

Reduced Fetal Movements (RFM) in Pregnancy Guideline

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December 2021



LMNS

**Greater Manchester
and Eastern Cheshire**
Local Maternity and Neonatal System

Part of Greater Manchester
Integrated Care Partnership



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Document Control

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1 What is this Guideline for and who should use it?

The purpose of this guideline is to provide a standardised pathway across Greater Manchester and Eastern Cheshire for pregnant women presenting to maternity services after perceiving reduced fetal movements (RFM). It also aims to standardise information given to women about fetal movements.

This guideline is intended to be used by maternity care professionals including obstetricians, midwives and ultrasonographers.

2 What do I need to know?

Maternal perception of fetal movement is one of the first signs of fetal life and is regarded as a manifestation of fetal wellbeing. A significant reduction or sudden alteration in fetal movements is a potentially important clinical sign and can be a concern for both the mother and those providing care for her pregnancy. It has been suggested that reduced or absent fetal movements may be a warning sign of fetal compromise, which if not investigated may lead to fetal death. The significance of exaggerated fetal movements is currently less clear.

The importance of providing accurate information for mothers about fetal movements and acting upon RFM has been highlighted by two Confidential Enquiries into antepartum stillbirth conducted 15 years apart (Confidential Enquiry into Stillbirths and Deaths in Infancy 2001, Draper, Kurinczuk et al. 2015). Two Cochrane reviews highlight the lack of evidence surrounding the best way to monitor fetal movements and the management strategy employed when women perceive RFM (Hofmeyr and Novikova 2012, Mangesi, Hofmeyr et al. 2015). However, current management is based on the best-available evidence synthesized in RCOG guideline (Royal College Of Obstetricians and Gynaecologists 2011). This guidance is based upon the evidence reviewed in that guideline.

Maternal perception of RFM affects up to 15% of pregnancies (Sergent, Lefevre et al. 2005). Importantly, the majority (70%) of these mothers will have a normal pregnancy outcome (O'Sullivan, Stephen et al. 2009). Up to 29% of the women complaining of Reduced Fetal Movements (RFM) have a small-for-gestational-age baby and there is an increased risk of subsequent stillbirth (O'Sullivan, Stephen et al. 2009, Dutton, Warrander et al. 2012, Scala, Bhide et al. 2015).

Randomized controlled trial evidence does not support the routine use of formal fetal movement counting (Grant, Elbourne et al. 1989); women should be made aware of the importance of becoming familiar with their baby's pattern of moving, and to report any change as soon as possible.

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3 What is the Guideline?

A wide range of conditions are associated with maternal perception of RFM:

- Intrauterine death
- Fetal sleep
- Congenital fetal malformations (e.g. neurological, musculoskeletal)
- Fetal anaemia or hydrops
- Acute or chronic fetal compromise resulting from placental insufficiency leading to:
 - Oligohydramnios
 - Fetal growth restriction
- Polyhydramnios
- Anterior placenta (before 28/40)
- Maternal sedating drugs that cross the placenta (e.g. alcohol, benzodiazepines, barbiturates, methadone, narcotics)
- Smoking
- Administration of corticosteroids for enhancement of lung maturity
- A busy mother who is not concentrating on fetal activity
- Acute or chronic fetomaternal haemorrhage

3.1 Physiology

Fetal movements are generally perceived by the mother from 16-24 weeks of gestation. Multiparous women may notice movements earlier (16 weeks); primiparous women later (20-24 weeks). From 16-24 weeks onwards, a pregnant woman should feel the baby move more and more up until 32 weeks, then stay roughly the same until she gives birth. The mother should CONTINUE to feel her baby move right up to the time she goes into labour and fetal movements may continue to be perceived whilst she is in labour too.

