5. First Stage of Labour

5.1. Definition of the First Stage of Labour

- What is the definition of the latent phase of the first stage?
- What is the definition of the active phase of the first stage?

The definitions of the stages of labour must be clear in order to ensure that both women and professionals share the same ideas, making communication easier.

Scientific Evidence

After a systematic search, the NICE guideline (10), the first CPG to address the definitions of the stages of labour, did not identify any studies comparing the results of defining the stages of labour in different ways. Various definitions, which have been used in practice and in a range of research studies, have been considered.

The various definitions of the start of labour are based on the commencement of uterine contractions (23-26), evidence of changes in the cervix (27), or both (23). Using only the presence of uterine contractions to define the start of labour means that it is established by the woman herself, while the inclusion of changes in the cervix means that confirmation by a professional is required.

By general agreement, labour has been divided into three stages: the first stage, the second stage, and the third stage. The first stage starts with the beginning of labour and ends at full dilatation. This first stage has in turn been subdivided into two phases, in both clinical practice and the literature: the latent phase and the active phase.

The latent phase starts with the beginning of labour. It is characterised by contractions that vary in intensity and duration, accompanied by cervical effacement and slow or slight progression of dilatation to 2 cm (25) or 4 cm (28-30).
The active phase is characterised by an increase in the regularity, intensity and frequency of contractions and fast progression of dilatation. It can be defined using criteria on cervical dilatation only, ranging from 2 to 10 cm dilatation (25) or from 4 to 10 cm dilatation (28-30). Alternatively, it may include the mother’s perception, for example from the start of regular contractions to the beginning of pushing (26). As the most characteristic feature of the active phase is faster dilatation, when dilatation is slight (2 cm) it cannot be determined whether the woman is in the latent or the active phase on the basis of dilatation alone. It is therefore only possible to verify the start of the active phase retrospectively, or by choosing a point on the dilatation curve which is clearly situated at the start of the active phase (4 cm).

Update (2006 to July 2008)

No study has been identified that assesses the various definitions of the first stage of labour. The group compiling the guideline has therefore based its recommendations on several of the definitions used in normal practice and on research (the observational studies mentioned above and the definitions used in six different studies researching the duration of labour [see point 4.2 Duration and Progress]).

Summary of Evidence

| The latent phase starts with the beginning of labour. It is characterised by contractions that vary in intensity and duration, accompanied by cervical effacement and slow progression of dilatation to 2 or 4 cm. | 3 |
| The active phase is characterised by an increase in the regularity, intensity and frequency of contractions and fast progression of dilatation. |

Recommendations

| ✓ | The definition of the latent phase that should be adopted is the period of labour between the start of labour and 4 cm dilatation. The definition of the active phase that should be adopted is the period of labour between 4 and 10 cm dilatation and accompanied by regular contractions. |
5.2. Duration and Progress of the First Stage of Labour

- What is the duration of the latent phase of the first stage of labour?
- Do the duration and progress of the first stage of labour influence outcomes?

When considering a normal labour, it is important to define the cut-off points for what is accepted as a normal duration, versus what may be considered an abnormal duration. These cut-off points can be used to inform women about the possible duration of labour, to detect dystocia and to indicate when midwives should request the assistance of an obstetrician.

The duration of the first stage has traditionally been considered a very important determining factor for the health of mothers and perinatal outcomes. Although current knowledge seems to indicate that within certain limits duration need not be a key factor for concern, if it lasts beyond these limits this may indicate a problem.

Scientific Evidence

The NICE guideline (10) identified six studies, among others, describing the duration of the first stage of labour or assessing the effect of the progression of the first stage on obstetric and clinical outcomes, and its impact on various factors associated with the duration of labour.

The largest of the studies describing the duration of labour (23) included data for 6,991 women in the UK who had complication-free labours between 1978 and 1987. This study analysed the duration of the first stage of labour with respect to both parity and whether or not epidural anaesthesia was used. Longer labour times were observed in women for whom it was the first birth than in those who had previously given birth, and in women who used neuraxial analgesia than in those who did not (mean duration of first stage and upper limit (95th percentile): first birth without analgesia: mean duration 8.1 hours (95th percentile 16.6 hours); first birth with analgesia: 10.2 hours (19.0 hours); second and subsequent births without analgesia: 5.7 hours (12.5 hours); second and subsequent births with analgesia: 7.4 hours (14.9 hours).

A smaller, older study (25) conducted in the USA described the duration of the latent phase and the first stage for 100 women giving birth for the first time. The sample was very heterogeneous, as it included women with breech presentation, women carrying twins and induced labours, with only 29 spontaneous labours.

Another study from the USA (30) described full-term spontaneous labour lasting over 3 hours in 1,162 women giving birth for the first time. It found that the mean duration of the first stage of labour was 7.3 hours (10th and 90th percentiles: 3.3 and 13.7 hours respectively).
A study conducted in Germany analysed the factors associated with normal duration of labour (26). It involved 932 women cared for in a midwife-led unit and at home, between 1994 and 1995. The average duration of the first stage of labour, excluding women whose labour was prolonged, was 7.3 hours (range: 1-17 hours) for first births and 3.9 hours (range: 0.5-12 hours) for subsequent births. Regression analysis showed that labour was shorter in second and subsequent births than in first births, but did not find other demographic variables associated with the duration of the first stage of labour. A short interval between the start of labour and midwife care beginning was associated with a shorter duration of the first stage of labour; the effect was more pronounced in second and subsequent births and for women whose waters had broken before midwife care was started.

Another study from the USA (28) investigated the duration of labour in 1,473 women at low risk, by ethnic group (non-Hispanic white, Hispanic, native American). The mean duration and upper limit (two standard deviations) for the active phase of labour were 7.7 hours (19.4 hours) for first births and 5.7 hours (13.7 hours) for second and subsequent births, and there were no statistically significant differences between ethnic groups.

An observational study conducted in the UK (31), which included 403 women in established labour, described the progress of labour in women who had given birth previously, who had no complications, and who had given birth in a midwife-led unit. On the basis of the findings of vaginal examinations carried out every 2 hours, the simple regression model demonstrated that the mean cervical dilatation was 2.9 cm/hour, and the median 1.9 cm/hour (10th percentile 0.7 cm/hour, 5th percentile 0.5 cm/hour). The women included in the study with dilatation below 4 cm tended to exceed these figures. Also detected were profiles of women with periods with no progression, followed by periods of progression. Thus, if 4 cm is taken as the start of the active phase of labour and the median is used as a parameter for dilatation, the duration of the active phase was estimated at 3 hours, 9 minutes. If the 10th percentile is used as the upper limit, the duration is 13 hours.

To summarise, the NICE guideline (10) determines that the duration of labour varies between women and is influenced by the number of times the woman has become pregnant, and that dilatation may not necessarily progress in a linear fashion.

In established labour, most women giving birth for the first time reach the second stage of labour without intervention within the first 18 hours. In women who have previously given birth, however, this figure is 12 hours.

Update (2006 to January 2009)
In the search carried out for the update of both the definition and the duration of the first stage of labour, four studies were pre-selected but ultimately not used as they did not meet the selection criteria. As a result, the recommendations are based on the findings described by the NICE guideline (10).

The group that compiled the guideline considered it important to emphasise that the duration of the first stage of labour is not per se a determining factor for maternal and fetal well-being, and it is not a key factor for concern. However, if it lasts beyond the limits indicated, this should be considered a sign that there is a problem.

**Summary of Evidence**

<table>
<thead>
<tr>
<th>Evidence</th>
<th>Description</th>
<th>Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>The duration of labour varies between women and is influenced by the number of times the woman has become pregnant (23;26;28), and it may not necessarily progress in a linear fashion (31).</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>In established labour, most women giving birth for the first time reach the second stage of labour within the first 18 hours, and those who have previously given birth in 12 hours, without intervention (23; 26; 28; 31).</td>
<td></td>
</tr>
</tbody>
</table>

**Recommendations**

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td>The duration of the latent phase of the first stage of labour cannot be established, due to the difficulty in determining the start of labour.</td>
</tr>
<tr>
<td>✓</td>
<td>The decision to intervene if the first stage of labour seems to be prolonged must be taken on the basis of the progress of dilatation and other obstetric factors, rather than on the basis of duration alone.</td>
</tr>
</tbody>
</table>
5.3. Maternity Admission

- What is the ideal moment for a woman in labour to be admitted to a maternity ward?

Women generally arrive for admission to the maternity ward when uterine contractions start, when they may still be only in an early phase of labour. Early admission means waiting for several hours until the active phase of labour starts. This situation may cause anxiety in women and those accompanying them if they wrongly think that dilatation should progress faster simply because they have been admitted, and this can lead to procedures that are not strictly indicated for normal labour. There is also concern about the effect of the start of labour on fetal well-being, and there is a widespread belief that early admission will improve the perinatal outcome.

Scientific Evidence

The NICE guideline (10) includes a Canadian randomised controlled study with LE 1-, identified on the basis of an SR, which investigates the ideal time for admission to a maternity ward in a population of 209 women with low-risk labours. Three other observational studies concerning cervical dilatation and admission time were included, two of which were low-quality cohort studies conducted in Canada (33; 34) with LE 2-, and the other a large cross-sectional study (n=8,818) conducted in the USA (35) with LE 3. The last of the studies included in the NICE guideline (10) was a low-quality RCT (36), also conducted in Canada, which assessed the impact of the first contact made at home.

The most recent study, conducted in the USA (35), included the most women (n=8,818) and compared the labour outcomes of women going to maternity wards in the active phase with those of women who did so in the latent phase. Women who went to a maternity ward in the latent phase yielded the following results: a slower active phase: OR 2.2 [CI 95%, 1.6 to 2.6]; greater use of oxytocin: OR 2.3 [CI 95%, 2.1 to 2.6]; greater use of epidural anaesthesia: OR 2.2 [CI 95%, 2.0 to 2.4]; more neonates intubated after birth: OR 1.2 [CI 95%, 1.0 to 1.4]; more women with amnionitis: OR 2.7 [CI 95%, 1.5 to 4.7]; and more women with postpartum infection: OR 1.7 [CI 95%, 1.0 to 2.9].

