

**Achieving Sustainable Quality in
Maternity Services**

ASQUAM

**Guideline for the
Management of
Reduced Fetal
Movements
(RFM)**

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Ratified at:	Labour Ward Forum Sub-Group Obstetric Guideline Group
Reviewed by:	<p>██████████ Registrar</p> <p>██████████ Consultant Obstetrician</p> <p>██████████ MAU Manager</p>

VERSION CONTROL SCHEDULE

Version	Date	Author	Comments
1	2002		
2	2005	██████████ ██████████████████ ██████████	
3	2011	██████████ Midwife ██████████████████ ██████████████████████████ ██████████	
4	2018	██████████████████ Registrar ██████████████████ Consultant Obstetrician ██████████ MAU Manager	Reviewed as out of date

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1. PURPOSE AND SCOPE

The aim of this guideline is to provide advice to both midwifery and medical staff on the best evidence available regarding the management of women who present solely with reduced fetal movements (RFM) during a singleton pregnancy. This guideline excludes the management of RFM in multiple pregnancy. If complex issues or multiple clinical problems, refer to appropriate guideline and pathway for the individual problems.

Raising awareness of RFM is one of the four elements of the Saving Babies Lives care bundle:

The interventions recommended are¹

- Provide women with an information leaflet on RFM, based on current evidence, best practice and clinical guidelines. To be provided to all pregnant women, by at the latest 24th week of pregnancy and RFM discussed at every subsequent contact.
- Use the checklist in Appendix 1 of this guideline to manage the care of pregnant women who report RFM.¹

We have developed concise flow charts (See Appendix 2 (1st episode of reduced fetal movements), Appendix 3 (2nd episode of reduced fetal movements) and Appendix 4 (3rd episode of reduced fetal movements) which simplify the management of women presenting with RFM.

2. BACKGROUND

Most women are able to feel fetal movements (FM) by 20 weeks gestation.²

Maternal perception of fetal movements is one of the first signs of fetal life and is regarded as a manifestation of fetal wellbeing. Fetal movements can be defined as any discrete kick, flutter, swish or roll.³ These provide an indication of the integrity of the central nervous and musculoskeletal systems, but, the normal active fetus also goes through periods of rest and sleep.

Clinicians should be aware and advise women that although fetal movements tend to plateau at 32 weeks gestation, there is no reduction in the frequency of fetal movements in the late 3rd trimester.²

A significant reduction or sudden alteration in FMs is a potentially important clinical sign. It has been suggested that reduced or absent fetal movements may be a warning sign of impending fetal death. Indeed studies of fetal physiology using Diminished fetal movements guideline – FINAL – February 2018 - Page 4 of 19

ultrasound have demonstrated an association between RFM and poor perinatal outcome. 55% of women experiencing a stillbirth perceived a reduction in FMs prior to diagnosis.²

Approximately 70% of women who perceive a reduction in fetal movements will have a normal outcome to their pregnancy². However, inappropriate response by clinicians to maternal perception of RFM can be a contributory factor in stillbirth.

A recent review (October 2016) of women who attended the Maternity Assessment Unit (MAU) demonstrated that one third of MAU admissions are contributed to by women experiencing RFM.

3. RECOGNITION AND ASSESSMENT

Women must be aware that fetal movements should be present up to and including the onset of labour. Any decrease or cessation of FMs should be reported.²

Factors affecting perception of Fetal Movements (FM)

Prior to 28 weeks gestation an anteriorly positioned placenta may decrease a woman's perception of her baby's movement.²

While fetal position might influence maternal perception (anteriorly positioned fetal spines may alter maternal perception of fetal movements), fetal presentation has no effect on perception of movement.²

Some sedating drugs that cross the placenta can have a transient effect on fetal movements and these include:

- Alcohol
- Methadone
- Benzodiazepines or opioids

Cigarette smoking is also associated with a decrease in FMs.²

At each contact with clinicians every pregnant woman at 20 weeks gestation or more must be asked and educated on the awareness of FMs including the need to report any deviations. These discussions should be documented as part of the antenatal examination.

