Cochrane New Zealand
Department Obstetrics and Gynaecology
University of Auckland, Private Bag 92019
Auckland, 1142
New Zealand

T (+64) 09 9239490
E v.jordan@auckland.ac.nz

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Selective versus routine use of episiotomy for vaginal birth

Authors: Jiang H, Qian X, Carroli G, Garner P

What is the issue?

Normal birth can cause tears to the vagina and the surrounding tissue, usually as the baby's head is born, and sometimes these tears extend to the rectum. These are repaired surgically, but take time to heal. To avoid these severe tears, doctors have recommended making a surgical cut to the perineum with scissors or scalpel to prevent severe tearing and facilitate the birth. This intervention, known as an episiotomy, is used as a

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Cochrane New Zealand
Department Obstetrics and Gynaecology
University of Auckland, Private Bag 92019
Auckland, 1142
New Zealand

T (+64) 09 9239490
E v.jordan@auckland.ac.nz

routine care policy during births in some countries. Both a tear and an episiotomy need sutures, and can result in severe pain, bleeding, infection, pain with sex, and can contribute to long term urinary incontinence.

Why is this important?

An episiotomy requires suturing and benefits and harms as part of routine management of normal births remains unclear. In particular, we need to know if it does indeed prevent large tears, because women otherwise may be subjected to an unnecessary operation, pain and in some cases long-term problems. The question of whether to apply a policy of routine episiotomy is important for clinical practice and for the health and well-being of women and babies.

What evidence did we find?

We prepared this edition of this review by updating the methods and searching for evidence from the medical literature on 14 September 2016. The review now includes 11 randomised controlled trials (with 5977 women) that compared episiotomy as needed (selective episiotomy) with routine episiotomy in terms of benefits and harms for mother and baby in women at low risk of instrumental delivery.

The trials were from ten different countries. In women where health staff were only conducting selective episiotomy, there may be 30% fewer with severe perineal trauma at birth compared with women where a policy of routine episiotomy was applied (eight trials, 5375 women, low-certainty evidence). We do not know if there is a difference in average blood loss between the groups (two trials, very low-certainty evidence). There is probably no difference in Apgar less than seven at five minutes, with no events in either groups (moderate-certainty evidence). We do not know if there is a difference in the number of women with moderate or severe perineal pain three days after giving birth (one trial, 165 women, very low-certainty evidence) but careful assessment of women's pain was not well carried out in the included trials. There may be little or no difference in the number of women developing perineal infection (two trials, low-certainty evidence); and there is probably little or no difference in women reporting painful sexual intercourse six months or more after delivery (three trials, 1107 women, moderate-certainty evidence); for urinary incontinence six months or more after delivery, there may be little or no difference between the groups. One study reported genital prolapse three years after the birth and there was no clear difference between groups (low-certainty evidence). Other important outcomes relating to long-term effects were not reported in these trials (urinary fistula, rectal fistula, and faecal incontinence).

One trial examined selective episiotomy compared with routine episiotomy in women for whom an operative vaginal birth was intended. The results showed no clear difference in severe perineal trauma between the restrictive and routine use of episiotomy.

Women's views on the different policies were not reported.

Cochrane New Zealand
Department Obstetrics and Gynaecology
University of Auckland, Private Bag 92019
Auckland, 1142
New Zealand

T (+64) 09 9239490
E v.jordan@auckland.ac.nz

What does this mean?

Overall, the findings show that selective use of episiotomy in women (where a normal delivery without forceps is anticipated) means that fewer women have severe perineal trauma. Thus the rationale for conducting routine episiotomies to prevent severe perineal trauma is not justified by current evidence, and we could not identify any benefits of routine episiotomy for the baby or the mother.

More research is needed in order to inform policy in women where an instrumental birth is planned and episiotomy is often advocated. Outcomes could be better standardised and measured.

Aspirin (single dose) for relief of perineal pain after childbirth

Authors: Molakatalla S, Shepherd E, Grivell RM

What is the issue?

Can aspirin be given to women who experience perineal pain following childbirth to relieve the pain without causing side effects for either women or their babies?

Why is this important?

