All Wales Maternity & Neonatal Network Guidelines

Altered Fetal Movements

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Ratified by: Wales Maternity Guideline Committee (WMGC), Wales Maternity and Neonatal Strategic Network (MNSN)

Original Publication Date: September 2021

Summary of reviews/amendments					
Version	**Date of Review**	**Reviewer name(s)**	**Completed action**	**Ratified on**	**New review date**
1.0	Replaces All Wales Reduced Fetal Movements 2016				September 2024
2.0	May 2025	Emma Adamson Laura Little Louise-Emma Shaw	Guideline reviewed and updated	May 2026	May 2030

Documents to read alongside this guideline	RCOG Reduced Fetal Movements Green Top Guideline 57 (2026) Reduced Fetal Movements (Green-top Guideline No. 57) | RCOG NICE Antenatal Care Guidelines NG201 Recommendations | Antenatal care | Guidance | NICE All Wales Midwifery Led Care Guidelines (2022) wisdom.nhs.wales/all-wales-guidelines/all-wales-guidelines/all-wales-midwifery-led-care-guideline-2022/

Disclaimer: These guidelines have been ratified at the Maternity/Neonatal Guideline Committee Meeting; however clinical guidelines are guidelines only. The interpretation and application of clinical guidelines will remain the responsibility of the individual clinician. If in doubt contact a senior colleague or expert. Caution is advised when using guidelines after the review date.

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1. Purpose and scope

This guideline is provided to advise clinicians on the management of women presenting with altered fetal movements (AFM) during their pregnancy, both in community and secondary care settings, with the aim of standardising care recommendations and information provided to women, across Wales. Whilst this guideline gives a generalised approach it is important to recognise that each woman's care should be individualised for her unique situation.

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

2. Background

Maternal perception of fetal movement is one of the first signs of fetal life and is regarded as a manifestation of fetal wellbeing and parent's reassurance that all is well with their baby. They are generally first perceived between 16- and 24-weeks' gestation, and can be described as kicks, rolls, or flutters (1). Multiparous women may notice movements earlier (16 weeks); primiparous women later (20-24 weeks). The frequency of movements increases until approximately 32 weeks' gestation, after which there is a plateau. The mother should CONTINUE to feel her baby move right up to the time she goes into labour and may continue to perceive fetal movements whilst she is in labour. The nature of fetal movements may change from kicks to rolling, stretching and pushing as pregnancy reaches term. Whilst movements are reduced during fetal sleep cycles, these rarely last more than 90 minutes (1).

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.

AFM is a marker for fetal compromise, thought to represent a fetal response to hypoxia with the subsequent reduction of fetal movements being an adaptive mechanism to reduce oxygen consumption (2). It is recognised that intrauterine death is preceded by cessation of fetal movements for ≥24 hours (3, 4, 5). Between 40-55% women with stillbirth experience RFM prior to diagnosis of intrauterine fetal death (6, 7).

3. Maternal perception of Altered Fetal Movements

Women are the experts in their own baby's movements. Maternal concern about altered fetal movements is a clinically significant finding in its own right. Care should begin from a position of listening to, believing, and respecting women's concerns, even where investigations are

normal. Women who feel dismissed or perceive their concerns as being treated as time wasting may delay or avoid re presentation with concerns about fetal movements (27), which has been identified as a contributory factor in adverse perinatal outcomes (28). Women should feel heard and validated in their concerns. Advise women to return if concerns persist or recur and that previous normal findings do not reduce ongoing risk (1). Assessment and decision making should be undertaken in partnership with the woman, supporting informed choice.

Maternal perception of AFM affects up to 18% of pregnancies (8, 29). Importantly, the majority (70%) of these mothers will have a normal pregnancy outcome (9). Up to 29% of the women complaining of AFM have a small-for- gestational-age (SGA) baby and there is an increased risk of subsequent stillbirth (8, 9, 10, 11). Up to 55% of women who experience a stillbirth describe a reduction in fetal movements prior to diagnosis of the stillbirth (6, 7), and thus is important in the endeavour to reduce stillbirth rates. Randomized controlled trial evidence does not support the routine use of formal fetal movement counting (12,13); 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.