Women who have concerns with their baby's movement should not wait until the next day for fetal assessment but must contact their maternity unit promptly.

Subjective maternal perception of fetal movements is the mainstay of assessment.²

The greatest number of FMs are noted when the woman is lying down and the number appears greatest in the evening possibly due to an effect of concentrating on fetal movements. However there is insufficient evidence to recommend formal fetal movement counting using specified alarm limits.²

Initial Advice

If women are unsure whether movements are reduced after 26⁺⁰ gestation, they should be advised to lie on their left side and focus on fetal movements for 2 hours. If they do not feel 10 or more discrete movements in 2 hours, they should contact their midwife or MAU immediately.²

However be aware that whilst a normal perception of fetal movements is associated with a positive effect on maternal/fetal attachment, a perception of RFM itself is associated with increased maternal anxiety.²

CLINICAL ASSESSMENT

History

History should include a comprehensive stillbirth risk evaluation. Review the presence of other factors associated with an increased risk of stillbirth such as:⁴

- Multiple consultations for RFM*. At every presentation for RFM the number of episodes should be documented.
- Known Fetal Growth Restriction (FGR)
- Hypertension
- Diabetes
- Extremes of maternal age
- Primigravida
- Smoking
- Placental insufficiency
- Congenital malformations
- Obesity
- Ethnicity
- Poor obstetric history in the past e.g: Fetal growth restriction/stillbirth
- Genetic factors
- Issues with access to care
- Complex social issues
- Drug abuse

RED FLAGS: Features that increase the risk of intrauterine death (IUD)

- Pre-eclampsia
- Recurrent ante-partum haemorrhage
- Obstetric cholestasis
- Prolonged SROM, IUGR
- Previous stillbirth
- Diabetes or any other maternal or fetal conditions that increase the risk of IUD

Women with these red flags and coexistent RFM should have a CTG on attendance to MAU and a medical review irrespective of the episode of RFM. The management plan should be individualised depending upon the clinical problems. See Appendix 5.

4. MANAGEMENT

- 1. Exclude fetal death:** First confirm fetal viability – with Pinnard or handheld Doppler device. Note the maternal pulse.² If no fetal heart auscultated request immediate medical review. Confirm viability with USS to check fetal cardiac activity.
 - 2. Exclude fetal compromise:** This is assessed with CTG monitoring
 - 3. Identify pregnancies at risk of adverse pregnancy outcome:** This is achieved through history
 - 4. Do routine antenatal assessment and admission observations:** This should include abdominal palpation and syphysis fundal height (SFH) measurement, BP check and urinalysis.
- If <24 weeks gestation and have previously been aware of regular FMs the woman can be re-assured that irregular movement patterns can be experienced in early pregnancy. The woman should be seen within 24 hours by a Community Midwife (CMW) or in MAU. There are no studies looking at the outcome of women who present with RFM before 24 weeks gestation. While placental insufficiency rarely presents before the first trimester, the fetal heart beat should be auscultated to exclude fetal demise as part of a full antenatal check-up.²
 - If <24 weeks gestation and have not previously been aware of regular FMs a referral to the Fetal Medicine Department should be considered to look for evidence of fetal neuromuscular condition.³ The decision to refer must be discussed with a Consultant.

- If a woman presents between 24 weeks gestation and 25⁺⁶ weeks gestation, there is no need for CTG if RFM is the only reason for admission. Discuss with a Senior Clinician (ie Senior Registrar or above) regarding FM/assessment if red flags or coexisting obstetric problems. CTG might be indicated in some of these cases.

