



# Managing Reduced Fetal Movements

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## Managing reduced fetal movements

S H Dodampahala<sup>a</sup>, S Marleen<sup>b</sup>, A H Banu<sup>c</sup>, T G J N Gamage<sup>d</sup> *on behalf of the Sri Lanka College of Obstetricians and Gynaecologists*

Correspondence: Sri Lanka College of Obstetricians and Gynaecologists, No. 112, Model Farm Road, Colombo 08.  
E-mail: slcogoffice@gmail.com

### Aims of this guideline

- Provide a current approach to the management of women with reduced fetal movements (RFM)
- Improve consistency in the management of women with RFM
- Reduce maternal anxiety about fetal activity and enhance self-monitoring
- Assist healthcare providers in dealing with a woman with RFM
- Aid in the identification of women at high risk of intra-uterine death
- Reduce the perinatal mortality

### Executive summary

#### 1. Recommendations on fetal movements

- All pregnant women should be educated during the antenatal period regarding normal fetal movements. Information on the changing movement patterns as the fetus develops, normal wake/sleep cycles and factors which may modify the mother's perception of fetal movements should be provided.

#### 2. Recommendations on fetal movement monitoring

- Clinicians should inform women about the importance of maternal awareness of fetal movements at every antenatal visit in the third trimester.

- Kick-charts are not currently recommended as part of routine antenatal care.
- Women concerned about RFM should be advised to contact their healthcare provider immediately.

#### 3. Recommendations for the management of a single episode of RFM

- When a woman reports RFM, an assessment of the woman and her fetus should be undertaken as soon as possible, within 2 hours.
- The assessment should include a detailed history of risk factors associated with an increased risk of stillbirth, confirming fetal viability using a handheld doppler and measurement of symphysis-fundal height.
- A CTG should be performed to exclude immediate fetal compromise with further evaluation for women with any abnormal CTG pattern.
- Ultrasound assessment of fetal biometry, amniotic fluid volume and umbilical artery dopplers should be considered as part of the preliminary investigation of a woman reporting RFM. Evaluation of fetal morphology should be performed when facilities are available if this has not already been performed.
- Testing for feto-maternal haemorrhage should be considered in the preliminary investigation of women with RFM.

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<sup>a</sup> *Professor in Obstetrics and Gynaecology, University of Colombo, Sri Lanka.*

<sup>b</sup> *Consultant in Obstetrics and Gynaecology, Sri Jayewardenepura General Hospital, Nugegoda, Sri Lanka.*

<sup>c</sup> *Senior Registrar in Obstetrics and Gynaecology, Sri Jayewardenepura General Hospital, Nugegoda, Sri Lanka.*

<sup>d</sup> *Research Assistant, Inspirations Care Fertility and Research Center, Sri Lanka.*

- Biophysical profile (BPP) with non-stressed CTG should be considered in managing high-risk women with RFM.
- In the presence of a normal clinical assessment (including a CTG and ultrasound), if maternal concern of RFM persists, consultant opinion should be sought, and further management should be individualised.

#### 4. Recommendations for the management of recurrent episodes of RFM

- A consultant's opinion should be sought, and a detailed fetal ultrasound assessment should be performed.

##### 1. Background

Fetal movement is defined as 'the maternal sensation of any discrete kick, flutter, swish or roll'<sup>1</sup>. It indicates the normal integrity of the central nervous system and musculoskeletal systems. Quickening is the first sign of fetal movement perceived by a pregnant woman between 18 and 20 weeks of gestation<sup>2</sup>. There is no universally agreed definition of RFM. However, a significant reduction or alteration in fetal movement, as perceived by the mother, is an important clinical sign of fetal compromise and impending fetal death and has been associated with poor perinatal outcomes<sup>3,4</sup>. Among women who experienced stillbirth, 55% perceived reduced fetal movement before the diagnosis<sup>5</sup>. Inappropriate response by clinicians to the maternal perception of RFM is a common contributory factor in stillbirth<sup>6</sup>.

##### 2. Normal fetal movements during pregnancy

Most pregnant women feel quickening by 18-20 weeks gestation. Some multiparous women may perceive it as early as 16 weeks of gestation, while some primiparous women may perceive it later than 20 weeks<sup>7</sup>. The number of spontaneous fetal movements tends to increase until 32 weeks of gestation and plateaus after that until the onset of labour<sup>8</sup>. By term, the average number of fetal movements per hour is 31, ranging between 16 to 45, with the longest period between movements ranging from 50 to 75 minutes. Fetal movements show diurnal variation, with peaks of activity thought to be in the afternoon and evening periods. During 'sleep' cycles, fetal movements are absent.

In a normal, healthy fetus, the 'sleep' cycle usually lasts 20-40 minutes and rarely exceeds 90 minutes<sup>9</sup>.