Many women experience pain in the perineum (the area between the vagina and anus) following childbirth. The perineum may be bruised or torn during childbirth, or a cut made for the baby to be born (an episiotomy). After childbirth, perineal pain can interfere with women's ability to care for their newborns and establish breastfeeding. If perineal pain is not relieved effectively, longer-term problems for women may include painful sexual intercourse, pelvic floor problems resulting in incontinence, prolapse or chronic perineal pain. Aspirin may be given to women who have perineal pain after childbirth, but its effectiveness and safety had not been assessed in a systematic review. This is part of a series of reviews looking at drugs to help relieve perineal pain in first few weeks after childbirth.

What evidence did we find?

We searched for evidence on 31 May 2016, and included 17 studies involving 1132 women published between 1967 and 1997. All women had perineal pain following an episiotomy (usually within 48 hours after birth) and were not breastfeeding. The women received either aspirin (doses ranging from 300 mg to 1200 mg) or fake pills (placebo), by mouth. The studies were assessed as low- or very low-quality evidence. Two trials did not contribute any data for analyses.

More women had adequate pain relief at four to eight hours after taking aspirin compared with women who received placebo (low-quality evidence). Women were less likely to need additional pain relief at four to eight hours after taking aspirin (very low-quality evidence). There was no difference in adverse effects for women in the four to eight hours after administration (very low-quality evidence).

Cochrane New Zealand
Department Obstetrics and Gynaecology
University of Auckland, Private Bag 92019
Auckland, 1142
New Zealand

T (+64) 09 9239490
E v.jordan@auckland.ac.nz

We found no clear differences in effect for women who received 300 mg versus 600 mg aspirin (1 trial), 600 mg versus 1200 mg aspirin (2 trials), or 300 mg versus 1200 mg (1 trial) for adequate pain relief, the need for additional pain relief, or adverse effects for the mother.

No studies reported on adverse effects of aspirin for the baby, or other outcomes we planned to assess: prolonged hospital stay or readmission to hospital due to perineal pain; perineal pain six weeks after childbirth, women's views, or postpartum depression.

What does this mean?

A single dose of aspirin may help with perineal pain following episiotomy for women who are not breastfeeding, when measured four to eight hours after administration. Breast milk is widely accepted as the best food for infants and it is recommended that where possible, mothers start breastfeeding within one hour of birth, and breastfeed for the first six months of their infant's life. We found no information to assess the effects of aspirin for women who are breastfeeding, but it is known that aspirin can be transferred into the breast milk.

Psychosocial interventions for supporting women to stop smoking in pregnancy

Authors: Chamberlain C, O'Mara-Eves A, Porter J, Coleman T, Perlen SM, Thomas J, McKenzie JE

What is the issue?

Tobacco smoking during pregnancy increases the risk of the mother having complications during pregnancy and the baby being born low birthweight. Nicotine and other contents of cigarettes can have harmful effects on the baby’s growth and development.

Why is this important?

The number of women smoking in pregnancy is decreasing in high-income countries, where it is associated with poverty, but is increasing in low- to middle-income countries. Non-pharmacological interventions that address mental, emotional or social factors are known as psychosocial interventions. We set out to identify the evidence on the effectiveness of the various psychosocial interventions to support pregnant women to stop smoking.

What evidence did we find?

The review includes 102 randomised controlled trials with 120 intervention arms (studies) and data from 88 randomised controlled trials (involving over 28,000 women). The main intervention strategies were categorised as counselling (n = 54), health education (n = 12), feedback (n = 6), incentives (n = 13), social support (n = 7) and exercise (n = 1).

Our review provided moderate- to-high quality evidence that psychosocial interventions increased the proportion of women who had stopped smoking in late pregnancy (by 35%) and mean infant birthweight (by

Cochrane New Zealand
Department Obstetrics and Gynaecology
University of Auckland, Private Bag 92019
Auckland, 1142
New Zealand

T (+64) 09 9239490
E v.jordan@auckland.ac.nz

56 g), and reduced the number of babies born with low birthweight (by 17%) and admitted to neonatal intensive care immediately after birth (by 22%). The psychosocial interventions did not appear to have any adverse effects. For some findings there were unexplained differences between studies and some studies were small, reducing our confidence in their results. Nearly all studies were conducted in high-income countries.

