

1 Labour and normal birth

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The birth environment	2
Signs that precede labour	5
First stage of labour	6
Analgesia	13
Regional anaesthesia	16
Mobility and positions	18
Transition	19
Second stage of labour	21
Pushing	23
The birth	25
Third stage of labour	29
After the birth	34
Mental health/safeguarding	36
Early discharge home	38
Appendix 1.1: Group B <i>Streptococcus</i>	47

Introduction

Undisturbed birth ... is the balance and involvement of an exquisitely complex and finely tuned orchestra of hormones. (Buckley, 2004a)

The most exciting activity of a midwife is assisting a woman in labour. The care and support of a midwife may well have a direct result on a woman's ability to labour and birth her baby. Every woman and each birthing experience is unique.

Many midwives manage excessive workloads and, particularly in hospitals, may be pressured by colleagues and policies into offering medicalised care. Yet the midwifery philosophy of helping women to work with their amazing bodies enables many women to have a safe pleasurable birth. Most good midwives find ways to provide good care, whatever the environment, and their example will be passed on to the colleagues and students with whom they work.

Some labours are inherently harder than others, despite all the best efforts of woman and midwife. A midwife should be flexible and adaptable, accepting that it may be neither the midwife's nor the mother's fault if things do not go to plan. The aim is a healthy happy outcome, whatever the means.

This chapter aims to give an overview of the process of labour, but it is recognised that labour does not simply divide into distinct stages. It is a complex phenomenon of interdependent physical, hormonal and emotional changes, which can vary enormously between individual women. The limitation of the medical model undermines the importance of the midwife's observation and interpretation of a woman's behaviour.

Facts and recommendations for care

- Women should have as normal a labour and birth as possible, and medical intervention should be used only when beneficial to mother and/or baby (DoH, 2007; NICE, 2016).
- Midwife-led care gives the best outcomes worldwide: more spontaneous births, fewer episiotomies and epidurals, better breastfeeding rates. Women report that they feel more in control of their labour (Sandall *et al.*, 2016).
- Although 88% of women give birth in an obstetric unit many would not choose to: low-risk women (i.e. around 60%) should also be offered the choice of birth either at home or in a midwife-led unit; a woman has a right to choose her place of birth (DoH, 2007; NICE, 2014; NHS England, 2016).
- Women should be offered one-to-one care in labour (NICE, 2014). The presence of a caring and supportive caregiver has been proved to shorten labour, reduce intervention and improve maternal and neonatal outcomes (Green *et al.*, 2000; Hodnett *et al.*, 2013).
- The UK birth rate continues to rise, while England alone is short of 3500 midwives (RCM, 2016).
- 1–2% of mothers develop birth-related post-traumatic stress disorder (Andersen *et al.* 2012) and midwives can too (Sheen *et al.*, 2015).
- The attitude of the caregiver seems to be the most powerful influence on women's satisfaction in labour (NICE, 2014).
- 89% of fathers attend the birth (Redshaw and Heikkila, 2010); other relationships, e.g. same-sex couples, have been less closely studied.
- The birth rate for women aged >40 rose above that for women <20 for the first time since 1947 (ONS, 2016).
- 27.5% of births in England and Wales are to women born overseas (ONS, 2016).
- 20% of pregnant women in England are clinically obese (Health and Social Care Information Centre, 2016), increasing the risk of complications.

Mode of delivery

- The UK normal birth rate is around 60% (ONS, 2016; NHSD, 2017).
- The instrumental delivery rate is around 10–15% (ONS, 2016; NHSD, 2017).
- The episiotomy rate for England is around 20% (see Chapter 4).
- The caesarean section (CS) rate is around 26% (NHSD, 2017).

The birth environment

In what kind of surroundings do people like to make love? A brightly lit bare room with a high metal bed in the centre? Lots of background noise, with a series of strangers popping in and out to see how things are going? The answers to these questions may seem obvious. If we accept that oxytocin levels for sexual intercourse are directly

affected by mood and environment, why is it that women in labour receive less consideration? The intensely complex relationship between birth and sexuality is an increasing source of study and reflection by birth writers.

Once women gave birth where and when they chose, adopting the position they wanted, using their instinctive knowledge to help themselves and each other. Recently birth has become more medicalised, and the place of birth often restricted. No one would deny that appropriate intervention saves lives. For some women an obstetric unit is the safest choice, and for others it *feels like* the safest, so that makes them feel happier. But does it have to be the choice for everyone?

The clinical environment and increased medicalisation of many birth settings directly affect a woman's privacy and sense of control (Walsh, 2010a). Home-like birthing rooms ('alternative settings'), even within an obstetric unit, increase the likelihood of spontaneous vaginal birth, labour/birth without analgesia/anaesthesia, breastfeeding at 6–8 weeks postpartum and satisfaction with care; these rooms also result in a reduction in oxytocin augmentation, assisted vaginal/CS birth and episiotomy (Hodnett *et al.*, 2012). This may be due partly to the fact that women simply feel more relaxed at home, or in a home-like setting. However, simply changing the curtains and hiding the suction machine does not always mean a change of philosophy of care. A more telling factor may be that the type of midwives who choose to work in the community or birth centre, or who gravitate towards more home-like rooms, are those with a less interventionist approach.

Women should be able to choose where to give birth; it would be still more wonderful if women could simply decide *in labour* whether they wish to stay at home or go to a birth centre or an obstetric unit, and indeed if they could change their mind during labour. Such choices do exist, but UK service provision is patchy. The *Better Births* report (NHS England, 2016) and the *Best Start* report (Scottish Government, 2017) may influence change in this respect. It is also heartening to see midwife-led units opening in Northern Ireland: there are now eight, whereas in 2000 there were none at all (Healy and Gillen, 2016). In many other countries women have little or no choice.

Although it has been estimated that at least two-thirds of women are suitable for labour at home or in a midwife-led birthing centre (DoH, 2007), and 87% of women believe that birth in a stand-alone birth centre is a safe option (Rogers *et al.*, 2011), for many reasons most mothers and midwives in the UK will still meet in labour in an acute unit. It is incumbent on all midwives to make the environment, irrespective of its location, warm, welcoming and safe. Always remember that the quality of the caregiver is the thing that most strongly influences a woman's satisfaction with her labour.

Midwives who are asked by family or friends, or perhaps a previous client, to deliver them outside normal working conditions may refer to the guidance produced by the Royal College of Midwives (RCM, 2017a). Most things are possible with good communication and flexibility.

The RCM *Campaign for Normal Birth* <http://www.midwives.org.hk/doc/resources/RCMTopTipsenglish.pdf> suggests 'ten top tips' to promote normal birth (Box 1.1). The Association for Improvements in the Maternity Services (AIMS, 2012) has also produced 'ten top tips for what women want from their midwives', which include compassion, courage, respect and positivity: 'Women appreciate midwives who are genuinely confident and upbeat when ... women are flagging ... and who are able to ... encourage: "you're doing so, so well", "you're amazing", "you're so strong", "well done, that's another one gone".'

Box 1.1 Ten top tips for normal birth (RCM, 2017b).

(1) Wait and see

The single practice most likely to help a woman have a normal birth is patience. In order to be able to let natural physiology take its own time, we have to be very confident of our own knowledge and experience ... of normal birth – and know when the time is right to take action.

(2) Build her a nest

Mammals try to find warm, secure, dark places to give birth – and human beings are no exception.

(3) Get her off the bed

Gravity is our greatest aid in giving birth, but for historical and cultural reasons (now obsolete) in this society we (often) make women give birth on their backs. We need to help women ... feel free to be mobile and try different positions during labour and birth.

(4) Justify intervention

What we ... understand about the remarkable new technologies of labour and birth is that one technological intervention is likely to lead to (another) ... creating a 'cascade' of intervention, ending in an abnormal birth. We need to ask ourselves 'is it really necessary?' And not to do it unless it is indicated.

(5) Listen to her

Women themselves are the best source of information about what they need. What we need to do is to get to know her, listen to her, understand her, talk to her and think about how we are contributing to her sense of achievement.

(6) Keep a diary

One of the best sources for learning are our own observations. Especially when we can look back at them and realise what we have learned and discovered since then. Write down what happened today: how you felt, what you learnt.

(7) Trust your intuition

Intuition is the knowledge that comes from the multitude of perceptions that we make which are too subtle to be noticed. With experience and reflection we can understand what these patterns are telling us – picking up and anticipating a woman's progress, needs and feelings.

(8) Be a role model

Our behaviour influences others – for better or worse. Midwifery really does need exemplars who can model the practices, behaviour and attitudes that facilitate normal birth. Start being a role model today!

(9) Give her constant reassurance – be positive

Nothing in life prepares a woman for labour. Your reassurance that contractions and emotions are all part of the normal process of giving birth is vital. Do you believe in her strength and ability to give birth normally? You may be the only constant anchor during a woman's labour to give her constant reassurance – be positive.

(10) From birth to abdomen – skin to skin contact

Breastfeeding gets off to a better start when mothers and their babies have time together – beginning at birth. Immediate skin to skin contact allows them to remain together [so babies can] feed on demand for an unlimited time, stay warm and cry less. Mothers learn to recognise their baby's cues and the baby reciprocates. The relationship becomes tender and loving – a connection that lasts a lifetime begins from birth to abdomen.

<http://www.midwives.org.hk/doc/resources/RCMTopTipsenglish.pdf>

Signs that precede labour

Women often describe feeling restless and strange prior to going into labour, sometimes experiencing energy spurts or undertaking 'nesting' activities. Physical symptoms may include:

- low backache and deep pelvic discomfort as the baby descends into the pelvis
- upset stomach/diarrhoea
- intermittent regular/irregular tightening for days/weeks before birth
- loss of operculum ('show'), usually clear or lightly bloodstained
- increased vaginal leaking or 'cervical weep', and/or
- spontaneous rupture of the membranes (SROM) – usually unmistakable; sometimes less so, particularly if the head is well engaged (see Boxes 1.2 and 1.3 for diagnosis and management of SROM). See Chapter 13 for more information on preterm SROM.

Not all women seek advice at this stage. If they do, the midwife should act as a listener and reassure the woman that these prelabour signs are normal. Avoid negative terms such as 'false labour/alarm'.

Box 1.2 Diagnosis of spontaneous rupture of the membranes.

Woman's history

- This is usually conclusive in itself.
- Clarify the time of loss and the appearance and approximate amount of fluid.

Observe the liquor

- The pad is usually soaked: if no liquor is evident ask the woman to walk around for an hour and check again.
- Liquor may be:
 - Clear, straw coloured or pink: it should smell fresh.
 - Bloodstained: if mucoid contamination this is probably a show – but perform cardiotocography (CTG) if you doubt this.
 - Offensive smelling: this may indicate infection.
 - Meconium stained: a term baby may simply have passed meconium naturally, but always pay close attention to meconium. NICE (2014) advises continuous electronic fetal monitoring for 'significant' meconium: 'dark green or black amniotic fluid that is thick or tenacious, or any meconium-stained amniotic fluid containing lumps of meconium'.