RFM is a marker for fetal compromise, this is thought to represent a fetal response to chronic hypoxia by conserving energy, with the subsequent reduction of fetal movements is an adaptive mechanism to reduce oxygen consumption (Maulik 1997). It is recognised that intrauterine death is preceded by cessation of fetal movements for ≥ 24 hours (Stacey, Thompson et al. 2011, Heazell, Budd et al. 2018). Between 40-55% women with stillbirth experience RFM prior to diagnosis of intrauterine fetal death (Efkarpidis, Alexopoulos et al. 2004).

3.2 Definition of RFM

Here RFM is defined as maternal perception of reduced or absent fetal movements. There is no set number of normal movements. Usually a fetus will have its own pattern of movements that the mother should be advised to get to know.

There is no established definition of recurrent episodes of RFM. For the purposes of this guideline, a consensus of 2 or more episodes of RFM occurring within a 21-day period after 26 weeks' gestation was agreed.

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3.3 Advice

Women should be informed about fetal movements during their pregnancy. An example of advice given in pregnancy may be:

There is no set number of normal movements and every pregnancy is different- usually **your baby will have their own pattern of movements that you should get to know.**

It is **NOT TRUE** that babies move less often towards the end of pregnancy.

From 16-24 weeks on you should feel the baby move more and more up until 32 weeks then movements should stay roughly the same until you give birth.

After 20 weeks of pregnancy it is important to be aware of the baby's activity.

You should **CONTINUE** to feel your baby move right up to the time you go into labour.

A change, especially a reduction in movements, may be a warning sign that the baby is not well and needs checking. You must **NOT WAIT** until the next day to seek advice if you are worried about your baby's movements.

[Refer to NHSE RFM Leaflet](#)

All women should be given the NHSE Leaflet in the appropriate language before 24 completed weeks' gestation, the leaflet should be easily accessible in women's hand –held notes.

3.4 Ask

At relevant antenatal contacts professionals should ask women and document whether they have normal perception of fetal movements. Women should be advised to be aware of their baby's individual pattern of movements. If they experience reduced or cessation of fetal movements they should contact their midwife or the maternity unit promptly (explain it is staffed 24 hrs, 7 days a week).

3.5 Assess

All reports of reduced/absent fetal movements should be taken seriously and explored. If a woman reports reduced/absent movement she should not be told to wait for two hours and monitor movements before presenting.

Women reporting no fetal movements should be seen as soon as possible.

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Basic assessment on first presentation should include:

- A detailed history including gestation at presentation, smoking status and CO level.
- Assessment of risk factors for Fetal Growth Restriction or Stillbirth in this or previous pregnancy – e.g. consider women eligible for the SGA pathway (smoking, previous stillbirth, previous SGA baby, SFH <10th centile, maternal medical conditions, raised uterine artery PI in second trimester)
- Record maternal blood pressure, pulse rate, temperature, and urinalysis. Abdominal palpation and measurement of symphysis fundal height (SFH) and plotting on a customised SFH chart if not done in the last two weeks unless on SBL scan pathway and scans have started.
- Fetal heart assessment (auscultation less or equal to 25+6 weeks gestation and for CTG if 26 weeks or over)

Table 1 – Risk factors for adverse outcome after maternal presentation with RFM

Factor	Odds Ratio	Reference
Cigarette smoking	2.0	Dutton et al. 2012
Past Obstetric History of SGA baby or stillbirth	2.1	O’Sullivan et al. 2009
Past Medical History (e.g. Diabetes/Hypertension)	3.0	O’Sullivan et al. 2009
Recurrent presentation with RFM (≥2)	1.9	O’Sullivan et al. 2009
	8.0	Scala et al. 2015
Symphysis-fundal height <10 th centile	19.5	O’Sullivan et al. 2009
Raised uterine artery PI in 2 nd trimester	5.7	Scala et al. 2015

* Some risk factors for stillbirth in the general population e.g. nulliparity are not included in this list because they were not associated with increased risk of adverse outcome after RFM. Professionals should still assess each case individually.