Counselling interventions had a clear effect on stopping smoking compared with providing usual care (from 30 studies), and a smaller effect when compared with less intensive interventions (18 studies). No clear effect was seen with counselling provided as one component of a broader intervention to improve maternal health or comparing one type of counselling with another. Interventions that provided feedback had a clear effect when compared with usual care and when combined with other strategies such as counselling (two studies), but not when compared with less intensive interventions (three studies). Interventions based on financial incentives had a clear effect when compared with an alternative like a non-contingent incentive intervention (four studies).

Health education was not clearly effective when compared with usual care (five studies), or when it was one component of a broader maternal health intervention. Social support interventions were not clearly effective when provided by peers (six studies) or in a single trial of support provided by partners; or when social support for smoking cessation was provided as part of a broader intervention to improve maternal health. In single studies, exercise and dissemination of counselling did not have a clear effect compared to usual care.

The pooled effects were similar for interventions provided to women who were poor. A clear effect was also seen with interventions among women from ethnic minority groups, but not among indigenous women (four studies). Pooled results suggest that interventions in pregnancy can also reduce smoking cessation after birth.

The effects on preterm births (19 studies) and stillbirths (eight studies) were unclear.

What does this mean?

Counselling, feedback and financial incentives appear to reduce the number of women smoking in late pregnancy, however the interventions and the context of the interventions need to be carefully considered. The effect of health education and social support is less clear. Most of the studies were carried out in high-income countries making it difficult to assess if the findings are applicable to other contexts. The intensity of support women received in both the intervention and comparison groups has increased over time. Many of the studies did not provide information on the number of individual women who were eligible for inclusion or were approached to take part in studies, which would have provided useful information about the general acceptability of the interventions and selection bias in the studies. The timing of the final assessment of smoking status during pregnancy also varied considerably among the studies. New trials have been published during review preparation will be included in the next update.

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Cochrane New Zealand
Department Obstetrics and Gynaecology
University of Auckland, Private Bag 92019
Auckland, 1142
New Zealand

T (+64) 09 9239490
E v.jordan@auckland.ac.nz

Upright or recumbent positions in late labour for women using an epidural for pain relief in labour

Authors: Kibuka M, Thornton JG

What is the issue?

We want to find out whether different birthing positions (upright or lying down) during the second stage of labour for women with epidurals affect outcomes for the women and babies. For the women this includes whether they need a caesarean section, instrumental birth or need suturing following tears to the perineum, and for the babies, whether they cope well with labour or need admission to special care baby unit. This is an update of a Cochrane review first published in 2013.

Why is this important?

An epidural is the most effective method for pain relief during labour. It is often used by women even though it can make labour longer and increase the need for forceps and ventouse (vacuum) birth. Instrumental deliveries are associated with the possibility of the woman developing prolapse, urinary incontinence, or painful sexual intercourse. Low-dose epidural techniques, also known as 'walking' epidurals, mean that women can still be mobile during their labour. Some experts have suggested that taking an upright position in late labour (such as standing, sitting, squatting) will reduce these negative effects of an epidural.

What evidence did we find?

We searched for evidence in September 2016. No new studies were included in this updated review as a result of the updated search.

Five randomised controlled trials, involving 879 women, comparing upright positions versus recumbent (lying down) positions were already included in the review. Four trials took place in the UK and one was conducted in France. Three of the five trials were funded by the hospital departments in which the trials were carried out. Funding sources for the other trials were either unclear (one trial) or not reported (two trials). All the trials were assessed as being at low or unclear risk of selection bias. None of the trials blinded women, staff or outcome assessors. The methodological quality of one trial was poor.

Overall, upright or recumbent position made no difference to which women had an operative birth (caesarean or instrumental vaginal) (moderate-quality evidence), or how long they had to push before the baby was born (very low-quality evidence). We did not find any clear differences in any other important maternal or fetal outcomes, including tears which needed suturing (very low-quality evidence), instrumental births due to abnormal heart patterns of the unborn baby (very low-quality evidence), too much acid in the cord blood (very low-quality evidence) or babies needing admission to neonatal intensive care unit (very low-quality evidence). However, due to the nature of the results, clinically important effects have not been ruled out.