Speculum examination

- If the history is unmistakable, or the woman is in labour, routine speculum examination is unnecessary (NICE, 2014). However consider it if the baby's head is high, as cord prolapse is a slight risk.
- Avoid vaginal examination (VE) unless the woman is having regular strong contractions and there is a good reason for it. VE risks ascending infection; however, there is a degree of paranoia about this. The evidence base is weak (NICE, 2014) but it is not a *disaster* if VE is done, it is just preferable to avoid it.
- To perform the examination:
 - suggest the woman lies down for a while to allow the liquor to pool
 - lubricate the speculum and gently insert it into her vagina: the woman may find raising her bottom (on her fists or a pillow) allows easier and more comfortable access
 - if no liquor is visible ask the woman to cough: liquor may trickle through the cervix and collect in the speculum bill.

Other tests

- NICE (2016) recommends the Vision Amniotic Leak Detector (ALD) to assess unexplained vaginal wetness in pregnancy. This is a panty liner with an inbuilt indicator strip.

Box 1.3 Management of prelabour rupture of the membranes (PROM) at term.

Check the woman's temperature. Ask the woman to do this 4-hourly during waking hours (NICE, 2014). **Observe the liquor** and report any change in colour or smell. There is no need for vaginal swabs, C-reactive protein or nitrazine/ferning tests (NICE, 2014).

Listen to the fetal heart. Intermittent auscultation is fine: there is no need for CTG unless there is significant meconium-stained liquor (NICE, 2014). Observe fetal activity.

Await labour. The woman can await labour onset in the comfort of her home, away from potential infection and unnecessary intervention. However, if group B **Streptococcus** (GBS) was identified during the pregnancy then the Royal College of Obstetricians and Gynaecologists recommends induction as soon as reasonably possible (RCOG, 2017).

General advice

- Suggest the woman avoids sexual intercourse or putting anything into her vagina.
- Suggest she wipes from front to back after having her bowels opened.
- Inform her that bathing or showering are not associated with any increase in infection.
- Advise her to report reduced fetal movements, uterine tenderness, pyrexia or feverish symptoms.
- Tell her that 60% of women go into labour within 24 hours (NICE, 2014).
- Inform her that the serious neonatal infection risk is 1% for PROM and 0.5% for women with intact membranes (NICE, 2016).

If no labour within 24 hours (NICE, 2014)

- NICE advises induction of labour after 24 hours of PROM (see Chapter 19). The woman will then be advised to remain in hospital for 12 hours afterwards so the baby can be observed.
- Routine antibiotic treatment is not recommended for PROM unless the woman has shown signs of infection.
- If a woman chooses to wait longer, continue as above and review every 24 hours.
- After birth observe babies (ROM >24 hours) for 12 hours. At 1, 6 and 12 hours, observe general well-being, sternal recession, central cyanosis (use pulse oximetry if available) and nasal flare, colour, tone, feeding, temperature, heart rate and respiration. Ask the mother to report concerns.

Prelabour rupture of membranes at term

Some women experience prelabour rupture of the membranes (PROM) at term (Box 1.3 and see Chapter 19). Risks include infection, cord prolapse (see Chapter 17) and sometimes iatrogenic consequences of intervention, but most women go into labour spontaneously and have a good outcome.

First stage of labour

There is much debate about whether it is helpful to divide labour into 'stages'. Walsh (2010b), among others, challenges this: 'The division of the first stage of labour into latent and active is clinician-based and not necessarily resonant with the lived experience of labour'.

- Midwives should always be aware of the limitations of rigid categories, but it is also true that certain broad generalisations are helpful to enable the midwife to offer the appropriate support to a woman. With some reservation, the following definitions are offered.

Latent stage

Characteristics of the latent stage

The National Institute for Health and Care Excellence (NICE, 2014) describes this as: ‘a period of time, not necessarily continuous, when:

- there are painful contractions, and
- there is some cervical change, including cervical effacement and dilatation up to 4 cm’.

Midwifery care in the latent phase

Women may be excited and/or anxious. They will need a warm response and explicit information about what is happening to them. In very early labour they may need just verbal reassurance; they may make several phone calls.

Ideally, home assessment is preferable to that in hospital: it reduces analgesia use, labour augmentation and CS and appears cost-effective. Women report greater feelings of control and an improved birth experience (Walsh, 2000a; Spiby *et al.*, 2008). If women do come to hospital, evidence supports an assessment unit separate from the labour ward, reducing labour ward stay, increasing a perceived sense of control and reducing analgesia use (Hodnett *et al.*, 2008).

Some women experience a prolonged latent phase, which may be tiring and demoralising, requiring more support (see Chapter 9, ‘Prolonged latent phase’). Women may undergo repeated visits/assessments and feel something is going wrong. Most women, however, cope well.

The first midwife contact is important and it will establish trust:

- Greet the woman warmly and make her feel special.
- Observe, listen and acknowledge her excitement.
- Be positive but realistic: many women, especially primigravidae, can be overoptimistic about progress.
- Women whose first language is not English may need extra reassurance, careful explanations and sensitivity to personal and cultural preferences. A trusted translator should have been arranged prior to labour, but sometimes this has not been done. Some hospitals subscribe to ‘LanguageLine’ or another similar service. The dangers of relying on a partner or family member to translate are well known, but in practice many birth partners are sensitive and supportive, and many couples would be horrified to have a translator thrust upon them at such an intimate time. This is a judgement call for the midwife.
- Physical checks include:
 - **Baseline observations** (Table 1.1).
 - **Urinalysis.** NICE (2014) recommends testing for protein at labour onset, although this is debatable for normotensive women since vaginal secretions, e.g. liquor, commonly contaminate the sample so protein is often ignored.
 - **Abdominal palpation.** Measure fundal height and ascertain lie, presentation, position and engagement (Figure 1.1). Ask about fetal movements.
 - **Fetal heart (FH) auscultation** (see Chapter 3). Offer intermittent auscultation not a ‘routine admission trace’ for low-risk women (NICE, 2014).

Table 1.1 Maternal observations in labour (low-risk women).

Observation	Frequency	Significance
<p>Blood pressure Normal range: systolic 100–140 mmHg diastolic 60–90 mmHg (NICE, 2010)</p>	<p>Test at labour onset then</p> <ul style="list-style-type: none"> o 4-hourly in first stage o hourly in second stage (NICE, 2014) 	<p>Hypertension can be caused by:</p> <ul style="list-style-type: none"> o anxiety and pain o general anaesthesia o essential hypertension or pre-eclampsia (see Chapter 20 for pre-eclampsia definitions) <p>Hypotension can be caused by</p> <ul style="list-style-type: none"> o epidural/top-up o aortocaval occlusion secondary to lying supine o haemorrhage o shock <p>Tachycardia ≥ 100 bpm can be caused by:</p> <ul style="list-style-type: none"> o anxiety, pain, hyperventilation o dehydration o pyrexia, infection o obstructed labour o haemorrhage, anaemia and shock <p>Bradycardia ≤ 55 bpm can be caused by:</p> <ul style="list-style-type: none"> o rest and relaxation o drugs, e.g. opiates, magnesium sulfate o cardiac problems <p>Pyrexia $>37.5^\circ\text{C}$ can be caused by:</p> <ul style="list-style-type: none"> o infection/sepsis o epidural: usually low-grade pyrexia but rises with time o dehydration o overheated birthing pool <p>Tachypnoea $>30/\text{minute}$ can be caused by:</p> <ul style="list-style-type: none"> o same reasons as tachycardia o asthma attack o sepsis (<i>may be the first symptom</i>) o pulmonary/cardiac embolism/thrombosis o amniotic fluid embolism <p>MBRRACE (2016) highlights breathlessness when lying supine as a marker for an undiagnosed cardiac condition</p>
<p>Pulse rate Normal range: 55–90 bpm</p>	<p>Test at labour onset then when checking fetal heart rate:</p> <ul style="list-style-type: none"> o record 4-hourly in first stage o record every 15 minutes in second stage (NICE, 2014) 	
<p>Temperature Normal range: $36\text{--}37^\circ\text{C}$ ($97\text{--}98.4^\circ\text{F}$)</p>	<p>Test at labour onset then 4-hourly (NICE, 2014) or hourly if in a birthing pool</p>	
<p>Respirations Normal range: 10–20/minute</p>	<p>NICE (2014) does not mention respirations but there is increased sepsis awareness (see Chapter 17), so MEOWS charts and many partograms now have respiratory rate included. Always remain vigilant to breathlessness</p>	

MEOWS, modified early obstetric warning score.

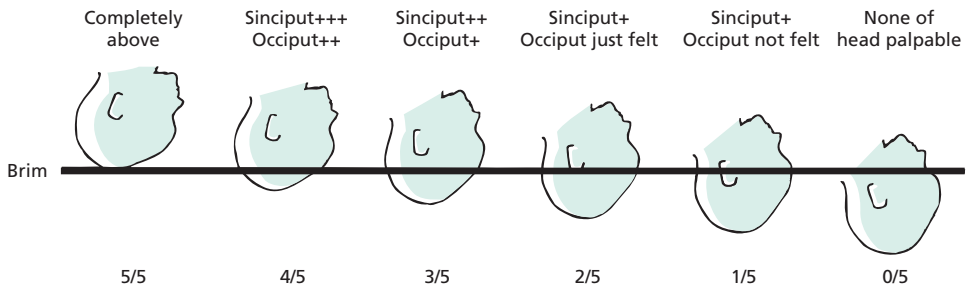


Figure 1.1 Engagement of the fetal head: fifths palpable by abdominal palpation.

- **Vaginal examination (VE)** is not usually warranted if contractions are <5 minutes apart and lasting <60 seconds unless the woman really wants one.
- **Ruptured membranes** (see Box 1.2 for diagnosis) are usually obvious. If the woman is contracting, there is no need for a speculum examination.

Established first stage of labour

Characteristics of the established first stage

In early labour:

- the woman may eat, laugh and talk between/during contractions
- contractions become stronger, increasingly painful, 2–5 minutes apart lasting ≤60 seconds
- the cervix is mid to anterior, soft, effaced (not always fully effaced in multiparous women) and ≥4 cm dilated.

As labour advances:

- the woman usually becomes quieter and behaves more instinctively, withdrawing as the primitive parts of the brain take over
- during contractions the woman may become less mobile, holding someone/something during a contraction, or she may stand legs astride and rock her hips; she may also close her eyes and breathe heavily and rhythmically, moaning or calling out during the most painful contractions
- talking may be brief, e.g. ‘water’ or ‘back’. This is not the time for others to chat. Lemay (2000) echoes Dr Michel Odent’s consistent advice: ‘the most important thing is *do not disturb the birthing woman*’. Midwives are usually adept at reading cues. Others unfamiliar with labour behaviour, including her partner and students, may need guidance to avoid disturbing her, particularly during a contraction. Before FH auscultation, first speak in a quiet voice or touch the woman’s arm; do not always expect an answer.

Midwifery care in the established first stage

Make sure your manner is warm. Smile! Involve her partner. Clarify how they prefer to be addressed. Ideally, the woman will have already met her midwife antenatally. A good midwife, familiar or not, will quickly establish a good rapport. Kind words, a constant presence and appropriate touch are proven powerful analgesics.