3.1. Factors which affect fetal movements and / or maternal perception of movements

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

3.2. Definition of Altered fetal movements

Because of the paucity of robust epidemiological studies on fetal activity patterns and maternal perception of fetal activity in normal pregnancies, there is currently no universally agreed definition of AFM. For the purpose of this guideline, AFM is defined as *maternal perception of reduced (number and / or intensity) or absent fetal movements.* There is no set number of normal movements. Women should be advised that every baby is different and encouraged to become familiar with what is normal for their baby in term of the amount and strength of movements during the pregnancy.

3.3. Recurrent altered fetal movements

Additionally, there is no established definition of recurrent episodes of AFM, with conflicting evidence between studies showing more than one presentation of AFM being associated with an increased risk of stillbirth, growth restriction and preterm birth compared to a single episode (1) and others showing no difference (14). There is also a lack of evidence to suggest the most effective management of AFM (14, 15).

Physiologically a baby with hypoxia will continue to conserve oxygen by ongoing reduction in fetal movements. Therefore, it is appropriate to consider a recurrent episode of altered fetal movements to only be of significance if occurring within a period of time. For the purposes of this guideline, a consensus of *2 or more episodes of AFM occurring within a 21-day period* after 24 weeks' gestation was agreed (18).

Following initial assessment women presenting with recurrent episodes of AFM should be offered to Consultant Obstetrician follow-up in an antenatal clinic and an agreed plan of care put in place to advance the pregnancy to the point where an induction of labour can be safely considered.

3.4 Information and advice

The importance of providing accurate information for mothers about fetal movements and acting upon AFM has been highlighted by two Confidential Enquiries into antepartum stillbirth (16, 17) and has been demonstrated to reduce stillbirth rates (5).

Two Cochrane reviews highlight the lack of evidence surrounding the best way to monitor fetal movements and the management strategy employed when women perceive AFM (13, 16). However, current management is based on the best-available evidence synthesized in the Royal College of Obstetricians and Gynaecologists (RCOG) guideline (1). This guidance is based upon the evidence reviewed in that guideline.

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 (either in intensity or number) 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). Information about fetal movements should be given at booking and every subsequent visit. This should be written and verbal. Information should be given in the woman's preferred language.
Written information should be from a reputable source such as the RCOG. The All-Wales Maternity Record also contains information to support discussions.

Women should be informed of the following:

- There is no set number of normal movements, and every pregnancy is different and usually each baby will have their own pattern of movements which includes amount and strength of movement
- The fetus will go through periods of activity and rest or sleep, with more active periods tending to be in the afternoon and evening (1)
- Counting kicks is NOT advised and can be associated with increased maternal anxiety, instead the woman should be getting to know the normal pattern of movement for her baby (1)
- It is NOT TRUE that babies move less often towards the end of pregnancy. From 16-24 weeks onwards women should feel the baby move more and more up until 32 weeks then movements should stay roughly the same until birth
- After 20 weeks of pregnancy, it is important to be aware of the baby's activity. Women should CONTINUE to feel their baby move right up to the time they go into labour
- A change, especially a reduction in movements, may be a warning sign that the baby is not well and needs checking
- Women should NOT WAIT until the next day to seek advice if they are worried about their baby's movements
- Women should be advised NOT to use home Doppler equipment to identify the fetal heart if they are concerned about AFM, but report to maternity assessment services where trained professionals can make an assessment
- Evidence on the effectiveness of monitoring fetal movements and the subsequent management strategies in improving outcomes is limited. Given the high rate of false positive results for both fetal movement assessment and follow-up tests, there is a real possibility of risks with unnecessary interventions or the baby being born premature and increased anxiety for the mother (16). This guideline is the consensus of the Wales Maternity Network team with representatives from all maternity units across Wales as well as reviewing practice across England (18)

4. Managing Altered Fetal Movements

Clinicians should refer to the supporting documents in section 9 to support management of AFM

All women reporting AFM should be seen in a place where suitable management can be given.

Care should be taken to ensure that the woman does not feel dismissed, judged, or made to feel a 'nuisance' when she calls with this concern. The giving of an appointment time for later in the day must not happen. She should NOT be advised to monitor the situation at home/drink cold water/lie down/eat something or any other advice.

Women with abnormal results should be reviewed promptly by a senior obstetrician or midwife

and a plan discussed with the mother where additional significant risk factors for stillbirth are considered (Table 1).

A summarising flow chart, and suggested checklist for assessment of women presenting with altered fetal movements is at the end of this guideline (section 9). As fetal movements are not reliable in earlier gestations, concerns about AFM is only considered significant after the woman has had the routine fetal anomaly ultrasound scan.