The evidence found concerning the ideal time for admission shows that admission to a maternity ward early or during the latent phase is associated with longer duration and higher rates of intervention during labour (use of oxytocin and epidural anaesthesia). There is still insufficient evidence concerning morbidity and mortality of mothers and neonates.
Update (2005 to May 2008)

Two studies were pre-selected in the search carried out for the update of this question but ultimately not included, as they did not meet the selection criteria. As a result, the recommendations are based on the findings described by the NICE guideline (10).

It has been observed that admission during the active phase of labour leads to lower levels of intervention than admission during the latent phase. The group that compiled the guideline therefore considers that it is important to avoid early admission of women in labour.

The active phase of labour has been defined as the period of labour between 4 and 10 cm dilatation and accompanied by regular contractions. The group that compiled the guideline has therefore adopted the admission criteria established in the Standards and Recommendations Document for Hospital Maternity Wards of the Ministry for Health (37) (2009), which can be used to identify women who are in the active phase of labour: regular uterine contractions, cervical effacement > 50%, dilatation 3-4 cm.

Summary of Evidence

| Admission to a maternity ward early or during the latent phase is associated with a higher rate of interventions during labour (use of oxytocin, epidural anaesthesia and intubation of neonates) (35). | 3 |
| There is still insufficient evidence available concerning its effects on morbidity and mortality of mothers and neonates (35). | 3 |
| The following criteria have been defined for admission to hospital maternity wards: regular uterine contractions, cervical effacement > 50%, dilatation 3-4 cm (37). | 4 |

Recommendations

| Admission is recommended when the following criteria are met: regular uterine contractions, cervical effacement > 50% and dilatation of 3-4 cm. |
| Individualised support should be offered to women who arrive with painful contractions and are not in the active phase of labour. They should be encouraged to return home until the active phase of labour starts. |
5.4. Care on Admission

Questions to Answer

- What is the benefit of carrying out amnioscopy on all women with suspected labour arriving for admission?
- What is the benefit of carrying out cardiotocography (CTG) on all women with suspected labour arriving for admission?

5.4.1 Amnioscopy

Amnioscopy is a procedure performed to assess the quantity and/or colour of amniotic fluid (AF) in order to detect alterations that could indicate fetal compromise. However, it is an invasive procedure which is not free from complications and yields a substantial proportion of incorrect results. Its benefit-risk balance is therefore dubious.

Scientific Evidence (to May 2008)

Although it reviews the examinations and texts that should be performed on mother and child on admission, the NICE guideline (10) does not cover the subject of amnioscopy. In fact, other documents evaluated also fail to mention amnioscopy, such as the Strategy for Care in Normal Childbirth of the Spanish National Healthcare System (5), recommendations developed by the Ministry for Health in 2007, the SEGO’s 2008 recommendations on care during childbirth (38) and the WHO guideline Care During Normal Childbirth: A Practical Guide (4). Additionally, a French non-systematic review (39) concludes that it has not been demonstrated that systematic inspection of the appearance of amniotic fluid via amnioscopy at the start of labour is useful.

The systematic search conducted to answer this question found six reviews and ten studies, of which only two studies were ultimately selected.

A study (40) carried out in 1988, which included 289 consecutive women, aimed to assess the effectiveness of amnioscopy to detect meconium in pregnancies with gestation age > 41 weeks, and its correlation with fetal distress and fetal morbidity and mortality. It also assessed whether the rupture of membranes when meconial fluid was detected reduced fetal morbidity and mortality.

The results showed that amniotic fluid containing meconium tends to be associated with pregnancy complications such as ABO incompatibility (p<0.05), a need for surgical delivery (p<0.02) and fetal distress at birth (p<0.05). Amnioscopy did not detect meconium before birth in most cases (57%), and positive results for meconium were not related to the incidence of fetal distress. Furthermore, when meconium was present inducing labour was not effective in reducing the incidence of fetal distress. Consequently, this study did not recommend amnioscopy for monitoring post-term pregnancies.
The aim of the second of the 2005 studies (41), LE 3, was to determine the prevalence and clinical significance of any change in the colour or density of amniotic fluid (AF) during labour and its value in predicting perinatal outcomes. To this end the authors examined AF on admission via amnioscopy or inspection of the fluid itself if the waters had broken.

A total of 19,090 women were selected between 1992 and 1999. To analyse the results, the women were divided into four groups according to the features of the AF: group 1 (n=16,975): AF clean on admission and delivery; group 2 (n=973): AF with light or thick meconium on admission or delivery; group 3 (n=986): AF clean on admission and with light or thick meconium on delivery; group 4 (n=156): AF with light meconium on admission and thick meconium on delivery. However, data analysis did not take into consideration other confounding variables between the study groups, such as early breaking of waters, alarming fetal heart rate, gestational age, first-time labour or induced labour.

Analysis demonstrated that a higher percentage of women giving birth for the first time presented a change in AF colour during labour. Gestational age over 42 weeks was associated not with a higher rate of meconial AF on admission but with a higher risk of change in AF colour during labour. In addition, a higher percentage of women with meconial AF on admission presented induced labour.

Cohort study 

Women in whom a change of AF colour occurred during labour, from clean to meconial, presented low Apgar scores at 5 minutes and pH<7.10. This was also associated with a higher rate of admission to NICUs. The highest percentage of children with aspiration of meconium occurred in group 4, in which the woman had light meconial AF on admission and thick meconial AF on delivery.

To summarise, it was found that qualitative changes in AF during labour have a higher predictive value for adverse neonatal outcomes than the colour of AF on admission. The presence of meconium in AF at the start of labour had little or no predictive value for umbilical pH <7.10, Apgar score <7 at 5 minutes, meconium aspiration syndrome (MAS) or admission to neonatal intensive care units. Furthermore, the risk of MAS is associated only with thickening of meconium during labour, not with the presence of meconium at the start of labour.

The evidence found is consistent with amnioscopies yielding a high level of false negatives. Although there may be some advantages to assessing the colour of amniotic fluid on admission, amnioscopy is not considered an effective procedure for doing this, and new techniques are required to assess the colour of amniotic fluid on admission.
5.4.2 Cardiotocography

External cardiotocographic monitoring is an increasingly widespread practice used in pregnant women who arrive at hospital with suspected labour. There are doubts as to whether it is conducted in a context of defensive medicine and increases the level of obstetric intervention due to false positives, or whether it is a truly useful procedure for improving perinatal outcomes.

Scientific Evidence

The NICE guideline (10) assesses Cardiotocography (CTG) as one of the examinations and tests to be conducted on admission. The evidence found in the NICE guideline (10) includes a high-quality SR (42) published in December 2005. The SR evaluates three RCTs (11,259 women) and 11 observational studies (5,831 women). It assesses the effectiveness of CTG on admission in preventing possible adverse effects, comparing it with auscultation. The document includes a meta-analysis of the results of the three RCTs.

Women undergoing CTG on admission were more likely to require epidural anaesthesia: RR 1.2 [CI 95%, 1.1 to 1.4]; electronic fetal monitoring: RR 1.3 [CI 95%, 1.2 to 1.5]; and fetal blood samples: RR 1.3 [CI 95%, 1.1 to 1.5]. There is also weak evidence that women who undergo electronic fetal monitoring may be more likely to have instrumental births: RR 1.1 [CI 95%, 1.0 to 1.3] and caesarean sections: RR 1.2 [CI 95%, 1.0 to 1.4] than the group in whom auscultation was performed. No evidence was found of differences in induction, infant mortality or neonatal morbidity.

The review concludes that there is no evidence suggesting that CTG on admission is beneficial for women with low-risk pregnancies.

Update (2005 to March 2008)

The update of the search for the NICE guideline (10) found 16 references. However, as none of them met the inclusion criteria established for selecting studies the group that compiled the guideline has based its recommendations on the evidence provided by the NICE guideline (10).

Summary of Evidence

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amnioscopy presents a large number of false negatives. It is therefore not an effective procedure for assessing the colour of amniotic fluid on admission for women at low risk (40).</td>
<td>III</td>
</tr>
<tr>
<td>Women who undergo CTGs have a higher probability of needing epidural anaesthesia, electronic fetal monitoring and fetal blood samples (42).</td>
<td>Ia</td>
</tr>
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</table>
CTG on admission has not been shown to be beneficial for women at low risk (42).

<table>
<thead>
<tr>
<th></th>
<th>Recommendation</th>
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</thead>
<tbody>
<tr>
<td>C</td>
<td>Amnioscopy is not recommended for initial assessment of women with low-risk labour.</td>
</tr>
<tr>
<td>A</td>
<td>Cardiotocography is not recommended when low-risk pregnant women are admitted.</td>
</tr>
</tbody>
</table>
5.5. Possible Routine Interventions during the First Stage of Labour

- How effective is routine enema during labour?
- How effective is routine perineal shaving during labour?
- How effective is one-to-one care during labour?
- What is the effect of mobility and adopting different positions on labour and its outcomes?
- How effective is routine artificial amniorrhexis and routine perfusion of oxytocin?
- Should antiseptics be used in vulvovaginal lavage prior to vaginal examination?
- Does the use of a partogram improve outcomes?
- What is the optimum frequency of vaginal examinations during the first stage of labour?
- What methods are effective in treating delays in the first stage of labour?

5.5.1 Enema

- How effective is routine enema during labour?