- **Take a clear history.**
 - Discuss previous pregnancies, labours and births.
 - Look for relevant risk factors. Some conditions require specific labour management, e.g. diabetes and pre-eclampsia (see Chapter 20), GBS (see Appendix 1.1), and epilepsy (Box 1.4). Advise a woman on antenatal heparin not to inject further heparin during labour (RCOG, 2015a).
 - Ask about vaginal loss, a ‘show’ and the time of onset of tightenings.
- **Review the notes.**
 - Ultrasound scan for dates and placental location.
 - Blood results: group, rhesus factor, antibodies, recent haemoglobin.
 - Any allergies.

- **Offer continuous support.** A Cochrane review (Hodnett *et al.*, 2013) found that continuous female support in labour:
 - reduces the use of pharmacological analgesia including epidural
 - makes spontaneous birth more likely (fewer instrumental/CS births)
 - shortens labour
 - increases women's satisfaction with labour.
- **Supporting the birth partner.** Some men (or women) do not cope well in hospitals, or when their partner is in pain. Encourage them to take frequent breaks, eat and drink. Some are clumsy when offering support, annoying the woman. They may also worry about the birth noises women make. Communicate quietly and give gentle guidance on the woman's needs.

Supporting a woman and her partner in labour is an intense relationship, hour after hour, and can be physically and mentally demanding. Providing emotional support, monitoring labour and documenting care may mean that the midwife can hardly leave the woman's side. Involving the birth partner(s) or a doula can both support the midwife and enhance the quality of support the woman receives. There should be no restriction on the number of birth partners present, although be very sure that the woman really wants them all: sometimes women accede to other people's desire to witness the birth. Birth is not a spectator sport; if birth partners are chatting among themselves and not supporting the woman then the midwife may need to offer them some direction or tactfully suggest they leave the room.

- **Communicate and build trust.** Talk through any birth plans early, while the woman is still able to concentrate. As labour progresses, observe her verbal and body language and tell her how well she is coping, offering simple clear information. Stay with her unless she wishes otherwise; 25% of women report that they and/or their birth partner were left alone and worried at some time during labour (CQC, 2015).
- **'Build her a nest' (RCM, 2017b).** Make the birth environment welcoming; prepare the room before she arrives.
 - Mammals like warm dark places to nest, so keep it relaxed with low lighting.
 - Remove unnecessary monitors/equipment.
 - Noise, particularly other women giving birth, can be distressing; low music may mask this. Avoid placing a woman arriving in labour near someone who is noisy.
 - Keep interruptions to a minimum; always knock and wait before entering a room and do not accept anyone else failing to do this.
 - If there is a bed, consider pushing it to the side so that it is not the centrepiece.
- **Eating and drinking.** Labour is hard physical work. Who would suggest someone runs a marathon without proper nutrition? Women often want to eat in early (rarely later) labour. A light diet is appropriate unless the woman has recently had opioids or is at higher risk of a general anaesthetic (Singata *et al.*, 2013; NICE, 2014). This too can be problematic, as withholding food from higher risk women could increase the likelihood of intervention for slow progress. Ensure birth supporters eat too. Drinking well will prevent dehydration. NICE (2014) suggests that isotonic drinks are even better than water, but this is the woman's decision. Dawood *et al.* (2013) point out the ludicrousness of restricting oral fluids, then putting up an intravenous (IV) drip to correct dehydration. H₂ receptors or antacids are not

Box 1.4 Labour care for women with epilepsy (RCOG, 2016a).

- The risk of seizures in labour is low.
- Labour care should be like any other, but minimise insomnia, stress and dehydration, which are risk factors for fitting. Offer adequate analgesia.
- Continuous electronic fetal monitoring is recommended for epileptic women at high risk of seizure, and following any intrapartum seizure.
- Continue anti-epilepsy drugs during labour. If the woman is at very high risk of peripartum seizures then benzodiazepines are recommended, possibly long-acting ones, e.g. oral clobazam. If these are not tolerated orally, use a parenteral alternative.
- **Seizures.** Every unit should have written guidelines on the management of seizures in labour. They should be terminated as soon as possible to avoid maternal/fetal hypoxia.

recommended routinely for low-risk women but may be appropriate for those at higher risk (NICE, 2014).

- **Basic observations** (Table 1.1). Record contraction frequency hourly in the first stage.
- **Frequent micturition** should be encouraged, but measuring the volume of urine and repeated urinalysis in labour are unnecessary for normotensive women.
- **Observe vaginal loss**, e.g. liquor, meconium, blood and offensive smell.
- **Do not offer a shave or enema!** Fortunately in the UK the days of routine enemas and pubic shaves have long gone; they are at best ineffective and at worst embarrassing, uncomfortable and harmful, paradoxically increasing infection risk (Basevi and Lavender, 2014). Very occasionally a loaded rectum is felt on VE, or the woman reports constipation. A couple of glycerine suppositories may bring relief.
- **FH auscultation.** NICE (2014) recommends intermittent auscultation every 15 minutes following a contraction, for at least 1 minute, recorded as a single rate. Midwives may disagree with this guidance, which is based on (largely obstetric) opinion rather than clear evidence or individualised care. Midwives typically choose to monitor less than every 15 minutes early in labour or more frequently at other times, e.g. following SROM or a VE (see Chapter 3).

Assessing progress in labour

Justify intervention. (RCM, 2017b)

Unless birth is imminent, most midwives undertake abdominal palpation when taking on a woman's care, and periodically thereafter, to ascertain the lie, position and presentation of the baby. Engagement is particularly helpful to monitor descent of the presenting part and thus labour progress (Figure 1.1). However, some women may find this examination painful, particularly in advanced labour.

Labour progress can also be judged *observationally* by the woman's contractions and her verbal and non-verbal responses to them (Table 1.2). Some midwives also observe the 'purple line', present in 76% of women, which may gradually extend from the anal margin up to the nape of the buttocks by full dilatation (Hobbs, 1998; Shepherd *et al.*, 2010).

Table 1.2 Contractions and women's typical behaviour up to full dilatation.

Cervical dilatation	0–3cm	3–4cm	4–7cm	7–9cm	9–10cm
Frequency of contractions	May be irregular and sometimes stop Gradually increasing in frequency	2:10 minutes Increasingly regular, lasting 20–40 seconds	3:10 minutes Regular, lasting ≤60 seconds	3–4:10 minutes Regular, lasting ≤60 seconds	4–5:10 minutes Sometimes almost continuous, although they can 'fade away' for a while in transition
Pain of contractions	Varying from painless/mild/stronger	Becoming more painful but usually bearable		Increasingly painful	Often almost (sometimes completely) unbearable pain, although if in the transitional stage the woman may have some respite
Behaviour	Chatty, nervous, excited, able to make jokes and laugh. Often able to talk through contractions May use learned breathing techniques too early, and need reminding to pace herself	Withdrawing more. Deeper 'sighing' breathing Sense of humour fading		Becoming vocal: crying out with some contractions May express irritation when touched	Appears withdrawn, in another world May not reply, or may answer sharply Concentrating on breathing, which slows and deepens with a contraction Throaty grunting noises, crying out with expiration: may panic and express desperate ideas: 'I can't do this!'
Movement and posture	Mobile during contractions		Needing to stop and concentrate during contractions	Grasps abdomen and leans forward May rock, curl toes	Less mobile, holding on to something during a contraction; often eyes closed, but may open wide in surprise with pushing urge

NB This is only a broad guide, intended to stimulate awareness of birthing behaviour; women's behaviour will of course vary.

Vaginal examination, amniotomy and partograms

VEs in labour are an invasive, subjective intervention but no one has devised an acceptable, precise alternative method of assessing labour progress. It can be difficult for woman to decline a VE or for midwives to perform one when they feel it is best indicated. Even in low-risk births, midwives often feel pressured to adhere to medicalised guidelines which lack good evidence.

NICE (2014) recommends:

- 4-hourly VEs in the first stage of labour, or if there is concern about progress, or at the woman's request (after abdominal palpation and assessment of vaginal loss)
- cervical dilatation of 2 cm in 4 hours is reasonable progress
- using a 4 hour action line on the cervicogram/partogram
- that a routine amniotomy should not be performed; if an amniotomy is performed for slow progress the VE should be repeated after 2 hours

- documenting care on the partogram/notes, including problems, interventions or referrals.

See Chapters 2 (VE) and 9 (slow progress) for a detailed, critical discussion.

Analgesia

Pain is a complex phenomenon and a pain-free labour will not necessarily be more satisfying. Working with women's pain rather than alleviating it underpins many midwives' practice. Indeed many would argue that some degree of pain is an essential part of labour: 'as it stimulates the brain to release a cocktail of hormones, which in turn stimulate the uterus to contract' (Walsh and Gutteridge, 2011). Leap *et al.* (2010) distinguish between midwives who 'work with pain' and those who provide 'pain relief'.

Most midwives encourage natural and non-interventionist methods first, with pharmacological methods only if these methods are deemed insufficient.

Non-pharmacological analgesia

- **Massage and touch.** These can be powerful analgesics (Figure 1.2), encouraging pain-relieving endorphin release. Women receiving massage in labour report reduced pain (Smith *et al.*, 2012; Nutt, 2016). Never underestimate the effect of being 'with woman'. Be sensitive however. Touch can be irritating or distracting, particularly in later labour. Labour can induce flashbacks for sexual abuse victims (see Chapter 2) and some women come from cultures where *any* non-essential touching by strangers feels invasive.
- **Distraction**, e.g. breathing patterns, music, television: 'In labour I spend a lot of time in a low calm voice quietly talking women through a contraction. *Breath in through your nose, (pause) blow out from your mouth ... let your shoulders drop, arms relax, unclench your hands. ... Next out breath I add: let your legs relax and sink into the chair/bed etc ... unclench your toes!!* I don't think this is hypnobirthing but it's working with each contraction and it seems to work!' (Midwife, personal communication).
- **Position changes with aids.** Upright postures reduce the intensity of pain (Lawrence *et al.*, 2013), e.g. beanbags, wedges, stools and birthing balls (Figures 1.3 and 1.4).
- **Transcutaneous electrical nerve stimulation (TENS).** Despite conflicting opinions on its effectiveness, including a possible placebo effect, many women report that it provides good analgesia, especially in the first stage of labour (Johnson, 1997). A decade ago 20% of women used it (Healthcare Commission, 2008) and most said they would use it again (Dowswell *et al.*, 2009). There is no adverse effect on the mother or baby (Mainstone, 2004). However, a lack of substantial non-anecdotal evidence has led NICE (2014) to conclude, controversially, that TENS should not be recommended in established labour. However, a Cochrane review (Dowswell *et al.*, 2009) suggests that research is insufficient and that women should have the choice of using TENS: many continue to hire TENS units, or borrow them from enlightened hospitals/birth centres.
- **Aromatherapy.** Aromatherapy aids labour relaxation, and seems to reduce the use of analgesia and oxytocin (Burns *et al.*, 2000; McNabb *et al.*, 2006; Dhany *et al.*, 2012). A Cochrane review is more guarded, citing small underpowered studies (Smith *et al.*, 2011a), but this is one of many complementary therapies that is difficult to

research by randomised controlled trial. Women usually love aromatherapy, and the massage which accompanies it. Midwives must be adequately trained prior to administering it, and maintain continuing professional development; some oils are contraindicated in pregnancy (Tiran, 2000, 2016; NMC, 2013).

Continuous vaporisation of oils, however, may impede midwives' concentration and have adverse effects on anyone exposed, including headache, nausea or lethargy. Tiran (2016) therefore states: '*... it is completely unethical and unsafe for aromatherapy oils to be vaporised in a maternity unit or birth centre*'.