Please use the Reduced Fetal Movement proforma and manage according to the flow chart in [Appendix 1](#).

3.6 Act

All patients with RFM should be seen in a place where suitable management can be given. Women with abnormal results should be reviewed promptly by a senior obstetrician or midwife and a plan discussed with the mother.

If women are concerned about absent or reduced fetal movements before 26 weeks’ gestation then the fetal heart should be auscultated to confirm fetal viability. This could be undertaken in the community setting depending upon clinic / community midwife availability. If it cannot be facilitated in the community the woman should be seen in an appropriate hospital setting. If the fetal heart is present the woman can be reassured that it is quite normal for fetal movements to be irregular below 26 weeks.

NB. If a woman presents at any outlying ANDUs/ANCs and states **whilst she is present** there that she has Reduced Fetal Movements (RFM) – staff should perform a CTG if she is over 26 weeks’ gestation. If the CTG shows any abnormality, the woman should be transferred to a main hospital unit with obstetric and neonatal care.

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If there is any contact with a midwife or a woman telephones before arrival and RFM is discussed, the woman should attend an appropriate unit or satellite site where a CTG can be performed and protocols are in place for any abnormality to be acted upon promptly.

Management is dependent upon gestation at presentation

- Auscultate fetal heart (using hand-held Doppler/Pinard)
- Perform cardiotocograph (CTG) if 26 weeks or over, to assess fetal heart rate in accordance with national guidelines. Ideally, this should be a computerised CTG using Dawes-Redman criteria (Grivell, Alfirevic et al. 2012)
- If >26 weeks' gestation and risk factors are present for FGR/Stillbirth (See Table 1) or women are already on the SGA pathway then an ultrasound scan for assessment of fetal biometry, liquor volume and umbilical artery Doppler should be performed unless it has been performed in the preceding 3 weeks
- If the mother has had a normal growth scan in the preceding 3 weeks repeat a growth scan 3 weeks from the previous scan. If this scan is normal and FM are normal, no further scans are indicated to evaluate RFM.
- If the preceding growth scan was abnormal then an individualized care plan should be made following discussion with a senior obstetrician

Examples of indications for ultrasound assessment are:

- SFH < 10th centile (or decreasing fetal growth on customised growth chart)
- Oligohydramnios is suspected on abdominal palpation)
- 1st episode and identified risk factor for FGR/Stillbirth (see Table 1)
- Recurrent RFM (i.e. 2nd episode within 21 days) if less than 39/40
- The mother is over 39/40 gestation and the mother declines IOL or IOL will be delayed by >24 hours.
- Neither the midwife, obstetrician or woman herself are reassured by the initial assessment

Perform Ultrasound scan for growth, liquor volume assessment and umbilical artery Doppler on the day of referral unless out of hours and then on the next working day.

If on a bank holiday weekend extra surveillance with CTG might be considered.

If abnormalities are identified on CTG or ultrasound scan an individualized management plan should be developed following discussion with a senior obstetrician. Steroids should be given when preterm delivery is considered.

The AFFIRM study found that standardised management for RFM including ultrasound scan for fetal biometry, liquor volume and umbilical artery Doppler and planned delivery (by induction of labour or Caesarean section) for women with recurrent RFM after 37 weeks increased obstetric intervention and admission to neonatal unit, but did not reduce perinatal mortality. (*Norman JE et al. Sep 2018*).

Prior to 39 weeks gestation, induction of labour or operative delivery is associated with small increases in fetal morbidity. Thus, a decision for delivery needs to be based upon evidence of fetal compromise (e.g. abnormal CTG, estimated fetal weight <10th centile or oligohydramnios) or other concerns (e.g. concomitant maternal medical disease such as hypertension or diabetes) in addition to RFM.

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After 39 weeks gestation, induction of labour is not associated with an increase in Caesarean section, instrumental vaginal delivery, fetal morbidity or admission to the neonatal intensive care unit. Therefore, if the mother has recurrent RFM at or after 39 weeks, IOL should be offered if vaginal delivery is appropriate. If a mother has a single episode of RFM at or after 39 weeks, IOL could be offered if vaginal delivery is appropriate.

