- Third or fourth degree, or periurethral, laceration
- Infection (endometritis, UTI, wound, breast)
- Thrombophlebitis/ thromboembolism
- Bladder or rectal dysfunction

Post-partum Complications – Infant

- Low Apgar score (< 5 at 5 minutes, < 7 at 10 minutes)
- Temperature instability, fever, suspected infection or dehydration

- Hypotonia, tremors, seizures, hyperirritability
- Life-threatening congenital anomalies
- Respiratory or cardiac irregularities, cyanosis, pallor
- Failure to pass urine or meconium within 24 to 36 hours, depending on organization
- Feeding difficulties/ significant weight loss, failure to regain birth weight by 3 weeks, weight less than 5<sup>th</sup> percentile for age
- Congenital anomalies, less than 3 vessels in umbilical cord
- Excessive bruising, enlarging cephalohematoma, significant birth trauma
- Hyperglycemia/ hypoglycemia unresponsive to treatment
- Vomiting/ diarrhea
- Jaundice within the first 24 hours
- Prematurity

**Planned home births in unselected pregnancies are not recommended for coverage (*strong recommendation*).**

Studies demonstrating positive outcomes including the following system characteristics: Women planning a home birth were informed of the potential need for transfer and the potential risks associated with having a delay to emergency obstetric and neonatal care. There was a well-defined system of transfer. Attendants of home birth were licensed and certified, and appropriately trained in the identification and management of obstetric and neonatal emergencies.

Note: Definitions for strength of recommendation are provided in Appendix B GRADE Element Description

## **RATIONALE FOR GUIDANCE DEVELOPMENT**

The HERC selects topics for guideline development or technology assessment based on the following principles:

- Represents a significant burden of disease
- Represents important uncertainty with regard to efficacy or harms
- Represents important variation or controversy in clinical care
- Represents high costs, significant economic impact
- Topic is of high public interest

Coverage guidance development follows to translate the evidence review to a policy decision. Coverage guidance may be based on an evidence-based guideline developed by the Evidence-based Guideline Subcommittee or a health technology assessment developed by the Health Technology Assessment Subcommittee. In addition, coverage guidance may utilize an existing evidence report produced by one of HERC's trusted sources, generally within the last three years.

## EVIDENCE SOURCES

### Trusted sources

- Olsen, O., & Clausen, J. A. (2012). Planned hospital birth versus planned home birth. *Cochrane Database of Systematic Reviews*, 9. Accessed August 9, 2014, from [http://almenpraksis.ku.dk/nyheder/oleolsen/Hjemmef\\_dsel.pdf](http://almenpraksis.ku.dk/nyheder/oleolsen/Hjemmef_dsel.pdf)
- National Institute for Clinical Excellence (2014). *Intrapartum care: care of healthy women and their babies during childbirth Clinical Guideline 190, December 2014*. Accessed December 18, 2014, from <http://www.nice.org.uk/guidance/cg190>.

### Additional sources

- Cochrane, A. L. (2000). 1931-1971: A critical review, with particular reference to the medical profession. *Medicines for the year*, 1-11.
- College of Midwives of British Columbia. (2014). *Indications for discussion, consultation, and transfer of care*. Accessed August 4, 2014, from <http://www.cmbc.bc.ca/pdf.shtml?Registrants-Handbook-12-01-Indications-for-Discussion-Consultation-and-Transfer-of-Care>
- College of Midwives of Ontario (2015). *Consultation and transfer of care*. Accessed October 1, 2014, from [http://www.cmo.on.ca/?page\\_id=1026](http://www.cmo.on.ca/?page_id=1026)
- de Jonge, A., van der Goes, B. Y., Ravelli, A. C., Amelink-Verburg, M. P., Mol, B. W., Nijhuis, J. G., et al. (2009). Perinatal mortality and morbidity in a nationwide cohort of 529, 688 low-risk planned home and hospital births. *BJOG: An International Journal of Obstetrics & Gynaecology*, 116(9), 1177-1184.
- Dowswell, T., Thornton, J. G., Hewison, J., Lilford, R. J., Raisler, J., MacFarlane, A., et al. (1996). Should there be a trial of home versus hospital delivery in the United Kingdom? *BMJ: British Medical Journal*, 312(7033), 753.
- Hendrix, M., Van Horck, M., Moreta, D., Nieman, F., Nieuwenhuijze, M., Severens, J., et al. (2009). Why women do not accept randomisation for place of birth: feasibility of a RCT in the Netherlands. *BJOG: An International Journal of Obstetrics & Gynaecology*, 116(4), 537-544.
- Hodnett E.D., Stremler R., Weston J.A., & Mckeever P. Reconceptualizing the hospital labor room: the Place (Pregnant and Laboring in an Ambient Clinical Environment) pilot trial. (2009). *Birth*, 36(2), 159–66.
- Hutton, E. K., Reitsma, A. H., & Kaufman, K. (2009). Outcomes associated with planned home and planned hospital births in low-risk women attended by midwives in Ontario, Canada, 2003–2006: a retrospective cohort study. *Birth*, 36(3), 180-189.
- Janssen, P. A., Saxell, L., Page, L. A., Klein, M. C., Liston, R. M., & Lee, S. K. (2009). Outcomes of planned home birth with registered midwife versus planned hospital birth with midwife or physician. *Canadian Medical Association Journal*, 181(6-7), 377-383.

Netherlands Ministry of Health, Welfare, and Sport. (n.d). *Final report of the obstetric working group of the national health insurance board of the Netherlands (abridged version)*. The Hague, NL: Government of the Netherlands. Accessed August 4, 2014, from <http://blog.lib.umn.edu/kuli0015/studygroup/Dutch%20OB%20Indications.doc>

Oregon Health Authority. (2013). *Oregon birth outcomes by planned birth place and attendant*. Accessed August 1, 2014, from <https://public.health.oregon.gov/BirthDeathCertificates/VitalStatistics/birth/Documents/PlannedBirthPlaceandAttendant.pdf>

Wax, J. R., Lucas, F. L., Lamont, M., Pinette, M. G., Cartin, A., & Blackstone, J. (2010). Maternal and newborn outcomes in planned home birth vs planned hospital births: a meta-analysis. *American journal of obstetrics and gynecology*, 203(3), 243-e1.

Zeitlin, J., Mohangoo, A., Alexander, S., Barros, H., Blondel, B., Bouvier-Colle, et al. (n.d). *Health and care of pregnant women and babies in Europe in 2010*. Accessed on August 1, 2014 from <http://www.europeristat.com/images/doc/Peristat%202013%20V2.pdf>

The summary of evidence in this document is derived directly from this evidence source, and portions are extracted verbatim.

## TOPIC BACKGROUND

The Licensed Direct Entry Midwife (LDM) Staff Advisory Workgroup was convened in January 2014 by the Director of the Oregon Health Authority (OHA). The workgroup was established to provide recommendations regarding perinatal services provided to Medicaid enrollees by LDMs. The workgroup was guided by the Triple Aim goals of improving population health, improving the individual's experience of care, and reducing per capita costs. One of the recommendations of the final report of this workgroup to the OHA was to request that the Health Evidence Review Commission develop a Coverage Guidance related to home birth, including evidence regarding:

- The maternal and fetal/neonatal/child health outcomes of home birth compared with birth in other settings
- Appropriate candidates for home birth
- Criteria for optimizing safety with regard to provider training, equipment, standards, consultation, and other systems of care

## EVIDENCE OVERVIEW

### Clinical background

#### From Cochrane 2012

Medicalization of childbirth is a central feature in Western societies. The majority of women living in high and middle-income countries have given birth in hospitals since the middle of the 20th century. However, there are regions where home birth is considered part of normal practice. The most cited case is the Netherlands where planned home birth is supported by the

official healthcare system. There, planned home birth is considered an appropriate choice for a woman of low risk and approximately 30% of all births take place at home. It is of historical interest to note that the transfer of low-risk births from home to hospital in the 1960s, despite lack of high-quality evidence, was one of the pivotal issues when Archie Cochrane laid out the ideological ground for The Cochrane Collaboration. Cochrane awarded ‘the wooden spoon’ to obstetrics, because “the specialty missed its first opportunity in the sixties, when it failed to randomize the confinement of low-risk pregnant women at home or hospital. Then, having filled the emptying beds by getting nearly all pregnant women into hospital, the obstetricians started to introduce a whole series of expensive innovations into the routines of pre- and postnatal care and delivery, without any rigorous evaluation. The list is long, but the most important were induction, ultrasound, foetal monitoring, and placental function tests” (Cochrane 1979). The relationship between hospitalization, childbirth, and intervention is still an important issue as “Concern about the iatrogenic effects of obstetric intervention in women who do not have a clinical need for it has put ‘normal’ birth firmly on the agenda for the 21st century.” (EURO-PERISTAT 2008).

A range of interventions continue to be used routinely in relation to births at many hospitals despite the fact that for a long time they have been proven to have harmful effects, or only marginal or no beneficial effect (e.g., fetal monitoring, episiotomy and early cord clamping). Even though the use of a few specific interventions have been reduced (e.g., placental function tests), in general “routine medical interventions have [...] increased steadily over time despite the efforts of the Cochrane Pregnancy and Childbirth Group, its predecessors, and other researchers carrying out systematic reviews” (Hodnett 2009).

The Cochrane review is about healthy pregnant women at term for whom no serious complications have been identified prior to the spontaneous initiation of birth and for which the birth is expected to be medically uncomplicated. Generally, between 70% and 80% of all pregnant women may be considered as low risk at the start of labor.

## EVIDENCE REVIEW

### Cochrane 2012

The inclusion criteria for the Cochrane 2012 review was limited to randomized controlled trials that compared planned hospital births to planned home births. Authors identified two RCTs; however one was only able to recruit one patient. This study (Hendrix 2009) was conducted in the Netherlands and recruited nulliparous women of low obstetric risk (n = 1). In this trial, 35 midwives in 14 primary care midwifery practices were involved in recruiting pregnant women in different parts of the Netherlands where 30% of all births are home births. However, the study author reported that only one of 116 women was willing to be randomized, the others having all decided where they wanted to deliver before being recruited into the study.

The second trial, Dowswell 1996, was conducted in the United Kingdom and recruited multiparous women judged to be at low obstetric risk by a consultant obstetrician and likely to have suitable home support and home circumstances (n = 71). Recruitment was carried out by one consultant obstetrician in an area where planned home birth was otherwise uncommon

(0.5% to 1%). The midwives assisting the home births were community midwives who spent a few days each month in hospital; all UK midwives are trained to do home births, but the ones in the trial were probably not experienced with home birth. The hospital births were standard hospital care with intermittent auscultation at a university hospital with consultant obstetrician on call (but not called routinely) and full neonatal facilities. One midwife served one to two women in single rooms; she used intermittent auscultation and was not continuously present. This study was rated as having high methodologic quality, except for the small size.

The fully assessed trial with reported outcomes was too small to draw reliable conclusions. Only 11 women agreed to randomization. Four of the primary outcomes in this review were available for inclusion: baby not breast fed, assisted vaginal birth, caesarean section, and other (non-epidural) medical pain relief. In addition, three other outcomes were reported and these are also included here: perineal sutures, mother disappointed about allocation, and father did not state that he was relieved. One difference seems statistically significant: the majority of mothers in the hospital group were disappointed about the allocation while none of the mothers in the home birth group were disappointed [(Peto odds ratio 12.18, 95% confidence interval (CI) 1.05 to 141.17; however, the difference is non-significant using a Fisher's exact test P value = 0.07)]. There were no instances of assisted vaginal birth or cesarean section, and for the other outcomes, there were no statistically significant differences between groups.

The Cochrane authors report that these results do not “contradict the evidence from the largest observational studies (de Jonge 2009; Hutton 2009; Janssen 2009) identified in the most recent systematic review (Wax 2010).”

Because of the paucity of RCTs addressing this comparison, the systematic review and observational studies listed above are summarized below.

## **Wax 2010**

This systematic review did not limit inclusion criteria by study design. The search was through November 2009, and included MEDLINE, EMBASE and Cochrane Database of Systematic Reviews. Inclusion criteria included performance in developed western countries, English language, peer reviewed and outcomes analyzed by planned delivery location. Twelve studies were included, including the three cohort studies described below and the single RCT described above, with a total of 342,056 planned home and 207,551 planned hospital deliveries.

Meta-analysis of maternal outcomes found that planned home births experienced significantly fewer medical interventions including epidural analgesia, electronic fetal heart rate monitoring, episiotomy, and operative vaginal and cesarean deliveries. Likewise, women intending home deliveries had fewer infections, third degree lacerations, perineal and vaginal lacerations, hemorrhages, and retained placentas. There was no significant difference in the rate of umbilical cord prolapse.

Meta-analysis of neonatal outcomes found that women planning home births were less likely to have preterm deliveries or babies who were low birth weight. Planned home births more often progressed to at least 42 weeks. While there was no overall pooled difference in the rate of

assisted ventilation, one large study found more frequent ventilation among planned home births, while two smaller studies noted lower rates in this group. Perinatal mortality was similar by intended delivery location (OR 0.95 95% CI 0.77 to 1.18), as well as just among non-anomalous offspring (OR 0.95, 95% CI 0.76 to 1.18). In contrast, neonatal mortality was almost twice as high in planned home versus planned hospital births (OR 1.98, 95% CI 1.19 to 3.28, absolute number 32 out of 16,500 planned home births [0.20%] compared to 32 out of 33,302 planned hospital births [0.09%]), and almost tripled among non-anomalous neonates (OR 2.87, 95% CI 1.32 to 6.25, absolute number 23 out of 15,633 planned home births [0.15%] compared to 14 out of 31,999 planned hospital births [0.04%]). While the reason for the difference between neonatal and perinatal mortality rates is unclear from this analysis, the authors speculate that it may be due to the lower obstetric risk associated with patients planning home births. If this is the case, planned home births may face a higher perinatal mortality rate than similar risk planned hospital births.