- **Hypnosis/hypnotherapy.** A decade ago a Cochrane review reported positive results from small studies: 'Current available evidence shows that hypnosis reduces the need for pharmacological pain relief, including epidural analgesia in labour. Maternal satisfaction with pain management in labour may be greater among women using hypnosis. Other promising benefits from hypnosis appear to be an increased incidence of vaginal birth, and a reduced use of oxytocin augmentation' (Smith *et al.*, 2006). More recently a large trial concluded that epidural use was unaffected but women reported increased postnatal confidence and reduced fear of future birth (Downe *et al.*, 2015). Research continues. Anecdotal accounts of hypnobirthing yield extraordinary stories (www.hypnobirthing.co.uk).
- **Other methods, e.g. acupuncture/pressure, reflexology, shiatsu, yoga, sterile water blocks, homeopathic and herbal remedies.** Normally only midwives trained in these specialist areas or qualified practitioners offer these therapies. Non-pharmacological methods are notoriously difficult to evaluate by standard research methods. Acupuncture, acupressure, relaxation and yoga have undergone Cochrane review and shown positive results, including reduced analgesia use and increased spontaneous births, although studies remain of variable quality (Smith *et al.*, 2011b,c). NICE (2014) mentions alternative therapies in the weakest way, stating: 'Do not offer acupuncture, acupressure or hypnosis, but do not prevent women who wish to use these techniques from doing so.' Midwives wishing to involve themselves in these methods need to look for more helpful and positive resources than NICE.
- **Water.** Deep-water immersion has unique benefits. The opportunity to labour in water should be part of routine labour care (see Chapter 7).

Pharmacological analgesia

- **Entonox (nitrous oxide).** This is the most commonly used labour analgesic in the UK; it appears to offer effective pain relief to significant numbers of women (Klomp *et al.*, 2012). There is little evidence on fetal/maternal effects; like all drugs it will cross the placenta to the baby, but there is no evidence of harm. Maternal side-effects are minor, e.g. dry mouth or nausea, but it is quickly excreted so effects wear off rapidly. Long-term exposure risks are well documented, including risk to pregnant staff with high labour ward workloads (Robertson, 2006).
- **Opioids, e.g. pethidine, diamorphine.** These are usually given intramuscularly (IM) but occasionally by patient-controlled analgesia (PCA). Anti-emetics should be given prophylactically with opioids (NICE, 2014). Opioids can 'take the edge off' the pain for some women, inducing a feeling of well-being and allowing some rest. Others dislike the feeling of being sedated, out of control and still able to feel considerable pain. There are considerable doubts about the effectiveness of opioids and concern about potential maternal, fetal and neonatal side-effects. Maternal side-effects



Figure 1.2 Hands on comfort: massage and touch.



Figure 1.3 Kneeling forwards onto a pillow.

include nausea, vomiting and hypertension (Ullman *et al.*, 2010). Some women feel disorientated and out of control. Neonatal side-effects include respiratory depression (NB naloxone is now not advised; see Chapter 18), subdued behaviour patterns, including a lack of responsiveness to sights and sounds, drowsiness and impaired early breastfeeding (NICE, 2014). It may be that babies of mothers



Figure 1.4 Side lying.

receiving opiates in labour become addicted to opiates/amphetamines in later life (Jacobsen *et al.*, 1988, 1990; Nyberg *et al.*, 2000). While recent studies have not confirmed this (Pereira *et al.*, 2012), all researchers believe that more work is needed, and concerns remain that some addiction and behavioural disorders may have their roots in fetal exposure to labour opiates and disordered fetal cortisol levels (Beech, 2004).

Regional anaesthesia

Regional anaesthesia (RA) aims to remove all pain from the lower half of the body. It is used by around a third of women for labour in the UK. Local anaesthetic is injected into the lower region of the spine, close to the nerves that transmit pain. Adding an opiate to the anaesthetic drug means lower concentrations of the latter are needed.

- **Epidural anaesthesia.** A local anaesthetic and/or opiate is injected between the spinal column and the outer membrane of the spinal cord (i.e. into the 'epidural space') by bolus injection, continuous infusion or PCA.
- **Spinal anaesthesia.** A single dose of local anaesthetic and/or opiate is injected through the subarachnoid space into the cerebral spinal fluid; this is a faster and shorter acting form of RA than epidural anaesthesia.
- **Combined spinal–epidural anaesthesia (CSA).** This is a single spinal injection, following which an epidural catheter remains *in situ*. CSA is faster acting than epidural anaesthesia but gives no better pain relief than epidural alone (Simmons *et al.*, 2012).

NICE (2014) recommends low-dose bupivacaine and fentanyl for optimal labour outcomes and shows no preference for epidural (recommending either bolus or PCA) over CSA, unless rapid RA is required.

The concept of a so-called 'walking epidural' can be confusing. It is simply a low-dose epidural, which is what most epidurals are these days. All low-dose epidurals are intended to increase mobility to some degree, allowing a woman to adopt upright positions, or possibly a kneeling/all-fours position. Occasionally she may be able to stand or walk, although this is unlikely and many hospitals discourage the attempt fearing the risk of falling. Some women report disappointment when they find that their mobility is not as good as they had hoped, and electronic fetal monitoring still intrudes.

There are known and suspected risks from RA (Box 1.5).

The reasons for adverse neonatal outcomes may be more subtle than simply opiate effects. Many researchers have speculated that a slightly raised level of maternal stress hormones in labour has a beneficial effect on the fetus, preparing it for extrauterine life (Dahlen *et al.*, 2013). RA may make the woman in one sense 'too relaxed' and dissociated

Box 1.5 Possible risks/effects of regional anaesthesia.**Maternal effects**

- Inadequate/patchy coverage that can be more distressing than no epidural at all.
- Poor mobility in labour, increased postnatal leg weakness.
- Hypotension, fever.
- Itchiness, drowsiness, shivering.
- Increased 'routine' interventions, e.g. IV access, catheter.
- Increased malposition, oxytocin augmentation.
- Urinary retention (reduced by low-dose epidural anaesthesia).
- Prolonged second stage, increased instrumental delivery and severe perineal trauma.
- Increased emergency CS for FH rate concerns but no overall increase in CS.
- No effect on long-term backache.
- Risk of accidental dural puncture following epidural resulting in severe short-term headache: this can seriously affect mother–baby interaction in the first few days. Treatment is by blood patch: 20–30 ml blood is injected into the epidural space.
- Conflicting research on maternal satisfaction; this is a complex area and difficult to research, as RA is often part of a package of interventions which women may or may not welcome, often including disappointment for women who wanted a normal labour.

Fetal/neonatal effects

- No difference in Apgar score (short-term outcome).
- Negative opiate effects: dose is lower than via the IM route, but maternofetal opiate transfer does occur. This can cause:
 - Decreased mother–baby interaction, and possibly poorer breastfeeding. These are again difficult to research and often rely on retrospective studies that cannot separate out variables. This subject is a source of intense debate, but is excellently reviewed by Smith (2010).
 - Increased FH irregularities leading to instrumental birth and CS.

(Smith, 2010; Anim-Somuah *et al.*, 2011; NICE, 2014)

from her labour, so her baby fails to get the stimulus it requires. Also, reduced oxytocin levels at birth may make the woman less responsive to her newborn. Conversely, however, a highly stressed woman in extreme pain may produce excessive stress hormones, and reduced oxytocin; this too may adversely affect a baby. Similar principles apply to babies born by elective and emergency CS.

For many women RA provides welcome relief from pain; if labour is complicated and/or slow, the risks may be of little consequence at the time. While researchers may argue about the pros and cons, if a woman really wants RA she should be able to have it if at all possible. Ongoing publicity about midwives denying women epidurals in the belief that all women should give birth naturally reflects a breakdown in communication between mother and midwife (www.birthtraumaassociation.org.uk).

Some epidurals provide only partial pain relief or none at all (Agaram *et al.*, 2009). A woman in this situation needs particular support. She may feel panicky and out of control. A midwife may have to be a very strong advocate for her, recalling the anaesthetist, possibly a more senior one. Sometimes little can be done, and the midwife will need to give great emotional support to a disappointed distressed woman.

Care for a woman with regional analgesia (NICE, 2014; RCOG, 2015a)

This includes:

- IV access (fluid preloading is unnecessary), hourly sensory block check and continual pain assessment

- blood pressure monitoring at 5 minute intervals for 15 minutes, following establishment of the block and following a top-up; recall the anaesthetist if the woman is not pain-free 30 minutes after a top-up
- cardiotocography (CTG) for ≥ 30 minutes following establishment of the block/top-up
- avoiding routine oxytocin augmentation
- regular position changes, including side lying and other non-supine positions to avoid aortocaval compression and to protect pressure areas (this is particularly important if the woman has a raised body mass index (BMI), is sitting in liquor or has a long labour)
- bladder care; NICE indicates either an intermittent or indwelling catheter, but other studies suggest that intermittent ('in and out') catheterisation is safer: indwelling catheters are linked to second stage delay and tripled risk of CS (Evron *et al.*, 2008; Wilson *et al.*, 2015)
- women on antenatal heparin should ideally not have regional analgesia until 12 hours after the previous prophylactic dose (24 hours if the dose is therapeutic); heparin should not be given for 4 hours after spinal anaesthesia or epidural catheter removal; the catheter should not be removed within 12 hours of the most recent injection (RCOG, 2015a).

Mobility and positions

Get her off the bed. (RCM, 2017b)

Midwives are the major influence on whether a woman is free to mobilise. Actively encouraging mobilisation during labour is a fundamental component of good midwifery practice and is a safe, cost-effective way of reducing complications caused by restricted mobility and semi-recumbent postures, as well as enriching the woman's birth experience. A Cochrane review found that upright positions shorten the first stage by around an hour, and reduce epidural use (Lawrence *et al.*, 2013).

Women's expectations of how to behave in labour, unfamiliar surroundings, the labour room bed, lack of privacy and medicalised care models all inhibit mobility in labour. However, only 58% of women (89% of whom were in birth centres) were happy with their ability to choose their labour position (Birthrights, 2013).

Think about how you can help the woman to adopt other positions in labour – observe what works and what doesn't, and review when and why these positions were most successful. Your knowledge of anatomy can also help you to understand how different positions aid the physiological processes (e.g., the curve of Carus). (RCM, 2017b)

- Have you discussed with the woman in labour why it is important to mobilise in labour? By pointing out that labour is more likely to be shorter and less painful, you will give her 'permission' to move around freely and do what she feels is best for her.
- Women often get stuck on the bed following VE or during electronic fetal monitoring. Suggest that she changes position, tries a birthing ball or walks to the toilet.
- Mind your back. Avoid twisting: try to stay square to the woman, perhaps temporarily kneeling or squatting.

Transition

Towards the end of the first stage contractions may become almost continuous or, conversely, space out a little. Many women may have a bearing down sensation at the peak of the contraction as the cervix approaches full dilatation. This stage may be the most painful and distressing. It can last a few contractions, but may last much longer. Labour stress hormones peak; this has a positive effect in producing the surge of energy shortly needed to push (Odent, 1999; Buckley, 2004a).

