Introduction and Scope

This guideline is intended for the use of obstetric and midwifery staff involved in the care of pregnant women with a history of reduced fetal movements. (RFM) This guideline applies to care in both the community and the hospital setting. This guideline excludes the management of reduced fetal movements in multiple pregnancy. As is apparent from the low grading of the evidence for many of the recommendations, it has been developed to provide a broad practical guide for midwives and obstetricians in clinical practice. However, it is recognised that in individual women alternative approaches may be reasonable.

Legal Liability (standard UHL statement):

Guidelines issued and approved by the Trust are considered to represent best practice. Staff may only exceptionally depart from any relevant Trust guidelines providing always that such departure is confined to the specific needs of individual circumstances. In healthcare delivery such departure shall only be undertaken where, in the judgement of the responsible health professional’ it is fully appropriate and justifiable – such decision to be fully recorded in the patient’s notes.

Limitations of data used in this guideline

Interpreting studies of women perceiving RFM is complicated by multiple definitions of normal and abnormal fetal movements and a paucity of large-scale (over 1000 participants) descriptive or intervention studies. There are no randomised controlled trials addressing the management of RFM. The main outcome of interest – stillbirth – is relatively uncommon and adequately powered studies of different management protocols would require large numbers of participants. Consequently, many studies have limitations in terms of definition of RFM and outcomes, ascertainment bias and selection bias.
Recommendations

1. Women should be advised of the nature and individual pattern of fetal movements (FM) up to and including the onset of labour. Fetal movements should be assessed by subjective maternal perception of fetal movements.

2. Women should be advised that any reduction or complete lack of FM should be reported by the woman to the Community Midwife if less than 28 weeks gestation or Maternity Unit if 28 weeks gestation or more.

3. Women who are concerned about RFM must be advised not to wait until the next day for assessment of fetal wellbeing.

4. Upon presenting with RFM at any gestation, a full examination should be undertaken and where additional risk factors are present management should be individualised.

5. Women with a single episode of RFM before 28 weeks of gestation should have confirmation of viability with a Doppler hand held device.

6. Women who present with RFM at 28 weeks gestation or more should have fetal viability confirmed, followed by CTG monitoring.

7. Ultrasound scan assessment should be undertaken as part of the preliminary investigations of a woman presenting with RFM after 28+0 weeks gestation or more if fetal movements have not been felt since admission despite a normal CTG or if there are any additional risk factors for FGR/stillbirth.

8. Women who present with recurrent reduced RFM require individualised management

9. All assessments and advice should be accurately documented in the health record
1. Women should be advised of the nature and individual pattern of fetal movements up to and including the onset of labour. Fetal movements should be assessed by subjective maternal perception of fetal movements.

Women should be informed that:

- Perceived fetal movements are defined as the maternal sensation of any discreet kick, flutter, swishes or roll. The normal fetus is active and capable of physical movement, and goes through periods of both rest and sleep. There is no universally agreed definition of RFM.

- Fetal activity is influenced by a wide variety of factors. There is some evidence that women perceive most fetal movements when lying down, fewer when sitting and fewest while standing. It is therefore not surprising that pregnant women who are busy and not concentrating on fetal activity often report a misperception of a reduction of fetal movements. Johnson demonstrated that when attention is paid to fetal activity in a quiet room and careful recordings are made, fetal movements that were not previously perceived are often recognised clearly.

- There are no data to support formal fetal movement counting (kick charts) after women have perceived RFM in those who have normal investigations.

- From 18–20 weeks of gestation, most pregnant women become aware of fetal activity, although some multiparous women may perceive fetal movements as early as 16 weeks of gestation and some nulliparous women may perceive movement much later than 20 weeks of gestation.

- The number of spontaneous movements tends to increase until the 32nd week of pregnancy. From this stage of gestation, the frequency of fetal movements plateaus until the onset of labour; however, the type of fetal movement may change as pregnancy advances in the third trimester.