The results of the sensitivity analyses excluding studies that included home births attended by other than certified midwives or certified nurse midwives had findings similar to the original analysis, except that the ORs for neonatal deaths among all (OR, 1.57; 95% CI, 0.62–3.98) and non-anomalous (OR, 3.00; 95% CI, 0.61–14.88) newborns were not statistically significant.

### de Jonge 2009

This is a nationwide cohort study conducted in the Netherlands that included a total of 529, 688 low-risk women who were in primary midwife-led care at the onset of labor. In the Netherlands, the indications for referral to an obstetrician have been agreed upon by the professional groups involved and are laid out in the “Obstetric Indication List” (see Appendix A). Of these, 321, 307 (60.7%) intended to give birth at home, 163, 261 (30.8%) planned to give birth in hospital and for 45, 120 (8.5%), the intended place of birth was unknown. Authors adjusted for a number of maternal characteristics (e.g., parity, gestational age, maternal age, ethnic background and socioeconomic status).

No significant differences were found between planned home and planned hospital birth in neonatal outcomes reported. Adjusted relative risks (RR) and 95% CI were as follows: intrapartum death (RR 0.97, 95% CI: 0.69 to 1.37), intrapartum death and neonatal death during the first 24 hours (RR 1.02, 95% CI: 0.77 to 1.36), intrapartum death and neonatal death up to 7 days (RR 1.00, 95% CI: 0.78 to 1.27), admission to neonatal intensive care unit (RR 1.00, 95% CI: 0.86 to 1.16).

### Hutton 2009

Midwives in Ontario, Canada, provide care in the home and hospital and are required to submit data for all births to the Ontario Ministry of Health database. The purpose of this study was to compare maternal and perinatal/neonatal mortality and morbidity and intrapartum intervention rates for women attended by Ontario midwives who planned a home birth compared with similar low-risk women who planned a hospital birth between 2003 and 2006. The following types of pregnancies are not eligible for home birth in Ontario:

- Twins
- Breech
- Medical complications in the mother
- More than one prior cesarean section
- Gestational age less than 37 or more than 42 weeks

The database provided outcomes for all women planning a home birth at the onset of labor (n = 6, 692) and for a cohort, stratified by parity, of similar low-risk women planning a hospital birth. The rate of perinatal and neonatal mortality was very low (1/1,000) for both groups, and no difference was shown between groups in a composite measure of perinatal and neonatal mortality or serious morbidity (RR 2.4% vs 2.8%, 95% CI: 0.84 [0.68–1.03]). No maternal deaths were reported. All measures of maternal morbidity were lower in the planned home birth group, including augmentation (RR 0.76, 95% CI 0.72 to 0.80), pharmaceutical pain relief (RR 0.37, 95% CI 0.35 to 0.39), episiotomy (RR 0.73, 95% CI 0.63 to 0.84), assisted delivery (RR 0.67, 95% CI 0.56 to 0.80), perineal trauma (RR 0.87, 95% CI 0.83 to 0.90) and blood loss greater than 1,000 ml (RR 0.68, 95% CI 0.49 to 0.96). In addition, the rates for cesarean section were lower in the planned home birth group (5.2% vs 8.1%, RR 0.64, 95% CI 0.56 to 0.73). When stratified by parity, nulliparas were less likely to deliver at home, and had higher rates of ambulance transport from home to hospital than multiparas planning home birth. However, nulliparas planning home birth still had rates of intervention and outcomes that were similar to, or lower than, nulliparas planning hospital births.

### Janssen 2009

This study was also a retrospective cohort study utilizing a database of all births in the province of British Columbia that occurred between 2000 and 2004. Eligibility for home birth by the College of Midwives of British Columbia includes the following:

- Absence of significant pre-existing disease in the mother
- Absence of significant disease arising during pregnancy (e.g., pregnancy-induced hypertension, hemorrhage, diabetes, herpes, placenta previa, abruption)
- Singleton fetus
- Cephalic presentation
- Gestation age between 36 and 41 weeks
- No more than one prior cesarean section
- Spontaneous labor (or induced as an outpatient)
- No transfer from a referring hospital

Planned home births were compared to midwife attended planned hospital births and physician attended planned hospital births, both limited to patients who meet the criteria for home birth and matched by age, parity, single parent status, maternal age and hospital location. There were 2,899 women in the planned home birth group, 4,752 in the planned hospital birth group attended by midwives, and 5,331 in the planned hospital group attended by physicians.

The perinatal mortality rate was 0.35/1,000 births in the home birth group, 0.57/1,000 in the hospital midwife group and 0.64/1,000 in the hospital physician group, with no statistically significant differences between groups (RR for home midwife vs. hospital midwife 0.61, 95% CI 0.06 to 5.88; RR for home midwife vs. hospital physician 0.55, 95% CI 0.06 to 5.25). Infants in the planned home birth group were significantly less likely to have an Apgar score less than seven at one minute, to suffer birth trauma, or to require resuscitation or oxygen therapy for more than 24 hours when compared to either hospital group.

Compared to planned home birth, the frequency of obstetric interventions was higher in the planned hospital group (either physician or midwife), including fetal monitoring (RR 0.32, 95% CI 0.29 to 0.36 for midwife, RR 0.17, 95% CI 0.16 to 0.19 for physician), augmentation of labor (RR 0.59, 95% CI 0.55 to 0.69 for midwife, RR 0.47, 95% CI 0.44 to 0.51 for physician), assisted vaginal delivery (RR 0.41, 95% CI 0.33 to 0.52 for midwife, RR 0.22, 95% CI 0.18 to 0.27 for physician), cesarean section (RR 0.76, 95% CI 0.64 to 0.91 for midwife, RR 0.65, 95% CI 0.56 to 0.76 for physician) and episiotomy (RR 0.49, 95% CI 0.38 to 0.63 for midwife, RR 0.19, 95% CI 0.15 to 0.23 for physician). They were also more likely to have third or fourth degree perineal tears (RR 0.43, 95% CI 0.29 to 0.63 for midwife, RR 0.34, 95% CI 0.24 to 0.49 for physician).

## Guidelines

The NICE guideline on intrapartum care in healthy women was last published in 2007. However, it is in the process of being updated, with a draft being released for comment in May 2014. The guideline recommends the following regarding place of birth:

### “Women at low-risk of complications

1.1.1 Explain to women who are at low risk of complications that giving birth is generally very safe for both the woman and her baby. [new 2014]

1.1.2 Explain to the woman that she may choose any birth setting (home, freestanding midwifery unit, alongside midwifery unit or obstetric unit), and support her in her choice of setting wherever she chooses to give birth. [new 2014]

1.1.3 Advise low-risk multiparous women to plan to give birth at home or in a midwifery-led unit (freestanding or alongside). Explain that this is because the rate of interventions is lower and the outcome for the baby is no different compared with an obstetric unit. [new 2014]

1.1.4 Advise low-risk nulliparous women to plan to give birth in a midwifery-led unit (freestanding or alongside). Explain that this is because the rate of interventions is lower and the outcome for the baby is no different compared with an obstetric unit, but if they plan birth at home there is a small increase in the risk of an adverse outcome for the baby. [new 2014]

1.1.5 Using tables 1 and 2, explain to low-risk multiparous women

- Planning birth at home or in a freestanding midwifery unit is associated with a higher rate of spontaneous vaginal birth than planning birth in an alongside midwifery unit, and

these 3 settings are associated with higher rates of spontaneous vaginal birth than planning birth in an obstetric unit

- Planning birth in an obstetric unit is associated with a higher rate of interventions, such as instrumental vaginal birth, caesarean section and episiotomy, compared with planning birth in other settings
- There are no differences in outcomes for the baby associated with planning birth in any setting. [new 2014]

Table 1. (Rates of spontaneous vaginal birth, transfer to an obstetric unit, and obstetric interventions for each planned place of birth: low-risk multiparous women)

	Number of incidences per 1,000 multiparous women giving birth			
	Home	Freestanding midwifery unit	Alongside midwifery unit	Obstetric unit
<b>Spontaneous vaginal birth</b>	980	975	965	925
<b>Transfer to an obstetric unit</b>	86	94	125	10
<b>Epidural</b>	28	40	60	121
<b>Episiotomy</b>	15	23	35	56
<b>Cesarean birth</b>	7	8	10	35
<b>Forceps birth</b>	4	8	11	20
<b>Ventouse (vacuum) birth</b>	5	4	12	37
<b>Blood transfusion</b>	4	4	5	8

Table 2. (Outcomes for the baby for each planned place of birth: low-risk multiparous women)

	Number of babies per 1,000 births			
	Home	Freestanding midwifery unit	Alongside midwifery unit	Obstetric unit
<b>Babies without serious medical problems</b>	997	997	998	997
<b>Babies with serious medical problems</b>	3	3	2	3

Using tables 3 and 4, explain to low-risk nulliparous women

- Planning birth at home or in a freestanding midwifery unit is associated with a higher rate of spontaneous vaginal birth than planning birth in an alongside midwifery unit, and these 3 settings are associated with higher rates of spontaneous vaginal birth than planning birth in an obstetric unit

- Planning birth in an obstetric unit is associated with a higher rate of interventions, such as instrumental vaginal birth, caesarean section and episiotomy, compared with planning birth in other settings
- There are no differences in outcomes for the baby associated with planning birth in an alongside midwifery unit, a freestanding midwifery unit or an obstetric unit
- Planning birth at home is associated with an overall small increase (about 4 more per 1,000 births) in the risk of a baby having a serious medical problem compared with planning birth in other settings.

Table 3. (Rates of spontaneous vaginal birth, transfer to an obstetric unit, and obstetric interventions for each planned place of birth: low-risk nulliparous women)

	Number of incidences per 1,000 nulliparous women giving birth			
	Home	Freestanding midwifery unit	Alongside midwifery unit	Obstetric unit
<b>Spontaneous vaginal birth</b>	792	810	765	686
<b>Transfer to an obstetric unit</b>	440	363	402	10
<b>Epidural</b>	218	200	240	349
<b>Episiotomy</b>	165	165	216	242
<b>Cesarean birth</b>	80	69	76	121
<b>Forceps birth</b>	70	61	81	106
<b>Ventouse (vacuum) birth</b>	62	57	78	113
<b>Blood transfusion</b>	12	8	11	16

Table 4. (Outcomes for the baby for each planned place of birth: low-risk nulliparous women)

	Number of babies per 1,000 births			
	Home	Freestanding midwifery unit	Alongside midwifery unit	Obstetric unit
<b>Babies without serious medical problems</b>	991	995	995	995
<b>Babies with serious medical problems</b>	9	5	5	5

#### Medical conditions and other factors that may affect planned place of birth

1.1.11 Use tables 6, 7, 8 and 9 as part of an assessment for a woman choosing her planned place of birth:

- Tables 6 and 7 show medical conditions or situations in which there is increased risk for the woman or baby during or shortly after labour, where care in an obstetric unit would be expected to reduce this risk.
- The factors listed in tables 8 and 9 are not reasons in themselves for advising birth within an obstetric unit, but indicate that further consideration of birth setting may be required.
- Discuss these risks and the additional care that can be provided in the obstetric unit with the woman so that she can make an informed choice about planned place of birth.  
[2007, amended 2014]

**Table 5. Medical conditions indicating increased risk suggesting planned birth at an obstetric unit**

<b>Disease Area</b>	<b>Medical Condition</b>
Cardiovascular	<ul style="list-style-type: none"> <li>• Confirmed cardiac disease</li> <li>• Hypertensive disorders</li> </ul>
Respiratory	<ul style="list-style-type: none"> <li>• Asthma requiring an increase in treatment or hospital treatment</li> <li>• Cystic fibrosis</li> </ul>
Haematological	<ul style="list-style-type: none"> <li>• Haemoglobinopathies – sickle-cell disease, beta-thalassaemia major</li> <li>• History of thromboembolic disorders</li> <li>• Immune thrombocytopenia purpura or other platelet disorder or platelet count below 100,000</li> <li>• Von Willebrand's disease</li> <li>• Bleeding disorder in the woman or unborn baby</li> <li>• Atypical antibodies which carry a risk of haemolytic disease of the newborn</li> </ul>
Infective	<ul style="list-style-type: none"> <li>• Risk factors associated with group B streptococcus whereby antibiotics in labour would be recommended</li> <li>• Hepatitis B/C with abnormal liver function tests</li> <li>• Carrier of/infected with HIV</li> <li>• Toxoplasmosis – women receiving treatment</li> <li>• Current active infection of chicken pox/rubella/genital herpes in the woman or baby</li> <li>• Tuberculosis under treatment</li> </ul>
Immune	<ul style="list-style-type: none"> <li>• Systemic lupus erythematosus</li> <li>• Scleroderma</li> </ul>
Renal	<ul style="list-style-type: none"> <li>• Abnormal renal function</li> <li>• Renal disease requiring supervision by a renal specialist</li> </ul>
Neurological	<ul style="list-style-type: none"> <li>• Epilepsy</li> <li>• Myasthenia gravis</li> <li>• Previous cerebrovascular accident</li> </ul>
Gastrointestinal	<ul style="list-style-type: none"> <li>• Liver disease associated with current abnormal liver function tests</li> </ul>
Psychiatric	<ul style="list-style-type: none"> <li>• Psychiatric disorder requiring current inpatient care</li> </ul>

Table 6. Other factors indicating increased risk suggesting planned birth at an obstetric unit