The diagnosis of the transitional stage ... is a far more women-centred and subjective skill ... essentially a midwifery observation and as such is dependent on knowing the woman ... and recognising any changes in her behaviour. Progress can thus be diagnosed without the need to resort to a VE. (Mander, 2002)

The woman experiencing the 'extreme pain' of transition has a decreased ability to listen or concentrate on anything but giving birth. She becomes honest in vocalising her needs and dislikes – 'unfettered by politeness' (Leap, 2000)! This should not be misinterpreted by the midwife or birth partner as rejection or rudeness.

Typical behaviour may include:

- distressed/panicky statements: 'I want to go home!', 'Get me a caesarean/epidural!', 'I've changed my mind!'
- non-verbal sounds: groaning/shouting, involuntary pushing sounds
- body language: agitated, restless, toes curling, closed eyes due to intense concentration and pain
- withdrawing from activities/conversation of people around.

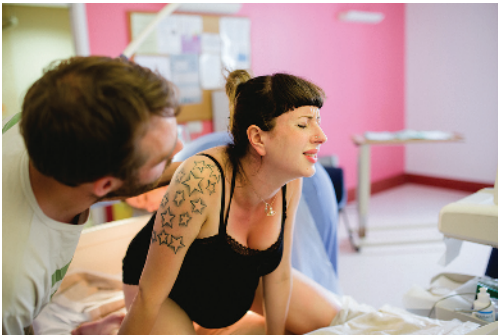
Midwifery care in transition

Support birth partners. They can become tired, be stressed and want something done to help the woman. This common reaction sometimes leads to inappropriately timed analgesia, e.g. epidural, with subsequent discovery of a fully dilated cervix. It can be a difficult judgement call for the midwife.

Keep it calm. Change the dynamics if the woman panics, e.g. suggest a walk to the toilet, a position change or help her to focus on her breathing.

Avoid the temptation of VE. Unless the woman really wants it, VE is likely to yield disappointment: at this stage it is painful and the cervix is often 8–9cm dilated (Lemay, 2000).

To push or not to push? Telling women that they must not push when they cannot stop themselves at the end of the first stage is unnecessary and distressing for the woman. There is no evidence to support the traditional belief that pushing on an undilated cervix will cause an oedematous cervix (Downe and Schmid, 2010); see Chapter 9. Indeed it is possible that it has a physiological purpose in labour, in dilating the last part of the cervix and enabling head flexion and rotation. At least 20% of women, irrespective of parity, experience an early pushing urge. Downe *et al.* (2008) found that those with the urge had a better chance of a spontaneous normal birth than those who did not.



Courtesy of Lucy Pryor.

Second stage of labour

This is traditionally defined as the stage from full cervical dilation until the baby has been born. Usually, the actual time of onset is uncertain (Walsh, 2000b) as it is technically defined by VE. Long (2006) suggests 'redefining the second stage, so that the emphasis is placed on descent and station of the presenting part instead of cervical dilation'.

Lemay (2000) describes most of a primigravida's pushing phase as 'shaping of the head' rather than 'descent of the head':

Each expulsive sensation shapes the head of the baby to conform to the contours of the mother's pelvis. This can take time and ... often ... is erroneously interpreted as 'lack of descent', 'arrest' or 'failure to progress'. I tell mothers at this time, 'It's normal to feel like the baby is stuck. The baby's head is elongating and getting shaped a little more with each sensation. It will suddenly feel like it has come down.'

Characteristics of the second stage

The woman may experience/exhibit the following:

- **Vomiting**, often with contractions.
- **Show** or bright red vaginal loss.
- **Spontaneous rupture of the membranes** can occur any time but often at full dilatation.
- **Urge to push**. Powerful, expulsive contractions every 2–3 minutes, often lasting ≥ 60 seconds. Most women make a distinctive throaty expulsive sound at the peak of a contraction. Others may groan: 'I'm *pushing!*' This urge may precede full dilatation or occur some time afterwards.
- **Rectal pressure**. The descending presenting part exerts great pressure on the bowel. The woman often feels she needs to have her bowels opened and may do so.
- **External signs**, e.g. anal dilatation, bulging perineum, gaping vagina (Figure 1.5).

Midwifery care in the second stage

Duration of the second stage

NICE (2014) guidelines are comparatively enlightened in this respect, although others challenge any second-stage time limits if there is progress and no fetal/maternal concern (see Chapter 9 for further discussion).

NICE (2014) suggests:

- assessing and recording contraction frequency half hourly
- that if a woman *without* epidural anaesthesia has no pushing urge, she should be reassessed 1 hour after confirmed full dilatation
- delaying pushing for women with epidurals for 1 hour (longer if the woman wishes) after full dilatation unless the head is visible or the woman has an urge to push; NICE recommends birth should take place within 4 hours regardless of parity
- considering oxytocin, and offering RA for nulliparous women with inadequate contractions at the onset of the second stage



Figure 1.5 External signs of full dilatation. *Photo by Joy Horner (www.birthjoy.co.uk).*

- performing a VE after an hour of 'active second stage' for nulliparous women, or after 30 minutes for multiparas; offer amniotomy if the membranes are intact and consider further analgesia
- that if there is no birth after 2 active hours (1 hour if multiparous), then obstetric review should be carried out every 15–30 minutes if there are no fetal well-being concerns
- expediting delivery after 3 hours of active second stage for a nulliparous woman and 2 hours for a multiparous woman.

It can be tempting to focus on the confirmation of full cervical dilatation as the moment to start pushing, rather than the woman's urge to push. Many writers, including Odent (2000), suggest that it is not full dilatation that makes women want to push: it is the descent of the head to the pelvic floor. Odent believes the true role of the midwife in the second stage is to protect the woman, and to allow the fetus ejection reflex to be triggered.

Rightly or wrongly, midwives have been known to 'fudge' VE results in the face of restrictive policies, claiming that a woman has an anterior lip, to allow her more time without intervention.

Vaginal examination. It has become the norm for full dilatation to be confirmed by VE. It should not be automatic, particularly for multigravidae or if external signs are evident.

Monitoring the FH rate. NICE (2014) recommends auscultation every 5 minutes in the second stage following a contraction. As the baby descends the FH can be difficult to locate and monitoring may feel invasive/uncomfortable. Early decelerations are more common in the second stage due to head compression, sometimes becoming variable, late or leading to bradycardia due to cord compression (see Chapter 3).

Pushing

Bergstrom *et al.* (1997) ask, 'Why does the clinician's definition of second stage take precedent, regardless of what the woman's body is instinctively doing?'

Bergstrom *et al.* describe how midwives expend great energy discouraging a woman from pushing prior to confirmation of full dilatation, and then coerce her into exaggerated active pushing once full dilatation is confirmed. As stated earlier, there is no evidence that cervical swelling occurs with premature pushing, and active pushing is known to do more harm than good (see also Chapter 2, 'Anterior lip').

Enable spontaneous involuntary pushing. Women simply push as they wish; most take a short breath, hold their breath for a few seconds, bear down and then give an expiratory grunt. Others do not breath hold and/or give multiple short pushes.

Push only when ready. Women naturally push as the contraction builds up and the urge is present. The earliest part of the contraction pulls the vagina taut, preventing it from being pushed down in front of the descending presenting part (Gee and Glynn, 1997).

Forced pushing (Valsalva). Directed, prolonged breath-holding/bearing down, particularly if held for 10 seconds or more, may result in fetal acidosis, lower Apgar scores, perineal trauma, episiotomy, instrumental birth (Co Lam *et al.*, 2010; Cooke, 2010; Cooper K, 2016), pelvic dysfunction and urinary incontinence (Schaffer *et al.*, 2005). A Cochrane review (Lemos *et al.*, 2015) states that (variable quality) studies show no difference in outcome for directed/non-directed pushing, for episiotomy, mode of birth, Apgar scores and neonatal intensive care unit (NICU) admission, but found directed pushing only shortened the second stage by about 5 minutes.

NICE (2014) advises against directed pushing, stating that the woman 'should be guided by her own urge to push'.

Try stopping pushing or even trying to 'suck the baby back in' for a few contractions if pushing feels ineffective: paradoxically (perhaps it is psychological) some women find that this increases their pushing urge (Lemay, 2000).

Pushing with an epidural. Many women do not experience a pushing urge and may need more direction. Delaying pushing for an hour if there is no urge and the head is not visible and allowing a 3–4 hour second stage may help achieve a normal delivery and avoid complications (NICE, 2014). Lemos *et al.* (2015) found that the pushing stage is shortened by 20 minutes with delayed pushing. Discontinuing the epidural anaesthesia can be distressing for the woman and does not increase the spontaneous birth rate (NICE, 2014; Torvaldsen *et al.*, 2004). A Cochrane review found insufficient data to recommend any particular pushing position (i.e. upright versus recumbent) for women with epidurals and suggests women should adopt their preferred position (Kemp *et al.*, 2013), although the Royal College of Obstetricians and Gynaecologists (RCOG, 2011) suggests an increased spontaneous birth rate for a non-supine epidural position. More research is needed, as it seems likely that upright positions which have been demonstrated by Cochrane review to be so beneficial for normal labour (Lawrence *et al.*, 2013) are effective in labour with an epidural.

Slow progress may be normal for that woman or problematic (see Chapter 9).

Verbal support. Speak soothingly, give simple explanations and praise the woman for doing so well. Insincere, overeffusive praise sounds false. Most midwives instinctively know the right thing to say and when to say it.

Birth positions. Squatting, kneeling or side-lying, as opposed to lying semi-recumbent, increases the maximum pelvic outlet significantly. Gravity-enhancing upright



Figure 1.6 Supported squat (second stage).

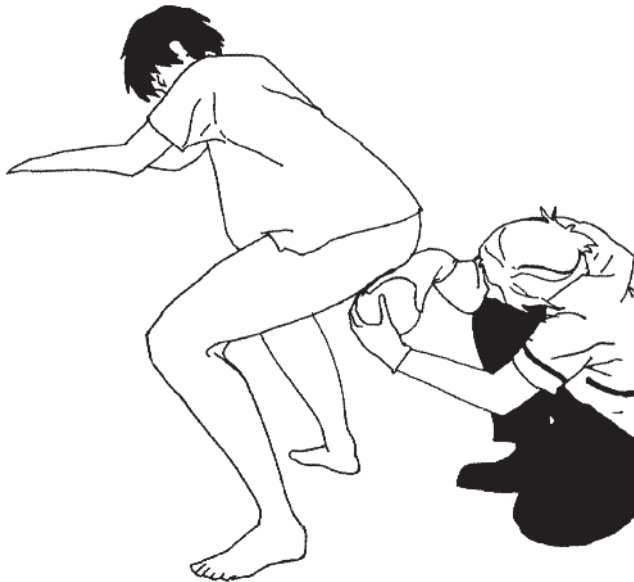


Figure 1.7 Standing/hanging from a bed (second stage).

positions (Figures 1.1, 1.3, 1.5, 1.6 and 1.7) appear less painful; supine or lithotomy positions increase FH anomalies, episiotomy and instrumental delivery (Gupta *et al.*, 2012; RCM, 2012a). Side-lying appears to reduce perineal trauma the most, while squatting may increase it (Shorten *et al.*, 2002; Bedwell, 2006). Upright positions may make episiotomies difficult to perform; there are more second-degree tears instead (Gupta *et al.*, 2012). Many women instinctively take up the position that feels right for them if encouraged to do so.