For many years enemas have been administered at the start of labour to reduce encopresis during the second stage of labour and the distress this may cause to women. Other reasons used to justify this practice were the belief that evacuation of the intestines would provide more space for delivery of the foetus and that the stimulus provided by the enema would improve uterine contractions and reduce the duration of labour. It was also thought that evacuation of the intestines reduced faecal contamination of the perineum and so reduced the probability of infection for the mother and the neonate.

These supposed benefits have been questioned, and disadvantages and risks associated with the use of cleansing enemas have even been put forward. Disadvantages cited include the unpleasantness of the procedure, increased pain during labour, staff workloads and costs. It has also been noted that enemas tends to cause watery faecal losses that can increase the risk of infection, and that in reality their use simply reflects a preference by healthcare professionals.

Due to the conflicting criteria and uncertainties about this practice, the effects of enemas on women and their babies should be reviewed.

Scientific Evidence (to May 2008)
Although it reviews various types of intervention performed during the first stage of labour, the NICE guideline (10) does not cover the subject of enema use.

The systematic search performed to answer this question found seven articles (two in Cochrane and five in PubMed), of which only one Cochrane SR, from 2007, (43) was included. The other articles were excluded as they did not meet the inclusion criteria.

The SR included a total of three RCTs: one with LE 1+ and two with LE 1-. The aim of the SR was to study the effects of enemas administered during the first stage on the rate of postpartum infection, neonatal infection, non-infectious maternal and neonatal morbidity, episiotomy dehiscence rate, faecal encopresis during dilatation and labour, and finally the duration of labour.

Only the results of the RCT with LE 1+ for some of the variables studied were taken into account (44).

The results demonstrated that there were no significant differences between the two groups (with and without enema) for neonatal umbilical infection variables: RR 7.47 [CI 95%, 0.39 to 143.55]; puerperal infection: RR 0.66 [CI 95%, 0.42 to 19.04]; perineal tear without compromised anal sphincter: RR 1.11 [CI 95%, 0.65 to 1.90]; perineal tear with comprised anal sphincter: RR 0.59 [CI 95%, 0.14 to 2.42].

Regarding other variables, the SR did not find significant differences between the two groups in neonate outcomes (infection or Apgar score), puerperal outcomes (episiotomy dehiscence) or duration of labour, because although the duration of labour was lower in the group undergoing enemas (1,077 women, 409.4 minutes vs 459.8; p<0.001), no adjustments were made for parity. Furthermore, no significant differences were found in maternal satisfaction, using the 5-point Likert scale, p=0.922.

The SR concluded that enemas do not improve maternal or neonatal infection rates, episiotomy dehiscence rates or maternal satisfaction. The use of enemas is unlikely to provide benefits for mothers or neonates. Systematic enema use should therefore be discouraged.

Additionally, in view of the evidence available it is believed that no new research is required to assess the general effects on either mothers or neonates, and that if new studies are carried out they should be focused on women’s perception, pain, discomfort, costs or other non-clinical variables.
Summary of Evidence

The use of enemas does not reduce rates of maternal or neonatal infection or episiotomy dehiscence or improve maternal satisfaction. Their use is unlikely to provide benefits for mothers or neonates (43).

Recommendations

A  Enemas should not be used routinely during labour.
5.5.2. Perineal Shaving

- How effective is routine perineal shaving during labour?

Perineal and even pubic shaving has been carried out in the belief that it reduces the risk of infection and is necessary to enable episiotomies, which have been performed systematically for many years, to be sutured. However, shaving causes cutaneous erosion, which may give rise to colonisation by microorganisms. It is also unpleasant and causes intense discomfort and pruritus during the regrowth period. It is therefore important to determine whether pre-operative hair removal really reduces surgical site infections.

Scientific Evidence (to May 2008)

As with the use of enemas, although it reviews various types of intervention performed during the first stage of labour, the NICE guideline (10) does not cover the subject of perineal shaving. In fact, this practice has been eliminated from routine obstetric care in the UK.

A Cochrane SR (45) with LE 1- was selected in the search carried out for the update. The review includes two RCTs involving a total of 539 women and aims to assess the effects of routine perineal shaving on admission to the delivery room on maternal and neonatal outcomes (febrile morbidity, postpartum maternal morbidity, perineal trauma, wound infection, wound dehiscence and need for repeat suturing, neonatal infection, levels of maternal discomfort, levels of pain, degree of discomfort and satisfaction level).

Both trials date from over thirty years ago, the first from 1922 and the second from 1965. The objective data provided are insufficient and the potential risk of bias is very high, as the trials provide limited details concerning the research methods used, making it difficult to assess quality. Furthermore, the trials provide only a limited analysis of the effects of perineal shaving, as they did not assess any neonatal outcomes or those associated with material criteria such as pain or discomfort, outcomes which the review aimed to examine.

When the results of the two trials were combined, no differences were found between women who were shaved and those who were not with respect to febrile morbidity: OR 1.26 [CI 95%, 0.75 to 2.12].

In the smaller trial (150 women), those who were not shaved presented less Gram-negative bacterial colonisation than women who had been shaved: OR 0.43 [CI 95%, 0.20 to 0.92]. However, the clinical significance of this difference is unclear.
Standard regimens provide most patients with access to treatment, while tailor-made treatment requires considerable infrastructure for laboratory diagnosis even for second-line drugs, although it can prevent exposure to potentially toxic, expensive drugs to which a patient is resistant.

This same trial also describes the side effects experienced by women who had been shaved: irritation, reddening, multiple superficial scratches, and vulvar stinging pruritus. However, there is no information on the number of side effects for the unshaved group, so it has not been possible to include this information in the analysis.

The study concludes that the evidence available at this time does not support systematic perineal shaving before childbirth.

**Summary of Evidence**

<table>
<thead>
<tr>
<th>Evidence</th>
<th>Recommendation</th>
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</thead>
<tbody>
<tr>
<td>There is insufficient evidence on the effectiveness of systematic perineal shaving on admission to the delivery room for neonatal outcomes, although less Gram-negative bacterial colonisation was observed in women who had not been shaved (45).</td>
<td>✓ Systematic perineal shaving is not recommended for women in labour.</td>
</tr>
</tbody>
</table>
5.5.3. One-to-One Care

- How effective is one-to-one care during labour?

The routine use of EFM, often with central supervision, neuraxial analgesia, and recognition of women’s right to be accompanied by the person of their choice during labour has led to midwives focusing essentially on technical procedures and spending little time with women. Many women in labour are frightened in the usual semi-surgical environment of delivery rooms, where they are alone, despite being surrounded by technical equipment that attracts all the attention, and isolated but with no privacy. Certainly, women have never before been monitored so closely and strictly, but from so far away. The persons accompanying them also require support and guidance so that they can provide suitable company.

The importance of continuous support, including emotional, informational, physical and psychological support, provided by midwives has been highlighted in the light of studies that demonstrate that it can improve the obstetric outcome and maternal satisfaction.

Scientific Evidence

The NICE guideline (10) assesses one-to-one care during labour. This includes the presence of and continuous care by the partner, relatives and professionals (midwives); and care by other types of companions. However, in this case we are interested only in care by professionals.

The NICE guideline (10) included an SR (13) of 15 studies conducted in countries with low and high admissions rates (Australia, Belgium, Botswana, Canada, Finland, France, Greece, Guatemala, Mexico, South Africa and the USA), with a total of 12,791 women. The SR assessed the presence of and continuous support by the partner or relatives, professionals (midwives) and other types of companions.

Within the study, a secondary analysis was performed to analyse whether the effects of continuous support were influenced by the type of caregiver. Subgroup analysis was conducted according to carer status: in eight of the studies care was provided by a member of hospital staff (midwives, trainee midwives or nurses), and in the other seven studies the carers were women with or without special training, childbirth educators, retired nurses or a close female relative, generally the woman’s mother (people who did not belong to the hospital’s workforce).

To answer our question, we are interested only in care by professionals, so it is sufficient to consider the results of analysis stratified by professional carers (with 8 trials). However, it is also of great interest to include the results of a comparison between trials in which the carers were employees at the institution and trials in which the carers were not employees.
The results of analysing the studies that compared one-to-one professional support with standard care showed that the women in the group receiving one-to-one care had a lower probability of use of anaesthesia: RR 0.97 [CI 95%, 0.95 to 0.99]; a higher probability of spontaneous vaginal delivery: RR 1.03 [CI 95%, 1.01 to 1.06]; and a lower probability of instrumental vaginal delivery: RR 0.92 [CI 95%, 0.85 to 0.99].

No significant differences were found between the two groups in the following adverse effects: caesarean section: RR 0.95 [CI 95%, 0.86 to 1.06]; mother’s dissatisfaction or negative experience of the birth: RR 0.83 [CI 95%, 0.67 to 1.02]; Apgar score at 5 minutes: RR 0.83 [CI 95%, 0.67 to 1.02]; postpartum depression (after support by specially trained nurses or otherwise): RR 0.89 [CI 95%, 0.75 to 1.05]; worsened relationship with partner after birth: RR 1.00 [CI 95%, 0.80 to 1.23]; postpartum urinary incontinence: RR 0.93 [CI 95%, 0.81 to 1.06]; or postpartum faecal incontinence RR 0.89 [CI 95%, 0.64 to 1.24].

Analysis of the studies that analysed support by persons not connected to the hospital, revealed that the significant differences were maintained in terms of the positive effect on spontaneous vaginal delivery: RR 1.12 [CI 95%, 1.07 to 1.18]; and instrumental delivery: RR 0.59 [CI 95%, 0.42 to 0.81]. Additionally, in this case it was also observed that women who received support from persons not connected to the hospital had a lower rate of caesarean sections: RR 0.74 [CI 95%, 0.61 to 0.90] and dissatisfaction: RR 0.64 [CI 95%, 0.58 to 0.78] than those who received standard care.

Generally, it is suggested that women receiving one-to-one care during labour have a lower probability of anaesthesia use and instrumental vaginal deliveries or caesarean sections, and a higher probability of spontaneous vaginal deliveries, achieving higher levels of satisfaction and having a positive experience of the birth. This impact is more obvious when the care is provided by persons not connected with the hospital.