Factor	Additional Information
Previous complications	<ul style="list-style-type: none"> <li>• Unexplained stillbirth/neonatal death or previous death related to intrapartum difficulty</li> <li>• Previous baby with neonatal encephalopathy</li> <li>• Pre-eclampsia requiring preterm birth</li> <li>• Placental abruption with adverse outcome</li> <li>• Eclampsia</li> <li>• Uterine rupture</li> <li>• Primary postpartum haemorrhage requiring additional treatment or blood transfusion</li> <li>• Retained placenta requiring manual removal in theatre Caesarean section</li> <li>• Shoulder dystocia</li> </ul>
Current pregnancy	<ul style="list-style-type: none"> <li>• Multiple birth</li> <li>• Placenta praevia</li> <li>• Pre-eclampsia or pregnancy-induced hypertension</li> <li>• Preterm labour or preterm prelabour rupture of membranes</li> <li>• Placental abruption</li> <li>• Anaemia – haemoglobin less than 8.5 g/dl at onset of labour</li> <li>• Confirmed intrauterine death</li> <li>• Induction of labour</li> <li>• Substance misuse</li> <li>• Alcohol dependency requiring assessment or treatment</li> <li>• Onset of gestational diabetes</li> <li>• Malpresentation – breech or transverse lie</li> <li>• Body mass index at booking of greater than 35 kg/m<sup>2</sup></li> <li>• Recurrent antepartum haemorrhage</li> <li>• Small for gestational age in this pregnancy (less than fifth centile or reduced growth velocity on ultrasound)</li> <li>• Abnormal fetal heart rate/Doppler studies</li> <li>• Ultrasound diagnosis of oligo-/polyhydramnios</li> </ul>
Previous gynaecological history	<ul style="list-style-type: none"> <li>• Myomectomy</li> <li>• Hysterotomy</li> </ul>

Table 7. Medical conditions indicating individual assessment when planning place of birth

Disease Area	Medical Condition
Cardiovascular	<ul style="list-style-type: none"> <li>• Cardiac disease without intrapartum implications</li> </ul>
Haematological	<ul style="list-style-type: none"> <li>• Sickle-cell trait</li> <li>• Thalassaemia trait</li> <li>• Atypical antibodies not putting the baby at risk of haemolytic disease</li> <li>• Anemia – haemoglobin 8.5-10.5 g/dl at onset of labor</li> </ul>

Infective	<ul style="list-style-type: none"><li>• Hepatitis B/C with normal liver function tests</li></ul>
Immune	<ul style="list-style-type: none"><li>• Nonspecific connective tissue disorders</li></ul>
Endocrine	<ul style="list-style-type: none"><li>• Unstable hypothyroidism such that a change in treatment is required</li></ul>
Skeletal/Neurological	<ul style="list-style-type: none"><li>• Spinal abnormalities</li><li>• Previous fractured pelvis</li><li>• Neurologic deficits</li></ul>
Gastrointestinal	<ul style="list-style-type: none"><li>• Liver disease without current abnormal liver function</li><li>• Crohn's disease</li><li>• Ulcerative colitis</li></ul>

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Table 8. Other factors indicating individual assessment when planning place of birth

Factor	Additional Information
Previous complications	<ul style="list-style-type: none"> <li>• Stillbirth/neonatal death with a known non-recurrent cause</li> <li>• Pre-eclampsia developing at term</li> <li>• Placental abruption with good outcome</li> <li>• History of previous baby more than 4.5 kg</li> <li>• Extensive vaginal, cervical, or third- or fourth-degree perineal trauma</li> <li>• Previous term baby with jaundice requiring exchange transfusion</li> </ul>
Current pregnancy	<ul style="list-style-type: none"> <li>• Antepartum bleeding of unknown origin (single episode after 24 weeks of gestation)</li> <li>• Body mass index at booking of 30–34 kg/m<sup>2</sup></li> <li>• Blood pressure of 140 mmHg systolic or 90 mmHg diastolic on two occasions</li> <li>• Clinical or ultrasound suspicion of macrosomia</li> <li>• Para 4 or more</li> <li>• Recreational drug use</li> <li>• Under current outpatient psychiatric care</li> <li>• Age over 35 at booking</li> </ul>
Fetal indications	<ul style="list-style-type: none"> <li>• Fetal abnormality</li> </ul>
Previous gynaecological history	<ul style="list-style-type: none"> <li>• Major gynaecological surgery</li> <li>• Cone biopsy or large loop excision of the transformation zone</li> <li>• Fibroids</li> </ul>

### Service organisation and clinical governance

1.1.17 Ensure that all women giving birth have prompt access to an obstetric unit in case they need transfer of care for medical reasons or because they request epidural analgesia. [new 2014]

1.1.18 Ensure that there are robust protocols in place for transfer of care between settings (see also section 1.6). [new 2014]

1.1.19 Ensure that there are clear local pathways for the continued care of women who are transferred from one setting to another, including where this involves crossing provider boundaries. These pathways should include arrangements for occasions when the nearest obstetric or neonatal unit is closed to admissions or when the local midwifery-led unit is full. [new 2014]”

### Other evidence

In 2013 the Oregon Public Health Division published its first report on birth outcomes by planned birth place and attendant. Because this report specifically addresses home birth outcomes in the state of Oregon, a summary is presented here.

In 2011, the Oregon Legislature passed House Bill 2380, which required the Oregon Public Health Division to add two questions to the Oregon Birth Certificate to determine planned place of birth and birth attendant, and to report annually on birth outcomes, including death, by

location and attendant type. The specific questions were: “Did you go into labor planning to deliver at home or at a freestanding birthing center? If yes, what was the planned primary attendant type at the onset of labor?” In addition, for 2012, the Oregon Public Health Division conducted a special study of deaths in term infants ( $\geq 37$  weeks’ gestation) intended to deliver out-of-hospital. The perinatal fatality analysis includes fetal and early neonatal deaths  $\geq 37$  weeks’ estimated gestational age through the first 6 days of life.

During 2012, 42,011 live term births occurred in Oregon. Of these 2,021 (4.8%) planned an out-of-hospital birth (home birth or freestanding birthing center).

Key findings of term fetal and early neonatal deaths by planned place of birth and planned birth attendant include the following:

- Sixty-two term ( $\geq 37$  weeks’ gestation) fetal deaths occurred in Oregon during 2012; 4 (6.5%) of these occurred among planned out-of-hospital births.
- Thirty term early neonatal deaths (during the first 6 days of life) occurred in Oregon during 2012; 4 (13.3%) of these occurred among planned out-of-hospital births.
- In total, 92 term fetal and early neonatal deaths occurred in Oregon during 2012; 8 (8.7%) occurred among planned out-of-hospital births. These 8 deaths underwent a fetal and neonatal mortality case review per published national guidelines.

Key findings of the perinatal fatality case review of term births planned to occur out-of-hospital include the following:

- Four term fetal and four early neonatal deaths occurred during 2012 among women who planned to deliver out-of-hospital
- Planned birth attendants: Certified Nurse Midwife (1), Licensed Direct-Entry Midwives (4), Unlicensed Midwife (1), Undetermined Licensure Midwife (1), and Naturopathic Physician (1)
- Median birth weight (3515 grams)
- Maternal characteristics were similar to the larger group of planned out-of-hospital births
- Two pregnancies had inadequate or no prenatal care
- Chart review noted that, among perinatal deaths:
  - Two pregnancies were twin gestations
  - Four mothers declined prenatal ultrasound (to confirm gestation and identify pathology)
  - Five mothers declined Group B streptococcal testing (to identify women who are carriers of GBS; treatment during labor is recommended to decrease the risk of early GBS neonatal sepsis)
  - Two mothers declined prophylaxis during labor for Group B streptococcal positive tests
- Six of eight transferred to the hospital during labor:
  - Indications for transfer to a hospital from home or birthing center included (multiple causes may apply): loss of fetal heart tones (3), prolonged labor (2), decreased fetal movement (2), and malpresentation (2)

- One mother initially declined transfer during labor despite recommendation by birth attendant
- Six of eight pregnancies did not meet published low-risk criteria for out-of-hospital birth\*:
  - More than 41 weeks gestation (4)
  - Twin gestation (2)
  - Morbid obesity (> 40 BMI) (1)
  - Planned attendants among these 6: Certified Nurse Midwife (1), Licensed Direct-Entry Midwives (3), Unlicensed Midwife (1), and Naturopathic Physician (1)
- Causes of death and major contributing factors (more than one may apply):
  - Hypoxic ischemic encephalopathy or cardiorespiratory failure (lack of blood flow) (3)
  - Chorioamnionitis (infection in the womb) (3)
  - Pre-existing or pregnancy-related maternal disease (2)
  - Respiratory failure (1)
  - Undetermined, umbilical cord wrapped around neck, large baby (1)
  - Undetermined, twin gestation, small baby (2)

The term perinatal mortality rate for planned out-of-hospital births (4.0/1,000 pregnancies) was nearly twice that of in-hospital births (2.1/1,000). When excluding those pregnancies that did not meet published criteria for being low risk, the perinatal mortality rate for planned out-of-hospital births is 1.0/1000.

### Risk criteria for planned home birth

The 2014 NICE draft guideline for antepartum care clearly outlines conditions that make a woman high-risk. In addition, the Oregon Public Health Division referenced a report from the American College of Obstetrics and Gynecology (ACOG) on Planned Home Birth<sup>1</sup> as their published criteria for being low-risk. This includes the following requirements:

- Gestational age  $\geq 36$  weeks and  $\leq 41$  completed weeks of pregnancy
- Singleton
- Vertex position
- Absence of preexisting or pregnancy-related maternal disease

The ACOG committee opinion references Hutton 2006 and Janssen 2009 as a source for these criteria. They also note that the low-risk criteria utilized in these two observational studies did not exclude women with a prior cesarean section; however, because of potential risks they state that ACOG “considers a prior cesarean delivery to be an absolute contraindication to planned home birth”. They also note that studies showing favorable perinatal outcomes (de Jonge 2009; Hutton 2006; Janssen 2009) were conducted in settings that have “highly integrated health care systems with established criteria and provisions for emergency intrapartum transport.”

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<sup>1</sup> American College of Obstetricians and Gynecologists. (2011). Planned home birth. Committee Opinion No. 476. *Obstetrics & Gynecology*, 117, 425–428.

Therefore, ACOG “believes that the availability of timely transfer and an existing arrangement with a hospital for such transfers is a requirement for consideration of a home birth.”

The final report of the Licensed Direct Entry Midwife (LDM) Staff Advisory Workgroup also recommends that planned home birth be limited to patients who are low-risk, defined as pregnancies that do not have any of the following characteristics:

- Presentation other than cephalic
- Previous cesarean delivery
- Gestational age < 36 or > 43 weeks
- Multiple gestations
- Diabetes/uncontrolled gestational diabetes or gestational diabetes controlled with medication
- Pre-eclampsia

Current Oregon law<sup>2</sup> outlines risk criteria which birthing centers must follow. A proposed rule would apply those same criteria to home births. Those criteria can be found in Appendix A.

All three observational studies included in this document were based on registries in countries or provinces that strictly control the practice of midwifery and adhere to established criteria for planned home birth. All three lists of criteria are provided in Appendix A.

### Midwifery certification

Training and certification requirements for midwives vary among the countries referenced in this document. A summary is presented below:

#### The Netherlands<sup>3</sup>

“The midwifery training is a four year fulltime direct entry education, which eventually leads to a Bachelor’s degree. The total study load is 240 ECTS and equals nearly 6,800 hours of education. Altogether, there are two years of theory, one year of primary care internships, and one year of secondary and tertiary care internships. The internships are spread equally over these four years. Students are primarily trained to become independent primary care midwives. 190 Students enroll each year nationwide. They have had an extensive assessment, which selects the best candidates. Around three times more candidates apply for the course than places are available.”

#### British Columbia<sup>4</sup>

“All current CMBC approved programs are Canadian four year direct-entry education programs leading to a university degree, or bridging programs leading to equivalency.”

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<sup>2</sup> [http://arcweb.sos.state.or.us/pages/rules/oars\\_300/oar\\_333/333\\_076.html](http://arcweb.sos.state.or.us/pages/rules/oars_300/oar_333/333_076.html)

<sup>3</sup> <http://www.nurse.or.jp/nursing/international/icm/report/data/2012/icm-dutch.pdf>

<sup>4</sup> <http://www.cmhc.bc.ca/pdf.shtml?Exploring-Midwifery-as-a-Career>

## Ontario<sup>5</sup>

“1. The applicant must have at least one of the following:

- A baccalaureate degree in health sciences (midwifery) from a university in Ontario.
- A degree, diploma or certificate from a program listed in Schedule 1.
- Qualifications that are equivalent to the degree referred to in subparagraph i, as determined by the Council or by a body or bodies designated by the Council.

2. The applicant must:

- Have current clinical experience consisting of active practice for at least two years out of the four years immediately before the date of the application, and
- Have attended at least 60 births, of which at least:
  - 40 were attended as primary midwife
  - 30 were attended as part of the care provided to a woman in accordance with the principles of continuity of care
  - 10 were attended in hospital, of which at least five were attended as primary midwife, and
  - 10 were attended in a residence or remote clinic or remote birth centre, of which at least five were attended as primary midwife

3. The applicant must have successfully completed the qualifying examination that was set or approved by the Registration Committee at the time the applicant took the examination.”