The following management plan is for women of gestation ≥ 26 weeks

4.1 First Episode of RFM

- In low risk women with a gestation of ≥ 26 weeks, if the CTG is normal, the woman can be reassured and discharged. Provide the woman with a patient information leaflet on RFM. Follow up as per the woman's care pathway.
 - If the CTG is abnormal, for urgent medical review.
- In a high risk woman, if the CTG is normal, an USS for growth, liquor volume and Doppler should be completed within 24 hours. If the woman presents during the weekend the scan should be completed within 72 hours.
 - If the scan is normal, the midwife can discharge directly without medical review.
 - A scan is not required if the woman has already received a completely normal scan within the previous 2 weeks. This is providing the woman is attending solely for RFMs.
 - If the scan is abnormal, then the woman must have a medical review.
- A prompt medical review will be required for all women who have other symptoms associated with RFMs such as concurrent bleeding, pain, abnormal vaginal loss, hypertensive disease in pregnancy etc.

4.2 Second episode of RFM

All women with a second episode of RFMs should have a CTG and USS.

If either CTG or scan is abnormal the woman should have a medical review. Women with a normal scan, normal growth velocity, a normal CTG and no other history of concern can be discharged by a Midwife from MAU. An antenatal appointment for medical review should be provided within 1 week.

4.3 Three or More Episodes of RFM

There is an increased risk of poor perinatal outcome in women presenting with recurrent RFM.³

All women should have a CTG and USS performed. These women will all need medical review even if the CTG and scan are normal.

4.4 Induction of labour (IOL): A decision to induce labour in a woman who presents recurrently with RFM when the growth, liquor volume and CTG appear normal must involve input or discussion with a Consultant Obstetrician. IOL should only be offered after careful counselling of the individual risks and benefits of the induction process.¹ Discussions and a clear management plan must be documented in the clinical notes.

4.5 Time Lapse Between Episodes of RFM

If the episode of RFM on presentation is more than 2 weeks from the last presentation of RFM, this presentation should be treated in isolation and managed as a first episode rather than second episode.⁵

5. USE OF CTG

A computerised CTG, eg. Dawes Redman, provides objective data, reduces intra- and inter-observer variation and is more accurate than clinical experts in predicting umbilical acidosis and depressed Apgar scores.⁴

CTG must be undertaken as part of a preliminary investigation for women presenting with reduced fetal movements at or after 26 weeks gestation.³

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.

NICE guidelines on the classification of fetal heart rate patterns should be used to interpret the CTG fetal heart rate pattern where non computerised CTGs are in use.²

Wherever possible a computerised CTG (e.g. Dawes Redman) should be used in women presenting solely with RFM.

Dawes Redman CTG

This is a computerised CTG for use in the antenatal period. CTG interpretation on its own is not an absolute science and should always be used in context with the clinical presentation of the women. The clinician should always review a CTG even if the Dawes Redman criteria has met as there have been instances where an abnormal trace has MET CRITERIA.

The Dawes Redman criteria for normality is based on over 100,000 CTG traces that are linked to outcome and can be used for antenatal traces where the fetal gestation is beyond 26 weeks. It is associated with a significant reduction in perinatal mortality compared with clinical CTG interpretation. Medical management should be made according to the clinical circumstances.

Duration of CTG – The computer analyses the CTG results and compares it with the Dawes Redman criteria at 10 minutes and then every 2 minutes thereafter. Therefore the minimum duration is 10 minutes and the maximum record length is 60 minutes.

Normal CTG

If the CTG meets the Dawes Redman criteria the monitor shows a tick sign. This can be met after as little as 10 minutes. It indicates a normal trace. The CTG can be stopped subject to visual assessment and clinical judgment. Do not rely on the analysis in isolation. It may not always identify unusual or pathological patterns that may be more obvious from a visual interpretation or an holistic assessment of the clinical situation. The printout would say CRITERIA MET.

If the Dawes Redman criteria is not met the CTG can be continued for the maximum record length of 60 minutes.

If the criteria is not met at 60 minutes the monitor stops the analysis, however the CTG recording will continue. The reason why the criteria has not been met will be printed alongside the CRITERIA NOT MET message. As with all CTG interpretations it is important to interpret the CTG within the clinical context of the women.