Update (2005 to May 2008)

The article selected in the evidence update is a Cochrane review (46). It is an update of the review included in the NICE guideline (10) and contains a new clinical trial in which support was provided by persons not connected with the hospital.

On the basis of the results of the analysis stratified by care provided by hospital professionals only, the results were the same as those of the 2004 SR, since the new trial included in the update did not evaluate professional support: women who received one-to-one care have a lower probability of anaesthesia use (6 trials; n=9,152): RR 0.97 [CI 95%, 0.95 to 0.99]; a higher probability of spontaneous vaginal deliveries (8 trials; n=10,713): RR 1.03 [CI 95%, 1.01 to 1.06]; and a lower probability of instrumental vaginal deliveries (8 trials; n=10,713): RR 0.92 [CI 95%, 0.85 to 0.99].
No significant differences were found between the two groups in the following adverse outcomes: caesarean section rate (8 trials; n=10,713): RR 0.95 [CI 95%, 0.86 to 1.06]; maternal dissatisfaction or negative experience of the birth (3 trials; n=8,499): RR 0.83 [CI 95%, 0.67 to 1.02]; Apgar score at 5 minutes: RR 0.83 [CI 95%, 0.56 to 1.02]; postpartum depression (after support by specially trained nurses or otherwise): RR 0.89 [CI 95%, 0.75 to 1.05].

Regarding the results of the studies that analysed support by persons not connected with the hospital, it was observed that the significant differences were maintained in the positive effect on lesser use of analgesia (6 trials; n=2,499): RR 0.80 [CI 95%, 0.66 to 0.97]; higher rates of spontaneous vaginal delivery (7 trials; n=3,244): RR 1.10 [CI 95%, 1.05 to 1.14]; and lower risk of instrumental delivery (7 trials; n=2,644): RR 0.59 [CI 95%, 0.44 to 0.79]. Better outcomes were also observed for women who received support with regard to the rate of caesarean sections (8 trials; n=2,678): RR 0.80 [CI 95%, 0.68 to 0.95]; Apgar score <5 at 5 minutes (3 trials; n=1,201): RR 0.36 [CI 95%, 0.14 to 0.90]; and lower levels of dissatisfaction or a negative experience: RR 0.67 [CI 95%, 0.58 to 0.78].

With regard to comparison between the two subgroups (to evaluate the influence of the caregiver’s profile on the effect), when the caregiver is not a professional, the use of analgesia is reduced even further (care by professionals RR 0.97 [CI 95%, 0.95 to 0.99] versus non-professionals: RR 0.80 [CI 95%, 0.66 to 0.97]); the rate of spontaneous vaginal delivery is further increased: chi squared = 9.14; p=0.01; and instrumental vaginal delivery is further decreased: chi squared = 7.21; p=0.01.

However, it appears that the status of the caregiver does not influence the effects of one-to-one care on the rate of caesarean sections or maternal dissatisfaction, as the difference between the two subgroups was not significant (chi squared = 1.92, p=0.17 and chi squared = 3.09, p=0.08 respectively).

There is insufficient evidence on perinatal mortality and maternal and neonatal well-being in the long term. The update of the review also fails to consider results for mothers’ long-term mental and psychological health, although these aspects were assessed in the previous review, included in the NICE guideline (10).

To summarise and analyse the results of the subgroups as a whole, i.e. without considering the profile of the caregiver, women receiving continuous intrapartum support were likely to have a slightly shorter labour, were more likely to have a spontaneous vaginal birth and less likely to have intrapartum analgesia or to report dissatisfaction with their childbirth experience. When the results are analysed by subgroup, continuous intrapartum support was associated with greater benefits when the caregiver was not a member of hospital staff. The main conclusion of the study is therefore that all women should be supported throughout labour.
Moreover, considering that better results are obtained when the person providing care is not an employee of the maternity ward, the review informs hospital managers in countries with high levels of admissions who wish to make clinically significant reductions in caesarean section rates that continuous support by midwives cannot achieve this goal unless other changes are made to policies and routines. As delivery room care is based on risks and dominated by technology, it is likely that staff cannot offer women in labour the same benefits as persons who are not members of staff, unless fundamental changes are made to the care provided.

**Summary of Evidence**

| Receiving one-to-one support throughout labour is associated with less likelihood of use of analgesia and of instrumental vaginal delivery, and a greater probability of a spontaneous vaginal delivery (13;46). | 1+ |

**Recommendations**

| A | Women in labour should have one-to-one midwife care from admission onwards, at all times. |
| A | Women in the active phase of labour should not be left without professional care except for short periods of time or when they so request. |
5.5.4. Mobility and Adopting Different Positions

• What is the effect of mobility and adopting different positions on labour and its outcomes?

Currently, in Spain most women remain recumbent from hospital admission onwards. Systematic electronic fetal monitoring, intravenous infusions, the widespread use of neuraxial analgesia and care routines have limited women’s opportunity to walk around during the first stage or adopt different positions. It has been suggested, however, that upright positions and walking around may shorten the duration of the first phase of labour, and that freedom of movement enables women to adopt positions that relieve pain and improve their comfort and their feeling of prominence and control.

Scientific Evidence

The NICE guideline (10) assesses mobility and different positions during the first stage of labour (standing, squatting, kneeling, semi-supine, etc.), on the basis of an SR (47) with LE 1-, four RCTs with LE 1+ (48-51) and another RCT with LE 1- (52).

The SR (47) included fourteen RCTs. In seven of these, women provided their own control and the number of women included was very small (n≤23); in the other seven, the number of women ranged from 40 to 1,067. The studies compared walking or standing during the first stage of labour with one or more horizontal positions in bed. However, due to the differences in study design, the lack of details to assess the presence of any bias in many of the studies and the different scales of measurement, it was not possible to perform meta-analysis.

One of the consistent findings was that none of the women included in the studies indicated that she experienced greater comfort in a supine position. Furthermore, alternating between different pairs of positions showed differing effects on uterine activity.

Alternating between a supine and seated position appears to reduce uterine activity in comparison to alternation between a supine position and standing or lying on one side. In addition, most women had difficulties remaining standing and/or walking during labour, especially towards the end of the first stage of labour and during the second stage.
The first of the RCTs with a high quality level (48) was conducted in the USA with a total of 1,067 women and compared walking (536 women) during the first stage of labour with not walking (531). 79% of women wished to walk and did so for a mean of 56 minutes (SD=46 minutes). No significant differences were observed between the two groups in terms of birth outcomes (duration, use of oxytocin, use of analgesics), type of delivery, or maternal or neonatal outcomes. When women (n=278) were asked if, in a future birth, they would want to be in the group allowed to walk, 99% responded affirmatively.

The second of the trials (49) was conducted in Australia. It included a total of 196 women in two groups, and compared walking and not walking. During recruitment, 389 women declined to participate, 46% of them due to the fear of losing the option of walking during labour. Of the group of 96 women allocated to walk, 39% walked for more than 30 minutes and the average time for remaining upright was 1.5 hours (SD=0.8 hours). No differences were found between the two groups, as in the previous case for birth outcomes, type of birth and maternal or neonatal outcomes.

Another small study in the USA (51) compared two groups of 20 women each, one group adopting upright positions (kneeling, squatting, walking or seated) and the other recumbent positions (supine, side-lying or semi-supine). The women allocated to the upright group had a significantly shorter active phase of labour: MD 90.25 minutes, p=0.003, and had longer and more frequent contractions than the women in the recumbent group. There were no significant differences with respect to the physical comfort of the mother.

An Argentinian trial (50) compared pain in two groups of 50 women, one group alternating between upright positions every 15 minutes (seated, standing or walking) and the other alternating between horizontal positions (lying on side or back), with checks carried out for each dilatation interval (2-3 cm, 4-5 cm, 6-7 cm, 8-9 cm). No differences in pain were found during the first half of the first stage of labour (2.5 cm) between the two groups. However, as labour progressed pain from both abdominal contractions and the lumbar region was significantly more severe in the recumbent positions.
The last of the RCTs included in the NICE guideline (10) is a small study conducted in the UK (52) with LE 1-. This also compared the effect of walking and not walking, in 68 women. The women included were selected from a group of women who before labour had expressed a wish to walk. Differences between the groups were found, such as less need for analgesia in the walking group, with less frequent and stronger contractions, shorter labour, more normal deliveries and babies with higher Apgar scores. They walked for an average of 2.2 hours, with a range of (0.8 8.3) hours.

Mobility of Women Receiving Anaesthesia

In the chapter covering the second stage of labour (Chapter 5), the NICE guideline (10) also addresses position during labour when analgesia is used, in both the first and the second stages of labour.

The NICE guideline (10) identified a SR from 2004 (53) which included five RCTs, and performed a meta-analysis with a total of 1,161 women. The aim was to analyse the effect of walking around versus not doing so in the first stage of labour, in women who had received epidural anaesthesia.

There were no statistically significant differences between the two groups for the type of delivery: RR 0.91 [CI 95%, 0.93 to 1.44] or caesarean sections: RR 0.91 [CI 95%, 0.70 to 1.19]. There were also no differences in the use of oxytocin, duration of labour, satisfaction with anaesthesia, hypotension, fetal heart rate or Apgar score of the neonate.

To summarise, the results presented differ between studies: some find no differences between the groups (walking versus not walking), others find differences, and some find differences in pain while others do not. It is difficult to compare groups as they are not homogenous and the research questions are different.

No studies were found comparing the effect of freedom of movement during labour with restricted movement on outcomes such as comfort, labour progression or fetal well-being. There is a lack of good-quality evidence to suggest that mobility or any specific position affects outcomes.