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Cochrane New Zealand
Department Obstetrics and Gynaecology
University of Auckland, Private Bag 92019
Auckland, 1142
New Zealand

T (+64) 09 9239490
E v.jordan@auckland.ac.nz

There were no data reported on blood loss (greater than 500 mL), very long second stage or the women's experiences and satisfaction with labour. Similarly, there were no useful data on Apgar scores, and no data reported on babies dying or needing help to breathe.

What does this mean?

The five randomised controlled trials (involving 879 women) evaluated in this review do not show a clear effect of any upright position compared with a lying down position. The trials are small however, and cannot rule out any small important benefits or harms, so women should be encouraged to take up the position they prefer. More evidence is needed (two studies are ongoing and will be incorporated into this review in a subsequent update). Future, high-quality trials should involve larger numbers of women and ensure that the positions under study are acceptable to women.

Breastfeeding education and support for women with multiple pregnancies

Authors: Whitford HM, Wallis SK, Dowswell T, West HM, Renfrew M

What is the issue?

Breastfeeding has many benefits that include protecting the baby against inflammatory diseases of the gut, lungs or ears, and longer term health problems such as diabetes and obesity, improved cognitive outcomes, and protecting the mother against breast cancer. Rates of breastfeeding are lower in women who have given birth to more than one baby than for women who have a single baby. However, there are challenges to overcome in breastfeeding multiples (twins, triplets or more). Education and support have been found to increase the number of women who start breastfeeding and improve the duration of any breastfeeding for single healthy term babies. This education and support may come from lay workers or from health professionals. It could be given in preparation for birth or once the babies arrive.

Mothers who have more than one baby have many additional challenges to overcome to breastfeed their babies and they may need additional advice and support. They have extra demands of frequent suckling, coordinating the potentially differing needs of more than one baby, or the need to express milk and to feed different babies by different feeding methods. The mothers have a greater likelihood of giving birth preterm and their babies being admitted to the neonatal intensive care unit, which can lead to delayed starting or early stopping of breastfeeding.

Why is this important?

Breastfeeding helps babies' health and development. Giving birth to more than one baby poses additional challenges for a mother planning to breastfeed. The mothers are also more likely to have to consider options such as breast milk expression, the use of donor milk or fortification of the milk and different methods of supplementary feeding. Some mothers may prefer feeding expressed breast milk because they can be certain

Cochrane New Zealand
Department Obstetrics and Gynaecology
University of Auckland, Private Bag 92019
Auckland, 1142
New Zealand

T (+64) 09 9239490
E v.jordan@auckland.ac.nz

about the volume of milk being fed and as a way of allowing others to assist with feeding. We wanted to find out if education and support helps mothers of multiples to breastfeed.

What evidence did we find?

We searched for randomised controlled trials on 30 June 2016 and 1 July 2016 and found 10 studies (23 reports) to include in our review. All the studies were of education and support for all mothers, not just those giving birth to more than one baby, which introduced methodological issues for looking specifically at multiple births. Trials recruited 5787 women (this included 512 women interviewed as part of a cluster randomised trial). The number of babies from multiple pregnancies was small and none of the studies had sufficient numbers to provide information about how interventions worked for mothers of multiples. There were several problems with how the studies had been done, including women knowing if they were in the group getting support.

The authors of two of the studies sent us their findings for women with multiple births (42 women in total). The trials compared home nurse visits versus usual care (15 women), and telephone peer counselling versus usual care (27 women). They looked at the number of women stopping any or exclusive breastfeeding before four weeks after giving birth and before six months, without any clear improvements provided by the intervention. All 15 women in one study and 25 out of 27 women in the other had started breastfeeding. There was no information on breast milk expression. Other outcome measures were reported, including a measure of maternal satisfaction in one study of 15 women, but there were not sufficient numbers to allow us to draw any conclusions. No adverse events were reported.

What does this mean?

