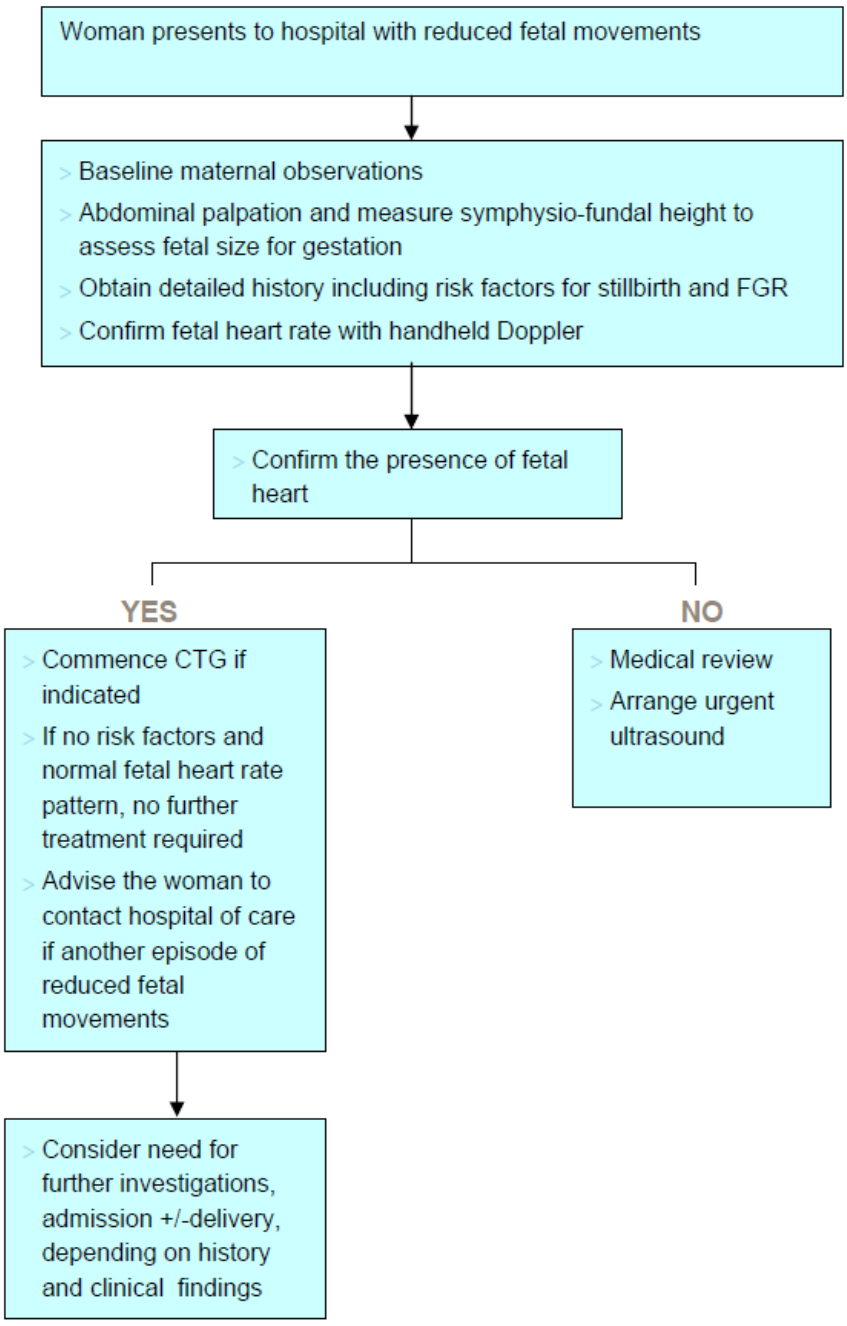
South Australian Paediatric Clinical Guidelines

Reduced Fetal Medicine

Reduced fetal movements flow chart



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This guideline has been based on the Royal College of Obstetricians and Gynaecologists Green-top guideline 57 - Reduced fetal movements; 2011.

Introduction

- Fetal movements are first perceived by the mother at around 18 to 20 weeks of gestation and rapidly acquire a regular pattern
- Some multiparous women may perceive fetal movements as early as 16 weeks of gestation and some primiparous women may perceive movement much later than 20 weeks of gestation
- Fetal movements are defined as a discrete kick, swish, or roll
- A significant reduction or sudden alteration in fetal movement 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
- Studies of fetal physiology using ultrasound have demonstrated an association between reduced fetal movements (RFM) and poor perinatal outcome
- The majority of women (55 %) experiencing a stillbirth perceived a reduction in fetal movements before diagnosis
- A number of studies have identified an inappropriate response by clinicians to maternal perception of RFM as a common contributory factor in stillbirth[2,3,4]

Normal fetal movement activity during pregnancy

- The number of spontaneous movements tends to increase until the 32nd week of pregnancy, then plateaus until onset of labour
- By term, the average number of movements per hour is 31 (range 16-45), with the longest period between movements ranging from 50 to 75 minutes
- Diurnal changes are evident from as early as 20 weeks of gestation, with afternoon and evening periods of peak activity
- Fetal movements are usually absent during fetal 'sleep' cycles. These occur regularly throughout the day and night and usually last between 20 to 40 minutes (rarely more than 90 minutes in the normal, healthy fetus)[1,2]
- There is no evidence to support advising women who report reduced fetal movements to have something very sweet or sugary to eat, or an icy cold drink to increase fetal movements[2]

Reduced fetal movements

- There is no universally agreed definition for reduced fetal movements
- The majority of women (70 %) who perceive RFM will have a normal outcome to their pregnancy
- There are no data to support formal fetal counting (kick charts) after women have perceived RFM in those who have normal investigations
- Women who have normal investigations after one presentation of RFM should be advised to contact their hospital if they have another episode of RFM