Update (2005 to March 2008)

The update of the evidence included the only study found in the search: an SR (54) which includes nine RCTs of variable quality (two of them included in the NICE guideline (10)), with a total of 2,220 women (the number of women included in the studies ranged from 14 to 1,067). The SR aimed to assess the effect of the mother’s position during the first stage of labour. The main question was whether an upright position (seated, standing, kneeling or squatting) or walking around reduced the duration of the first stage when compared to any other position.
The SR includes a meta-analysis of different outcome measurements, with a statistically significant difference only observed in the duration of the first stage, which was shorter in the group walking around (7 studies with 2,166 women): WMD -0.83 hours [CI 95%, -1.60 to -0.06 hours], but there was a high level of heterogeneity (I²=88.4%), which makes interpretation difficult. Examination of the other outcomes that were assessed did not reveal differences in the type of delivery (8 studies involving 2,180 women): OR 0.98 [CI 95%, 0.67 to 1.43]; use of analgesia (6 studies involving 1,966 women): OR 0.69 [CI 95%, 0.37 to 1.30]; induced delivery (4 studies involving 1,802 women): OR 0.81 [CI 95%, 0.65 to 1.01]; or Apgar score <7 at 5 minutes (6 studies involving 913 women): WMD 0.11 [CI 95%, -0.07 to 0.28]. Although the results were not significant, all the studies showed the same tendency towards the protective effect of walking around.

Outcomes concerning maternal comfort were measured differently in the three studies which assessed them, so it was not possible to group them together. Two of the studies showed no differences between the two groups, and in the other a more positive evaluation of the birth experience was observed in the group allowed to walk around.

The SR concludes that although an upright position or walking around in the first stage of labour appears to be safe, it is not recommended as an effective intervention to reduce the duration of the first stage of labour. It is also recommended that new, well-designed studies should be conducted to investigate the effectiveness of maternal position on the duration of labour and other outcomes.

To summarise, there is high-quality evidence concerning the impact of adopting different positions (upright vs recumbent), which does not reveal significant differences on birth outcomes, such as the use of oxytocin and analgesics, type of delivery and maternal or neonatal outcomes. Moreover, with respect to the duration of labour and maternal comfort the evidence found is inconsistent between studies and is inconclusive.

Although Souza (54) assessed different positions as interventions to reduce the duration of the first stage of labour, it should be noted that duration is not as clinically significant as originally believed, and moreover the evidence found concerning the relationship between different positions and duration is inconsistent between studies and is inconclusive.

The evidence suggests that adopting different positions during the first stage of labour is safe and does not affect birth outcomes.
**Summary of Evidence**

<table>
<thead>
<tr>
<th>Evidence</th>
<th>Rating</th>
</tr>
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<tbody>
<tr>
<td>No significant differences were found between women (with and without epidural anaesthesia) who adopt different positions during the first stage of labour with respect to the use of oxytocin and analgesics, type of delivery or maternal or neonatal outcomes (48-51, 53, 54).</td>
<td>1+</td>
</tr>
<tr>
<td>The evidence on the effect of adopting different positions on the duration of the first stage of labour and on maternal comfort is inconsistent and inconclusive (48, 51, 54).</td>
<td>1+</td>
</tr>
</tbody>
</table>

**Recommendations**

| A | Women should be encouraged and helped, even when epidural anaesthesia is used, to adopt any position they find comfortable during the first stage and to be mobile if they wish, following a check of motor and proprioceptive block. |
5.5.5. Amnionrrhexis and Use of Oxytocin

How effective is routine artificial amnionrrhexis and routine perfusion of oxytocin?

Whether or not accompanied by perfusion of oxytocin, routine artificial amnionrrhexis is one of the most common obstetric procedures. Its main purpose is to increase contractions and so reduce the duration of labour. However, doubts have been raised concerning unwanted effects on mother and baby.

Scientific Evidence

The NICE guideline (10) assesses the effectiveness of routine artificial amnionrrhexis and the use of amnionrrhexis together with oxytocin on birth outcomes, as an intervention used during the first stage of labour.

Early Amnionrrhexis + Selective Oxytocin vs Conservative Management

The studies included compared routine amnionrrhexis performed early on (and oxytocin administered if labour was slow) and no intervention (conservative management). The existing evidence is based on two RCTs, (55) and (56). The first of these involved 306 women giving birth for the first time, and the second involved 705. Due to homogeneity, a meta-analysis was performed using the data from both trials with LE 1+.

The results of the meta-analysis did not demonstrate any significant differences with respect to the type of delivery: RR 0.80 [CI 95%, 0.55 to 1.17]; duration of first stage of labour: RR 1.06 [CI 95%, 0.97 to 1.16]; use of epidural anaesthesia: WMD 65.06 minutes [CI 95%, -134.83 to 4.71 minutes]; duration of the second stage of labour: 1.80 minutes [CI 95%, -1.83 to 5.44 minutes]; Apgar score <7 at 5 minutes: RR 1.22 [CI 95%, 0.38 to 3.93]; or admission to a neonatal unit: RR 0.90 [CI 95%, 0.47 to 1.72].

There is no evidence of differences in type of delivery, use of epidural, duration of labour or neonatal outcomes between routine early amnionrrhexis performed plus selective use of oxytocin, and more conservative management.

Early Amnionrrhexis + Oxytocin vs Conservative Management

The NICE guideline (10) includes an RCT conducted in the USA (57), with a total of 150 women giving birth for the first time (75 in each group). The study compared the routine use of oxytocin and early amnionrrhexis with more conservative management in women who were healthy at the start of labour.
The results did not show that management affected the type of delivery: rate of spontaneous deliveries: RR 0.97 [CI 95%, 0.82 to 1.14]; caesarean sections: RR 0.91 [CI 95%, 0.41 to 2.01]. Although slight differences were observed between the routine use of oxytocin and amniorrhesis, and conservative management, they were not clinically significant: duration of latent phase: MD -0.73 hours [CI 95%, -0.84 to -0.62 hours]; duration of active phase: MD 0.24 hours [CI 95%, 0.12 to 0.36 hours]; Apgar score at one minute: MD 0.35 [CI 95%, 0.30 to 0.40]; Apgar score at 5 minutes: MD 0.02 [CI 95%, 0.00 to 0.04].

Update (2005 to July 2008)

In the systematic search for the update of this subject, a high-quality (LE 1+) SR (58) was selected. This included a total of fourteen RCTs with 4,893 women (range per study: n=32 to n=1,463).

The purpose of the review was to determine the efficacy and safety of amniorrhesis alone for systematically shortening all spontaneous-onset labours, and shortening labours that began spontaneously but were prolonged. The SR included a meta-analysis for each of the variables studied, comparing the effect of performing amniorrhesis and not performing it.

The main results of the meta-analysis show that no differences exist between the two treatment groups in the duration of the first stage of labour (5 trials involving 1,127 women): WMD -20.43 minutes [CI 95%, -95.93 to 55.06]; women giving birth for the first time -57.93 minutes [CI 95%, -152.66 to 36.80] and second and subsequent births 23.10 minutes [CI 95%, -50.89 to 97.09]; in the caesarean section rate (9 trials involving 4,370 women): RR 1.26 [CI 95%, 0.98 to 1.62]; maternal satisfaction with the birth experience (2 trials involving 123 women): MD 0.27 [CI 95%, -0.49 to 1.04] and Apgar score <7 at 5 minutes (6 trials involving 2,947 women): RR 0.55 [CI 95%, 0.29 to 1.05]. However, there is a significant difference in the subgroup of women giving birth for the first time: RR 0.42 [CI 95%, 0.20 to 0.88].

There were also no significant differences observed in secondary outcomes such as use of analgesia (8 trials involving 2,824 women): RR 1.01 [CI 95%, 0.94 to 1.09]; rate of instrumental vaginal delivery (10 trials involving 4,470 women): RR 1.01 [CI 95%, 0.88 to 1.15]; morbidity due to maternal infection (2 trials involving 1,460 women): RR 0.81 [CI 95%, 0.38 to 1.72]; admission to a neonatal intensive care unit (5 trials involving 2,035 women): RR 1.12 [CI 95%, 0.79 to 1.57]; or fetal heart rate during the first stage of labour (4 trials involving 1,284 women): RR 1.09 [CI 95%, 0.97 to 1.23].

The SR concludes by stating that amniorrhesis should not be introduced as part of standard treatment and care during labour.
There is a high level of evidence in favour of not performing routine amniorrhesis in vaginal births that are progressing normally, as tests show it does not improve outcomes.

Summary of Evidence

<table>
<thead>
<tr>
<th>Evidence</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>There is no evidence of differences in type of delivery, use of epidural, duration of labour or neonatal outcomes between routine amniorrhesis performed early plus use of oxytocin, and more conservative management of the first stage of labour (10; 55; 56; 58).</td>
<td>Artificial amniorrhesis and perfusion of oxytocin should not be used routinely in vaginal births that are progressing normally, as tests show that they do not improve outcomes.</td>
</tr>
</tbody>
</table>
5.5.6. Perineal Lavage

- Should antiseptics be used in vulvovaginal lavage prior to vaginal examination?

There is a longstanding concern that vaginal examinations facilitate the spread of pathogenic germs to the upper genital tract. Different approaches have been used to reduce the risk of causing maternal or neonatal infection, such as rectal contact, thorough vaginal lavage before examination, minimising vaginal contact, especially if membranes have ruptured, and using the purple line or other indirect signs of progress of dilatation. Being aware of the hygiene conditions in which vaginal examination should be performed will help to prevent these infections.

**Scientific Evidence**

The NICE guideline (10) assesses the effectiveness of different hygiene strategies on infection rates in mothers, neonates and healthcare professionals during vaginal births. It assesses hygiene measures during vaginal examinations and antisepsis; it analyses two studies: an SR (59) and a controlled study (60) which evaluates two different strategies for vaginal lavage.