We could not draw conclusions from the evidence available from randomised controlled trials about whether education and support helps mothers of multiples to breastfeed. None of the studies were designed to offer tailored support or education to women who give birth to more than one baby. More research is needed to find out what types of education and support could help mothers of multiples to breastfeed their babies. Data from these studies should be presented and analysed in an appropriate way for multiple babies.

Support for breastfeeding mothers

Authors: McFadden A, Gavine A, Renfrew M, Wade A, Buchanan P, Taylor JL, Veitch E, Rennie A, Crowther SA, Neiman S, MacGillivray S

What is the issue?

The World Health Organization recommends that infants should be breastfed exclusively until six months of age with breastfeeding continuing as an important part of the infant's diet until he or she is at least two years old. We know that breastfeeding is good for the short-term and long-term health of both infants and their

Cochrane New Zealand
Department Obstetrics and Gynaecology
University of Auckland, Private Bag 92019
Auckland, 1142
New Zealand

T (+64) 09 9239490
E v.jordan@auckland.ac.nz

mothers. Babies are less likely to develop infections in the digestive tract, lungs or airways, and ears. They are also less likely to become overweight and develop diabetes later in life. The mothers are less likely to develop diabetes and to experience breast or ovarian cancer. Many mothers may stop breastfeeding before they want to as a result of the problems they encounter. Good care and support may help women solve these problems so that they can continue to breastfeed.

Why is this important?

By knowing what kind of support can be provided to help mothers with breastfeeding, we can help them solve any problems and continue to breastfeed for as long as they want to, wherever they live. Stopping breastfeeding early may cause disappointment and distress for mothers and health problems for themselves and their infants. Support can be in the form of giving reassurance, praise, information, and the opportunity for women to discuss problems and ask questions as needed. This review looked at whether providing extra organised support for breastfeeding mothers would help mothers to continue to breastfeed when compared with standard maternity care. We were interested in support from health professionals including midwives, nurses and doctors, or from trained lay workers such as community health workers and volunteers.

What evidence did we find?

We searched for evidence on 29 February 2016 and identified a further 31 new trials for inclusion in the review. This updated review now includes 100 randomised controlled studies involving more than 83,246 women. The 73 trials that contributed to the analyses were from 29 countries and involved 74,656 women. Some 62% of the women were from high-income countries, 34% from middle income countries and 4% from low-income countries

All forms of extra organised support analyzed together showed an increase in the length of time women continued to breastfeed, either with or without introducing any other types of liquids or foods. This meant that fewer women stopped any breastfeeding or exclusively breastfeeding (moderate quality evidence) before four to six weeks and before six months. Both trained volunteers and doctors and nurses had a positive impact on breastfeeding.

Factors that may have contributed to the success for women who exclusively breastfed were face-to-face contact (rather than contact by telephone), volunteer support, a specific schedule of four to eight contacts and high numbers of women who began breastfeeding in the community or population (background rates).

The term 'high-quality evidence' means that we are confident that further studies would provide similar findings. No outcome was assessed as being 'high-quality'. The term 'moderate-quality evidence' means that we found wide variations in the findings with some conflicting results in the studies in this review. New studies

Cochrane New Zealand
Department Obstetrics and Gynaecology
University of Auckland, Private Bag 92019
Auckland, 1142
New Zealand

T (+64) 09 9239490
E v.jordan@auckland.ac.nz

of different kinds of support for exclusive breastfeeding may change our understanding of how to help women to continue with exclusive breastfeeding.

The methodological quality of the studies was mixed and the components of the standard care interventions and extra support interventions varied a lot and were not always well described. Also, the settings for the studies and the women involved were diverse.

What does this mean?

Providing women with extra organised support helps them breastfeed their babies for longer. Breastfeeding support may be more helpful if it is predictable, scheduled, and includes ongoing visits with trained health professionals including midwives, nurses and doctors, or with trained volunteers. Different kinds of support may be needed in different geographical locations to meet the needs of the people within that location. We need additional randomised controlled studies to identify what kinds of support are the most helpful for women.

Is it better for the baby to be born immediately or wait for labour to start if the waters break without contractions before 37 weeks of pregnancy?

Authors: Bond DM, Middleton P, Levett KM, van der Ham DP, Crowther CA, Buchanan SL, Morris J

What is the issue?