Clinical management of situation where CRITERIA NOT MET at 60 minutes

The Obstetric Registrar or Consultant should review the patient, code and evaluate the clinical situation. Do not act on the basis of the CTG analysis alone, which is an aid to pregnancy management and not a diagnostic tool.

The following list (1-12) details the Dawes Redman CRITERIA NOT MET codes:

1. Basal heart rate outside normal range (110-160). It is agreed in the NICE guidelines that an acceptable base line heart rate for a term baby is between 110-160 beats. Recent NICE guidelines detail that 100 is acceptable for a lower limit.⁶ For extremely preterm babies under 28 weeks gestation a heart rate less than 149 beats is unusual and should be discussed with a Consultant Obstetrician.

2. Large Decelerations

If the trace is otherwise normal this can be noted as an unprovoked variable deceleration but does not require immediate action. The trace should be repeated later.

3. No episodes of high variation

This is different from short term variability. Important evidence of normality is the episodic variation in the basal heart rate. In deep sleep the fetal heart rate is relatively constant with a lower short term variation, but this should not normally exceed 50 minutes. In this case if the short term variability is normal or there are accelerations the trace may be discontinued and repeated in 4-8 hours.

4. No movements and fewer than 3 accelerations

This is significant and needs a medical review.

5. Baseline fitting is uncertain.

If all else is fine and the baseline falls within the normal parameters then this can be ignored.

6. Short term variation (STV) is less than 3 milliseconds.

Short term variation is a computerised measure of the micro fluctuations of the fetal heart that are much shorter than the macro fluctuations. It is inversely proportional to the fetal heart rate and does not depend on the baseline.

The absence of an episode of high variation (a none reactive trace) is strongly linked to the development of metabolic acidaemia and impending IUD.

7. Possible error at the end of record.

This occurs when the machine detects a possible abnormality at the end of the trace which would otherwise be passed as CRITERIA MET.

In this event the trace may be continued or, if the clinical evaluation is that it is slightly abnormal, for example a prolonged deceleration, then action should be taken as appropriate.

8. Deceleration at the end of record.

In this event the trace should be continued and action taken as appropriate.

9. High frequency sinusoidal rhythm

Sinusoidal FHR patterns are associated with either severe fetal anaemia or severe / prolonged fetal hypoxia with acidosis and are associated with poor fetal outcome. Maternal blood should be taken for an urgent Kleihauer count to assess the degree of any feto-maternal haemorrhage.

These traces can be easily missed clinically. If Dawes Redman analysis suggest this, immediate action is required. Probable delivery should be discussed with the Consultant on-call.

10. Suspected sinusoidal rhythm.

Sinusoidal FHR needs to be distinguished from a pseudo sinusoidal FHR pattern, which is usually transient, resolves spontaneously and is associated with a good outcome.

11. Long term variation in high episodes below acceptable level.

This should be acted upon in the same way as STV.

12. No accelerations

In this event the CTG should be continued but should be reviewed by the medical team.

6. ULTRASOUND ASSESSMENT

Ultrasound assessment should be undertaken as part of the preliminary investigation of a woman presenting with RFM after 26 weeks gestation and any of the indications below:

- Perception of RFM persists despite normal CTG
- Additional risk factors for FGR/SB
- ≥ 2 episodes RFM and low risk
- ≥ 1 episode RFM with risk factors

The scan must include a minimum of Abdominal circumference (AC) and Estimate Fetal Weight (/EFW) to detect the SGA fetus as well as assessment of liquor volume +/- umbilical artery dopplers.

USS must be performed as soon as available, preferably within 24 hours but considering end of working week/weekend/bank holidays presentations, up to but no more than 72 hours is expected.