**Chlorhexidine Vaginal Irrigation vs Irrigation with Sterilised Water**

The SR (59) with LE 1++ included three RCTs conducted in the USA, which compared chlorhexidine vaginal irrigation with irrigation using sterilised water as a control, for a total of 3,012 women in labour.

The results of the three trials showed insignificant differences in the incidence of chorioamnionitis (1,514/1,498 women in the chlorhexidine/control groups respectively): RR 1.10 [CI 95%, 0.86 to 1.42] and incidence of postpartum endometritis: RR 0.83 [CI 95%, 0.61 to 1.13]. The studies did not obtain data concerning other maternal outcomes or side effects of the chlorhexidine.

SR of RCTs 1++

With regard to outcomes for neonates, the three studies included data on 1,495 and 1,492 neonates in the chlorhexidine and control groups respectively. No statistically significant differences were found between the two groups in terms of the risk of neonatal pneumonia (1 trial with 910 neonates): RR 0.33 [CI 95%, 0.01 to 8.09]; neonatal meningitis (1 trial with n=1021): RR 0.34 [CI 95%, 0.01 to 8.29]; blood cultures confirming sepsis (2 trials with n=2,077): RR 0.75 [CI 95% 0.17 to 3.35]; perinatal mortality (2 trials with n=2,077): RR 1.00 [CI 95%, 0.17 to 5.79]; or risk of neonatal sepsis (3 trials, n=2,987): RR 0.75 [CI 95%, 0.17 to 3.35]. A trend was also observed that suggested an association between the use of vaginal chlorhexidine during labour and greater use of antibiotics in neonates, although this association was not significant (RR 1.65 [CI 95%, 0.73 to 3.74]). No other neonatal outcomes or side effects of chlorhexidine were studied.

SR of RCTs 1++
**Perineal Lavage with Cetrimide/Chlorhexidine vs Water**

A cohort study (60) conducted in the UK and involving 3,905 women compared cetrimide/chlorhexidine for perineal lavage during labour with tap water. Patients were allocated to the control or intervention group in alternate months and the study population included women with history of caesarean sections (17.2% for the cetrimide/chlorhexidine group and 16.3% for the control or tap water group).

With respect to maternal outcomes, no significant differences between the two groups were found in terms of the number of women developing a fever (temperature >38°C): OR 1.0 [CI 95%, 0.9 to 1.9]; use of antibiotics: OR 1.02 [CI 95%, 0.8 to 1.9]; perineal infection: OR 1.4 [CI 95%, 0.8 to 2.7]; perineal tearing: OR 5.8 [CI 95%, 0.3 to 999]; or the rate of surgical site infection for caesarean sections: OR 1.3 [CI 95%, 0.9 to 1.9]. One maternal death occurred in each group, although both were due to anticardiolipin syndrome.

Neonatal outcomes also showed no differences in eye infections: OR 1.1 [CI 95%, 0.8 to 1.7]; umbilical cord infections: OR 1.3 [CI 95%, 0.7 to 2.1]; other unspecified infections: OR 0.9 [CI 95%, 0.6 to 1.2]; admission to a neonatal unit: OR 1.1 [CI 95%, 0.9 to 1.4]; use of antibiotics: OR 1.0 [CI 95%, 0.8 to 1.2]; or fever (temperature >38°C): OR 1.4 [CI 95%, 0.7 to 3.0]. Although 27 neonatal deaths occurred in the cetrimide/chlorhexidine group and 21 in the control group, most were due to congenital abnormalities or weight below 1,000 g (in the chlorhexidine group there was one case due to uterine rupture and three cases due to intrapartum hypoxia; in the control group there was one case due to necrotising enterocolitis and another due to neonatal septicaemia).

**Update (2005 to April 2008)**

The new SR search did not reveal any new documents. As a result, the recommendations are based on the findings described by the NICE guideline (10).

There is substantial evidence that the use of cetrimide/chlorhexidine for perineal lavage is no more effective than running water.

**Summary of Evidence**

| The use of cetrimide/chlorhexidine for perineal lavage is no more effective than running water (59:60). | 1++ |

**Recommendations**

| A | Running water should be used if lavage is required before a vaginal examination; the use of antiseptics is not necessary. | 2+ |
5.5.7. Use of Partogram

- Does the use of a partogram improve outcomes?

Most maternity units use graphs, usually called partograms, to record examinations during the active phase of dilatation. Midwives record a woman’s vital signs, frequency and intensity of contractions, descent of fetal head and cervical dilatation.

Various types of partogram have been used, some of which have lines to guide interventions, generally called alert and action lines. The action line is drawn to the right of the line showing the progression of cervical dilatation, at a rate of 1 cm per hour. A two-hour action line is located two hours to the right of the progression line, and if dilatation slows enough for the progression line to cross the action line, delayed dilatation is diagnosed. A four-hour action line is located 4 hours to the right of the progression line, giving more time before action is taken due to delayed dilatation.

Scientific Evidence

The NICE guideline (10) assesses the effectiveness of using a partogram and compares it to partogram use. It also compares the effectiveness of partograms with different types of action line.

Use/Non-Use of Partogram

The NICE guideline (10) included a study (61) conducted by the WHO in South-East Asia (n=8 hospitals; 35,484 women) which compared use of the WHO partogram (partogram with an action line) with no partogram use. The study was presented by the NICE guideline (10) as an RCT, but was not, as allocation was partially non-randomised. Moreover, the study included gestations from 34 weeks, inductions, malpositions and multiple gestations, so the results may not be directly applicable to normal births.

The results of the study are presented separately for women giving birth for the first time and those doing so for the second or subsequent time. In women giving birth for the first time, partogram use appears to reduce the proportion of prolonged labours (duration >18 hours): RR 0.56 [CI 95%, 0.47 to 0.67]; use of oxytocin: RR 0.43 [CI 95%, 0.39 to 0.47]; rate of postpartum sepsis: RR 0.09 [CI 95%, 0.03 to 0.31]; and rate of caesarean sections: RR 0.70 [CI 95%, 0.61 to 0.81], whilst the spontaneous cephalic delivery index increases: RR 1.05 [CI 95%, 1.03 to 1.08] when compared to no partogram use.

The conclusions were similar for women giving birth for the second or subsequent time.

No studies were identified that assessed outcomes using partograms without action or alert lines.
On the basis of these results, the WHO recommends using partograms with four-hour action lines.

**Comparison of Partograms with Different Action Lines**

The NICE guideline (10) includes three RCTs that compare two possible locations of partogram action lines.

The first trial (62), conducted in Liverpool, UK, involved 928 women in labour. It compared the use of partograms with two-hour, three-hour and four-hour action lines.

The findings of this RCT (62) suggest that the use of two-hour action lines, versus three-hour action lines, increases maternal satisfaction levels: DM 3.5 [CI 95%, 1.7 to 5.3]. It provides no evidence of differences in the use of interventions, such as amniorrhesis, epidural, caesarean section due to a delay in normal progression or instrumental delivery. There were also no differences observed between two- and three-hour action lines in neonatal outcomes.

Comparison of three-hour action lines and four-hour action lines reveals an increase in the rate of caesarean sections for three-hour lines: OR 1.8 [CI 95%, 1.1 to 3.2], but not in the rate of caesarean sections due to fetal stress or anomalies in normal progress. No differences were observed in other interventions, maternal satisfaction or neonatal outcomes.

Finally, the use of two-hour action lines compared with four-hour lines increased maternal satisfaction: MD 5.2 [CI 95%, 3.4 to 7.0]. There was no evidence of differences in indices on interventions or neonatal outcomes.

A second study conducted in South Africa (63) involving 694 women compared a partogram with a single two-hour action line with the WHO partogram (with two parallel lines, one for alert and the other for action, at four hours).

The results showed that the use of a single two-hour alert line compared to the WHO partogram (with two parallel lines, one for alert and the other for action, at four hours) reduced the caesarean section rate: RR 0.68 [CI 95%, 0.50 to 0.93] and the instrumental birth rate: RR 0.73 [CI 95%, 0.56 to 0.96], and increased the use of oxytocin: RR 1.51 [CI 95%, 1.10 to 2.07]. No differences were found in the use of analgesia or in neonatal outcomes (Apgar scores and perinatal mortality).
The third and last RCT (64) compared a partogram with a two-hour action line with a partogram with a four-hour action line. The study included 2,975 women giving birth for the first time and compared the results of monitoring using a partogram with action lines at two and four hours to the right of the alert line. If the labour progression line crossed the action line, prolonged labour was diagnosed in accordance with standard protocol. The primary outcomes measured were the caesarean section rate and the degree of maternal satisfaction. For the latter outcome, 1,925 women (65%) filled in postal questionnaires between two and ten days after the birth.

No differences were observed between the two- and four-hour action lines in any primary outcome (caesarean sections or maternal dissatisfaction with the birth experience). However, a higher number of women in the group with the two-hour action line crossed the action line on the partogram (854/1,490 vs 673/1,485): RR 1.27 [CI 95%, 1.18 to 1.37], so they received more interventions to stimulate labour (772/1,490 vs 624/1,485): RR 1.23 [CI 95%, 1.14 to 1.33]. No significant differences were found between the two groups in terms of the number of instrumental deliveries, umbilical cord pH <7.1, Apgar score <7 at 5 minutes or admission to neonatal units.

The 2004 NICE guideline on caesarean sections (65) recommended using a four-hour action line partogram in normal births due to the reduced caesarean section rate, and the NICE guideline on intrapartum care (10) reiterates this recommendation.

**Update (2005 to June 2008)**

No documents were found in the systematic search carried out for the update of this question. However, it was possible to select an SR published in October 2008 (66) as a result of the alerts included in the search strategies.

The SR selected for the update included five randomised trials. Three of which were quasi-randomised studies also included in the NICE guideline (10), with a total of 6,187 women, comparing the use of a partogram with no partogram use (in two studies with 1,590 women) and the use of different types of partogram. A meta-analysis of the results was performed in the SR.