If a pregnant woman's waters break without contractions before 37 weeks of pregnancy there are two options: for the baby to be born as soon as possible, or to wait for labour to start naturally. We need to carefully look at the risks and benefits of both options.

Why is this important?

Being born too early can increase the chance of problems linked to prematurity, such as breathing difficulties and longer stays in the neonatal intensive care unit. However, staying in the womb may cause infections for both mother and baby that can lead to serious health problems and even death. This review aims to find out which is the best option.

What evidence did we find?

We included 12 trials that involved 3617 women with preterm prelabour rupture of the membranes. Women were randomly selected to either early birth or expectant management (wait for birth).The women were between 25 to 37 weeks of pregnancy. The studies happened in 16 countries between 1977 and 2013. Overall, the 12 studies were assessed as being at low or unclear risk of bias and the evidence was of moderate to high quality.

We found no difference in the rate of infant infection or infant death before birth between the two groups. However, early birth increased the risk of infant death after birth, as well as breathing problems, with the

Cochrane New Zealand
Department Obstetrics and Gynaecology
University of Auckland, Private Bag 92019
Auckland, 1142
New Zealand

T (+64) 09 9239490
E v.jordan@auckland.ac.nz

newborn needing extra help to breathe. The babies of women who had a planned early birth were more likely to be admitted to neonatal intensive care, and were born earlier than babies of women who waited to give birth. Early birth also increased the rate of caesarean section, induction of labour and the risk of infection of the lining of the womb but decreased the risk of infection in the membranes. Women had a longer hospital stay if they were randomised to waiting.

What does this mean?

In women whose waters break before 37 weeks of pregnancy, waiting for labour to begin naturally is the best option for healthier outcomes, as long as there are no other reasons why the baby should be born immediately.

Iodine supplementation for women before, during or after pregnancy

Authors: Harding KB, Peña-Rosas J, Webster AC, Yap CMY, Payne BA, Ota E, De-Regil L

What is the issue?

It is estimated that over 1.8 billion people worldwide do not get enough iodine in their diet, putting them at risk of iodine deficiency. Iodine is an essential nutrient needed in small amounts for the body to make thyroid hormones. The World Health Organization (WHO) recommends that iodine is added to salt to prevent problems caused by lack of iodine. Women who are pregnant or breastfeeding need extra iodine, which puts them at greater risk of deficiency. The breast milk contains iodine for the infant.

Why is this important?

Thyroid function is increased during pregnancy as thyroid hormones produced by the mother (and the baby as the pregnancy progresses) are essential for growth and development of the baby and to regulate the development of the brain and nervous system. Nervous tissue begins to develop as early as the second month of pregnancy. If women have too little iodine during pregnancy or infants have too little during early childhood, the damage may be irreversible. Research has shown that severe iodine deficiency can stunt children's normal physical growth as well as harm normal mental development, resulting in lower intelligence quotients. Less is known about the consequences of mild or moderate deficiency. Too much iodine can also cause harm and have negative effects on mothers and babies, for example by causing the thyroid to become overactive. Although salt is the commonly the main source of iodine, expert medical groups recommend that women in many countries take iodine supplements during and following pregnancy to help ensure their iodine needs are met.

What evidence did we find?

We searched for evidence in November 2016 and identified 14 randomised controlled trials of iodine supplements in the form of tablets, capsules, drops or injections before, during or after pregnancy. Eleven trials

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Cochrane New Zealand
Department Obstetrics and Gynaecology
University of Auckland, Private Bag 92019
Auckland, 1142
New Zealand

T (+64) 09 9239490
E v.jordan@auckland.ac.nz

with over 2700 women contributed findings to the review. Eight trials compared iodine with no treatment or a placebo and three trials compared iodine given with other vitamins and minerals against only the vitamins and minerals.