If a scan has been performed within the preceding 2 weeks and was completely normal, then there is no need to perform another scan for the sole reason of RFM. Discuss with a Senior Clinician (ie Senior Registrar or above) if you are unsure.⁵

7. AUDIT AND MONITORING

The need to monitor/audit the standards set out below will be considered alongside other Directorate requirements and prioritised accordingly. The Directorate Clinical Audit programme is drafted by the Directorate Clinical auditor, in liaison with clinical staff, and approved by the Directorate.

Element to be monitored	Lead	Tool	Frequency	Reporting arrangements	Acting on recommendations and lead(s)	Change in practice and lessons to be shared
Guideline content	Guideline Co-ordinator	Guideline Review	Every three years	Labour Ward Forum Subgroup: Guideline Meeting	Required changes to practice will be identified and actioned with the release of the updated guideline.	Required changes to practice will be identified and actioned with the release of the updated guideline.
Clinical standards within guideline	Directorate Clinical Auditor	Clinical Audit	As required in relation to other Directorate priorities	Directorate Business, Performance and Clinical Governance Meeting	Required actions will be identified and completed in a specified timeframe as per the audit action plan.	Required changes to practice will be identified and actioned within a specific timeframe as per the audit action plan and, in addition, lessons will be shared with relevant stakeholders as per audit action plan.

8. REFERENCES

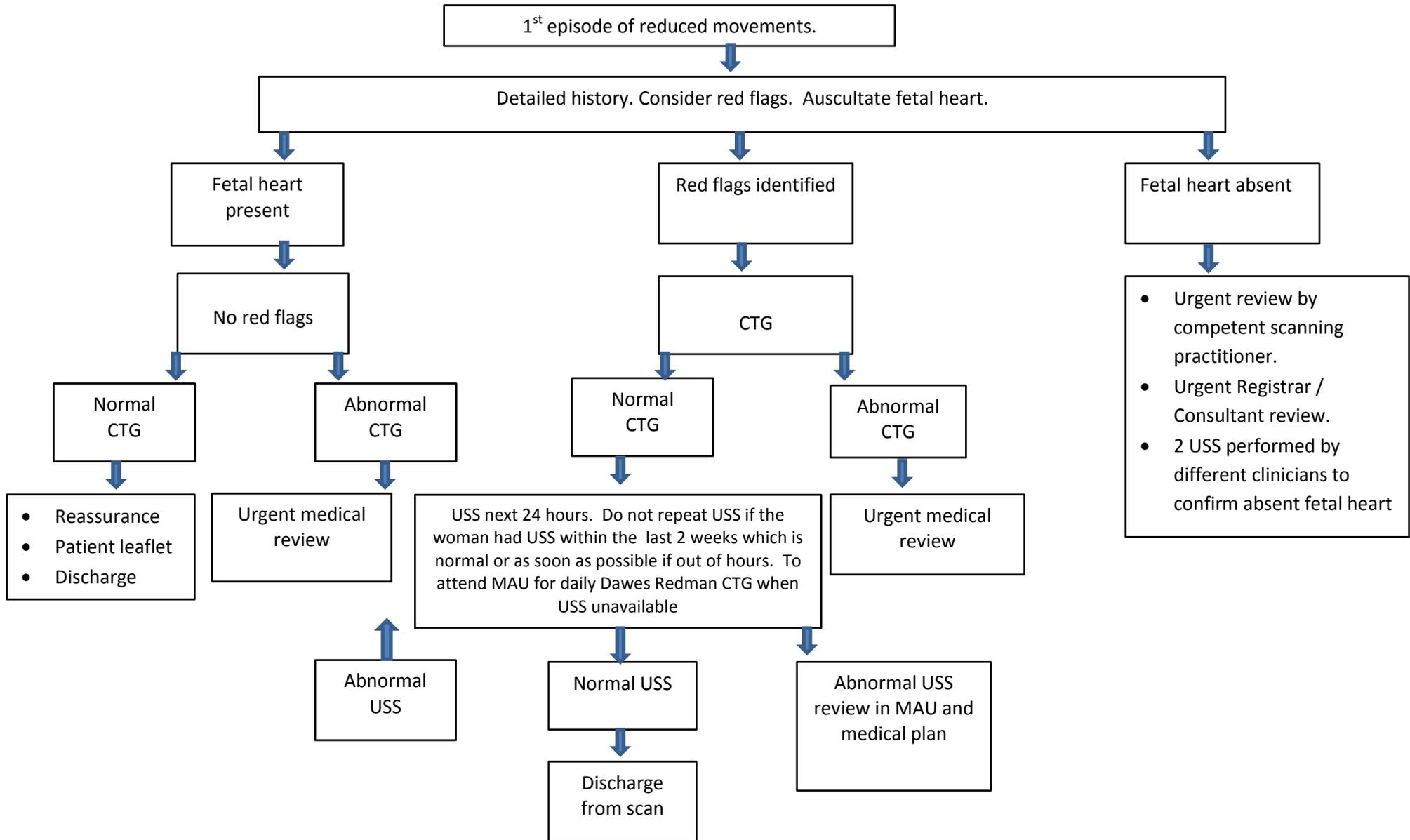
1. Saving Babies lives care bundle. NHS England, March 2016
2. Reduced Fetal Movements, RCOG Green Top Guideline No 57, February 2011.
3. Reduced Fetal Movements ASQUAM Guideline University Hospital of North Staffordshire, February 2011
4. The RCOG Green Top guideline No 31 The investigation and management of SGA fetus. February 2013
5. Consensus of Obstetric body RSUH.
6. National Institute for Health and Care Excellence (NICE). Intrapartum Care for Healthy Women and Babies. 2017