There was no evidence of differences between the partogram use versus non-use in the rates of caesarean sections: RR 0.64 [CI 95%, 0.24 to 1.70]; instrumental delivery: RR 1.00 [CI 95%, 0.85 to 1.17]; or Apgar score <7 at 5 minutes: RR 0.77 [CI 95%, 0.29 to 2.06].

When a partogram with a two-hour action line was compared to one with a four-hour action line, the first group showed a higher likelihood of requiring stimulation with oxytocin: RR 1.14 [CI 95%, 1.05 to 1.22].
When a partogram with a *three-hour action line* was compared to one with a four-hour action line, the caesarean section rate was higher for the group with partograms with a three-hour action line (n=613): RR 1.70 [CI 95%, 1.07 to 2.70].

On the basis of these findings, the SR concludes by stating that routine use of a partogram during labour cannot be recommended and that further trials are necessary to determine whether the use of a partogram is effective.

As a result of the substantial inconsistencies found with regard to the effectiveness of using partograms for various clinical outcomes, the group compiling the guideline can neither recommend their systematic use nor recommend non-use. However, there is evidence to recommend that if partograms are used they should have four-hour action lines, as two- and three-hour action lines increase interventions with no benefits for the mother or baby.

See Appendix 4.1.

**Summary of Evidence**

<table>
<thead>
<tr>
<th>Use of the partogram, compared to non-use, appears to reduce the proportion of labours lasting over 18 hours, the use of oxytocin, the rate of postpartum sepsis and the rate of caesarean sections, while it increases the ratio of spontaneous births (61).</th>
<th>II</th>
</tr>
</thead>
<tbody>
<tr>
<td>There is no evidence of any differences between the use and non-use of partograms in rates of caesarean sections, instrumental vaginal delivery or Apgar score &lt;7 at 5 minutes (66).</td>
<td>Ia</td>
</tr>
<tr>
<td>Partograms with two-hour action lines, versus partograms with three- and four-hour action lines, appear to improve maternal satisfaction, but they increase the use of oxytocin (62;66).</td>
<td>Ia</td>
</tr>
<tr>
<td>Partograms with three-hour action lines versus four-hour action lines increase the number of caesarean sections (but not caesarean sections due to fetal distress) (62;66).</td>
<td>Ia</td>
</tr>
<tr>
<td>No differences were observed between two- and four-hour action lines in any primary outcome (caesarean sections or maternal dissatisfaction with the birth experience). However, more women in the group with a two-hour action line received more interventions to stimulate labour (64).</td>
<td>Ib</td>
</tr>
</tbody>
</table>

**Recommendations**

| A | If a partogram is used, a 4-hour action line is recommended. |
5.5.8. Frequency of Vaginal Examinations

- What is the optimum frequency of vaginal examinations during the first stage of labour?

The purpose of vaginal examinations is to check the progress of labour. However, there are publications that associate the risk of infection with the number of vaginal examinations (67;68). Moreover, vaginal examinations during labour can be uncomfortable and often cause anxiety and distract women’s attention from their labour.

Scientific Evidence

The NICE guideline (10) assesses the evidence concerning the impact of vaginal examinations during the first stage on birth outcomes. It also addresses the risk factors associated with maternal infection after premature membrane rupture, with vaginal examinations included as one of these factors.

For the first stage of labour, the evidence given in the NICE guideline (10) consists of two studies. The first is a clinical trial (69) conducted in the UK involving 109 women giving birth for the first time and with a high risk of showing biases. It compared vaginal examinations performed every two and every four hours.

No differences were found between the two groups in terms of the duration of labour. There were no differences in the number of vaginal examinations performed in each group.

The other is a low-quality (LE 2, with inappropriate statistical analysis) Swedish case and control study (70) which included a total of 68 women and aimed to analyse which factors were predictive of neonatal sepsis, considering seven possible variables as being predictive of neonatal sepsis, including vaginal examination.

The results did not contain any factors predictive of neonatal sepsis.

Another international multicentre study (71) included in the NICE guideline (10) also associated the risk factors related to maternal infection after premature membrane rupture and studied factors that are predictive of chorioamnionitis and postpartum fever.

A study (72) that conducted a secondary analysis of the results of the international study referred to above (71) compared the immediate management after premature membrane ruptures with expectant management up to the fourth day. It found that the number of vaginal examinations was the most important independent factor in predicting an infection, and that the risk of infection increased with the number of vaginal examinations.
When fewer than three examinations were compared to 3-4 vaginal examinations, a higher incidence of chorioamnionitis was observed in the former group: OR 2.06 [CI 95%, 1.07 to 3.97], and when fewer than 3 were compared to 7-8, a higher incidence was also observed: OR 3.80 [CI 95%, 1.92 to 7.53], with the incidence of chorioamnionitis increasing from 2% to 13%.

Another retrospective case and control study (73) conducted in Israel, which included 411 women, also observed that the number of vaginal examinations was an independent predictor of infection (both maternal and neonatal). Women who underwent seven or more vaginal examinations versus those who underwent fewer than seven examinations presented a higher risk of both maternal and neonatal infection): OR 2.70 [CI 95%, 1.66 to 4.34].

Another of the studies (74), which was also a secondary analysis of the results of the international multicentre trial (71), attempted to identify factors predictive of neonatal infection. In this study it was observed that the most reliable predictor of neonatal infection was clinical chorioamnionitis in labours with premature breaking of the waters: OR 5.89 [CI 95%, 2.02 to 4.68]. Another independent predictive factor was undergoing 7-8 vaginal examinations (compared to 0-2 examinations): OR 2.37 [CI 95%, 1.03 to 5.43].

Update (2005 to March 2008)

No studies were selected in the update of the search of the NICE guideline (10), so the group compiling the guideline has based its recommendations on the evidence provided in the NICE guideline (10).

Summary of Evidence

The risk of infection increases with the number of vaginal examinations. In addition, the number of vaginal examinations in management the first stage of labour after premature membrane rupture is the most important factor in predicting maternal and/or neonatal infection (71-74). 2++

Recommendations

- In normal conditions, vaginal examinations should be carried out every 4 hours.
- More frequent vaginal examinations should be carried out in women with slow labour progress, if there are complications or if the woman experiences a pushing sensation.
Before carrying out a vaginal examination, the following action should be taken:

- Confirm that it is really necessary and that the information it provides will be relevant to decision-making.
- Be aware that vaginal examination is uncomfortable and invasive, and associated with an increased risk of infection.
- Guarantee the woman’s privacy, dignity and comfort.
- Sensitively explain the reason it is being carried out and the findings, especially if they are not as expected by the woman.
5.5.9. Treatment for Delayed Dilatation

• What methods are effective in treating delays in the first stage of labour?

The NICE guideline (10) recommends that diagnosis of delay in the first stage of labour should be based on consideration of all aspects of the progression of labour, including the following: cervical dilatation below 2 cm at 4 hours for women giving birth for the first time, cervical dilatation below 2 cm at 4 hours or slowing of the progression of labour in the second and subsequent births, descent and deflection of fetal head and changes in the strength, duration and frequency of uterine contractions.

As stated in the NICE guideline (10), although the duration of labour should not constitute a key factor for concern in itself, if it surpasses the normal limits this may be the first indication of a problem. The progression of dilatation is of greater relevance than the total duration of the first stage of labour, as it can be used to identify and treat the problem early on. Although the aetiological factors that may lead to a delay in the first stage of labour may vary, insufficient uterine activity is the most common and correctable cause of abnormal progression of labour.

A diagnosis of dystocia is currently the main indication for a caesarean section. As the caesarean section rate is continuing to rise, identifying problems with dilatation and correction of abnormal patterns in uterine contractions may make it possible not to perform many of these caesarean sections without compromising maternal or fetal outcomes.

Scientific Evidence

The NICE guideline (10) assesses the interventions to manage detected delays in the first stage of labour, and uses four sections to address the issue:

Amniorrhexis vs Expectant Management

In this section, an SR (75) published in 1999 and updated in 2005 was used. It included nine studies. The high-quality review, with LE 1++, included a meta-analysis with the results stratified by the number of previous births of the women (parity). The intervention was amniorrhexis in women who required stimulation for labour, versus expectant management.

The meta-analysis showed strong evidence that amniorrhexis performed on women giving birth for the first time significantly reduces the duration of labour (2 studies, n=117): MD=-53.67 minutes [CI 95%, -66.50 to 40.83 minutes]; total dilatation time (3 studies, n=298): MD 39.45 minutes [CI 95%, -50.10 to -28.80 minutes]; rate of dystocia (one study, n=925): OR 0.63 [CI 95%, 0.48 to 0.82]; and the proportion of women suffering unbearable pain (3 studies, n=1,283): OR 0.76 [CI 95%, 0.60 to 0.97].

SR/MA of RCTs

1++
There was no evidence of differences in other maternal outcomes such as the use of oxytocin, use of analgesia, caesarean section rate, incidence of abnormalities in fetal heart rate, febrile maternal morbidity, maternal blood transfusions or maternal satisfaction.

With respect to neonatal outcomes, there was also no evidence of differences in the umbilical cord prolapse rate, poor deflection of fetal head, Apgar score <7 at 5 minutes, neonatal jaundice, the NICU admission rate or infectious neonatal morbidity.

Moreover, in women who had given birth previously and on whom amniorrhexis was performed, a reduction in complete dilatation time was observed (one study, n=269: MD 54.00 minutes [CI 95%, -101.37 to -6.63 minutes]. No differences were found in the other variables assessed.

There is high-quality evidence that amniorrhexis shortens the duration when a delay occurs in the first stage of labour.