In all where IOL is discussed women should be made aware of the process and the possible benefits and risks of IOL in that context. Information to aid this discussion is contained in [Appendix 6](#).

3.7 Advise

Convey results of investigations to the mother. Record all advice given. Women should be asked to re-attend if further reductions in fetal movements at any time.

3.8 Act again

Check that the woman still has the RFM leaflet for future reference.

4 Increased Fetal Movements

On some occasions women may interact with maternity services because they are concerned about increased or excessive fetal movement. There are not many research studies to inform care when women report increased or excessive fetal movement. Data from retrospective case-control studies suggests that perception of a single presentation of exaggerated fetal movements is more frequent in women who have a stillbirth. The words women used to describe this exaggerated movement is “crazy” or like a seizure (Stacey et al. 2011, Heazell et al. 2017, Heazell et al. 2018). Women may then report absent movements. In contrast, two studies (one from China and another from the UK) indicate that women attending maternity services for increased fetal movements do not have an increased risk of stillbirth or other adverse outcomes (Huang et al. 2019, Sharp et al. 2021).

Advise

If a pregnant woman reports ongoing increased fetal activity she can be reassured that this is not associated with problems for her or her baby. Women who had repeated episodes of increased movement had a lower risk of stillbirth (aOR 0.66, 95% CI 0.46–0.93) (CL Whitehead et al)

Act

If a woman reports a period of very exaggerated fetal activity followed by a period of absent fetal movements or is expressing a high level of concern about her symptoms a CTG should be performed to exclude acute fetal compromise (over 26 weeks’ gestation) or the fetal heart auscultated prior to this gestation. If the CTG is normal, the woman can be discharged to her previous care pathway.

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5 How will we know that Regional RFM Guidance is being used effectively?

There should be an annual audit of the regional RFM guideline to evaluate compliance. This will be augmented by an annual survey of women's views about the information they receive. The audit should be undertaken on a minimum of 2 weeks cases or 20 case notes, whichever is the smaller number. The audit findings should be reported to the local governance meeting and to the SCN Saving Babies Lives' group. An example audit proforma is shown in [Appendix 5](#).

The audit standards are:

1. Fetal movements leaflet to be given to women by 24 weeks' gestation
2. Fetal movements to be discussed at every subsequent contact
3. Management of RFM is in accordance with the checklist, specifically:
 - i. Was a computerised CTG performed?
 - ii. Was an ultrasound scan for growth, liquor volume and Doppler performed if the mother had risk factors?
 - iii. Was induction of labour (IOL) or delivery offered according to the guideline?

Process measures are:

1. Proportion of women who present with RFM >24 hours
2. Proportion of women who have IOL (or delivery) for RFM as sole indication

Outcome measures:

1. Neonatal outcome (Live birth, Stillbirth, Neonatal Death)
2. NICU admission
3. Mode of delivery

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6 Abbreviations & definitions of terms used

Abbreviations	Definition
<	Less than
>	More than
≥	More than or equal to
AC	Abdominal circumference
AFFIRM	Awareness of Fetal movements and Focusing Interventions Reduce Fetal Mortality
AFI	Amniotic Fluid Index
RFM	Reduced Fetal Movements (RFM)
AN	Antenatal
ANC	Antenatal clinic
ANDU	Antenatal Day Unit
CESDI	Confidential Enquiry into Stillbirths and Deaths in Infancy
CTG	Cardiotocograph
DVP	Deepest Vertical Pool
EWS	Early Warning Score
FGR	Fetal Growth Restriction
IOL	Induction of Labour
IUGR	Intra Uterine Growth Restriction
LV	Liquor Volume
NHSE	NHS England
Outlying	Remote from centre
PAPP	Pregnancy-associated plasma protein
PET	Pre-eclampsia
SBL	Saving Babies' Lives
SFH	Symphysis Fundal Height
SGA	Small for Gestational Age
USS	Ultrasound