A Care Quality Commission (CQC) survey found that 22% of women *giving birth naturally* in stirrups rose from 17% in 2010 to 22% in 2015 (CQC, 2015). If we add in the 10–15% of instrumental births in the UK, then it seems around one-third of UK women deliver in stirrups. This is shocking. Midwives should consider this position as a last resort. Occasionally the process of moving into stirrups and taking up a flexed-hip position (a kind of supine squat) may open up the pelvic diameters and shift a stuck baby, but one might ask why the woman is not encouraged to try kneeling/squatting anyway, which will avoid coccygeal pressure and also enable gravity to assist. The overuse of the lithotomy position may be partly influenced by the use of RA, where the block is too dense to allow kneeling/squatting.

The birth

As the birth approaches the perineum bulges, the vagina gapes and the anus flattens. Often the woman opens her bowels when pushing. The presenting part becomes visible, advancing with contractions. The ‘fetal ejection reflex’, a surge of birth hormones, including oxytocin and catecholamines, increases the energy needed to expel the baby (Odent, 2000). The woman may cry out as she feels the burning sensation of the stretching perineum and rectum. She may be immensely focused or, conversely, may panic, and writhe around, perhaps even resisting pushing because of the pain.

Low lighting and privacy. Avoid bright fluorescent lights. They are harsh and likely to cause a stress reaction, inhibiting natural oxytocin production. Birthing mammals tend to prefer darker environments and need nests where they feel safe (Johnston, 2004). A light source near the perineum may reassure some midwives who wish to view the perineum, but continual staring and focusing on the perineum and/or the woman’s face may put her under pressure and make her feel exposed. This can feel particularly voyeuristic for sexual abuse victims. Also consider the baby: the transition from womb to outside world is likely to be quite a shock as it is, without a bright light shining into its eyes.

Reassurance. This can be a key moment where trust between midwife and woman staves off panic. A calm voice telling her that she is nearly there and that she can do it can help get her through this most challenging of episodes. Try to minimise noise: the mother may sob, grunt, moan or even scream at the point of birth, but there is a big difference between a woman’s need to cry out and the cacophony of shouting and exhorting that birth supporters sometimes create. While there is occasionally a place for an energy injection from onlookers, midwives need to be very skilled to avoid the woman feeling shrieked at by tense carers. Imagine the difference for the baby if it is born into a peaceful room, perhaps with its mother’s or father’s voice the first that it hears.

Warm moist compresses may be soothing and have been found to be a significant factor in reducing the incidence of severe perineal trauma and perineal pain (Aasheim *et al.*, 2011). Some women may prefer a cool compress, although this is under-researched.

Perineal massage in labour can be invasive. A Cochrane review suggests some benefit to *antenatal* perineal massage but finds evidence of *second-stage* perineal

massage inconclusive, stating tentatively that perineal massage may reduce third-/fourth-degree tears but that this is a difficult area to research as practice varies widely (Aasheim *et al.*, 2011). NICE (2014) recommends avoiding it in the second stage. This is again for the woman to decide: some find any perineal touch excruciating now.

Episiotomy should not be routinely offered for spontaneous birth (NICE, 2014; Jiang *et al.*, 2017), or even routinely for a previous third-/fourth-degree tear, as there is no evidence that it confers protection (NICE, 2014; RCOG, 2015b). Avoid in your impatience classifying an uncomplicated slow delivery as a 'rigid perineum' – this is rare. Cochrane suggests restrictive, as opposed to routine, episiotomy in unassisted vaginal birth results in 30% fewer women with severe perineal/vaginal trauma, and any belief that routine episiotomy reduces perineal/vaginal trauma is not justified by current evidence (Jiang *et al.*, 2017).

It is important that midwives maintain their skill in assessing for and performing episiotomy. The appropriate criteria, however, are difficult to define.

Episiotomy has not proved to be protective against third-/fourth-degree tears; in fact, it increases the risk, although some have suggested that this is due to cutting too close to the midline (Eogan *et al.*, 2006). There is a need for further research on the precise angle (Jiang *et al.*, 2017). Despite equivocal evidence, NICE (2014) and RCOG (2015b) recommend a 45–60° mediolateral cut (with tested effective analgesia – unless in an emergency). Angled episiotomy scissors, aimed at achieving the recommended incision angle of 60°, are available, however, they have been under-researched. It has been suggested that an incision angle of 60° possibly lowers OASI injury (non-significant finding) but may cause higher pain for women (El-din *et al.*, 2014).

See Chapter 4 for a more detailed discussion on episiotomy and perineal trauma.

Head awareness. The woman may wish to touch her baby's head or watch in a mirror as she pushes. Some women find this encouraging, while others absolutely do not want to touch or watch.

Slow birth. Controlled pushing of the crowning head between contractions appears to reduce perineal trauma (Albers *et al.*, 2005); a calm relaxed atmosphere may also help (Jackson, 2000). At the point of crowning some midwives encourage gentle shallow breaths and slow small pushes.

Hands on or poised? Whether midwives put their hands on (flexing the head and touching the perineum with the other hand) or off (both hands off but poised to prevent the baby emerging rapidly) does not appear to significantly affect perineal trauma (McCandlish *et al.*, 1998 (HOOP trial); NICE, 2014; Petrocnik and Marshall, 2014). A Cochrane review finds that keeping the 'hands off' the perineum appears to reduce the risk of episiotomy and makes no difference to obstetric anal sphincter injury (OASI) (Aasheim *et al.*, 2011). RCOG (2015b) now recommends hands on, but this has been criticised by others as it dictates a woman's birth position and may negatively impact a water birth (Cooper T, 2016). Equally, the OASI (2017) Care Bundle Project is likely to result in a big increase in hands-on birth. This prescriptive package of care (Laine *et al.*, 2012) is being implemented in many UK hospitals; it requires hands-on 'manual perineal protection' and pressure on the fetal head until both shoulders have delivered. It is being presented as an evidence-based intervention likely to reduce serious perineal tears. Many midwives and researchers are very concerned that the OASI project relies on a low level of research and may be focusing on the wrong interventions (Dalen *et al.*, 2015). See Chapter 4, Appendix 4.1 for further description and critique.



Courtesy of Lucy Pryor.

Await restitution. While some babies deliver quickly, most await the next contraction for the shoulders to rotate into the anteroposterior diameter, as the baby's head appears to turn. It may be helpful to support the baby's weight to prevent pressure on the perineum. With the next contraction (or earlier) the shoulders should gently emerge. This final contraction may take some minutes to arrive. Beware of overdiagnosing shoulder dystocia (see Chapter 17). Two minutes can seem like a long wait. Resist the urge to apply traction before the next contraction. The RCOG currently defines shoulder dystocia as a head-body delay of more than 2 minutes (see Chapter 17); this seems unnecessarily rigid if contractions simply happen to be 3 minutes apart.

Checking for the cord. This is often painful, usually unnecessary and may cause posterior wall tearing (MacLellan and Lang, 2011). Unless the baby seems slow to deliver, untangle a nuchal cord after the birth. If the cord (not an impacted shoulder) genuinely seems to be preventing delivery then clamp and cut, but remember you have now removed the baby's oxygen supply; birth should be imminent to prevent neonatal compromise.

The moment of birth. Do not rush to deliver the body; perineal damage can occur with a shoulder or a hand. A gentle unhurried birth of the body is just as important as the head. The mother or father may wish to put their hands down as well and feel the baby birthing. The midwife should already have checked that the mother is happy to have her baby put straight into her arms for immediate skin-to-skin contact (Box 1.6). Occasionally, parents are squeamish in advance about wet bloodstained babies, but the reality is usually quite different. Most women will reach out instinctively to their baby.

Snapped cord. A short/friable cord will snap in 3% of vaginal births (Prendiville and Elbourne, 2000). Grasp and clamp the baby's end *immediately* to prevent blood loss from the baby.



Figure 1.8



Figure 1.9

Box 1.6 The benefits of skin-to-skin contact.

Immediate skin-to-skin contact between mother and baby

- Improves mother and baby interaction at birth.
- Decreases infant crying and calms breathing.
- Improves neonatal temperature, heart rate and respiratory stability.
- Improves success and duration of breastfeeding.
- Increases neonatal blood glucose levels (particularly important for babies of diabetic mothers).
- Skin bacteria passed from mother to baby help develop healthy skin flora and a healthy immune system.

Benefits of fathers offering skin-to-skin contact

- Fathers offering skin-to-skin contact to preterm babies felt earlier positive feelings towards them.
- Babies given skin-to-skin contact with their fathers following CS cry less and appear calmer.

Preterm babies appear to benefit too! See Chapter 13.

(Erlandsson *et al.*, 2007; Lamy Filho *et al.*, 2015; Moore *et al.*, 2016; Chen *et al.*, 2017)

Third stage of labour

There are two options for assisting the third stage: (1) physiological (expectant) management or (2) active management. There are controversies around both methods.

- NICE (2014), the World Health Organization (WHO, 2012) and RCOG (2016b) say that the woman should be advised to have **active management** but NICE states that if a woman with low postpartum haemorrhage (PPH) risk requests **physiological management** she should be supported.

- The RCM (2012b) is more balanced in its opinion over **active** versus **physiological** management, advising that the latter is suitable only if the woman has had a physiologically normal labour and birth (no epidural, no IV oxytocin).
 - All professional bodies recommend **delayed/deferred cord clamping** (DCC):
 - NICE (2014) says 1–5 minutes.
 - WHO (2012) says 1–3 minutes.
 - RCOG (2015c) says at least 2 minutes (depending on the clinical situation).
 - The UK Resuscitation Council (UKRC) says at least 1 minute for term and ‘uncompromised’ preterm babies (Wyllie *et al.*, 2015)
 - RCM (2012b) says ‘around’ 3 minutes but supports the Blood to Baby campaign (Tizard, 2016), which recommends at least 5 minutes.

In other words no one really knows the optimal period of DCC. Many midwives believe DCC should continue until the cord has stopped pulsating, believing that nature allows a cord to continue pulsating for a reason, i.e. to give the baby the maximum benefits of cord blood in its transition to extrauterine life.

Pros and cons of physiological versus active management

- Active management appears to reduce blood loss immediately following birth (Begley *et al.*, 2015), although this is challenged by some studies (Fahy *et al.*, 2010; Dixon *et al.*, 2013; Baker, 2014).
- Overall blood loss by 36 hours is similar with active or physiological management (Wickham, 1999), so long-term effects appear similar. No one really knows what is an optimal blood loss immediately following birth.
- Active management is usually quicker: typically 5–10 minutes versus 20–60 minutes for physiological management. Some women want the whole thing over with quickly so they opt for an oxytocic.
- Some women simply want a natural delivery of the placenta and dislike the idea of receiving drugs.
- A Cochrane review found active management increases the risk of later readmission with bleeding, and increases oxytocin side-effects, i.e. headache, nausea, vomiting and severe afterpains (Liabsuetrakul *et al.*, 2007; Begley *et al.*, 2015).
- Neither method appears to have any significant ill-effects for the baby (Prendiville and Elbourne, 2000; Begley *et al.*, 2015).