## United Kingdom<sup>6</sup>

### *Midwifery degree*

- Students are awarded both an academic and a professional qualification, through integrated study of theory and supervised midwifery practice
- Supervised midwifery practice is 50% of the program and takes place in both community and hospital settings, including antenatal clinics and wards, labour wards, postnatal wards and neonatal care
- The programs are normally three years in length and studied on a full-time basis

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<sup>5</sup> [http://www.e-laws.gov.on.ca/html/source/regs/english/2011/elaws\\_src\\_regs\\_r11168\\_e.htm](http://www.e-laws.gov.on.ca/html/source/regs/english/2011/elaws_src_regs_r11168_e.htm)

<sup>6</sup> <http://www.nhs.uk/explore-by-career/midwifery/training-to-be-a-midwife/>

## Oregon<sup>7</sup>

Mandatory licensure of direct entry midwives in Oregon was established in 2013 with passage of House Bill 2997, which requires any direct entry midwife practicing after January 1, 2015, to hold a license. The Oregon Board of Direct Entry Midwifery already requires that LDMs hold a certified professional midwife (CPM) credential from the North American Registry of Midwives, complete an examination, be certified in infant and adult cardiopulmonary resuscitation, have a written plan for transport of the patient, hold a high school diploma (or equivalent), and attend and participate in, at a minimum:

- Twenty-five assisted deliveries
- Twenty-five deliveries for which the LDM applicant was the primary care provider
- One hundred prenatal care visits
- Twenty-five newborn examinations, and
- Forty postnatal examinations

## North American Registry of Midwives (NARM)<sup>8</sup>

There are multiple routes to certification by the NARM, but in general they include a written test, a skills assessment test, and the following experience requirements:

### *Phase 1: Births as an Observer*

- Ten births in any setting, in any capacity

### *Phase 2: Clinicals as Assistant under Supervision*

- Twenty births, 25 prenatal exams, 20 newborn exams, 10 postpartum visits

### *Phase 3: Clinicals as Primary under Supervision*

- Twenty births, 75 prenatal visits, 20 newborn exams, and 40 postpartum exams

It is also required that the applicant have a preceptor(s) that attests to the applicant's proficiency on "skills, knowledge, and abilities essential for competent practice" and that the applicant be certified in Adult CPR, and Neonatal Resuscitation Certification.

[Evidence Source]

## **EVIDENCE SUMMARY**

The evidence pertaining to home birth from randomized trials is extremely sparse, limited to just 11 participants, and hence insufficient to draw conclusions from. The largest observational studies suggest that home birth results in fewer obstetrical interventions and maternal adverse outcomes. The evidence pertaining to neonatal outcomes is less clear; while one meta-analysis

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<sup>7</sup> [http://www.oregon.gov/OHLA/DEM/Pages/Midwifery\\_How\\_to\\_Get\\_Licensed.aspx](http://www.oregon.gov/OHLA/DEM/Pages/Midwifery_How_to_Get_Licensed.aspx)

<sup>8</sup> <http://narm.org/entry-level-applicants/>

found an elevated risk of neonatal death, this was no longer true when the analysis was limited to studies in which the attendant was either a certified midwife or certified nurse midwife. Observational studies conducted in settings where there are clear criteria for appropriateness of home birth (Canada, the Netherlands) do not find an elevated neonatal death rate.

In their first year of reporting, evidence from the State of Oregon Public Health Department identified an elevated risk of perinatal death in pregnancies with a planned home delivery. However, when excluding those pregnancies that did not meet published criteria for being low-risk, the rate is not elevated compared to planned hospital births.

Criteria for low-risk have been established by national or provincial governments as well as by US national and state provider organizations. These criteria have varying levels of detail, but at a minimum include the following:

- Gestational age  $\geq$  36 weeks and  $\leq$ 41 completed weeks of pregnancy
- Singleton
- Vertex position
- Absence of preexisting or pregnancy-related maternal disease

Additional criteria for either consultation or transfer of care that have been adopted by some or all of the entities discussed in this document include the following:

#### Complications in a previous pregnancy

- Unexplained stillbirth/neonatal death or previous death related to intrapartum difficulty
- Previous baby with neonatal encephalopathy
- Pre-eclampsia/ HELLP syndrome
- Placental abruption with adverse outcome
- Eclampsia
- Uterine rupture
- Postpartum hemorrhage requiring additional treatment or blood transfusion
- Retained placenta requiring manual removal
- Shoulder dystocia
- Cesarean section
- Blood group incompatibility
- Fetal growth retardation
- Preterm birth
- Cervical insufficiency/ prior cerclage
- Fourth degree laceration
- More than three first trimester spontaneous abortions, or more than one second trimester spontaneous abortion

#### Complications of current pregnancy

- Placenta previa, vasa previa, low lying placenta

- Eclampsia, pre-eclampsia or pregnancy-induced hypertension, hypertension (before or after delivery)
- Preterm labor or preterm prelabor rupture of membranes
- Placental abruption/ abnormal bleeding
- Anemia – hemoglobin less than 6.0 to 8.5 g/dl, depending on organization
- Confirmed intrauterine death
- Induction of labor
- Substance misuse
- Alcohol dependency requiring assessment or treatment
- Body mass index at first prenatal visit of greater than 35 kg/m<sup>2</sup>
- Recurrent antepartum hemorrhage
- Small for gestational age fetus
- Abnormal fetal heart rate/Doppler/surveillance studies
- Oligo or polyhydramnios
- Blood group incompatibility (including Rh sensitization)
- Prelabor rupture of membranes > 24 hours
- Life-threatening congenital anomalies
- No prenatal care
- Genital herpes
- Chorioamnionitis or other serious infection (including toxoplasmosis, rubella, CMV, HIV, etc)
- Thick meconium staining of amniotic fluid
- Failure to progress/ failure of head to engage in active labor
- Prolapsed umbilical cord
- Laparotomy during pregnancy
- Cervical dysplasia requiring evaluation
- Hyperemesis gravidarum
- Thrombosis/ thromboembolism/ thrombopenia
- Uteroplacental insufficiency
- Molar pregnancy
- Uterine rupture, inversion or prolapse
- Family history of genetic/ heritable disorders
- Age < 14

#### Post-partum Complications - Maternal

- Hemorrhage (hypovolemia, shock, need for transfusion)
- Retained placenta
- Laceration requiring hospital repair
- Enlarging hematoma
- Third or fourth degree, or periurethral, laceration
- Infection (endometritis, UTI, wound, breast)
- Thrombophlebitis/ thromboembolism
- Bladder or rectal dysfunction

## Post-partum Complications – Infant

- Low Apgar score (< 5 at 5 minutes, < 7 at 10 minutes)
- Temperature instability, fever, suspected infection or dehydration
- Hypotonia, tremors, seizures, hyperirritability
- Life-threatening congenital anomalies
- Respiratory or cardiac irregularities, cyanosis, pallor
- Failure to pass urine or meconium within 24 to 36 hours, depending on organization
- Feeding difficulties/ significant weight loss, failure to regain birth weight by 3 weeks, weight less than 5<sup>th</sup> percentile for age
- Congenital anomalies, less than 3 vessels in umbilical cord
- Excessive bruising, enlarging cephalohematoma, significant birth trauma
- Hyperglycemia/ hypoglycemia unresponsive to treatment
- Vomiting/ diarrhea
- Jaundice within the first 24 hours
- Prematurity

Certification requirements for the practice of midwifery vary significantly between the US and other countries, with US requirements being less rigorous with regard to both years of formal education and experience.

## GRADE-INFORMED FRAMEWORK

The HERC develops recommendations by using the concepts of the Grading of Recommendations Assessment, Development and Evaluation (GRADE) system. GRADE is a transparent and structured process for developing and presenting evidence and for carrying out the steps involved in developing recommendations. There are four elements that determine the strength of a recommendation, as listed in the table below. The HERC reviews the evidence and makes an assessment of each element, which in turn is used to develop the recommendations presented in the coverage guidance box. Balance between desirable and undesirable effects, and quality of evidence, are derived from the evidence presented in this document, while estimated relative costs, values and preferences are assessments of the HERC members.

Indication/ Intervention	Balance between desirable and undesirable effects	Quality of evidence*	Resource allocation	Variability in values and preferences	Coverage recommendation	Rationale
Planned home birth for low risk pregnancies	Possible decreased maternal morbidity, possible improved neonatal outcomes	Very low based on two large high quality retrospective database studies (downgraded because of internal validity (for which it was “Low”) and external validity concerns)	Low	Low (By definition, women planning home birth prefer home birth)	Recommended for coverage ( <i>weak recommendation</i> )	The quality of evidence is very low given the risk of study bias and external validity, however, there is consistent poor quality evidence about improved maternal and neonatal outcomes including large numbers of women, this is a strong patient preference and involves a low level of resources. It follows the CG Framework IIA1b pathway.

Indication/ Intervention	Balance between desirable and undesirable effects	Quality of evidence*	Resource allocation	Variability in values and preferences	Coverage recommendation	Rationale
Planned home birth for unselected pregnancies	Possible lower maternal morbidity, increased neonatal mortality	Very low based on one systematic review of 12 studies (Downgraded to very low because of internal and external validity concerns)	Moderate	Low (By definition, women planning home birth prefer home birth)	Not recommended for coverage ( <i>strong recommendation</i> )	Based on very low evidence, and a suggestion of increased neonatal mortality, increased resources (for transfers, associated harms) this follows CG Framework pathway IIA2 and leads to a strong recommendation against.

\*The Quality of Evidence rating was assigned by the primary evidence source, not the HERC Subcommittee

Note: GRADE framework elements are described in Appendix B

## POLICY LANDSCAPE

### Quality measures

No pertinent quality measures were identified when searching the [National Quality Measures Clearinghouse](#).

Coverage guidance is prepared by the Health Evidence Review Commission (HERC), HERC staff, and subcommittee members. The evidence summary is prepared by the Center for Evidence-based Policy at Oregon Health & Science University (the Center). This document is intended to guide public and private purchasers in Oregon in making informed decisions about health care services.

The Center is not engaged in rendering any clinical, legal, business or other professional advice. The statements in this document do not represent official policy positions of the Center. Researchers involved in preparing this document have no affiliations or financial involvement that conflict with material presented in this document.

## APPENDIX A. RISK CRITERIA FOR PLANNED HOME BIRTH

### Oregon birth center absolute risk criteria

Risk factors that if present **on admission** to the birthing center for labor and delivery, would prohibit admission to the birthing center

- Current substance abuse which has the potential to adversely affect labor and/or the infant
- Quadriplegia
- Hypertension >150/100 on at least two occasions
- For this pregnancy, Type I Diabetes, other diabetes requiring insulin to maintain acceptable control, or Type II Diabetes
- Thrombosis, active/current
- Severe anemia, <9 hemoglobin
- Uncontrolled seizure disorder
- Life-threatening congenital defects in fetus. This does not include documented lethal anomalies
- History of previous uterine wall surgery, including Caesarean section, if one or more of the following risk factors is present:
  - Conception occurred < 12 months following that surgery or uterine procedure;
  - Absence of ultrasound to rule out placenta previa and/or placental attachment to the surgical site;
  - History of two or more Caesarean sections without a prior successful vaginal delivery;
  - History of myomectomy which invaded the endometrium;
  - History of a known uterine perforation;
  - History of Caesarean section which included classical incision;
  - History of Caesarean section and complications including postoperative infection, diabetes, or steroid use;
  - Absence of signed, detailed informed consent

NOTE: Any woman with previous uterine wall surgery must be evaluated for the presence of risk factors, and must go through an informed consent process. The Information given to the woman must include an explanation of the risk; including non-absolute risks, of a vaginal birth after Caesarean section, and an explanation of the contingency plan in place should transport be necessary. If transport becomes necessary, the birthing center should notify the receiving facility when the transport is imminent.

- Need for Caesarean delivery this birth
- Multiple gestation without reassuring bio-physical profile of greater than or equal to 8 out of 10
- No previous prenatal care or written prenatal records available
- Abnormal fetal surveillance studies
- Fetal presentation other than vertex, when known
- Rising antibody titre -types known to affect fetal well-being; significant Rh sensitization

- Amniotic fluid index >30 at term
- Amniotic fluid index <5 without reassuring labor progress, without reassuring fetal heart tones and/or abnormal non- stress test
- Abnormal bleeding
- Need for chemical and/or pharmacological induction of labor
- Need for general or conduction anesthesia
- Eclampsia; preeclampsia with lab abnormalities
- Low-lying placenta within 2 cm. or less of cervical os; vasa previa; complete placenta previa; abruption placenta
- Genital herpes, primary; secondary uncoverable at onset of labor
- Labor or premature rupture of membranes at <36 weeks; pregnancy >43 weeks or >42 weeks with abnormal non- stress test
- Chorioamnionitis
- Thick meconium-stained amniotic fluid without reassuring Doppler heart tones
- Known pre-term fetal demise

Risk factors that if they develop **during labor and delivery**, require transfer of the client to a higher level of care

- Failure to progress in active labor with strong contractions and/or maternal/fetal compromise
- Abnormal fetal heart tone (FHT) pattern unresponsive to treatment; inability to auscultate fetal heart tones unless birth is imminent
- Thick meconium-stained amniotic fluid without reassuring Doppler heart tones and birth is not imminent
- Hypertension > 150/100 on at least two occasions
- Abnormal bleeding
- Prolapsed umbilical cord
- Fetal presentation other than vertex, when known, and birth is not imminent
- Multiple gestation when birth is not imminent
- Amniotic fluid index <5 without reassuring labor progress or without reassuring fetal heart tones or abnormal non-stress test
- Persistent fever of equal to or greater than 101 degrees Fahrenheit (oral) or indication of serious infection with the potential to harm the mother or the fetus
- Development of severe medical or surgical problem

Risk factors that, if they develop **during the postpartum period** in the mother or infant, would require transfer to a higher level of care

#### *Mother*

- Abnormal bleeding unresponsive to treatment and/or symptoms of hypovolemia
- Need for transfusion
- Retained placenta or incomplete placenta, with bleeding; suspected placenta accreta; retained placenta > 3 hours

### *Other*

- Hypertension >150/100 on at least two occasions
- Shock, unresponsive to treatment
- Laceration requiring repair in a hospital
- Enlarging hematoma
- Development of preeclampsia or eclampsia
- Signs or symptoms of serious infection

### *Infant*

- Apgar problems <5 at 5 minutes or <7 at 10 minutes
- Inability to maintain [axillary] temperature between 97 degrees Fahrenheit and 100 degrees Fahrenheit at 2 hours
- Hypotonia > 10 minutes
- Tremors, seizures, or hyperirritability
- Life-threatening congenital defects in fetus. This does not include documented lethal abnormalities; (in the presence of known and documented lethal fetal abnormalities, the denial of admission and the requirements to transfer do not apply)
- Respiratory or cardiac irregularities (examples: abnormal capillary refill time, disturbance of rate or rhythm; grunting or retracting after 30 minutes postpartum, need for oxygen > 30 minutes without improvement; cyanosis, central and persistent)
- Signs/symptoms of infection

## Final report of the Obstetric Working Group of the National Health Insurance Board of the Netherlands (abridged version)

What follows is the list of specific obstetric indications, including an explanation of the description of the obstetrical care provider and guidelines on how to deal with the consultative situation.