Appendix 1 - Quick Reference Sheet for Reduced Fetal Movements (RFM)

At presentation

- Take history/identify risk factors for adverse outcome after RFM (See Table 1)
- Maternal observations
- Palpate, measure and plot SFH on customised growth chart (if $\geq 26w$ and not measured for 3 weeks and not being scanned on SBL pathway)

>24 weeks - $\leq 25+6$

- Auscultate with Doppler for 1 min
- If FM NEVER felt by 24 weeks check anomaly scan performed and normal, if not arrange anomaly USS and consider referral to fetal medicine clinic for assessment of neuromuscular condition if no movements seen on USS.
- If all well reassure and resume normal antenatal care

26+0 - 38+6

- Perform CTG*
 - If normal CTG and no other risk factors (Table 1) resume planned antenatal care
 - If abnormal CTG refer to senior Obstetrician
- If risk factors for stillbirth or FGR present (or women on SGA pathway) perform ultrasound scan # on day of referral and review by senior Obstetrician unless there has been a normal scan within 3 weeks.
- If normal growth scan in the preceding 3 weeks, growth scan can be repeated 3 weeks from the previous scan.
- If a prior scan was abnormal (e.g. SGA baby) then perform scan for liquor volume and umbilical artery Doppler with review by senior Obstetrician.
- If presentation with RFM is out of hours/ at the weekend/ bank holiday, consider additional CTG's until scan performed if persistent concerns regarding fetal activity or maternal wellbeing

If abnormalities identified on investigations women should be reviewed and individualized management plan made
Ensure woman has information about presentation with further concerns

39+

- Perform CTG*
 - If abnormal CTG refer to senior Obstetrician
- If single episode of RFM then consider
 - Offering cervical assessment
 - Offering induction of labour (unless vaginal delivery inappropriate)
- If recurrent RFM then should:
 - Offer cervical assessment
 - Offer induction of labour (unless vaginal delivery inappropriate)
- Use Appendix 6 to guide discussion

Perform ultrasound scan if IOL not indicated or not taking place for $>24h^{\#}$

Offer IOL at any time if FM remain reduced

*Ideally Computerised CTG should be performed

#for fetal biometry (if not done within preceding 21 days), liquor volume and umbilical artery Doppler, otherwise do liquor volume and umbilical artery Doppler.

Appendix 2 - Equality Impact Assessment

Equality Impact Assessment for Reduced Fetal Movements (RFM) Guideline

To be completed by the Lead Author (or a delegated staff member)

For each of the Protected Characteristics & equality & diversity streams listed answer the questions below using Y to indicate yes and N to indicate no:	Age	Disability	Ethnicity / Race	Gender	Gender Reassignment	Marriage & Civil Partnership	Pregnancy & Maternity	Religion/belief	Sexual orientation	Human Rights	Carers	Please explain your justification
1. Does the practice covered have the potential to affect individuals or communities differently or disproportionately, either positively or negatively (including discrimination)?	N	N	N	Y	N	N	Y	N	N	N	N	Positive effect – for pregnant women
2. Is there potential for, or evidence that, the proposed practice will promote equality of opportunity for all and promote good relations with different groups?	Y	Y	Y	Y	N	N	Y	Y	Y	Y	N	All women will receive this management
3. Is there public concern (including media, academic, voluntary or sector specific interest) in the document about actual, perceived or potential discrimination about a particular community?	N	N	N	Y	N	N	Y	N	N	N	N	Media interest in Saving Babies' Lives
Your Name:	Your Designation:							Signed*:			Date:	

To be completed by the relevant Equality Champion following satisfactory completion & discussion of answers above with author

Equality Champion:	Directorate:	Signed*:	Date:

Appendix 3 - Checklist for Required Management of Reduced Fetal Movements (RFM)

Attendance with Reduced Fetal Movements (RFM)

Please initial and date when complete

1. Ask	
	Is there maternal perception of Reduced Fetal Movements (RFM)?
2. Assess	
	Are there risk factors* for Fetal Growth Restriction or Stillbirth? (see section 3.5)
	If low-risk for FGR or stillbirth measure fundal height and plot on chart. Consider – women eligible for SGA pathway and issues with access to care *Risk factors include: Cigarette smoking, Past Obstetric History of SGA baby or stillbirth, Past Medical History (e.g. Diabetes/Hypertension), Recurrent presentation with RFM (≥ 2), Symphysis-fundal height <10th centile, Raised uterine artery PI in 2nd trimester (if measured).
3. Act	
	Auscultate fetal heart (hand-held Doppler / Pinard)
	If ≥ 26 weeks' gestation perform cardiotocograph to assess fetal heart rate in accordance with national guidelines.
	If risk factors for FGR/Stillbirth, perform ultrasound scan for fetal growth, liquor volume and umbilical artery Doppler on the day of referral unless out of hours and then on the next working day. If on a bank holiday weekend extra surveillance with CTGs might be considered. See Flow Chart on in Appendix 1 .
4. Advise	
	Convey results of investigations to the mother. Mother should re-attend if further reductions in fetal movements at any time.
5. Act again	
	Check that the woman still has the RFM leaflet for future reference in an appropriate language

ASK ALL WOMEN TO ATTEND TRIAGE FOR ASSESSMENT AND FOLLOW THE CARE PATHWAY

If a woman presents at an outlying ANDUs/ANC, and states **whilst she is present** there that she has Reduced Fetal Movements (RFM) – staff will perform a CTG. However, if there is any contact with a midwife or telephone before arrival and Reduced Fetal Movements (RFM) are discussed, the woman should attend the main unit Assessment unit to allow for any CTG abnormality to be acted upon promptly.

IN THE EVENT OF ABSENT FETAL ACTIVITY Admit immediately for assessment / reassurance

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Appendix 4 - Information Leaflet



English



Feeling your baby move is a sign that they are well

Most women usually begin to feel their baby move between 16 and 24 weeks of pregnancy. A baby's movements can be described as anything from a kick, flutter, swish or roll. The type of movement may change as your pregnancy progresses.



How often should my baby move?

There is no set number of normal movements.

From 16-24 weeks on you should feel the baby move more and more up until 32 weeks then stay roughly the same until you give birth.



DO NOT WAIT until the next day to seek advice if you are worried about your baby's movements



It is **NOT TRUE** that babies move less towards the end of pregnancy or in labour.



You should **CONTINUE** to feel your baby move right up to the time you go into labour and whilst you are in labour too.

Get to know your baby's movements



Why are my baby's movements important?

A reduction in a baby's movements can be an important warning sign that a baby is unwell.

Around half of women who had a stillbirth noticed their baby's movements had slowed down or stopped.

If you think your baby's movements have slowed down or stopped, speak to your midwife or maternity unit **immediately** (midwives are available 24 hours a day 7 days a week). There is always a midwife available, even at night.



- **Do not** put off getting in touch with a midwife or your maternity unit.
- **Do not worry about phoning**, it is important you talk to a midwife or your maternity unit for advice even if you are uncertain. It is very likely that they will want to see you straight away.



What if my baby's movements become reduced again?

If, after your check up, you are still not happy with your baby's movement, you must contact either your midwife or maternity unit straight away, even if everything was normal last time.

NEVER HESITATE to contact your midwife or the maternity unit for advice, no matter how many times this happens. There are midwives on duty in the maternity unit 24 hours a day.



Do not use hand-held monitors, Dopplers or phone apps to check your baby's heartbeat.

Even if you detect a heartbeat, this does not mean your baby is well.