Women who received iodine supplements were less likely to develop the unwanted effect of hyperthyroidism (an overactive thyroid gland) after giving birth (three trials involving 543 women) but they were more likely to experience nausea or vomiting during pregnancy (one trial involving 76 women) when compared to those who did not receive iodine. One trial (365 women) did not find any difference in the number of women with an overactive thyroid gland during pregnancy. The number of women with an underactive thyroid gland (hypothyroidism) was not clearly different either during pregnancy (one trial involving 365 women) or after giving birth (three trials involving 540 women) when iodine supplements were given. A similar number of women had raised thyroid antibodies during pregnancy (one trial, 359 women) and after giving birth (three trials, 397 women). We found no clear differences between women given iodine supplements and those not when looking at preterm births (two trials, 376 women) or deaths around the time of giving birth (two trials, 457 women), babies born with a low birthweight (two trials, 377 babies), newborn babies with an underactive thyroid gland (two trials, 260 babies) or with raised thyroid antibodies (one trial, 108 babies).

The quality of the evidence was low to very low, mostly because few trials looked at each outcome or because of limitations in the study designs. Most of the findings were from one or two trials and small numbers of women were included. This means we are not confident in the results.

What does this mean?

The potential benefits and harms of any intervention must be weighed as part of deciding whether to use it. Our Cochrane Review provides a summary of the evidence but there were not enough data for any meaningful conclusions on the benefits and harms of routine iodine supplementation in women before, during or after pregnancy. The limited information we found suggests there are benefits and risks of iodine supplementation. More research will clarify the effects and safety of this intervention. Future research should use randomised controlled trial designs where practical and ethical, and include the outcomes from this review.

What is the most effective way to listen intermittently to the baby's heart in labour to improve the baby's well-being?

Authors: Martis R, Emilia O, Nurdiati DS, Brown J

What is the issue?

One method of monitoring a baby's well-being is to listen to the fetal heart rate and its pattern intermittently during labour (intermittent auscultation). There are several ways that the baby's heart rate can be measured. Some tools for listening to the baby's heart are made from wood, plastic or aluminium (Pinard, Laennec and

Cochrane New Zealand
Department Obstetrics and Gynaecology
University of Auckland, Private Bag 92019
Auckland, 1142
New Zealand

T (+64) 09 9239490
E v.jordan@auckland.ac.nz

fetoscope), and there are also electronic tools of varying sophistication, including hand-held (battery or wind-up operated) Doppler ultrasound (Doppler) and cardiotocogram (CTG), which is sometimes referred to as electronic fetal monitoring (EFM).

Why is this important?

The aim of monitoring is so that babies in difficulty can be accurately identified and interventions (such as caesarean section or instrumental vaginal birth) can be used to improve outcomes for the baby.

What evidence did we find?

We wanted to look at which types listening tools and timing for intermittent auscultation are most effective. We considered hand held listening devices, e.g. hand-held Dopplers and various Pinard stethoscopes. We searched for studies (19 September 2016) and found three randomised controlled studies from Africa, involving 6241 women in established labour. Data from one of the studies were inconsistent and we were unable to include them in the results. This means 3242 women and their babies were included in the analyses. The results of the studies may have been biased as it was not possible to blind women and staff, and the overall the quality of the evidence was judged to be of moderate to very low quality.

One study compared intermittent EFM with routine Pinard and showed no clear difference between groups in low baby Apgar scores at five minutes after the birth (*very low-quality evidence*) or in perinatal mortality (*low-quality evidence*) although neonatal seizures were reduced in the EFM group (*low-quality evidence*). Other important infant outcomes (such as cerebral palsy) were not reported. Women who had intermittent EFM had higher rates of caesarean section for fetal distress (*moderate-quality evidence),* but there was no clear difference between groups in instrumental vaginal births (*low-quality evidence*). Other important outcomes for women were not reported (maternal mortality, analgesia in labour, mobility or restriction during labour, and postnatal depression).

Two studies compared Doppler ultrasonography with routine Pinard. There was no clear difference between groups in low Apgar scores at five minutes after birth (*very low-quality evidence*) or for perinatal mortality (*very low-quality evidence*), or neonatal seizures (*very low-quality evidence*). Other important infant outcomes were not reported. Only one study reported outcomes for women. Those that had Doppler ultrasonography had higher rates of caesarean section for fetal distress compared with routine Pinard (*moderate-quality evidence*). There was no clear difference in instrumental vaginal births between groups (*low-quality evidence*). Other maternal outcomes were not reported.