Appendix 1 - Checklist for the Management of Reduced Fetal Movements (after 26 weeks gestation) based on RCOG guidance² and consensus of Consultant body at UHNM⁵

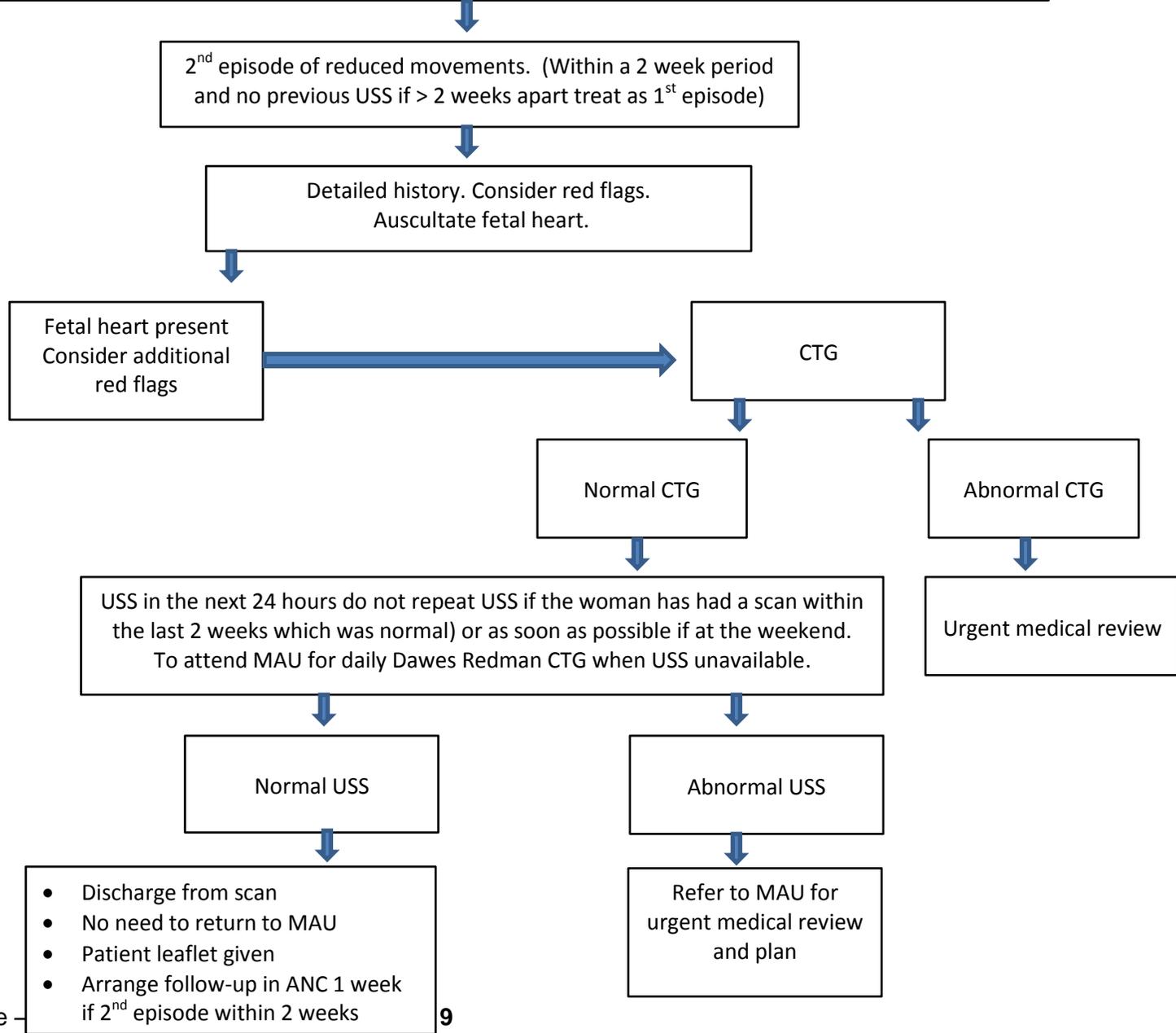
Checklist for the Management of Reduced Fetal Movements (after 26 weeks gestation)				
Please initial when complete, indicate YES/NO or N/A where appropriate				
• Ask - Is there maternal perception of RFM?				
• Assess - Are there risk factors for FGR or stillbirth?				
Recurrent APH			Known FGR	
Hypertension			Diabetes	
Maternal age <18			Maternal age >40	
Previous Stillbirth			Previous FGR	
BMI>35			Renal disease	
Problems with access to care			Alcohol or drug dependency	
Multiple pregnancy			Antiphospholipid antibody	
Smoking at booking			Congenital malformation in current pregnancy	
2 nd episode of RFM (in 2 weeks)			Gestation >40 weeks	
• Act				
Auscultate fetal heart (pinnard/ hand held Doppler)			Perform CTG in accordance with guidelines	
If risk factors for FGR/stillbirth - perform USS for growth, liquor volume and Doppler within 24 hours (72 hours at weekends/ bank holidays) to attend MAU for daily Dawes Redman CTG when USS unavailable			Act upon abnormal results promptly	
• Advise				
Convey results of investigations to women			Women should re-attend if any further episodes of RFM at any other time	