The obstetric indication list is divided into six main groups, within which reference is made to the various obstetric and medical disorders and diseases. Where necessary, an explanation is provided about the obstetric policy related to specific indications and upon what the referral policy is based. The right-hand column shows for each indication who is the most suitable care provider.

The main purpose of the indication list is to provide a guide for risk-selection. The primary obstetric care provider, midwife, or GP is primarily responsible for this risk-selection. The Manuel is a consensus document showing the agreement reached by the professional groups on their decision-making structure.

Explanation of the codes used for the care providers

Code	Description	Care provider
A Primary obstetric care	The responsibility for obstetric care in the situation described is with the primary obstetric care provider.	Midwife/G.P.
B Consultation situation	This is a case of evaluation involving both primary and secondary care. Under the item concerned, the individual situation of the pregnant woman will be evaluated and agreements will be made about the responsibility for obstetric care (see Section 4.5).	Depending on Agreements
C Secondary obstetric care	This is a situation requiring obstetric care by an obstetrician at secondary level for as long as the disorder continues to exist.	Obstetrician
D Transferred primary obstetric care	Obstetric responsibility remains with the primary care provider, but in this situation it is necessary that birth takes place in a hospital in order to avoid possible transport risk during birth.	Midwife/G.P.

## 1. Pre-existing disorders – non-gynaecological

In cases of pre-existing disorders that are relevant to obstetrics, other care providers other than the midwife are regularly involved with care of the pregnant woman. In cases requiring consultation, it is necessary to involve the other care providers in the consultation.

For this reason, in disorders given code B in this section, attention should be given to collaboration with others outside the field of obstetrics. Attention should be paid to the counselling of women who are considering the possibility of becoming pregnant.

1.1	Epilepsy, without medication	A
1.2	Epilepsy, with medication  Prenatal diagnostics are recommended in connection with the disorder and its medication. Optimal care requires consultation between all care providers concerned (midwife, G.P, obstetrician, neurologist).	B
1.3	Subarachnoid haemorrhage, aneurysms  Care during puerperium can be at primary level.	C
1.4	Multiple sclerosis  Depending upon the neurological condition, a complicated delivery and the possibility of urine retention should be taken into account. For optimal care, consultation between all care providers concerned is indicated.	B
1.5	Hernia nuclei pulposi  This represents a C-situation in cases of a recently suffered HNP or where there are still neurogenic symptoms. It is an A-situation after treated hernia, especially if a previous pregnancy was normal. Both the medical history and the current clinical condition are relevant.	A/ C
1.6	Lung function disorder  The opinion of the lung specialist should be taken into account during evaluation.	B
1.7	Asthma  Care during pregnancy, birth and puerperium can only take place at a primary level when the asthma involves lengthy symptom-free intervals, whether or not use is made of inhalation therapy. Consultation with the GP/specialist involved is recommended.	A/ C
1.8	Tuberculosis, active Tuberculosis, non-active  In cases of an active tuberculosis process and subsequent treatment, consultation should take place with the physician involved and the obstetrician regarding the clinical condition and care during pregnancy and birth. In cases of non-active tuberculosis, care during pregnancy and birth can take place at a primary level.	C A
1.9	HIV-infection	C

	As a result of the current possibilities of medical therapy for preventing vertical transmission, these patients should be cared for during pregnancy and birth in a hospital equipped for the treatment of HIV and AIDS.	
1.10	Hepatitis B with positive serology (Hbs-AG+)  Since 1988 it is important that a screening programme for this serology is carried out on pregnant women.	A
1.11	Hepatitis C  Consultation with the obstetrician and follow-up by the pediatrician is recommended.	B
1.12	A heart condition with haemodynamic consequences  Pregnancy and birth will have an effect on the pre-existing haemodynamic relationships. A cardiac evaluation is important.	C
1.13	Thrombo-embolic process  Of importance are the underlying pathology and the presence of a positive family medical history. Pre-conceptual counselling is important.	B
1.14	Coagulation disorders	C
1.15	Renal function disorders  When there is a disorder in renal function, with or without dialysis, referral to secondary care is recommended.	C
1.16	Hypertension  Pre-existing hypertension, with or without medication therapy, will require referral to secondary care.  Hypertension has been defined by the ISSHP as: A single event of diastolic blood pressure of 110 mm Hg or more (Korotkoff IV). Diastolic blood pressure of 90 mm Hg or more at two subsequent blood pressure measurements with an interval of at least 4 hours between the two measurements. A distinction should be drawn between a diastolic blood pressure under 95 mm and a pressure of 95 mm and higher. Extra attention should be paid to a pregnant woman with a diastolic pressure between 90 and 95 mm; from 95 mm, referral to secondary care should take place.	A/ C
1.17	Diabetes mellitus	C
1.18	Hyperthyroidism	C
1.19	Hypothyroidism  In cases of biochemical euthyroid, without antibodies and without medication, or stable on levothyroxine medication, care can take place at a primary level. Where levothyroxine medication is given, specific tests are recommended due to the frequent increase in medication required during pregnancy.	B
1.20	Anemia, due to a lack of iron  Anemia is defined as Hb<6.0 mmol that has existed for some time.	B
1.21	Anemia, other	B

	This includes the haemoglobinopathies.	
1.22	Inflammatory Bowel Disease This includes ulcerative colitis and Crohn's disease.	C
1.23	System diseases and rare diseases  These include rare maternal disorders such as Addison's disease and Cushing's disease. Also included are systemic lupus erythematosus (SLE), anti-phospholipid syndrome (APS), scleroderma, rheumatoid arthritis, periarteritis nodosa, Marfan's syndrome, Raynaud's disease and other systemic and rare disorders.	C
1.24	Use of hard drugs (heroin, methadone, cocaine, XTC, etc.)  Attention should be paid to actual use. A urine test can be useful even in cases of past use in the medical history. The involvement of the pediatrician is indicated during the follow-up postpartum.	C
1.25	Alcohol abuse  The fetal alcohol syndrome is important. The involvement of the pediatrician is indicated during the follow-up postpartum.	C
1.26	Psychiatric disorders  Care during pregnancy and birth will depend on the severity and extent of the psychiatric disorder. Consultation with the physician in charge is indicated.	B

## 2. Pre-existing gynaecological disorders

2.1	Pelvic floor reconstruction  This refers to colpo-suspension following prolapse, fistula and previous rupture. Depending on the cause, the operation technique used and the results achieved, the obstetrician will determine policy regarding the birth. A primary caesarean section or an early primary episiotomy can be considered, to be repaired by the obstetrician. If the chosen policy requires no special measures and no specific operating skill, then care during birth can be at primary level.	C
2.2	Cervical amputation	C
	Cervical cone biopsy	B
	Cryo- and laser-treatment  The practical application of obstetric policy in this field can be worked out in local mutual agreements. If an uncomplicated pregnancy and birth have taken place following cone biopsy then a subsequent pregnancy and birth can take place at primary level.	A
2.3	Myomectomy (serous, mucous)  Depending on the anatomical relationship, the possibility of a disturbance in the progress of the pregnancy or birth should be taken into account.	B
2.4	Abnormalities in cervix cytology (diagnostics, follow-up)	B/A

	<p>There should be differentiation according to obstetric versus gynaecological policy. Gynaecological consultation can be indicated even without obstetric consequences.</p> <p>Participation in national cervical cancer screenings program is not provided pregnant women. The gynaecological follow-up is not an impediment to obstetric care at primary level.</p>	
2.5	<p>DES-daughter (untreated and under supervision)</p> <p>There should be a differentiation according to obstetric versus gynecological policy.</p> <p>Gynaecological care related to the problems surrounding DES may be necessary, while obstetric care can take place at primary level.</p>	B
2.6	IUD in situ	B
	Status following removal of the IUD	A
2.7	<p>Status following infertility treatment</p> <p>In practice, the wish of the patient to be cared for at secondary level plays a role here, even though the pregnancy and birth are otherwise normal. There is no question of an increased obstetric risk.</p>	A
2.8	<p>Pelvic deformities (trauma, symphysis rupture, rachitis)</p> <p>Consultation should take place at the start of the last trimester. It should be pointed out that care at secondary level has not been shown to have any added value in cases of pelvic instability and symphysis pubis dysfunction.</p>	B
2.9	<p>Female circumcision/Female genital mutilation</p> <p>Circumcision as such can require extra psychosocial care. Where there are serious anatomical deformities, consultation should take place in the third trimester.</p>	A/B

### 3. Obstetric medical history

3.1	Active blood group incompatibility (Rh, Kell, Duffy, Kidd)	C
	<p>ABO-incompatibility</p> <p>Pregnancy and birth can take place at primary care level in cases of ABO-antagonism, but one should be on the alert for neonatal problems. Consultation is indicated.</p>	B
3.2	Pregnancy induced hypertension in the previous pregnancy	A
	Pre-eclampsia in the previous pregnancy	B
	HELLP-syndrome in the previous pregnancy	C
3.3	<p>Habitual abortion (3 times)</p> <p>If an abortion should occur again, the need to carry out pathological study of fetal material should be discussed. Genetic counselling prior to pregnancy is also advised.</p>	A
3.4	Pre-term birth (<37 weeks) in a previous pregnancy	B

	If a normal pregnancy has taken place subsequent to the premature birth, then a further pregnancy can be conducted at primary care level.	
3.5	Cervix insufficiency (and/or Shirodkar-procedure)  Secondary level care during pregnancy is indicated up to 37 weeks; with a full term pregnancy, home birth is allowed. If a subsequent pregnancy was normal, then future pregnancies and deliveries can be conducted at primary care level.	C/A
3.6	Placental abruption	C
3.7	Forceps or vacuum extraction  Evaluation of information from the obstetrical history is important. Documentation showing a case of an uncomplicated assisted birth will lead to the management of the present pregnancy and birth at primary care level. Consultation should take place when no documentation is available or when there are signs of a complicated assisted birth.	A/B
3.8	Caesarean section	C
3.9	Fetal growth retardation (Light for date)  A birth weight of P<2.3 or obvious neonatal hypoglycemia related to fetal growth retardation.	C
3.10	Asphyxia  Defined as an APGAR score of <7 at 5 minutes. It is important to know whether a pediatrician was consulted because of asphyxia at a previous birth.	B
3.11	Perinatal death  Such an obstetrical history requires consultation. It is also important to know whether there was a normal pregnancy following the perinatal death. Pregnancy and birth can then be conducted at primary care level.	B
3.12	Prior child with congenital and/or hereditary disorder  It is important to know the nature of the disorder and what diagnostics were carried out at the time. If no disorders can currently be discerned, then further care can be at primary care level.	B
3.13	Postpartum haemorrhage as a result of episiotomy	A
3.14	Postpartum haemorrhage as a result of cervix rupture (clinically demonstrated)  The assumption is that there is a chance of a recurrence; the pregnancy and birth can be conducted at primary care level. The decision can be taken to allow birth to take place in the hospital.	D
3.15	Postpartum haemorrhage, other causes (>1000 cc)  In view of the chance of a recurrence, although the pregnancy and birth can be conducted at primary care level, the decision can be taken to allow birth to take place in the hospital.	D
3.16	Manual placenta removal in a previous pregnancy  In view of the increased recurrence risk, the next following pregnancy and birth can be cared for at primary care level, with the birth taking place in hospital.	D

	When the birth following one in which the manual placenta removal has taken place has had a normal course, a subsequent pregnancy and birth can be cared for at primary level. When in the previous birth a placenta accreta is diagnosed, obstetrical care at secondary level is indicated.	
3.17	4th degree perineal laceration (functional recovery/no functional recovery)  If satisfactory functional recovery has been achieved following the 4th degree tear, then pregnancy and birth can be managed at primary care level. The possibility of performing a primary episiotomy during birth should be considered. If secondary repair surgery was necessary, then referral to secondary care is indicated (similarly to that which is stated for pelvic floor reconstruction). If no functional repair has been achieved following a 4th degree tear, then birth should be managed at secondary care level.	A/C
3.18	Symphysis pubis dysfunction  There is no added value to managing pregnancy or birth at secondary care level in cases with a symphysis pubis dysfunction in the history or with pelvic instability.	A
3.19	Postpartum depression  There is no added value to managing pregnancy or birth at secondary care level in cases with a p.p.d. in the history. Postpartum depression occurs at such a time postpartum that even the puerperium can be cared for at primary care level.	A
3.20	Postpartum psychosis  It is necessary to distinguish whether there is a case of long-term medicine use. It is important to have a psychiatric evaluation of the severity of the psychosis and the risk of recurrence.	A
3.21	Grand multiparity  Defined as parity >5. There is no added value to managing a pregnancy and birth at secondary care level.	A
3.22	Post-term pregnancy  Post-term pregnancy in the obstetrical history has no predictive value for the course of the current pregnancy and birth.	A

#### 4. Developed/discovered during pregnancy

In this section it is the case that supervision at secondary level care is necessary in situations given the code C, as long as the problem described still exists. If it no longer exists, then the patient can be referred back to primary level care.