This leaflet is available in other languages: tommys.org/pregnancyresources



Find out more at tommys.org/pregnancy-hub

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Contact details

Sources and acknowledgements

The information in this leaflet is based on RCOG Green-top Guideline No. 57 *Reduced Fetal Movements* (2010) and RCOG Patient Information Leaflet *Your baby's movements in pregnancy: information for you* (2012).

Thank you to the following organisations for supporting the development of this leaflet:



Tommy's
Together, for every baby

Published: May 2020 | Next review: May 2023

tommys.org

Tommy's is registered charity no. 840308 and 3028900

Tommys patient information leaflet, published May 2020

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Appendix 5 – Proposed Reduced Fetal Movements Audit Proforma

1	How long did the mother have RFM for?	_____ Hours
2	What was the gestation at presentation?	Yes <input type="checkbox"/> No <input type="checkbox"/>
3	Was this the second (or more) episode of RFM within 21 days?	Yes <input type="checkbox"/> No <input type="checkbox"/>
4	Did the mother have any known Risk Factors? (e.g. Smoker, raised CO, previous SGA, previous FDIU, hypertension, symphysis fundal height below the 10th centile)	Yes <input type="checkbox"/> No <input type="checkbox"/>
5	Did this woman have a computerised CTG?	Yes <input type="checkbox"/> Non-computerised <input type="checkbox"/> No CTG <input type="checkbox"/>
6	Was this CTG within 2 hours of the woman arriving?	Yes <input type="checkbox"/> No <input type="checkbox"/>
7	Was the CTG pathological?	Yes <input type="checkbox"/> No <input type="checkbox"/>
8	Did this woman receive a scan for liquor volume and umbilical artery Doppler (and growth if less than 21 days since previous scan)	Yes <input type="checkbox"/> No <input type="checkbox"/>
9	Was the scan before the end of the next working day	Yes <input type="checkbox"/> No <input type="checkbox"/>
10	Was the ultrasound scan normal?	Yes <input type="checkbox"/> No <input type="checkbox"/>
11	Was this woman offered IOL?	Yes <input type="checkbox"/> No <input type="checkbox"/>
12	If yes, what was the indication for IOL (please state)	
13	Was offer of IOL accepted?	Yes <input type="checkbox"/> No <input type="checkbox"/>
14	Was induction commenced within 48hours?	Yes <input type="checkbox"/> No <input type="checkbox"/>
15	What was mode of birth?	Spontaneous vaginal delivery <input type="checkbox"/> Instrumental vaginal delivery <input type="checkbox"/> Caesarean section <input type="checkbox"/>
16	What was the neonatal outcome?	Live birth <input type="checkbox"/> Stillbirth <input type="checkbox"/> Neonatal Death <input type="checkbox"/>
17	Was the baby admitted to NICU?	Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown <input type="checkbox"/>

Appendix 6 – Discussion Aid

Information to Assist Discussion about Induction of Labour for Women with Reduced Fetal Movements

Investigations following maternal presentation with reduced fetal movements aim to detect acute fetal compromise (by cardiotocography) or evidence of placental dysfunction (by ultrasound scan). If these test results indicate an abnormality an appropriate plan should be made with the mother following consultation with a senior obstetrician.

When the results of investigations are normal the consequences of intervention need to be balanced against risks of stillbirth or perinatal death at that stage of pregnancy. Some relevant statistics are presented below to assist with discussions with mothers to plan their management. These statistics must be placed in the context of other risk factors for stillbirth e.g. maternal age >35, smoking, maternal medical conditions etc.

The risks of stillbirth (per 1,000 live births) are shown below for specific stages of late pregnancy (data taken from MBRRACE perinatal surveillance report, 2016). This shows that the risk of stillbirth at term is approximately 1 in 666 live births.