Appendix 2

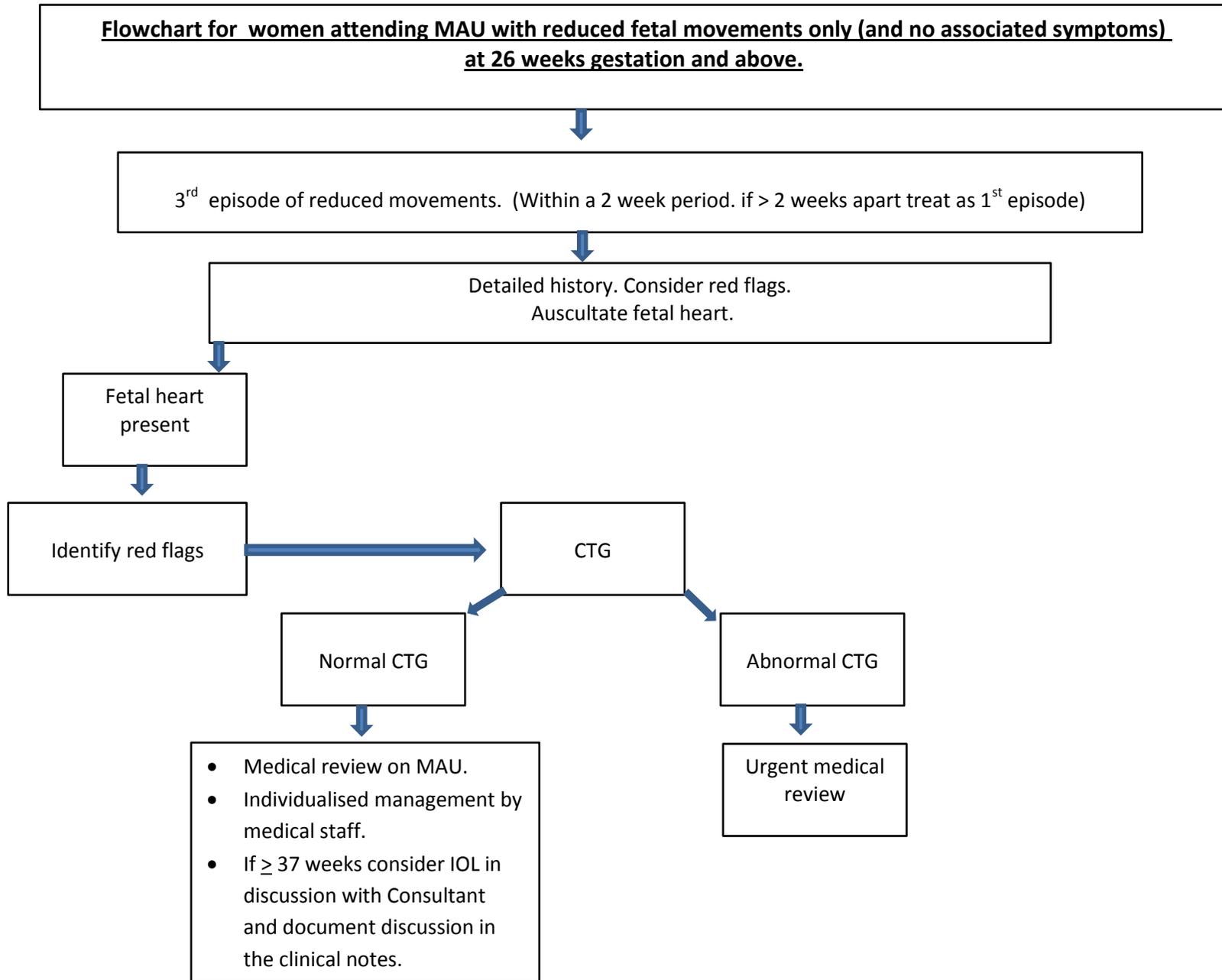
Flowchart for women attending with reduced fetal movements only (and no associated symptoms) at 26 weeks gestation and above.



Flowchart for women attending MAU with reduced fetal movements only (and no associated symptoms) at 26 weeks gestation and above



Appendix 4



Appendix 5

Red Flags

(This is not an exhaustive list)

- Pre-eclampsia
- Recurrent APH
- Obstetric cholestasis
- Previous stillbirth
- Diabetes mellitus
- BNI >35
- Maternal age <18 or >40years
- Smoking at booking
- Alcohol or drug dependency
- Antiphospholipid antibody
- Gestation >40 weeks
- Multiple pregnancy
- Renal disease
- Known FGR
- Previous FGR
- 2nd episode of RFM (in 2 weeks)
- Congenital malformation in current pregnancy
- Maternal or fetal conditions that increase the risk of stillbirth
- Multiple non-attendance
- Racial / ethical factors
- Placental insufficiency
- Genetic factors
- Poor obstetric history
- Primigravida
- (This list is not exhaustive)