##### 3. Factors that influence a woman's perception of fetal activity

A wide variety of factors influence fetal activity. Women perceive most fetal movements when lying down, fewer when sitting and fewest while standing<sup>10</sup>. An anterior placenta may decrease the perception of fetal movements before 28 weeks gestation<sup>11</sup>. Sedating drugs such as alcohol, benzodiazepines, methadone and other opioids cross the placenta and cause a transient reduction in fetal movements<sup>12</sup>. Cigarette smoking may decrease fetal activity from 30 weeks onwards due to the influence of carbon dioxide in maternal blood on fetal respiration<sup>13</sup>. Transient reduction in fetal activity and fetal heart rate variability on CTG has been associated with administering corticosteroids for fetal lung maturity over the 2 days following administration<sup>14</sup>. Fetal malformations such as abnormalities of the central nervous system, muscular dysfunction or skeletal abnormalities are more likely to be associated with reduced fetal movements<sup>15</sup>. The fetal spine positioned anteriorly may be associated with reduced perception of fetal activity<sup>16</sup>.

##### 4. Fetal movement monitoring

Fetal movements should be assessed by maternal perception. The greatest number of fetal movements are perceived when the mother is lying down and in the evening<sup>10</sup>. Women should be advised to be aware of their baby's pattern of movements. Current evidence does not support using kick-charts as part of routine antenatal care<sup>17</sup>. Instructing women to monitor fetal movements may cause increased maternal anxiety<sup>18</sup>. However, kick-charts are helpful for high-risk pregnancies, especially where there is evidence of FGR<sup>19</sup>.

Women who are unsure regarding RFM after 28 weeks 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 within 2 hours, they should immediately contact their healthcare provider. This includes their Family Health Midwife, Medical Officer of Health, Primary Care Unit, Emergency Treatment Unit, Hospital Maternity Ward or Obstetrician. They should be advised not to delay seeking care or wait until the next day for an assessment.

## 5. Management of a single episode of RFM

When a woman reports RFM, an assessment of the woman and her fetus should be undertaken as soon as possible, within 2 hours<sup>20</sup>.

### 5.1. History

A detailed history should be taken, including the duration of RFM and risk factors identification. Factors associated with an increased risk of stillbirth include fetal growth restriction (FGR), small for gestational age fetus (SGA), placental insufficiency, congenital malformation, previous stillbirth, hypertension, diabetes, medical disorders such as obstetric cholestasis (OC), antiphospholipid antibody syndrome (APLS), systemic lupus erythematosus (SLE), chronic renal failure (CRF), extremes of maternal age, primiparity, smoking, substance abuse, obesity, previous reporting of RFM, antepartum haemorrhage, previous bad obstetric history, genetic factors, poor access to antenatal care and low socioeconomic status<sup>21</sup>.

### 5.2. Examination

Fetal viability must be confirmed using a handheld doppler. If a fetal heartbeat is not detected by handheld doppler, an ultrasound scan assessment of fetal cardiac activity must be undertaken immediately. The maternal abdomen should be palpated to assess uterine tone, tenderness, and fetal lie/presentation. Assessment of fetal size should be undertaken using symphysis-fundal height (SFH) measurement to detect an SGA fetus. Measurement of blood pressure and a urine test for proteinuria to detect pre-eclampsia is advisable.

### 5.3. Cardiotocography (CTG)

In a woman with a history confirming RFM and over 28 weeks gestation, a CTG should be performed as soon as possible, within 2 hours of presentation, to exclude immediate fetal compromise<sup>22</sup>. CTG monitoring of the fetal heart rate for at least 20 minutes provides a means of detecting fetal compromise. For women with any abnormal CTG pattern, immediate assessment by a senior doctor is recommended.

### 5.4. Ultrasound scan

An ultrasound scan should be performed as part of the preliminary investigations in a woman presenting

with RFM, particularly for those with persistent RFM despite a normal CTG, risk factors for FGR/stillbirth, with a clinical suspicion of SGA/ FGR and when the measurement of SFH is likely to be less accurate, such as in those with high body mass index or uterine fibroids.

Ultrasound scan assessment should be arranged preferably within 24 hours and should include evaluation of fetal biometry, amniotic fluid volume and umbilical artery dopplers. A fetal anomaly scan should be arranged if it has not been performed previously if facilities are available<sup>20</sup>.

### 5.5. Testing for feto-maternal haemorrhage

Testing for feto-maternal haemorrhage (FMH) using the Kleihauer test or flow cytometry test should be considered in the preliminary investigation of women with RFM<sup>23</sup>. In some women, RFM may be the only history suggesting the possibility of a massive feto-maternal haemorrhage. MCA doppler assessment may be performed where expertise in ultrasonography is available<sup>24</sup>.

### 5.6. Biophysical profile (BPP)

Although evidence to support the use of biophysical profile (BPP) with non-stressed CTG is limited, it should be considered in the management of high-risk women with RFM<sup>25</sup>.

Women can be reassured that 70% of pregnancies with a single episode of RFM are uncomplicated<sup>26</sup>. However, in the presence of a normal clinical assessment (including a CTG and ultrasound), if maternal concern of RFM persists, consultant opinion should be sought, and further management should be individualised.