- Changes in the number and nature of fetal movements as the fetus matures are considered to be a reflection of the normal neurological development of the fetus. From as early as 20 weeks of gestation, fetal movements show diurnal changes. The afternoon and evening periods are periods of peak activity. Fetal movements are usually absent during fetal ‘sleep’ cycles, which occur regularly throughout the day and night and usually last for 20–40 minutes. These sleep cycles rarely exceed 90 minutes in the normal, healthy fetus.

- Clinicians should be aware that instructing women to monitor fetal movements is potentially associated with increased maternal anxiety.

Women should be advised that there is no specific number of movements which is normal. They should familiarise themselves with their baby’s individual pattern of movements.
Clinicians should be aware that:

- Prior to 28+0 weeks of gestation, an anteriorly positioned placenta may decrease a woman's perception of fetal movements.\(^{21}\)
- Sedating drugs which cross the placenta such as alcohol, benzodiazepines, methadone and other opioids can have a transient effect on fetal movements.\(^{22, 23}\)
- Several observational studies have demonstrated an increase in fetal movements following the elevation of glucose concentration in maternal blood, although other studies refute these findings.\(^{24, 25}\) From 30 weeks of gestation onwards, the level of carbon dioxide in maternal blood influences fetal respiratory movements, and some authors report that cigarette smoking is associated with a decrease in fetal activity.\(^{22, 26, 27}\)
- The administration of corticosteroids to enhance fetal lung maturation has been reported by some authors to decrease fetal movements and fetal heart rate variability detected by cardiotocography (CTG) over the 2 days following administration.\(^{28–30}\)
- Fetuses with major malformations are generally more likely to demonstrate reduced fetal activity.\(^{31}\) However, normal or excessive fetal activity has been reported in anencephalic fetuses.\(^{32, 33A}\) Lack of vigorous motion may relate to abnormalities of the central nervous system, muscular dysfunction or skeletal abnormalities.\(^{34}\)
- Fetal presentation has no effect on perception of movement.\(^{35}\)
- Fetal position might influence maternal perception: 80% of fetal spines lay anteriorly in women who were unable to perceive fetal movements despite being able to visualise them when an ultrasound scan was performed.\(^{36}\)

2. Women should be advised that any reduction or complete lack of FM should be reported by the woman to the Community Midwife if less than 28 weeks gestation or Maternity Unit if 28 weeks gestation or more.

- A history of RFM should be taken, including the duration of RFM, whether there has been absence of fetal movements and whether this is the first occasion the woman has perceived RFM.
- The history must include a comprehensive stillbirth risk evaluation (see pink box on flow chart).
- Clinicians should be aware that a woman’s risk status is fluid throughout pregnancy and that women should be transferred from midwife led to consultant led care if complications occur.\(^{60}\)
3. Women who are concerned about RFM must be advised not to wait until the next day for assessment of fetal wellbeing.

- Every effort must be made to ensure that women are aware of the importance of reporting any RFM as soon as they suspect it.
- Women must be asked about FM at every antenatal contact from 24 weeks.
- When discussing awareness of FM midwives should refer women to the information about RFM which is within their hand held record.

4. Upon presenting with RFM at any gestation, a full examination should be undertaken and where additional risk factors are present management should be individualised.

- A full antenatal check should be carried out.
- Fetal viability should be confirmed. In most cases, a handheld Doppler device will confirm the presence of the fetal heart beat. This should be available in the majority of community settings in which a pregnant woman would be seen by a midwife or general practitioner. The fetal heart beat needs to be differentiated from the maternal heart beat. This is easily done in most cases by noting the difference between the fetal heart rate and the maternal pulse rate.
- If the presence of a fetal heart beat is not confirmed, immediate referral for ultrasound scan assessment of fetal cardiac activity must be undertaken.
- Methods employed to detect SGA fetuses should include abdominal palpation, measurement of symphysis–fundal height and ultrasound biometry. Consideration should be given to the judicious use of ultrasound to assess fetal size in women in whom clinical assessment is likely to be less accurate, for example those with a raised body mass index.
- As pre-eclampsia is also associated with placental dysfunction, it is prudent to measure blood pressure and test urine for proteinuria in women with RFM.
- Where the woman has presented with reduced fetal movements and has a high risk pregnancy the case should be discussed with an obstetrician regardless of whether it is the first or recurrent episode if the woman is 28 weeks or more.
5. Women with a single episode of RFM before 28 weeks gestation should have confirmation of viability with a Doppler hand held device.