4.1	Uncertain duration of pregnancy by amenorrhoea >20 weeks  Consultation is required when the duration of pregnancy is uncertain after 20 weeks amenorrhoea. The primary care provider has access to sufficient additional diagnostic tools in the first 20 weeks.	B
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4.2	Anemia (Hb<6.0 mmol/l)  It is important that the nature and the severity of the anemia are analysed during consultation.	B
4.3	Recurrent urinary tract infections  One can speak of recurrent urinary tract infection when an infection has occurred more than twice. Further analysis of the infection is required. The risk of renal function disorders and the risk of pre-term birth are important. The course of further diagnostics can take place within the local mutual agreements made between the three professional groups.	B
4.4	Pyelitis  Hospital admission is required for the treatment of pyelitis, so that care will have to be at secondary level. After successful treatment of the pyelitis, further care during pregnancy and birth can be at primary level.	C
4.5	Toxoplasmosis, diagnostics and therapy  Referral to secondary level is required both for diagnostics and for therapeutic policy.	C
4.6	Rubella  An increased risk of fetal growth retardation, pre-term birth and visual and hearing disorders should be taken into account in a case of primary infection with rubella during pregnancy.	C
4.7	Cytomegalovirus  An increased risk of perinatal death and subsequent morbidity should be taken into account.	C
4.8	Herpes genitalis (primary infection) Herpes genitalis (recurrent)  During a primary infection there is a (slight) risk of transplacental fetal infection. In the first year after the primary infection, there is a higher frequency of recurrences and asymptomatic virus excretion. If a primary infection occurs shortly before or during birth, there is an increased risk of neonatal herpes. Due to the possibility of treatment with antiviral drugs, referral to secondary care is indicated for primary infections. For recurrences and where herpes genitalis is in the medical history, it is advisable to carry out a virus culture from the oropharynx of the neonate. If there are frequent recurrences (>1/month) or where there is a recurrence during birth, referral is indicated due to the increased risk of infection of the neonate. It is as yet not clear whether the presence of antibodies are sufficient protection for the child.	C A
4.9	Parvo virus infection  This infection can lead to fetal anemia and hydrops. Possibilities exist for treating these problems.	C
4.10	Varicella/Zoster virus infection  This refers to a maternal infection. Primary infection with varicella/zoster virus	B

	(chicken pox) during the pregnancy might require treatment of the pregnant woman with VZV-immunoglobulin due to the risk of fetal varicella syndrome. If varicella occurs shortly before birth or early during the puerperium, there is a risk of neonatal infection. Treatment of the mother and child with an antiviral drug is sometimes indicated. If there is a case of manifest herpes zoster (shingles), then there is no risk of fetal varicella syndrome.	
4.11	Hepatitis B (Hbs-Ag+)	A
4.12	Hepatitis C  This is an indication for referral to secondary care for consultation. Attention must be given to follow-up by the pediatrician.	B
4.13	Tuberculosis  This refers to an active tuberculous process.	C
4.14	HIV-infection  In connection with the present possibilities of medical therapy for preventing vertical transmission, care for these patients during pregnancy and birth should take place in a hospital/center equipped to deal with HIV and AIDS.	C
4.15	Syphilis  Positive serology and treated	A
	Positive serology and not yet treated	B
	Primary infection  Attention should be paid to collaboration between the primary and secondary care providers involved during referral. It is important to ensure perfect information exchange between the midwife, the GP, the obstetrician and the venereologist. Structural agreements can be worked out in local collaboration.	C
4.16	Hernia nuclei pulposi, (slipped disk) occurring during pregnancy  Policy should be determined according to complaints and clinical symptoms. Where there are no complaints, (further) care can take place at primary level.	B
4.17	Laparotomy during pregnancy  As soon as wound healing has occurred and if the nature of the operation involves no further obstetric risks, care for the pregnant woman can return to primary level. During hospitalisation the obstetrician will be involved in the care. If there are no further obstetric consequences then care for the pregnant woman can return to primary level.	C
4.18	Cervix cytology PAP III or higher  What is important here is that further gynaecological policy (for the purpose of subsequent diagnostics) may be necessary, while the pregnancy and birth can be conducted at primary level.	B
4.19	Medicine use  What is obviously important here is the effect of drugs on the pregnant woman and the unborn child. Attention should also be paid to the effect on lactation and the effects in the neonatal period. In cases of doubt, consultation should	A/ B

	take place. Note: information is available from the NIAD (030-2971100) and from the teratology center of the RIVM (030-2742017).	
4.20	Use of hard drugs (heroin, methadone, cocaine, XTC etc.)  The severity of the addiction to hard drugs is important here and their effects during pregnancy and birth and in the puerperium, particularly for the neonate.	C
4.21	Alcohol abuse  This involves the fetal alcohol syndrome. Obviously the long-term involvement of the pediatrician can be necessary during follow up.	C
4.22	Psychiatric disorders (neuroses/psychoses)  The severity of the psychiatric problems and the opinion of the physician in charge of treatment are important.	A/ C
4.24	Hyperemesis gravidarum  Referral to secondary care is necessary for treatment of this condition. After recovery the pregnancy and birth can take place at primary care level.	C
4.24	Ectopic pregnancy	C
4.25	Antenatal diagnostics  Attention should be given to the presence of a risk for congenital deformities. If no deformities can be found, then further care can take place at primary level. In cases of an age-related indication, direct referral from primary care level to a genetic center can take place.	C
4.26	(Suspected) fetal deformities	B
4.27	Pre-term rupture of membranes (<37 weeks amenorrhoea)	C
4.28	Diabetes Mellitus (incl. pregnancy diabetes)	C
4.29	Pregnancy induced hypertension  This refers to hypertension (according to the ISSHP definition, see 1.16) in the second half of pregnancy in a previously normotensive woman. Distinction is drawn between diastolic blood pressure up to 95 mm and blood pressure starting at 95 mm. At a diastolic pressure between 90 and 95 mm, a pregnant woman should receive extra care, from 95 mm upwards, she should be referred to secondary level care.	A/ C
4.30	Pre-eclampsia, super-imposed pre-eclampsia, HELLP-syndrome  Pre-eclampsia is a combination of pregnancy induced hypertension and proteinuria. The latter is defined by an albustix ++ in a urine sample or by a total protein excretion of 30 mg or more during a period of 24 hours. A super-imposed pre-eclampsia exists when there is 'de novo' proteinuria during a pregnancy in a patient with pre-existing hypertension. The HELLP-syndrome is characterised by the combination of haemolysis, liver function disorder and a decrease in the number of platelets.	C
4.31	Blood group incompatibility	C
4.32	Thrombosis	C
4.33	Coagulation disorders	C
4.34	Recurring blood loss prior to 16 weeks	B

4.35	Blood loss after 16 weeks  After the blood loss has stopped, care can take place at primary care level if no incriminating causes were found.	C
4.36	Placental abruption	C
4.37	(Evaluation of) negative size-date discrepancy  A negative size-date discrepancy exists if the growth of the uterus remains 2 to 4 weeks behind the normal size for the duration of the pregnancy.	B
4.38	(Evaluation of) positive size-date discrepancy	B
4.39	Post-term pregnancy  This refers to amenorrhoea lasting longer than 294 days.	C
4.40	Threat of or actual pre-term birth  As soon as there is no longer a threat of pre-term birth, care during the pregnancy and birth can be continued at primary care level.	B
4.41	Insufficient cervix  Once the pregnancy has lasted 37 weeks, further care can take place at primary care level.	C
4.42	Symphysis pubis dysfunction (pelvic instability)  This refers to complaints that started during the present pregnancy	A
4.43	Multiple pregnancy	C
4.44	Abnormal presentation at full term (including breech presentation)	C
4.45	Failure of head to engage at full term  If at full term there is a suspected cephalo-pelvic disproportion, placenta praevia or comparable pathology, consultation is indicated.	B
4.46	No prior prenatal care (full term)  Attention should be paid to the home situation. The lack of prenatal care can suggest psychosocial problems. This can lead to further consultation and a hospital delivery.	A
4.47	Baby up for adoption  The prospective adoption often goes hand-in-hand with psychosocial problems. This can lead to further consultation and a hospital delivery.	A
4.48	Dead fetus  If the mother prefers to give birth at home, the care she receives should be the same as if the birth were to take place in a hospital. Attention should be paid to postmortem examination study and evaluation according to protocol.	C
4.49	Obstetrically relevant fibroids (myoma)  Depending on the anatomical proportions, the possibility of a disturbance in the progress of pregnancy or birth should be taken into account.	B

## 5. Occurring during birth

For the C-category in this section, when one of the items mentioned below occurs, an attempt should still be made to achieve an optimal condition for further intrapartum care, whilst referral to secondary care level may be urgent, depending on the situation. When referring from the home situation, the risk of transporting the woman also needs to be included in the considerations.

5.1	Abnormal presentation of the child  What counts here is abnormal presentation and not abnormal position.	B
5.2	Signs of fetal distress  It is important that fetal distress can be expressed in various ways (fetal heart rate, meconium staining in the amniotic fluid).	C
5.3	Intrapartum fetal death Attention should be paid to post-mortem examinations	C
5.4	Pre-labour rupture of membranes  Referral should take place the morning after the membranes have been broken for 24 hours.	C
5.5	Failure to progress in the first stage of labour  If the contractions are good, both regarding strength and frequency, but there is no change in the cervix or progress in dilation after the latent phase for duration of 4 hours; one can speak of a failure to progress in labour. Consultation is necessary to be able to determine further treatment based on an analysis of the possible cause.	B
5.6	Failure to progress in second stage of labour  This exists where there is a lack of progress, after a maximum of one hour, in cases with full dilation, ruptured membranes, strong contractions and sufficient maternal effort.	C
5.7	Excessive bleeding during birth  The degree of bleeding during birth cannot be objectively measured, but needs to be estimated. Excessive loss of blood can be a sign of a serious pathology.	C
5.8	Placental abruption	C
5.9	Umbilical cord prolapse	C
5.10	(Partial) retained placenta  It is not always possible to be sure of the retention of part of the placenta. If there is reasonable cause to doubt, then referral to secondary care should take place	C
5.11	Fourth degree perineal laceration	C
5.12	Meconium stained amniotic fluid	C
5.13	Fever  It is obviously important to find out the cause of the fever. In particular, the	C

	possibility of an intrauterine infection should be taken into account and the administration of antibiotics intrapartum should be considered.	
5.14	<p>Analgesia</p> <p>It is important to be aware of the effects on dilatation and respiratory depression. The use of painkillers during birth is a subject that can be covered during local discussions with the aid of guidelines. One should attempt to achieve well-founded consensus.</p>	B
5.15	<p>Vulva haematoma</p> <p>Treatment policy is determined according to the complaints intrapartum and in the early puerperium.</p>	C
5.16	<p>Symphiololysis</p> <p>This refers to rupturing of the symphyseal rupture. It should be distinguished from pelvic instability. The added value of consultation in cases of pelvic instability has not been proven.</p>	B
5.17	<p>Birth with no prior prenatal care</p> <p>A lack of prenatal care can be a sign of psychosocial problems and in particular addiction. Intrapartum monitoring, serological screening and immunisation are of utmost importance.</p>	C

#### 6. Occurring during the puerperium

6.1	<p>Puerperal fever</p> <p>It is important to know the underlying cause. In cases of reasonable doubt, referral should be considered.</p>	A/C
6.2	(Threat of) eclampsia, (suspected) HELLP-syndrome	C
6.3	Thrombosis	C
6.4	<p>Psychosis</p> <p>It is important to involve (non-obstetrically) the GP and the psychiatrist in treating the psychiatric disorder.</p>	B
6.5	Postpartum haemorrhage	C
6.6	<p>Hospitalisation of child</p> <p>It is obviously important here to involve (non-obstetrically) the GP and the pediatrician. The bonding between mother and child are important in the period following birth.</p>	C

## Ontario College of Midwives Indications for Mandatory Discussion, Consultation and Transfer of Care (effective January 2015)

According to the midwifery model of care, the midwife works in partnership with the client. As a provider of primary healthcare, the midwife is fully responsible for the clinical assessment, planning and delivery of care for each client. The client remains the primary decision-maker regarding her own care, and that of her newborn.

Throughout the antepartum, intrapartum and postpartum periods, clinical situations may arise in which the midwife will need to initiate involvement of other health care providers in the care of a client or her newborn. According to the requirements of this Standard, she will:

- **Consult** with a physician, or the most appropriate available health care provider, or
- **Transfer responsibility for primary care** to a physician

### Definitions

#### **Consultation with a Physician, or other appropriate health care provider**

- Consultation is an explicit request from a midwife of a physician, or other appropriate health care provider, to give advice on a plan of care and participate in the care as appropriate.
- It is the midwife's responsibility to decide when and with whom to consult and to initiate consultations.
- Consultation may result in the physician, or other health care provider, giving advice, information and/or therapy to the woman/newborn directly or recommending a plan of care and/or therapy to be carried out by the midwife.
- After consultation with a physician, the role of most responsible provider either remains with the midwife or is transferred to the consulting physician.
- Consultation may be initiated at the client's request.