All midwives should be knowledgeable about both methods. Some lack confidence in physiological management, having assisted few physiological third stages and have never really learned what to do – and what, more importantly, not to do.

Physiological third stage (expectant management)

If the woman has had a positive birth followed by unhurried, quality contact with her newborn, this will facilitate oxytocin release (Odent, 1999), which stimulates uterine muscle contraction. Breastfeeding and/or nipple stimulation also increase natural oxytocin. The woman may use her contractions, upright postures and maternal pushing efforts to aid placenta delivery, or it may just suddenly emerge.

Midwifery care for a physiological third stage

The key to good support is 'watchful waiting'. If all appears well then resist the urge to intervene! An anxious clock-watching midwife is likely to unsettle the woman and interfere with oxytocin release.

Do not

- Administer an oxytocic (unless there is heavy bleeding; if so, proceed to active management).
- Repeatedly palpate the uterus ('fundal fiddling!'). This is painful, causes poor contractility and increases PPH risk.
- Apply cord traction.
- Clamp the maternal end of the cord. If mother and baby need to be separated (e.g. the mother wishes to leave a pool and/or the cord is short) Levy (1990) suggests clamping the baby's end of the cord and then cutting, leaving the maternal end of the cord free to bleed into a bowl. Indeed, a Cochrane review (Soltani *et al.*, 2011) suggests that there may be benefits to *routinely* cutting the cord and allowing the maternal end to drain for all third stages (whether active or physiological) as it may reduce the length of the third stage and also reduce blood loss, but this is by no means routine practice. It seems wise to recommend cord cutting only if essential during physiological management, in view of the neonatal benefits of DCC. If planning to cut the cord, wait until it has stopped pulsating so that the baby receives plenty of maternal blood, unless the situation is urgent.

Do

- Encourage skin-to-skin contact.
- Encourage breastfeeding to increase oxytocin levels (or consider nipple self-stimulation).
- Keep the mother warm and comfortable; avoid loud noise and bright lights.

Watch blood loss and observe for signs of separation, e.g.

- Cord lengthening.
- Trickle of blood/small clots.
- The woman may groan, feel a period-type pain/contraction or pushing urge.
- Visible placenta at the vagina.

Assist her to an upright posture, e.g. kneeling, squatting or sitting. Gravity will help her birth the placenta and may reduce blood loss (Cohain, 2010).

Push with a contraction; expulsive efforts are usually more effective then.

If the placenta does not emerge after several attempts, relax and wait before trying again. Try changing position:

Sure enough, the moment I moved, out it came – masterfully caught by a midwife with a kidney dish and reflexes a rattlesnake would be proud of. (Brenda (mother) 2012; <http://www.homebirth.org.uk/thirdstage.htm>)

A quiet darkened room may reduce stress hormones and increase oxytocin production. Some midwives, especially at home, encourage the mother to sit on the toilet

with the lights dimmed; perhaps the one place where a woman feels truly private and undisturbed. If the woman has tried pushing, utilising gravity, changing position, breastfeeding and passing urine, you may wish to check whether the placenta has actually separated: a gentle VE may reveal the partially/totally separated placenta in the os or vagina.

If the placenta is slow, but there is no heavy bleeding, then encourage the baby to nuzzle and feed at the breast. Encourage the woman to relax ... and try to do the same.

Most women (95%) deliver the placenta within 1 hour of a physiological third stage; multiparous women average 20 minutes (NICE, 2014). There is little good evidence to guide midwives in the safe time to wait for the placenta, as most PPH studies look only at active management. NICE (2014) recommends proceeding to active management (oxytocic + cord traction) if the woman decides she wants to shorten the third stage, if she haemorrhages or if the third stage exceeds 1 hour.

Active management of the third stage of labour

Active management usually achieves placenta delivery within 10–15 minutes of birth. Initial blood loss is reduced (Begley *et al.*, 2015).

- **Give a prophylactic oxytocic** after delivery of the anterior shoulder or following birth. Syntometrine (ergometrine/oxytocin) is commonly used: a Cochrane review suggests it reduces blood loss of 500–1000 ml (but not >1000 ml) more effectively than oxytocin alone (Westhoff *et al.*, 2013) but has side-effects of hypertension, retained placenta (due to cervical closing), nausea and vomiting. NICE (2014) recommends oxytocin (Syntocinon) 10IU IM, stating it has fewer side-effects than Syntometrine. A Cochrane review states no difference between IV and IM administration of oxytocic products (Oladapo *et al.*, 2012).
- **Clamp and cut the cord.** NICE (2014) and RCOG (2016b) recommend giving an oxytocic *before* clamping and cutting the cord 1–5 minutes after birth. Some mistakenly believe the cord must be clamped immediately, even prior to giving an oxytocic, to avoid neonatal overtransfusion, leading to jaundice. It is sad to see inexperienced staff (sometimes paramedics) frantically trying to close a cord clamp in the quickest possible time, with shaking hands, as if something terrible is about to happen if that cord is not clamped! This is a misconception. Firstly, an IM oxytocic will take more than 2 minutes to take effect (Crafter, 2002). Clamping the cord before 2 minutes is mixing physiological and active management, and, at the very least, is unnecessary. Secondly, there is ample evidence that DCC, even after early oxytocic administration, is beneficial (Box 1.7). Main (2012) points out that the baby has received continual maternal–fetal transfusion with labour contractions of up to 500 ml every 2–3 minutes, so an additional transfusion following birth is unlikely to be excessive.

Confusingly, a Cochrane review found no difference in PPH whether the oxytocic was given with the anterior shoulder or at any other time including *after* delivery of the placenta (Soltani *et al.*, 2010) but the authors noted that studies are limited.

Neither an IM nor an IV oxytocic appears to cause overtransfusion, and, while gravity may have a small effect, a Cochrane review found no evidence that the baby should be held at any particular level prior to cutting the cord (Palethorpe *et al.*,

2010). Typically, it is held at abdomen or chest level. Record the time of cord clamping for all births (NICE, 2014).

- Once the decision has been taken to finally cut the cord, a Cochrane review suggests that **unclamping the maternal end** and allowing it to drain into a bowl speeds the third stage and slightly reduces blood loss (Soltani *et al.*, 2011).
- **Deliver the placenta by controlled cord traction** while guarding the uterus with the other hand, after oxytocin administration and signs of placental separation (NICE, 2014), i.e. a small gush of blood indicating that the placenta has sheared off the uterine wall. Traction prior to separation is painful and risks haemorrhage. If the cord snaps, or starts to 'give' under traction, then, providing there is no haemorrhage, encourage placenta delivery by maternal effort. Pushing in an upright position often succeeds unless the placenta is truly adhered. Ensure an empty bladder.
- **Retained placenta.** NICE (2014) defines a 'prolonged third stage' as an undelivered placenta after 30 minutes of active management since PPH risk increases after this

Box 1.7 Benefits of delayed/deferred cord clamping (DCC).

Some prefer the expression 'physiological' or 'optimal' cord clamping as 'delay' implies that immediate cord clamping is normal, and a 'delay' is a deviation from the norm (Main, 2012). RCOG (2015c) suggests 'deferred cord clamping'. We use 'DCC' – with reservations – here, as most guidelines use it.

Many argue that this cord/placental blood is not an optional extra but belongs to the baby. The UKRC states that DCC allows completion of placental transfusion, enabling 'a more gradual transition to extra-uterine life preventing sudden changes in venous return to the heart and the potential impact of these on blood pressure' (Wyllie *et al.*, 2015). 'Early cord clamping is an avoidable, unphysiologic intervention that prevents the natural process of placental transfusion' (Katheria *et al.*, 2017). The RCM supports the Blood to Baby campaign (Tizard, 2016), which uses the slogan: 'Optimal cord clamping: the single most important gift you can give your baby'.

- DCC expands neonatal blood volume by 20–50%, increasing neonatal haemoglobin and haematocrit (Prendiville and Elbourne, 2000; Mercer & Erikson-Owens, 2010). Iron deficiency at 4 months of age is significantly reduced by DCC of at least 3 minutes (Andersson *et al.*, 2011).
- Some studies show a small increase in polycythaemia/jaundice requiring phototherapy (Hutton and Hassan, 2007; McDonald *et al.*, 2013). Other meta-analyses suggest no jaundice requiring intervention (Andersson *et al.*, 2011) and that benefits outweigh risks.
- Preterm babies in particular benefit from >1–2 minutes DCC: better circulatory stability, less intraventricular haemorrhage (all grades) or transfusion requirement and lower risk for necrotising enterocolitis (Rabe, 2012).
- DCC particularly benefits babies in developing countries, reducing anaemia, which is more common there, but a Cochrane review (Andersson, 2011) suggests that the benefit to *all* babies means that DCC should be universal.
- DCC can be performed after CS with the baby on the mother's legs or chest.
- DCC may benefit a baby requiring help to establish breathing. Why cut off a major oxygen source to a non-breathing baby? Paradoxically these are usually the quickest to have their cords cut and whisked away from their mothers. Consider leaving the cord uncut initially, bringing the Resuscitaire to the bedside (see <http://www.nottingham.ac.uk/nctu/trials/neonatal-care-beside-the-woman-training-videos.aspx>). Alternatively bring the ambubag to the mother and baby; give the recommended first 90 seconds of inflation in air (or 21–30% oxygen for preterm babies) on the bed/floor near the mother, *keeping the baby warm*. However, if the baby appears *severely* compromised, resuscitation is a priority over DCC (Wyllie *et al.*, 2015).
- Milking the cord towards the baby before clamping is recommended by NICE (2015b) for preterm babies, although the UKRC is cautious, recommending that despite good study results so far it should currently only be done for research purposes (Wyllie *et al.*, 2015).

See <https://www.youtube.com/watch?v=Cw53X98EvLQ> for a florid DCC lecture by Dr Alan Greene.

time. It may be necessary to proceed to manual removal of the placenta (MROP). See Chapter 16 for PPH/MROP.

Possible third-stage problems (physiological or active management)

The placenta is delivered, but the membranes remain stuck:

- suggest that the mother gives a few good coughs; this usually releases the membranes and they slide out
- consider gently twisting the placenta round and move it up and down, to coax the membranes out.

Bleeding is heavy, gushing or continuous:

- 'rub up' a contraction (i.e. fundal uterine massage)
- administer an oxytocic: local policy may apply. Syntometrine or ergometrine are faster acting but may cause the cervix to close, entrapping the placenta (if *in situ*). Syntocinon is preferable; it is also more suitable for hypertensive women: the IV route works more quickly but can increase blood pressure and pain (as do all oxytocics to some degree). Refer to Chapter 16 for full PPH management.

Following delivery of the placenta

Check the uterus is well contracted and blood loss is normal. Routine uterine massage after delivery of the placenta to prevent PPH is practised widely internationally, but a Cochrane review is unable to demonstrate any benefit (Hofmeyr *et al.*, 2013). Examine the placenta: some women are fascinated by their placenta and wish to watch, even take photos.

Take paired cord bloods (arterial and venous) if fetal compromise is suspected (see Chapter 23) after clamping the cord with two clamps (NICE, 2014).

For rhesus negative women take cord blood for a direct Coombs test, then a maternal Kleihauer blood sample ideally 15 minutes to 2 hours after birth (see Chapter 23). In the heady relief of obtaining the placenta it is only too easy to forget to take cord bloods. If the placenta has been disposed of then it may be necessary to take blood from the baby, which is distressing for everyone. Most midwives have done this at least once in their career.