- If a woman presents with RFM prior to 28 weeks gestation, the presence of a fetal heartbeat should be confirmed by auscultation with a Doppler handheld device.

- If fetal movements have never been felt by 24 weeks of gestation, referral to a specialist fetal medicine centre should be considered to look for evidence of fetal neuromuscular conditions.

Between 26 and 28 weeks where there are concerns about fetal growth or there is a recurrent episode of RFM ultrasound consider offering an ultrasound examination within 72 hours.

6. Women who present with RFM at 28 weeks gestation or more should have fetal viability confirmed, followed by CTG monitoring.

- CTG monitoring of the fetal heart rates provides an easily accessible means of detecting fetal compromise. The presence of a normal fetal heart rate pattern (i.e. showing accelerations of fetal heart rate coinciding with fetal movements) is indicative of a healthy fetus with a properly functioning autonomic nervous system.

- Computer systems for interpretation of CTG provide objective data, reduce intra- and inter-observer variation and are more accurate than clinical experts in predicting umbilical acidosis and depressed APGAR scores. The information produced by the Computerised system is highlighted as ‘advisory only’ and clinical decisions remain the responsibility of the clinician undertaking the fetal monitoring. PLEASE NOTE – The computerised CTG is not suitable for use when the woman is in labour.

- Where there is any difficulty in interpretation of the Dawes Redman criteria the CTG should be reviewed by an Obstetrician and if repeat CTG is requested it should be carried out for a minimum of 20 minutes.
7. Ultrasound scan assessment should be undertaken as part of the preliminary investigations of a woman presenting with RFM at 28 weeks gestation or more if fetal movements have not been felt by the woman since admission despite a normal CTG or if there are additional risk factors for FGR / stillbirth.

- If an ultrasound scan assessment is deemed necessary, it should be performed when the service is next available – ideally within 72 hours.

- Ultrasound scan assessment should include the assessment of abdominal circumference and/or estimated fetal weight to detect the SGA fetus, and the assessment of amniotic fluid volume.

- Ultrasound should include assessment of fetal morphology if this has not previously been performed and the woman has no objection to this being carried out.

- An ultrasound assessment may not be appropriate if one has been carried out within the past 2 weeks and the results are normal providing the clinical picture has not changed. Review timing and results of previous ultrasound assessments along with any pending appointments prior to booking an ultrasound.

- Some women will already be on a pathway and having regular ultrasound examinations for example diabetic women and so further assessment by ultrasound should be discussed with the Obstetrician.

- Obesity is a recognised risk factor for FGR/stillbirth (RCOG 2011). However, this would have significant implications for the UHL Maternity Service; therefore, referrals for ultrasound scan assessment in women with high BMIs and no other risk factors or clinical concerns will start at BMI ≥40kg/m2, with a view of reducing this threshold year on year once capacity has been established.

- An extreme of maternal age is also a recognised risk factor (RCOG 2011). For the purpose of this guideline women under 20 and over 40 should be considered for further assessment by ultrasound.

- Smoking is another risk factor and so further assessment by ultrasound should be considered.

- Where there are issues with access to care, language barrier, single unsupported or unemployed further assessment by ultrasound should also be considered.

- Where a woman is already under the care of the Fetal Medicine Team management should be discussed with them.

- Where the woman has a high risk pregnancy the case should be discussed with an obstetrician.
8. Women who present with recurrent RFM require individualised management.

- All women with who have presented with a single episode of RFM in whom investigations are normal should be advised to contact their maternity unit if they have a further episode of RFM.
- When a woman recurrently perceives RFM, ultrasound scan assessment should be undertaken as part of the investigations.
- When a woman recurrently perceives RFM, her case should be reviewed by an obstetrician to exclude predisposing causes.
- Caregivers should be aware of the increased risk of poor perinatal outcome in women presenting with recurrent RFM.
- The decision whether or not to induce labour at term in a woman who presents recurrently with RFM when the growth, liquor volume and CTG appear normal must be made after careful consultant-led counselling of the pros and cons of induction on an individualised basis.