#### **Transfer of Care to a Physician**

- Transfer of care occurs when the primary care responsibilities required for the appropriate care of the client fall outside of the midwife's scope of practice.
- A transfer of care may be permanent or temporary.
- When primary care is transferred from the midwife to a physician, the physician assumes full responsibility for the subsequent planning and delivery of care to the client.
- The client remains the primary decision-maker regarding her care and the care of her newborn.
- After a transfer of care has taken place the midwife shall remain involved as a member of the health care team and provide supportive care to the client within the scope of midwifery.
- If the condition for which the transfer of care was initiated is resolved, the midwife may resume primary responsibility for the care of the mother and/or newborn.

## Midwife's Responsibilities

- In all instances where another health care provider is required in the care of a midwife's client or her newborn, the midwife shall:
- Review the *Consultation and Transfer of Care Standard* with the client as part of an informed choice discussion.
- Respect the principles of informed choice, and support the client decision making process.
- Ensure that a client's decision not to pursue a consultation with another health care provider is clearly documented in the client's health record, in accord with the standards of the College of Midwives.
- Ensure that a client's decision not to follow a consultant's recommendation, once it is communicated to the midwife, is documented in the client's health record, in accord with the standards of the College of Midwives.
- Involve the other health care provider within an appropriate time frame.
- Ensure that the request for a consultation or transfer of care are both clearly articulated to the other health care provider and the client, and documented in the client's health record.<sup>4</sup>
- Ensure, where possible, that a consultation includes an in-person evaluation of the client or her newborn and that a consultation is initiated by phone where urgency, distance or climatic conditions make an in-person consultation impossible.
- Ensure that the subsequent plan of care, including the roles and responsibilities of the primary care providers involved, are communicated to the clinicians, and to the client and documented in the client's health record.
- Remain accountable for the care they have provided whether working collaboratively or independently.
- Throughout the course of care other indications not specifically referenced in this Standard may arise which require the involvement of other health care providers. Notwithstanding the indications listed in this Standard, midwives are expected to use their best clinical judgment supported by the highest quality available evidence and relevant guidelines, to determine when the involvement of other health care practitioners is warranted.

### Indications: Initial History and Physical Examination

#### **Consultation**

- Significant current medical conditions that may affect pregnancy or are exacerbated due to pregnancy
- Significant use of drugs, alcohol or other substances with known or suspected teratogenicity or risk of associated complications
- Previous uterine surgery other than one documented low-segment cesarean section
- History of cervical cerclage
- History of more than one second-trimester spontaneous abortion
- History of three or more consecutive first-trimester spontaneous abortions
- History of more than one preterm birth, or preterm birth less than 34+ 0 weeks in most recent pregnancy

- History of more than one small for gestational age infant
- History of severe hypertension or pre-eclampsia, eclampsia or HELLP syndrome
- Previous neonatal mortality or stillbirth which likely impacts current pregnancy

### **Transfer of care**

- Cardiac disease
- Renal disease
- Insulin-dependent diabetes mellitus
- HIV positive status

### Indications: Prenatal Care

### **Consultation**

- Significant mental health concerns presenting or worsening during pregnancy
- Persistent or severe anemia unresponsive to therapy
- Severe hyperemesis unresponsive to pharmacologic therapy
- Abnormal cervical cytology requiring further evaluation
- Significant non-obstetrical or obstetrical medical conditions arising during pregnancy
- Sexually transmitted infection requiring treatment
- Gestational diabetes unresponsive to dietary treatment
- Urinary tract infection unresponsive to pharmacologic therapy
- Persistent vaginal bleeding other than uncomplicated spontaneous abortion less than 14+0 weeks
- Fetal anomaly that may require immediate postpartum management
- Evidence of intrauterine growth restriction
- Oligohydramnios or polyhydramnios
- Twin pregnancy
- Isoimmunization
- Persistent thrombocytopenia
- Thrombophlebitis or suspected thromboembolism
- Gestational hypertension
- Vasa previa
- Asymptomatic placenta previa persistent into third trimester
- Presentation other than cephalic, unresponsive to therapy, at or near 38+0 weeks
- Intrauterine fetal demise
- Evidence of uteroplacental insufficiency
- Uterine malformation or significant fibroids with potential impact on pregnancy

### **Transfer of care**

- Molar pregnancy
- Multiple pregnancy (other than twins)
- Severe hypertension or pre-eclampsia, eclampsia or HELLP syndrome

- Placental abruption or symptomatic previa
- Cardiac or renal disease with failure
- Gestational diabetes requiring pharmacologic treatment

Indications: Labor, Birth, and Immediate Post-Partum

**Consultation**

- Preterm prelabour rupture of membranes (PPROM) between 34 +0 and 36 +6 weeks
- Twin pregnancy
- Breech or other malpresentation with potential to be delivered vaginally
- Hypertension presenting during the course of labour
- Abnormal fetal heart rate pattern
- Suspected intra amniotic infection
- Labor dystocia unresponsive to therapy
- Intrauterine fetal demise
- Retained placenta
- Third or fourth degree laceration
- Periurethral laceration requiring repair

**Transfer of care**

- Active genital herpes at time of labour or rupture of membranes
- HIV positive status
- Preterm labour or PPRM less than 34 +0 weeks
- Fetal presentation that cannot be delivered vaginally
- Multiple pregnancy (other than twins)
- Prolapsed or presenting cord
- Placental abruption, placenta previa or vasa previa
- Severe hypertension or pre-eclampsia, eclampsia or HELLP syndrome
- Suspected embolus
- Uterine rupture
- Uterine inversion
- Hemorrhage unresponsive to therapy

Indications: Post-partum (Maternal)

**Consultation**

- Breast or urinary tract infection unresponsive to pharmacologic therapy
- Suspected endometritis
- Abdominal or perineal wound infection unresponsive to non-pharmacologic treatment
- Persistent or new onset hypertension
- Significant post-anesthesia complication
- Thrombophlebitis or suspected thromboembolism

- Significant mental health concerns including postpartum depression and signs or symptoms of postpartum psychosis
- Persistent bladder or rectal dysfunction
- Secondary postpartum hemorrhage
- Uterine prolapse
- Abnormal cervical cytology requiring treatment

### **Transfer of care**

- Postpartum eclampsia
- Postpartum psychosis

### Indications: Post-partum (Infant)

### **Consultation**

- 34 +0 to 36 +6 weeks gestational age
- Suspected neonatal infection
- In utero exposure to significant drugs, alcohol, or other substances with known or suspected teratogenicity or other associated complications
- Findings on prenatal ultrasound that warrant postpartum follow up
- Prolonged PPV or significant resuscitation
- Failure to pass urine or meconium within 36 hours of birth
- Suspected clinical dehydration
- Feeding difficulties not resolved with usual midwifery care
- Significant weight loss unresponsive to interventions or adaptation in feeding plan
- Failure to regain birth weight by three weeks of age
- Infant at or less than 5<sup>th</sup> percentile in weight for gestational age
- Single umbilical artery not consulted for prenatally
- Congenital anomalies or suspected syndromes
- Worsening cephalhematoma
- Excessive bruising, abrasions, unusual pigmentation and/or lesions
- Significant birth trauma
- Abnormal heart rate, pattern or significant murmur
- Hypoglycemia unresponsive to initial treatment
- Hyperglycemia
- Suspected neurological abnormality
- Persistent respiratory distress
- Persistent cyanosis or pallor
- Fever, hypothermia or temperature instability
- Vomiting or diarrhea
- Evidence of localized or systemic infection
- Hyperbilirubinemia requiring medical treatment or any jaundice within the first 24 hours
- Suspected seizure activity

## Transfer of care

- Major congenital anomaly requiring immediate intervention

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## College of Midwives of British Columbia: Indications for Mandatory Discussion, Consultation and Transfer of Care

As a primary caregiver, the midwife is fully responsible for decision-making, together with the client. The midwife is responsible for writing orders and carrying them out or delegating them to an appropriate regulated health professional in accordance with the standards of the College of Midwives.

The midwife discusses care of a client, consults, and/or transfers primary care responsibility according to the *Indications for Discussion, Consultation and Transfer of Care*. The responsibility to consult with a family physician/general practitioner, obstetrician, pediatrician, other specialist physician or a nurse practitioner lies with the midwife. It is also the midwife's responsibility to initiate a consultation within an appropriate time period after detecting an indication for consultation. The severity of the condition and the availability of a physician will influence these decisions.

The College of Midwives expects members to use their professional judgment in making decisions to consult or transfer care. The following list is not exhaustive. Other circumstances may arise where the midwife believes consultation or transfer of care is necessary.

The informed choice agreement between the midwife and client should outline the extent of midwifery care, so that the client is aware of the scope and limitations of midwifery care. The midwife should review the *Indications for Discussion, Consultation and Transfer of Care* with the client.

### Definitions

#### **Discussion with a midwife, a physician, or nurse practitioner**

It is the midwife's responsibility to initiate a discussion with, or provide information to, another midwife or a physician in order to create an appropriate plan of care. It is also expected that the midwife will conduct regularly scheduled reviews of client charts with her colleagues to assist in planning care. Discussion should be documented by the midwife in the client record.

#### **Consultation with a physician or a nurse practitioner**

It is the midwife's responsibility to initiate a consultation in accordance with the standards of the College and to communicate clearly to the consultant that she is seeking a consultation and why. In requesting a consultation, a midwife uses her professional knowledge of the client and requests the opinion of a physician or nurse practitioner qualified to give advice in the area of clinical concern. A midwife may also seek a consultation when another opinion is requested by the client. The midwife must document each consultation in the client record in accordance with the standards of the College of Midwives.

The midwife should expect the consultant to address the problem described in the consultation request, conduct an in-person assessment(s) of the client, and promptly communicate findings

and recommendations to the client and to the referring midwife. Discussion will then normally occur between the midwife and the consultant regarding the future plan of care for the client.

Where urgency, distance or climatic conditions do not allow the client to see a physician or nurse practitioner for an in-person consultation visit, the midwife should seek advice from the consultant by phone or other similar means. The consultant may use alternative means of communication (e.g., via telehealth) to assess the client as available and appropriate. The midwife should document such requests for advice in client records, in accordance with the standards of the College of Midwives, and discuss the advice received with the client.

A consultation can involve the physician or nurse practitioner providing advice and information, and/or providing therapy to the woman/newborn, or recommending therapy for the woman/newborn to the midwife to provide within her scope of practice.

After consultation with a physician or nurse practitioner, primary care of the client and responsibility for decision-making, with the agreement of the consultant and the informed consent of the client, may:

- Continue with the midwife;
- Be shared between the midwife, nurse practitioner and/or physician; or
- Be transferred to the physician.

Once a consultation has taken place and the consultant's findings, opinions and recommendations have been communicated to the client and the midwife, the midwife must discuss the consultant's recommendations with the client and ensure that the client understands which health professional will have responsibility for primary care.

### **Shared primary care**

In a shared care arrangement the consultant may be involved in, and responsible for, a discrete area of the client's care, with the midwife maintaining overall responsibility within her scope of practice, or vice versa. Areas of involvement in client care and the plan for communication between care providers must be clearly agreed upon and documented by the midwife and the consultant.

It is recommended that one health professional take responsibility for coordinating the client's care. This arrangement should be clearly communicated to the client and documented in the records. Responsibility can be transferred temporarily from one health professional to another, or be shared between health professionals, according to the client's best interests and optimal care. Transfer of care or an arrangement for sharing care should be discussed with the client, agreed to between the midwife and the consultant(s), and documented in the client record.

Shared primary care arrangements may vary depending on community and on the experience and comfort levels of the care providers involved. Midwives who gain more skills and abilities and experience over time may be able to manage more complex care within their scope of practice in collaboration with their physician colleagues.

## **Transfer to a physician for primary care**

When primary care is transferred permanently or temporarily from the midwife to a physician, the physician assumes full responsibility for subsequent decision-making, together with the client. When primary care is transferred to a physician, the midwife may continue to provide supportive care, and any care within her scope of practice that is agreed to by the physician who is in the role of most responsible care provider, and that has the consent of the client.