After the birth

Immediately after the birth. Women's reactions vary enormously. Some enjoy being congratulated; others are in their own new world at this point and simply do not know the midwife exists. Stand back: let the woman or her birth partner explore the baby to discover the sex; resist the urge to talk loudly or take control unless it is clear that guidance is wanted. Perhaps remind them to take photos, or offer to do so. Feel free to smile a huge smile!

The baby. Babies are individuals too and may have had a hard birth. Some gaze calmly around; others cry pitifully, needing lots of comfort. Mothers instinctively use a unique high soothing voice to their newborn. There should be no rush to separate mother and baby; this is a unique special time and should be regarded as sacrosanct.

Babies are vulnerable to heat loss. Keep the baby snuggled up with its mother and/or birth partner for skin-to-skin contact for as long as they want. A hat for the baby and a blanket over the outside of the mother and baby will keep them both warm. For babies needing **resuscitation** see Chapter 18.

Examine the perineum and vaginal canal (see Chapter 4) for trauma when the woman is ready. Many want this to be over quickly so that they can relax and enjoy their baby. NICE (2014) recommends digital rectal examination after all births to check for OASI tears. The vaginal area is likely to be exquisitely tender so be very gentle, and offer Entonox. This may also be an opportunity to check the sacrum for pressure/friction damage, particularly for women with epidurals.

Estimate blood loss; record in notes.

Count swabs and instruments with a second person; record in notes.

Remove epidural catheter (if relevant), place a small plaster over the site. For those women who need heparin, wait at least 4 hours after catheter removal. If antenatal heparin has been given less than 12 hours previously, then delay epidural removal (RCOG, 2015a).

Breastfeeding. As with labour, it is important for midwives to 'sit on their hands' at this point: try to minimise interruption, giving the mother and baby space to explore each other. Most babies are very alert immediately after a natural birth. They will readily root towards the breast, nuzzle, lick and suckle when they are ready. The first hour after birth is a special time. Some animals are known not to attach to their young unless they are able to lick and smell them immediately after birth (Buckley, 2004b).

Bottlefeeding. If possible encourage the new mother to feed her baby herself, in the same way a breastfeeding mother would. Suggest she holds her baby closely, preferably skin to skin, so her baby can feel her warmth and smell her skin. Suggest she considers offering at least the very first feed by breast to confer the benefits of antibodies but respect her choice if she declines. Talk about the benefits of minimising other people feeding her baby, so her baby connects closely to her during feeding, and of always holding the baby in a close and comfortable position in the crook of her arm, to replicate as much as possible a breastfeeding experience for the baby.

Offer analgesia. Multigravid women, in particular, can experience strong afterpains, and all women are vulnerable to perineal and rectal pain, even with an intact perineum. Excessive perineal pain may indicate a haematoma (see Chapter 16).

Records. Carefully record the birth. Computer details are usually also required. This gives the opportunity for a physical and psychological break for the midwife, who may have been under intense pressure for some hours. Most parents relish being left on their own to explore and enjoy their baby. Others may prefer to have a midwife hovering. Most of the paperwork can be done in the room, so be flexible.

Think about the birth partner. They can feel exhausted, overwhelmed and even traumatised by experiencing birth. Congratulate them on their support; show that you realise their needs are important. Remember they, like their partner, may need time later to recount their story.

Offer food and drink. There is nothing like the smell of tea and toast in the middle of the night to remind you a baby has been born.

Get her settled. The mother should not be hurried to have a bath or move to a fresh bed. If the birth is at home, she can have all the time in the world. The 'routine' post-birth bath has become almost a ritual after birth for many midwives: many mothers

(and babies) may enjoy the experience but some mothers may be too tired to want to move. It has been suggested that some shivery women may value being warmly wrapped and left for some time; the cooling by evaporation following a bath may chill them further. Bathing should be optional, not routine.

Postbirth check. Check the woman's pulse, temperature, blood pressure, fundus and lochia. Encourage her to pass urine, within 6 hours of birth if possible (NICE, 2014), and measure the first void. There is no consensus on the ideal volume, but 150–600 ml seems average: local policy may apply. It is frustrating that we are now supposed to measure this, as the perfect place to pass urine for the first time is in the bath! This is, once again, up to the woman.

Venous thromboembolism (VTE) prophylaxis. Assess and document the woman's postnatal VTE status (remember risk factors in labour may have changed this) and ensure heparin has been prescribed and issued if appropriate (RCOG, 2015a).

For initial **examination of the newborn**, see Chapter 5.

On a busy labour ward there is often pressure to transfer the woman quickly to the postnatal area. Sometimes this is just habit, and midwives are pressured to rush even if the labour ward is quiet. Resist this coercion. Sometimes, however, it is necessary for the safety of other mothers who may need a birth room and the midwife's attention imminently. If this is necessary, consider continuing skin-to-skin contact by suggesting that the baby bathes with the mother if she wants a bath, or goes to the father for skin-to-skin contact, and/or tucks inside the mother's or father's clothes for further contact during transfer to the postnatal area.

Mental health/safeguarding

Mental health is a significant factor in over 25% of postnatal maternal deaths (MBRRACE, 2015). 'Red flag' signs for urgent senior psychiatric assessment include:

- recent significant mental state change or new symptoms
- new thoughts/acts of violent self-harm
- new, persistent expressions of incompetency as a mother or estrangement from the baby.

Labour is the most intimate prolonged contact a midwife has with a woman, and is an opportunity to pick up warning signals about mental health or relationship difficulties.

This is a delicate balance. Parents should not feel they are being 'scrutinised' by midwives, and personalities can change almost unrecognisably under stress, anxiety and pain. Some women may appear borderline psychotic in labour, particularly under opiates. Experienced sensitive midwives will distinguish sincere expressions of suicidal thoughts from the exhausted labouring woman who groans: "I just want to DIE!". Equally a woman may verbally abuse her partner ("I'm never letting you touch me again! This is all your fault!") even in a healthy happy relationship. Good midwives are tolerant and understanding, but observant.

It can be normal for a fatigued woman to present as flat and unemotional on first holding her baby. Midwives must be vigilant to persistent signs of estrangement, but love is not always instant. Continued dissociation, however, should be noted and



Courtesy of Lucy Pryor.

handed over to postnatal midwives. Parents who have lost a previous baby may be particularly vulnerable to a state of disbelief or be flooded by returning memories, needing time to process the maelstrom of thoughts (see Chapter 21).

If genuine concerns exist midwives should be familiar with local mental health referral pathways so early treatment can be initiated. 'A letter to the GP will not suffice' (MBRRACE, 2015). The same applies for general safeguarding issues; midwives need to be clear about locally agreed referral pathways and use them appropriately. We owe it to the women we care for, and the children they are bringing into the world, to give them all the help they need to become a healthy happy family.

Early discharge home

Often low-risk women giving birth in hospital/birth centres go home a few hours after the birth. It would be good to believe that this always results from women's choice, rather than that of maternity service providers. The midwife must ensure that the woman feels prepared to go home, with plenty of information and advice, including contact numbers for any problems. The baby should have had at least one if not two feeds. A baby car seat is mandatory. The postnatal visit should be arranged. Congratulate the woman as she leaves in the same way you welcomed her when she first arrived. She has done something amazing.

Useful contacts and information

An amazing video on life from conception to birth using scanning technology that won its inventors the Nobel Peace Prize. http://www.youtube.com/watch_popup?v=fKyljukBE70
Association for Improvements in the Maternity Services (AIMS). www.aims.org.uk
Doula UK. www.doula.org.uk
Maternity Care Working Party (2007) *Making Normal Birth a Reality. Consensus Statement from the Maternity Care Working Party*. NCT, RCM, RCOG, London. www.appg-maternity.org.uk
National Childbirth Trust (NCT). www.nct-online.org
Nursing and Midwifery Council (NMC). www.nmc-uk.org
Royal College of Midwives (RCM). www.rcm.org.uk
RCM position paper on normal birth (2010). www.rcm.org.uk/college/policy-practice/guidelines/rcm-position-statements/position-statements/

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Appendix 1.1 Group B *Streptococcus*

Group B streptococcus (GBS) is the most common cause of severe early newborn infection. However, there is controversy about its prevention.

Facts

- Early onset GBS (EOGBS) affects 1:2000 UK babies; 10-30% will die, especially if preterm, or morbidity can result, e.g. blindness, deafness, cerebral palsy (NICE, 2015).
- 20–30% women carry GBS, although confusingly 5-40% of these ‘positives’ become negative by the end of pregnancy, and vice versa (UKNSC, 2012).
- Intrapartum/postnatal neonatal antibiotics reduces EOGBS incidence but does not eliminate all risks (UKNSC, 2012).
- Universal screening would be expensive; also around a third of all women would be offered antibiotics, resulting in unnecessary treatment for thousands of women/babies (neonatal death risk is only 0.03:1000).
- Currently the UK National Screening Committee (UKNSC, 2012) and RCOG (2017) do not recommend routine pregnancy screening, although this is under review (PHE, 2015).
- If performed, bacteriological testing should ideally be carried out at 35–37/40 or 3–5 weeks prior to the anticipated delivery date, e.g. 32–4/40 for women carrying twins (RCOG, 2017).

Indications for offering GBS-specific IAP (RCOG, 2017):

- GBS bacteriuria, or positive vaginal/rectal swab (enriched culture medium) in current pregnancy.
- Pyrexia (>38°C) in labour or chorioamnionitis (broad-spectrum antibiotics including GBS cover)
- Confirmed preterm labour (but not if planned preterm non-labour CS with intact membranes).
- Previous baby with invasive GBS disease.

IAP regime: Benzylpenicillin 3g IV at labour onset, then 1.5g 4-hourly until delivery or (if penicillin allergy) a cephalosporin e.g. cefuroxime 1.5g at labour onset, then 750mg every 8 hours, or vancomycin (1g every 12 hours) (RCOG, 2017).

Elective caesarean section (CS) does NOT require IAP, regardless of GBS status, if pre-labour lower segment with intact membranes (RCOG, 2017).

Intrapartum vaginal cleansing will NOT reduce neonatal GBS disease risk (RCOG, 2017).

Continuous fetal heart monitoring is NOT necessary for GBS (NICE, 2014).

Waterbirth is considered safe, as long as IAP has been given (RCOG, 2017); indeed it appears to reduce EOGBS risk (Cohain, 2010–11).

Prelabour rupture of membranes: women with GBS positive vaginal swab/urine should be offered induction as soon as possible for PROM (RCOG, 2017).

Management of babies (RCOG, 2017):

- If mothers receive IAP treatment more than four hours before birth and baby appears well, then babies do not need specific observations or medical review. Paediatricians do not need to do the first day check.

- If mothers have not received full IAP, or if a previous baby had GBS infection, then babies should be observed at birth, 1 and 2 hours, then 2 hourly up to 12 hours after birth, for general wellbeing, feeding, heart rate, respiratory rate and temperature. Also report any change in skin colour.
- Babies who show any signs of EOGBS should be treated with penicillin and gentamycin.
- Postnatal antibiotics are not recommended for asymptomatic term babies without antenatal risk factors as these have only about a 0.2:1000 risk of EOGBS.