9. All assessments and advice should be accurately documented in the health record.

- It is important that full details of assessment and management are documented.
- Where a computerised CTG is performed, a patient identification sticker must be used at the beginning of the trace and analysis of the trace documented at the end. A print out of the analysis should be stored securely in orange CTG envelope and filed in the health record.
- Advice given about follow-up and when/where to present if a further episode of RFM is perceived must be documented in the patient record.
- Accurate record keeping is needed in sufficient detail to ensure that the consultation and outcome can be easily audited and continuity of care provided.
- Women who present with reduced fetal movements should be assessed for suitability to birth at St Mary’s Birth Centre, Orchard Birth Centre, Meadow Birth Centre or at home if that is their chosen place of delivery. This can be decided by the midwife caring for the woman and providing there are no other risk factors or concerns and this is the first episode of reduced fetal movements the woman can deliver at St Marys Birth Centre, Orchard Birth Centre, Meadow Birth Centre or at home.
- Women who present in labour and have had reduced fetal movements within the previous 24 hours should deliver at the Consultant Led unit as they require continuous electronic fetal monitoring.
• Women with risk factors should always be reviewed by the Obstetrician.

References and Bibliography

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**Keywords (up to six)**

Reduced fetal movements, fetal well being, cardiotocograph, ultrasound, intrauterine growth
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<tr>
<td>June 2015</td>
<td>V2</td>
<td>As above</td>
<td>General update</td>
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<tr>
<td>November 2015</td>
<td>V2</td>
<td>As above</td>
<td>Clarification on IOL for women who present with the first episode reduced fetal movements. Flow chart amended and colours changed for easier reading</td>
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<td>April 2016</td>
<td>V2</td>
<td>L Matthews</td>
<td>CTG for at least 20 minutes removed as Dawes Redman used. Brought into line with MAU guidance</td>
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<td>October 2016</td>
<td>V2</td>
<td>L Matthews and J Morrissey</td>
<td>Flow charts made clearer. Risk factors box and assessment added to recurrent RFM flowchart. Clarification on process of suitability to deliver in midwife led unit or home following episodes of RFM</td>
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<td>March 2017</td>
<td>V3</td>
<td>L Matthews</td>
<td>New simplified flow chart. Scan not required if already done within the last 2 weeks unless change in clinical picture. Review of previous results and future appointments should be considered before booking a scan. Scan timeframe within 72 hours.</td>
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Algorithm for Management of Reduced Fetal Movement > 28 weeks gestation

First telephone contact
Confirm gestation and if is 1st episode of RFM

Below 28 weeks gestation
See CMW for full A/N examination including FH auscultation

28 weeks and 1st episode. Attend MAU
(Labour Ward out of hours)
- Obtain history/Identify risk factors
- Check observations including urinalysis
- Measure & plot fundal height measurement
- Auscultate fetal heart using Pinnard/Doppler
- Perform computerised CTG using Dawes/Redman (DR) analysis

If no fetal heart refer woman to Antenatal Services for senior obstetric review

Suspicious or Pathological CTG
Dawes/Redman criteria not met

Normal CTG
(D/R criteria met)

1st Episode:
- No risk factors
- Well
- SFH in normal range
- Fetal movements felt

1st Episode with:
- Risk factors identified or
- SFH below 10th centile / fall off in growth or
- Still no fetal movements felt

2nd or more Episode

Scan for growth, liquor & Doppler within 72 hours if last scan > 2 weeks ago

Scan abnormal or last scan < 2 weeks ago or
Multiple episodes of RFM

Normal Scan

Risk Factors for stillbirth
BMI > 30                           Age <20yr or >40yr
Diabetes                           Smoker
Post dates (> 42 weeks)            HTN or PET
SFD / IUGR
Previous episodes RFM
Known congenital or genetic abnormality

Senior Obstetric review for an Individualised Management Plan