## 6. Management of recurrent episodes of RFM

A consultant should assess women presenting with recurrent episodes of RFM. An ultrasound scan should be undertaken as part of the investigations. The risk of poor perinatal outcomes is higher among these women<sup>27</sup>. A consultant-led decision to induce labour at term despite normal fetal growth, liquor volume, and CTG should be considered after counselling.

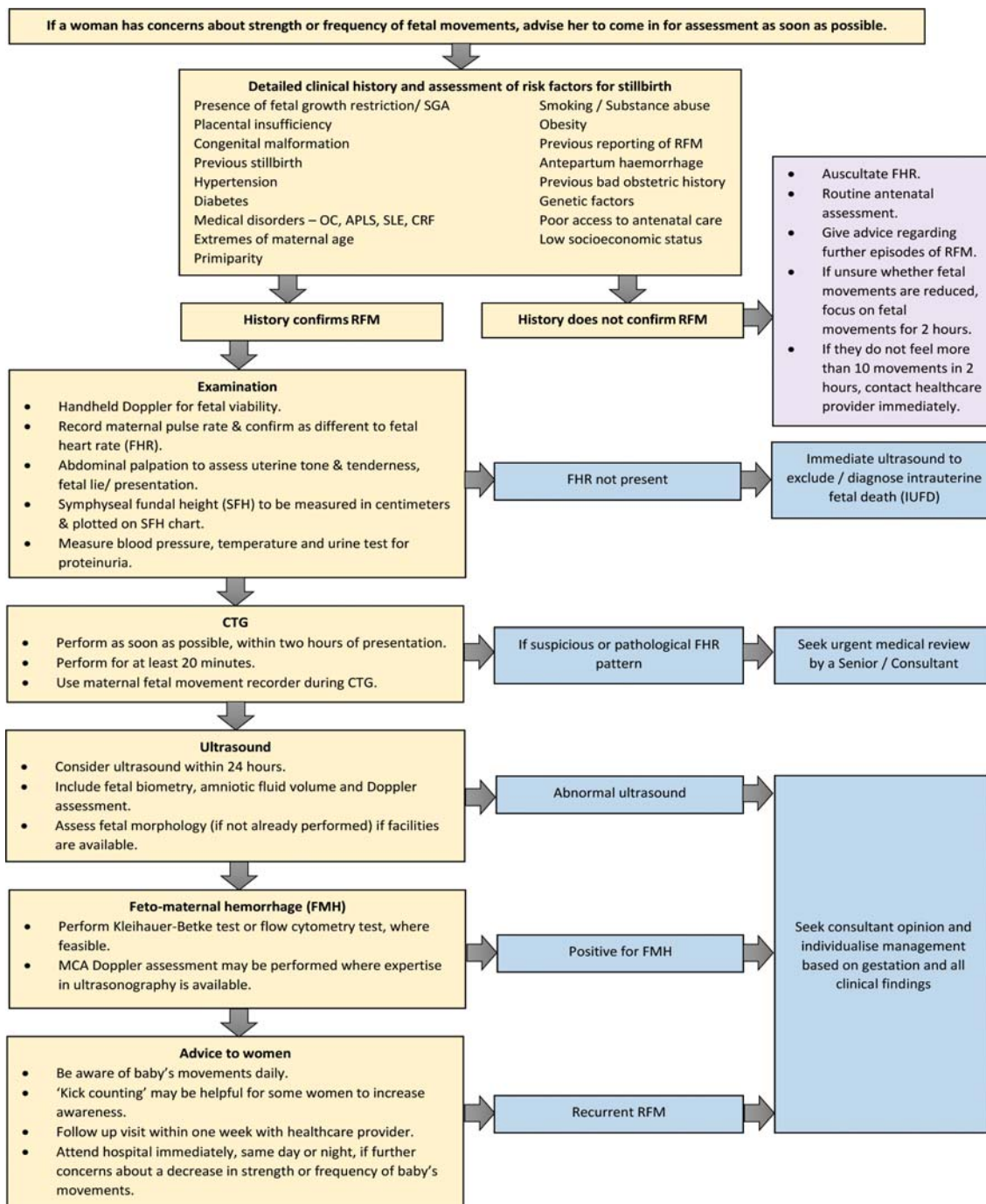
### 7. Optimal management of RFM before 24<sup>+0</sup> weeks of gestation

Fetal viability should be confirmed by auscultation by handheld doppler. If the fetal movement has never been felt by 24 weeks of gestation, an ultrasound assessment should be performed to look for evidence of fetal neuromuscular conditions<sup>28</sup>.

### 8. Optimal management of RFM between 24<sup>+0</sup> and 28<sup>+0</sup> weeks of gestation

Fetal viability should be confirmed by handheld doppler. A comprehensive history should be undertaken to assess for risk factors of stillbirth. Evidence does not support the routine use of CTG. However, an ultrasound scan is recommended as placental insufficiency may present at this gestation.

#### Algorithm for women presenting with Reduced Fetal Movements (RFM) from 28 weeks gestation



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