### Indications: Initial History and Physical Examination

#### **Discussion**

- Adverse socio-economic conditions
- Age less than 17 years or over 40 years
- Cigarette smoking
- Grand multipara (5 or more previous births)
- History of infant over 4,500 g
- History of one late miscarriage (after 14 weeks) or pre-term birth
- History of one low-birth-weight infant
- History of serious psychological problems
- Less than 12 months from last delivery to present due date
- Obesity
- Poor nutrition
- Previous antepartum hemorrhage
- Previous postpartum hemorrhage
- One documented previous low-segment cesarean section
- History of hypertensive disorders of pregnancy
- Known uterine malformations or fibroids
- History of trauma or sexual abuse

#### **Consultation**

- Current medical conditions, for example: cardiovascular disease, pulmonary disease, endocrine disorders, hepatic disease, neurologic disorders, severe gastrointestinal disease
- Family history of genetic disorders, hereditary disease or significant congenital anomalies
- History of cervical cerclage or incompetent cervix
- History of repeated spontaneous abortions
- History of more than one late miscarriage or pre-term birth
- History of more than one low-birth-weight infant
- History of eclampsia
- History of significant medical illness
- Previous myomectomy, hysterotomy or cesarean section other than one
- Documented previous low-segment cesarean section
- Previous neonatal mortality or stillbirth

- Rubella during first trimester of pregnancy
- Significant use of drugs, alcohol or other toxic substances
- Age less than 14 years
- History of postpartum hemorrhage requiring transfusion

### **Transfer**

- Any serious medical condition, for example: cardiac or renal disease with failure, or insulin-dependent diabetes mellitus

### Indications: Prenatal Care

### **Discussion**

- Presentation other than cephalic at 4 weeks prior to due date
- No prenatal care before 28 weeks gestation
- Uncertain expected date of delivery

### **Consultation**

- Anemia (unresponsive to therapy)
- Documented post-term pregnancy (42 completed weeks) suspected or diagnosed
- Fetal anomaly that may require physician management during or immediately after delivery
- Inappropriate uterine growth
- Medical conditions arising during prenatal care, for example: endocrine disorders, hypertension, renal disease, suspected or confirmed significant infection, including h1n18, hyperemesis
- Placenta previa without bleeding
- Polyhydramnios or oligohydramnios
- Gestational hypertension
- Isoimmunization, haemoglobinopathies, blood dyscrasia
- Serious psychological problems
- Sexually transmitted disease
- Twins
- Repeated vaginal bleeding other than transient spotting
- Presentation other than cephalic at 37 weeks
- Insulin-dependent gestational diabetes

### **Transfer**

- Cardiac or renal disease with failure
- Multiple pregnancy (other than twins)
- Severe pre-eclampsia<sup>12</sup> or eclampsia
- Symptomatic placental abruption

### Indications: During Labor and Delivery

## Discussion

- No prenatal care
- Thin, non-particulate meconium

## Consultation

- Breech presentation
- Pre-term labor (34 – 36 + 6 weeks)
- Prolonged active phase
- Prolonged rupture of membranes
- Prolonged second stage
- Suspected placenta abruption and/or previa
- Retained placenta
- Third or fourth degree tear
- Twins
- Unengaged head in active labor in primipara
- Thick or particulate meconium
- Temperature of 38°C or greater on more than one occasion

## Transfer

- Active genital herpes at time of labor
- Pre-term labor (less than 34 weeks)
- Abnormal presentation (other than breech)
- Multiple pregnancy (other than twins)
- Severe pre-eclampsia or eclampsia
- Prolapsed cord
- Placenta abruption and/or previa
- Severe hypertension
- Abnormal fetal heart rate patterns unresponsive to therapy
- Uterine rupture
- Uterine inversion
- Hemorrhage unresponsive to therapy
- Obstetric shock

## Indications: Post-partum (Maternal)

## Consultation

- Breast infection unresponsive to therapy
- Wound infection
- Uterine infection
- Signs of urinary tract infection unresponsive to therapy
- Temperature over 38°C on more than one occasion

- Persistent hypertension
- Serious psychological problems

### **Transfer**

- Hemorrhage unresponsive to therapy
- Eclampsia
- Thrombophlebitis or thromboembolism
- Uterine prolapse

Indications: Post-partum (Infant)

### **Discussion**

- Feeding problems
- Excessive moulding
- Cephalohaematoma

### **Consultation**

- Suspicion of or significant risk of neonatal infection
- 34 to 36 +6 weeks gestational age
- Infant less than 2,500 g
- Less than 3 vessels in umbilical cord
- Abnormal findings on physical exam
- Excessive bruising, abrasions, unusual pigmentation and/or lesions
- Birth injury requiring investigation
- Congenital abnormalities, for example: cleft lip or palate, developmental dysplasia of the hip, ambiguous genitalia
- Abnormal heart rate or pattern
- Persistent poor suck, hypotonia or abnormal cry
- Persistent abnormal respiratory rate and/or pattern
- Persistent cyanosis, pallor or jitteriness
- Jaundice in first 24 hours
- Failure to pass urine or meconium within 24 hours of birth
- Suspected pathological jaundice after 24 hours
- Temperature less than 36°C unresponsive to therapy
- Temperature of 38°C or more unresponsive to therapy
- Vomiting or diarrhea
- Infection of umbilical stump site
- Significant weight loss (more than 10% of body weight)
- Failure to regain birth weight in 3 weeks
- Failure to thrive

### **Transfer**

- Apgar score lower than 7 at 10 minutes
- Suspected seizure activity
- Significant congenital anomaly requiring immediate medical intervention, for example: omphalocele, myelomeningocele
- Temperature instability

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## APPENDIX B. GRADE ELEMENT DESCRIPTIONS

Element	Description
Balance between desirable and undesirable effects	The larger the difference between the desirable and undesirable effects, the higher the likelihood that a strong recommendation is warranted. The narrower the gradient, the higher the likelihood that a weak recommendation is warranted
Quality of evidence	The higher the quality of evidence, the higher the likelihood that a strong recommendation is warranted
Resource allocation	The higher the costs of an intervention—that is, the greater the resources consumed—the lower the likelihood that a strong recommendation is warranted
Values and preferences	The more values and preferences vary, or the greater the uncertainty in values and preferences, the higher the likelihood that a weak recommendation is warranted

### Strong recommendation

**In Favor:** The subcommittee is confident that the desirable effects of adherence to a recommendation outweigh the undesirable effects, considering the quality of evidence, cost and resource allocation, and values and preferences.

**Against:** The subcommittee is confident that the undesirable effects of adherence to a recommendation outweigh the desirable effects, considering the quality of evidence, cost and resource allocation, and values and preferences.

### Weak recommendation

**In Favor:** The subcommittee concludes that the desirable effects of adherence to a recommendation probably outweigh the undesirable effects, considering the quality of evidence, cost and resource allocation, and values and preferences, but is not confident.

**Against:** The subcommittee concludes that the undesirable effects of adherence to a recommendation probably outweigh the desirable effects, considering the quality of evidence, cost and resource allocation, and values and preferences, but is not confident.

### Quality or strength of evidence rating across studies for the treatment/outcome<sup>9</sup>

**High:** The subcommittee is very confident that the true effect lies close to that of the estimate of the effect. Typical sets of studies are RCTs with few or no limitations and the estimate of effect is likely stable.

**Moderate:** The subcommittee is moderately confident in the effect estimate: The true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different. Typical sets of studies are RCTs with some limitations or well-performed nonrandomized studies with additional strengths that guard against potential bias and have large estimates of effects.

**Low:** The subcommittee's confidence in the effect estimate is limited: The true effect may be substantially different from the estimate of the effect. Typical sets of studies are RCTs with serious limitations or nonrandomized studies without special strengths.

**Very low:** The subcommittee has very little confidence in the effect estimate: The true effect is likely to be substantially different from the estimate of effect. Typical sets of studies are nonrandomized studies with serious limitations or inconsistent results across studies.

<sup>9</sup> Includes risk of bias, precision, directness, consistency and publication bias

## APPENDIX C. APPLICABLE CODES

CODES	DESCRIPTION
<b>ICD-9 Diagnosis Codes</b>	
V22	Normal pregnancy
V23	Supervision of high-risk pregnancy
V24	Post-partum care and examination
<b>ICD-10 Diagnosis Codes</b>	
Z34	Encounter for supervision of normal first pregnancy, unspecified trimester
O09	Supervision of high-risk pregnancy
Z39	Encounter for care and examination of mother immediately after delivery
<b>ICD-9 Volume 3 (Procedure Codes)</b>	
72	Forceps, vacuum and breech delivery
73	Other procedures inducing or assisting delivery
74	Cesarean section and removal of the fetus
75	Other obstetric operations
<b>CPT Codes</b>	
59400-10	Vaginal delivery
59412	External cephalic version, with or without tocolysis
59414	Delivery of placenta (separate procedure)
59425-6	Antepartum care only
59430	Postpartum care only (separate procedure)
59510-15	Cesarean delivery
59610-22	Delivery after previous cesarean
<b>HCPCS Level II Codes</b>	
H1000-5	Prenatal care, at risk assessment

Note: Inclusion on this list does not guarantee coverage

## APPENDIX D. HERC GUIDANCE DEVELOPMENT FRAMEWORK

### HERC Guidance Development Framework Principles

This framework was developed to assist with the decision making process for the Oregon policy-making body, the HERC and its subcommittees. It is a general guide, and must be used in the context of clinical judgment. It is not possible to include all possible scenarios and factors that may influence a policy decision in a graphic format. While this framework provides a general structure, factors that may influence decisions that are not captured on the framework include but are not limited to the following:

- Estimate of the level of risk associated with the treatment, or any alternatives;
- Which alternatives the treatment should most appropriately be compared to;
- Whether there is a discrete and clear diagnosis;
- The definition of clinical significance for a particular treatment, and the expected margin of benefit compared to alternatives;
- The relative balance of benefit compared to harm;
- The degree of benefit compared to cost; e.g., if the benefit is small and the cost is large, the committee may make a decision different than the algorithm suggests;
- Specific indications and contraindications that may determine appropriateness;
- Expected values and preferences of patients.

# Planned home birth for low-risk pregnancies



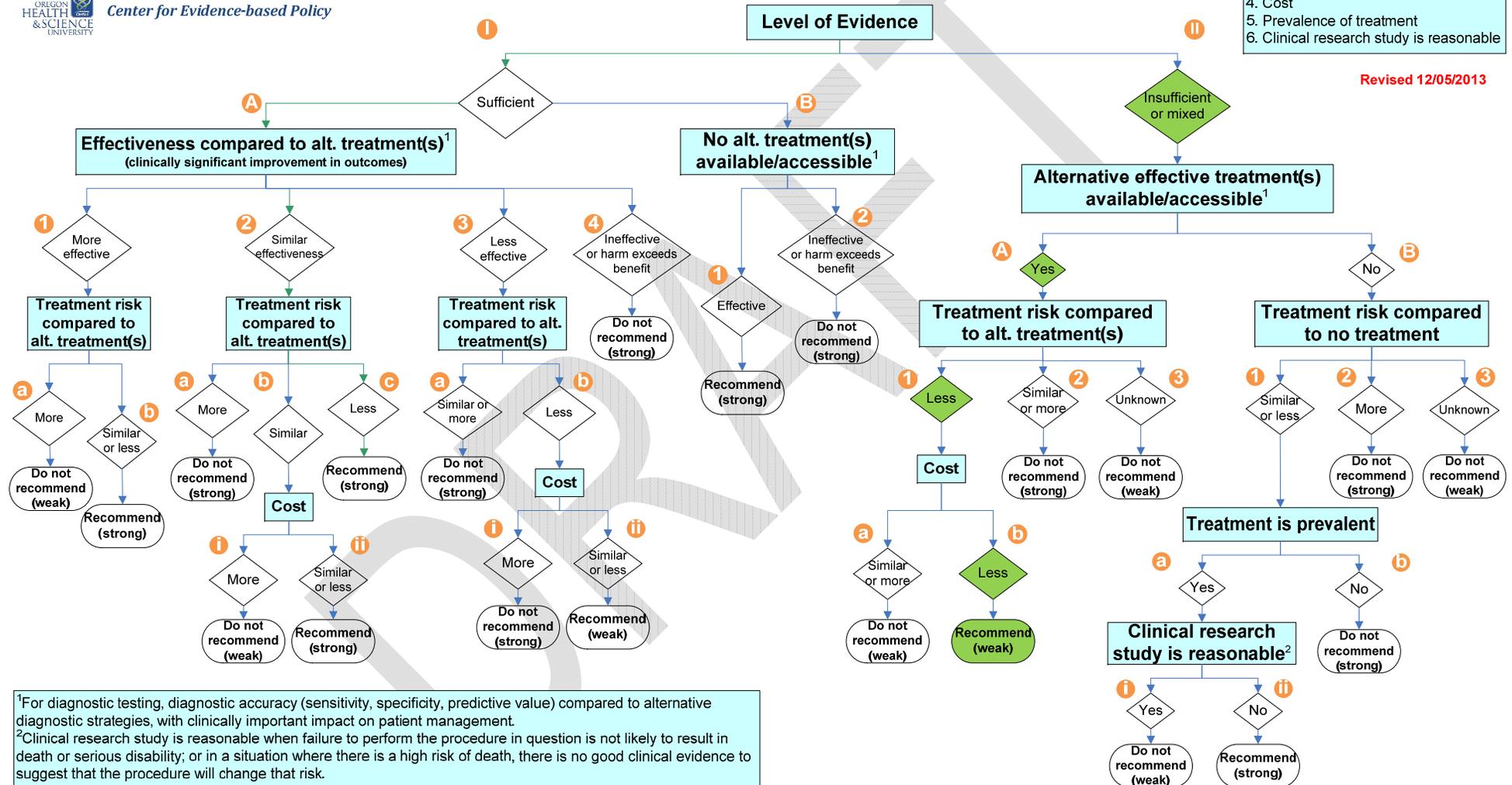
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## HERC Guidance Development Framework

Refer to HERC Guidance Development Framework Principles for additional considerations

- Decision Point Priorities**
1. Level of evidence
  2. Effectiveness & alternative treatments
  3. Harms and risk
  4. Cost
  5. Prevalence of treatment
  6. Clinical research study is reasonable

Revised 12/05/2013



<sup>1</sup>For diagnostic testing, diagnostic accuracy (sensitivity, specificity, predictive value) compared to alternative diagnostic strategies, with clinically important impact on patient management.  
<sup>2</sup>Clinical research study is reasonable when failure to perform the procedure in question is not likely to result in death or serious disability; or in a situation where there is a high risk of death, there is no good clinical evidence to suggest that the procedure will change that risk.

# Planned home birth for unselected pregnancies



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## HERC Guidance Development Framework

Refer to *HERC Guidance Development Framework Principles* for additional considerations

- Decision Point Priorities**
1. Level of evidence
  2. Effectiveness & alternative treatments
  3. Harms and risk
  4. Cost
  5. Prevalence of treatment
  6. Clinical research study is reasonable

Revised 12/05/2013