Gestation	Rate of Stillbirth	Rate of Perinatal Death
28 weeks 0 days – 31 weeks 6 days	77 per 1,000 live births <i>1 in 13 live births</i>	97 per 1,000 live births <i>1 in 10 live births</i>
32 weeks 0 days – 36 weeks 6 days	16 per 1,000 live births <i>1 in 63 live births</i>	20 per 1,000 live births <i>1 in 50 live births</i>
37 weeks 0 days – 41 weeks 6 days	1.5 per 1,000 live births <i>1 in 666 live births</i>	2 per 1,000 live births <i>1 in 500 live births</i>
42 weeks 0 days +	1 per 1,000 live births <i>1 in 1000 live births</i>	1.5 per 1,000 live births <i>1 in 666 live births</i>

Data suggest that a single episode of reduced fetal movements increases the risk of stillbirth by approximately 2-fold. Recurrent reduced fetal movements increase this risk further to over 5-fold.

The risk of a stillbirth following a single episode of reduced fetal movements after 28 weeks' gestation is 0.6% (1 in 166 pregnancies); this increased to 1.4% if women presented more than twice with RFM (1 in 71 pregnancies) (*Scala et al. Am JOG 2015*).

The risk of having a small for gestational age baby is 9.8% following a single episode of reduced fetal movements after 28 weeks' gestation (1 in 10 pregnancies); this increased to 44.2% if women presented more than twice with RFM to 1.4% (2 in 5 pregnancies) (*Scala et al. Am JOG 2015*).

The short-term benefits and risks of induction of labour also varying according to gestation.

In general, the risk of perinatal mortality (the baby being stillborn or dying within seven days of birth) decreases with induction of labour (Stock et al. BMJ 2012).

Gestation	Expectant Management	Induction of Labour
37 weeks	0.23% <i>1 in 435</i>	0.09% <i>1 in 1111</i>
38 weeks	0.20% <i>1 in 500</i>	0.08% <i>1 in 1250</i>
39 weeks	0.19% <i>1 in 526</i>	0.06% <i>1 in 1666</i>
40 weeks	0.18% <i>1 in 555</i>	0.08% <i>1 in 1250</i>
41 weeks	0.22% <i>1 in 454</i>	0.07% <i>1 in 1428</i>

However, at earlier stages of pregnancy the risk of Caesarean section increases. This is not the case after 39 weeks' gestation.

Gestation	Expectant Management	Induction of Labour
37 weeks	8.3% <i>1 in 12 women</i>	9.9% <i>1 in 10 women</i>
38 weeks	8.0% <i>1 in 12 women</i>	8.8% <i>1 in 11 women</i>
39 weeks	8.4% <i>1 in 12 women</i>	9.3% <i>1 in 11 women</i>
40 weeks	10.8% <i>1 in 9 women</i>	8.4% <i>1 in 12 women</i>
41 weeks	14.1% <i>1 in 7 women</i>	10.7% <i>1 in 9 women</i>

Similarly, there is a higher risk of baby being admitted to NICU/SCBU following intervention at an earlier stage of pregnancy. This is not the case after 39 weeks' gestation.

Gestation	Expectant Management	Induction of Labour
37 weeks	7.8% <i>1 in 13 babies</i>	17.6% <i>1 in 6 babies</i>
38 weeks	7.4% <i>1 in 14 babies</i>	11.3% <i>1 in 9 babies</i>
39 weeks	7.3% <i>1 in 14 babies</i>	9.3% <i>1 in 11 babies</i>
40 weeks	7.3% <i>1 in 14 babies</i>	8.0% <i>1 in 12 babies</i>
41 weeks	8.4% <i>1 in 12 babies</i>	6.6% <i>1 in 15 babies</i>

The lack of evidence for short term harms following IOL after 39 weeks' gestation is also supported by evidence from the ARRIVE trial of IOL at 39 weeks 'in low risk women which showed no different in Caesarean section (IOL 18.6% vs. Expectant 22%) and NICU admission (IOL 11.7% vs. Expectant 13.0%).

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