Assessment of fetal movements

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Maternal perception

- Variation in maternal perception of fetal movements may be related to gestational age, amount of amniotic fluid volume, medications, fetal sleep state, obesity, anterior placenta, smoking and nulliparity[2]
- The greatest number of fetal movements are noted when the mother is lying down, and the number appears to be greatest in the evening. This may be an effect of concentrating on fetal movements
- The difference in mean time to perceive 10 movements varied between 21 minutes for focused counting to 162 minutes with unfocused perception of fetal movements

Objective assessment

- Objective assessments of fetal movements use Doppler or real-time ultrasound. These methods report slightly increased sensitivity for fetal movements compared with maternally perceived fetal movements. However, potential detection of false positive signals from abdominal wall movements from coughing affect the accuracy of this form of objective assessment

Antenatal education

- All pregnant women should routinely receive verbal and / or written information regarding normal fetal movements during the antenatal period. This information should include a description of the changing patterns of movement as the fetus develops, normal wake / sleep cycles and factors which may modify the mother's perception of movements such as maternal weight and placental position[2]
- Advise women to be aware of their baby's individual pattern of movements. If they are concerned about a reduction in or cessation of fetal movements at any gestation, they should contact their hospital of care
- Women who are concerned about reduced fetal movements should not wait until the next day for assessment of fetal wellbeing
- If the woman is unsure about whether her baby's movements are reduced, advise her to lie on her left side and focus on fetal movements for 2 hours. If there are less than 10 discrete fetal movements in this time, advise her to contact her hospital immediately for fetal assessment
- Clinicians need to be aware that instructing women to monitor their baby's movements may increase maternal anxiety

Management

- Refers to reduced fetal movements > 28^{+0} weeks of gestation
- All clinicians should be aware of the potential association of reduced fetal movements with risk factors such as fetal growth restriction, small for gestational age fetus, placental insufficiency and congenital malformations

Clinical history

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- Obtain relevant history to assess the woman's risk factors for stillbirth and fetal growth restriction
- Document risk assessment for factors associated with an increased risk of stillbirth, including:
    - Multiple consultations for RFM
    - Known FGR
    - Hypertension
    - Diabetes
    - Cholestasis
    - Extremes of maternal age
    - Primiparity
    - Smoking
    - Placental insufficiency
    - Congenital malformations
    - Obesity
    - Racial / ethnic factors
    - Poor past obstetric history (stillbirth and / or FGR)
    - Genetic factors
    - Rhesus isoimmunisation
    - Trauma
    - Issues with access to care
- Ask relevant information about the woman's perceived reduced fetal movements, including:
    - Duration of reduced fetal movements
    - How long since the woman last felt baby move?
    - Is this the first occasion of reduced fetal movements?

Other factors associated with RFM

- Any recent use of sedating drugs e.g. alcohol, benzodiazepines, methadone or other opioids?
- After 30^{+0} weeks of gestation, the level of carbon dioxide in maternal blood influences fetal respiratory movements, and some reports suggest cigarette smoking may decrease fetal activity
- In gestations < 28^{+0} weeks, an anterior positioned placenta may decrease a woman's perception of fetal movements
- If normal fetal movements are demonstrated (by palpation or observation) and the fetal heart rate is normal, in the absence of further risk factors there should be no need to follow up with further investigations

Clinical assessment

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- Abdominal palpation and measurement of symphysis-fundal height to assess fetal size for gestation
    - Consider the use of ultrasound in women where clinical assessment of fetal size is likely to be inaccurate e.g. raised body mass index
- Obtain baseline maternal observations
    - Measure urine for proteinuria if the woman has preeclampsia or hypertension
- Confirm the presence of a fetal heart with a handheld Doppler
    - The fetal heart beat needs to be differentiated from the maternal heart beat
    - If the presence of a fetal heart beat is not confirmed, arrange immediate ultrasound scan to assess fetal cardiac activity

Clinical history / assessment confirms decreased fetal movements

- Commence a cardiotocograph to exclude signs of fetal compromise in gestations > 28^{+0} weeks of gestation
- Consider ultrasound assessment (within 24 hours) for fetal activity, abdominal circumference, estimated fetal weight, umbilical artery Doppler, middle cerebral artery Doppler, amniotic fluid volume and morphology (if not already done)
- Massive fetal to maternal haemorrhage (varying from > 50 mL to > 150 mL) has been demonstrated in approximately 4 % of stillbirths and in 0.04 % of neonatal deaths. Clinical risk factors do not reliably predict the likelihood of massive fetal to maternal haemorrhage. Consider testing for feto-maternal haemorrhage (Kleihauer-Betke) where a CTG abnormality is detected in the presence of an ultrasound scan showing a normally grown fetus[2]
- Depending on history and clinical findings, consider need for admission +/- delivery

Reduced fetal movements < 28+0 weeks of gestation

- Confirm fetal heartbeat with handheld Doppler
- If fetal movements have never been felt, and there is no other obvious explanation (e.g. anterior placenta), consider referral to assess for fetal neuromuscular conditions

Documentation of RFM

- Document full details of assessment and management in the woman's case record
- Record the advice given about follow-up and where/when to present if the woman has another episode of RFM is perceived

References

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Abbreviations

CTG	Cardiotocograph
e.g.	For example
FGR	Fetal growth restriction
g	Gram(s)
IV	Intravenous
kg	Kilogram(s)
L	Litre(s)
mg	Milligram(s)
min	minute
mL	Millilitre(s)
%	Percentage
RFM	Reduced fetal movements
SGA	Small for gestational age

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Version control and change history

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Version	Date from	Date to	Amendment
1.0	22 Nov 11	Current	Original version

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