One trial compared intensive Pinard (a research midwife in a one-to-one care situation) with routine Pinard (the midwife may have been caring for more than one woman in labour). There was no clear difference between groups in low Apgar scores (*very low-quality evidence*), perinatal mortality (*very low-quality evidence*),

Cochrane New Zealand
Department Obstetrics and Gynaecology
University of Auckland, Private Bag 92019
Auckland, 1142
New Zealand

T (+64) 09 9239490
E v.jordan@auckland.ac.nz

or neonatal seizures (*very low-quality evidence*)). Other infant outcomes were not reported. For women, there were no clear differences between groups for caesarean section or instrumental delivery (both *low-quality evidence*)) Other outcomes were not reported.

What does this mean?

As intermittent EFM and Doppler were associated with higher rates of caesarean sections compared with routine Pinard monitoring, women, health practitioners and policy makers need to consider these results in the absence of evidence of short- and long-term benefits for the mother or baby.

Large high-quality studies comparing different monitoring tools and timing for intermittent auscultation are needed. Studies should assess both short- and long-term health outcomes, and should collect information on women's views.

Monitoring pregnant women at home for detecting preterm labour

Authors: Urquhart C, Currell R, Harlow F, Callow L

What is the issue?

Babies who are born too early are more likely to become ill or die. If preterm labour is detected, treatment can start to slow down or stop labour. This also gives time for treatment to improve the baby's breathing at birth. Increased contractions can be a sign of labour starting early.

Why is this important?

Many women do not recognise these contractions in time for treatment. Pregnant women at risk of giving birth early could use a monitoring device at home. This would send data to the hospital, and help doctors and midwives to detect and treat preterm labour.

What evidence did we find?

We searched for evidence on 28 June 2016 and found 15 randomised studies, involving 6008 women. Thirteen of these studies provided data we could use. The quality of results ranged from very low to high (GRADE). Most studies had design limitations, which in some were serious. Most studies compared women taught how to check for signs of premature labour with women who were also given a home uterine activity monitor. In some studies both groups used a monitor but one group had a 'sham' monitor that did not actually send the data to the women's healthcare providers.Using a monitor at home made very little difference to many of the outcomes for mother or baby, although not all studies measured all outcomes. Women using monitors were no less likely to experience preterm birth at less than 37 or 32 weeks of pregnancy (GRADE very low). Women using monitors were less likely to experience preterm birth at less than 34 weeks, but when we analysed only high-quality studies, no clear difference remained (GRADE high). Babies born to women using the monitor were less

Cochrane New Zealand
Department Obstetrics and Gynaecology
University of Auckland, Private Bag 92019
Auckland, 1142
New Zealand

T (+64) 09 9239490
E v.jordan@auckland.ac.nz

likely to be admitted to neonatal intensive care (GRADE moderate) but there were no fewer deaths (GRADE low). Women using the monitor were more likely to make an unscheduled antenatal visit (GRADE moderate), but the number of antenatal hospital admissions did not differ (GRADE low). Women using monitors appeared to be more likely to receive tocolysis (treatment to stop labour) (GRADE low), but when we looked only at high-quality studies there was no clear difference. We found no data to assess women's views, although one large trial reported low compliance with monitor use. In some studies, women with monitors had more contact with midwives or maternity nurses, but it is unclear what effect this had.

What does this mean?

Home uterine monitoring may result in fewer admissions to a neonatal intensive care unit, but more unscheduled antenatal visits and treatment for preterm labour. The level of evidence is generally low to moderate.

If you have any questions or comments with regard to the above document please feel free to contact me.

Kind regards

Dr Vanessa Jordan PhD

New Zealand Cochrane Fellow
Cochrane New Zealand
Academic Co-ordinator: PoplHlth 711: Systematic reviews and Meta Analysis
Department Obstetrics and Gynaecology
Auckland University
Private Bag 92019
Auckland 1142
New Zealand
Ph. +64 9 9239490
Fax +64 9 303 5969
Mobile: 027 540 2212
E-mail: v.jordan@auckland.ac.nz