**Amniorrhexis and Oxytocin vs Oxytocin**

An RCT (76) conducted in the United States was identified (n=118 women: amniorrhexis = 58, control = 60). The study population included women giving birth for the first time or for the second or subsequent time with a delayed active phase of labour. Routine amniorrhexis followed by oxytocin was compared with a control group receiving oxytocin followed by selective amniorrhexis. Although no statistically significant differences were found, there were more women with postpartum infection in the first group than in the control group (amniorrhexis 7/60; control 0/58; p=0.01).

No differences were observed in the duration of labour: MD 0.70 hours [CI 95%, -1.55 to 0.15 hours]; caesarean section rate: RR 1.21 [CI 95%, 0.34 to 4.28]; or neonatal infection: RR 4.83 [CI 95%, 0.58 to 40.13].

**Amniorrhexis vs Amniorrhexis and Oxytocin**

Three studies conducted in the UK were identified. The first (77) included 926 women giving birth either for the first time or for the second or subsequent time who required stimulation of labour (oxytocin = 465, control = 461). The second study (78) included 61 women giving birth for the first time and progressing slowly, in three groups (amniorrhexis + high doses of oxytocin = 19, amniorrhexis + low doses of oxytocin = 21, control = 20). The third study (79) included women giving birth for the first time and for the second or subsequent time who required stimulation of labour (oxytocin + amniorrhexis = 21, amniorrhexis only = 20).
Meta-analysis of the three studies, performed in the NICE guideline (10), showed no evidence of differences in the caesarean section rate (3 studies, n=443): RR 0.82 [CI 95%, 0.47 to 1.40]; use of epidural (2 studies, n=967): RR 1.01 [CI 95%, 0.79 to 1.30]; Apgar score <7 at 5 minutes (2 studies, n=82): RR 0.95 [CI 95%, 0.13 to 7.09]; admissions to neonatal units (1 study, n=41): RR 3.00 [CI 95%, 0.12 to 78.04]; or maternal satisfaction (1 study, n=41): MD 9.00 [CI 95%, -6.73 to 24.73].

**Amniorrhensis and Oxytocin vs Delayed Amniorrhensis and Oxytocin**

One study included in the previous question (79) also made this comparison. The study population consisted of women giving birth for the first time and for the second or subsequent time who required stimulation of labour, divided into two intervention groups: oxytocin + amniorrhensis = 21 women, expectant management = 19.

The study demonstrated significant positive differences for amniorrhensis and oxytocin, with a shorter duration of labour: intervention = 266 minutes (SD=166 minutes), control = 463 minutes (SD=164 minutes), p<0.001; and higher level of maternal satisfaction: intervention = 149 (SD=23), control = 118 (SD=33), p=0.002.

No differences were observed for the use of epidural anaesthesia, caesarean section rate or neonatal outcomes (Apgar score <7 at 5 minutes, NICU admission).

Moreover, the NICE guideline (10) also assesses the effects of stimulation (by amniorrhensis or oxytocin) on the fetal heart rate.

To examine the effect of amniorrhensis, NICE (10) uses three of the nine studies included in the SR mentioned in the first point above (75) and assesses the RCTs which analyse the effect of amniorrhensis on fetal heart rate.

No differences were found in fetal heart rate between the two groups of women giving birth for the first time: RR 1.06 [CI 95%, 0.80 to 1.42], or in women giving birth for the second or subsequent time: RR 0.93 [CI 95%, 0.67 to 1.31].

To analyse the effect of oxytocin on fetal heart rate, NICE (10) assessed two trials (77;79), also mentioned above, which analyse the effect of oxytocin on the rate of caesarean sections due to fetal distress.

In these cases, there were also no differences observed either in the first trial (77): RR 2.86 [CI 95%, 0.32 to 25.24] or in any of the subgroups of the second trial (79): women giving birth for the first time: RR 0.40 [CI 95%, 0.45 to 1.03], and women giving birth for the second or subsequent time: RR 0.66 [CI 95%, 0.20 to 2.13].
In the opinion of the group compiling this guideline, there is no evidence of an effect of oxytocin on the fetal heart rate trace or the rate of caesarean sections due to fetal distress. However, it does consider it necessary to monitor the fetal heart rate when oxytocin is used to induce labour.

Finally, the NICE guideline (10) analyses the effect of different oxytocin dosing regimes when treating a delay in the first stage of labour.

The NICE guideline (10) included four RCTs (78-82) with good levels of evidence, comparing high doses (initial dose and increment equal to or higher than 4.5 mU/min) and low doses of oxytocin (initial dose and increment up to 2 mU/min) with different dosing intervals (between 15 and 40 minutes: fast administration and slow administration respectively) to stimulate labour.

The guideline performed meta-analysis with the four RCTs. The results obtained show that there is high-quality evidence that women who receive high doses of oxytocin during stimulation of labour present a lower total number of caesarean sections (4 studies involving 1,041 women): RR 0.69 [CI 95%, 0.49 to 0.95] and a higher number of spontaneous vaginal deliveries (1 study involving 310 women): RR 1.38 [CI 95%, 1.15 to 1.65].

No statistically significant differences were observed between high and low doses of oxytocin for other outcomes (birth, maternal or neonatal).

The evidence on the use of high doses of oxytocin versus low doses is clinically inconsistent, as high doses have been associated with a lower number of caesarean sections in four studies, and with more spontaneous vaginal deliveries in one study. This may be due to the high level of heterogeneity between the studies.

Women with induced labour receiving high doses of oxytocin may have shorter labours, fewer caesarean sections and more spontaneous vaginal deliveries than those who receive low doses of oxytocin.

Nevertheless, the NICE guideline (10) advises caution when using high doses, as there is insufficient evidence on the effects of this intervention on neonatal outcomes, and none on the pain experienced by women who receive high doses of oxytocin to stimulate labour.

The NICE guideline (10) also assesses different ways of administering different dosing regimes to stimulate labour. However, the evidence is limited, as the studies included (82-86) do not have sufficient power, and use many different regimes.
To summarise, women with fast increments in of high doses of oxytocin, as compared to slow increases (at high doses), appear to present lower rates of caesarean sections due to dystocia: OR 0.6 [CI 95%, 0.4 to 0.9], and greater uterine hyperstimulation is suggested: OR 1.3 [CI 95%, 0.9 to 1.7] (83).

In comparison between low doses of oxytocin with fast increments and slow increases, there is no difference in the caesarean section rate. However, women with fast increments of low doses of oxytocin appear to experience greater fetal distress: RR 1.68, p<0.005; and uterine hyperstimulation: RR 1.69 p<0.001, compared with those who received slow increments (84).

When pulsatile administration of oxytocin was compared to continuous administration, the limited evidence showed a smaller quantity of oxytocin when pulsatile administration was used (pulsatile: 1300 mU (SD 332 mU), versus continuous: 1803 mU (SD 302 mU); p<0.001), with no differences in other outcomes (85).

The evidence on other birth outcomes, including neonatal outcomes and maternal satisfaction, was also insufficient.

Update (2005 to March 2008)

The update of the SR summarised above was found when updating this clinical question (87).

The RS (87) aims to determine the efficacy and safety of amniorrhesis alone in systematically shortening all spontaneous-onset labours, and shortening labours that began spontaneously but were prolonged. Fourteen RCTs involving 4,893 women were included.

There were no statistical differences in the duration of the first stage of labour (8 trials involving 1,127 women): WMD 20.43 minutes [CI 95%, -95.93 to 55.06]; maternal satisfaction with the birth experience (two RCTs involving 123 women): WMD 0.27 [CI 95%, -0.49 to 1.04]; or Apgar score <7 at 5 minutes (six RCTs involving 2,947 women): RR 0.55 [CI 95%, 0.29 to 1.05].

Amniorrhesis was associated with a higher risk of caesarean delivery than that of the women in the control group, although the difference was also statistically insignificant (ten RCTs involving 4,370 women): RR 1.26 [CI 95%, 0.98 to 1.62]. There was no agreement between the articles concerning when to administer amniorrhesis during labour, in terms of cervical dilatation.

The review concludes that introducing systematic amniorrhesis as part of treatment and care during normal labour or prolonged labour cannot be recommended.
Summary of Evidence

<table>
<thead>
<tr>
<th>Evidence Summary</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performing amniorrhesis does not demonstrate better outcomes than expectant management (87).</td>
<td></td>
</tr>
<tr>
<td>When there is a delay in labour, amniorrhesis followed by infusion of low-dose oxytocin shortens the duration of the first stage of labour and improves the level of maternal satisfaction, but does not improve the rates of vaginal deliveries or other outcomes (79).</td>
<td></td>
</tr>
<tr>
<td>There is no evidence concerning the effect of oxytocin on the fetal heart rate trace.</td>
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<tr>
<td>There is clinical uncertainty concerning the use of high-dose oxytocin, as women who receive it during stimulation of labour present a lower total number of caesarean sections, and a higher number of spontaneous vaginal deliveries (78;80;81;88).</td>
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</tr>
<tr>
<td>The evidence on oxytocin dosing regimes to stimulate labour is limited, as the studies lack power and use different comparisons (78;80;81;88). Increasing the frequency of administration to less than 20 minutes may be associated with higher levels of uterine hyperstimulation (83).</td>
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</tr>
</tbody>
</table>

Recommendations

When a delay in the active phase of the first stage of labour is suspected, the following action should be taken:
- Offer the woman support, hydration and an appropriate and effective method of pain relief.
- If the membranes are intact, amniorrhesis should be carried out.
- Vaginal examination 2 hours later; if dilatation is less than 1 cm, delayed dilatation is diagnosed.
- Once delayed dilatation has been diagnosed, oxytocin stimulation should be offered.
- Ongoing monitoring should be carried out and epidural anaesthesia should be offered before oxytocin is used.
- Another vaginal examination should be carried out 4 hours after oxytocin perfusion is begun. If dilatation is less than 2 cm, the case should be reassessed, considering the option of a caesarean section. If dilatation is greater than 2 cm, another examination should be carried out 4 hours later.