Table 1: Significant risk factors for stillbirth . (18, 23)

Risk Factor	Odds Ratio of stillbirth
Previous Obstetric history – stillbirth>24/40, Previous SGA	2.1
Smoking	1.8
Medical Factors – diabetes, hypertension	3.0
Second presentation within 21 days of altered movements	5.7
Fundal height <10th centile, known slowing of growth velocity or drop in fundal height measurement	19.5

Additional Risk Factors from Mortality reports	
BMI ≥ 30	Age ≥40 years
Alcohol / substance misuse	Low PAPP-A
Black African, Black Caribbean, Other Black, Bangladeshi, and Pakistani ethnicity	Poor access to care (2 or more consecutive missed appointments)

4.1. Less than 22 weeks' gestation

Following routine anomaly scan but less than 22 weeks' gestation, auscultation of the fetal heart is recommended using a Pinard stethoscope or handheld Doppler. 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 but should be advised to re-attend if she has any further concerns with AFM at any time; she must be informed our priority is her and her baby's wellbeing and she should be advised we are always willing to review and reassure. An ultrasound scan should be requested for the same day if a fetal heart beat cannot be auscultated.

Assessment for risk factors for stillbirth as per Table 1 should take place to ensure appropriate follow up is in place, e.g., serial growth scans.

4.2. 22 - 25+6 weeks' gestation

If the woman is reporting AFM between 22- and 25+6-weeks' gestation she should be referred to a maternity assessment unit for assessment. The woman should be seen and a full initial assessment completed within 15 minutes of arriving in Triage as per the BSOTS policy.

The assessment should include:

- A detailed history
- Smoking status, and CO level
- Assessment of risk factors for Stillbirth as per Table 1
- Abdominal palpation
- Auscultation of the fetal heart with Pinard stethoscope or hand-held Doppler for a minimum of 1 minute
- A full antenatal examination including maternal heart rate, blood pressure and temperature
- Appropriate follow up is arranged, and provide advice on lifestyle factors that reduce the risk of stillbirth

4.3. 26 to 36+6 weeks' gestation

If the woman is reporting AFM between 26- and 36+6-weeks' gestation she should be referred to a maternity assessment unit for assessment and electronic fetal monitoring (EFM) via Cardiotocograph (CTG). The woman should be seen and a full initial assessment completed within 15 minutes of arriving in Triage as per the BSOTS policy.

The assessment should include:

- A detailed history
- Smoking status, and CO level
- Assessment of risk factors for Stillbirth as per Table 1
- Abdominal palpation
- Assess fetal growth by reviewing growth chart, perform fundal height measurement if not performed within last 2 weeks and the woman is not on an ultrasound surveillance pathway already.
- Auscultation of the fetal heart with a Pinard stethoscope or hand-held Doppler
- A full antenatal examination including maternal heart rate, blood pressure and temperature
- Performing a CTG to assess fetal heart rate in accordance with national guidelines. Ideally, this should be a computerised CTG using Dawes-Redman criteria (15)
- Appropriate follow-up and provision of advice on lifestyle factors that reduce the risk of stillbirth

Computerised systems for interpretation of CTG (cCTG) provide objective data, reduce intra-

and inter-observer variation and are more accurate than clinical experts in predicting umbilical acidosis and depressed APGAR scores and are associated with reduced perinatal mortality (19) compared to non-computerised and are therefore recommended. However, 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.

Manufacturers advise that a CTG should not be carried out before 28 weeks. However, most maternity units consider it appropriate to undertake a computerised CTG from 26 weeks. Below 28 weeks interpretation of the cCTG can be uncertain and for actions taken on the basis on a cCTG, outcomes for the fetus can be unpredictable and this should be discussed with the woman.

If the woman remains non-reassured regarding fetal movements, she should have a senior review for an individualised plan of care. Depending on risk factors and gestation this may include the option of daily cCTG.

4.4. 37 to 38+6 week's gestation

If the woman is reporting AFM at 37 to 38+6 weeks' gestation, she should be referred to a maternity assessment unit for full assessment as described in 4.3.

Induction of labour for AFM alone is not recommended before 39 weeks gestation (20). It MAY be appropriate to CONSIDER a vaginal examination to assess favourability for induction of labour (IOL), and a membrane sweep following discussion with the woman. Where a membrane sweep has been achieved, consideration may be given to further membrane sweeps with the community midwifery team. However, prior to 39 weeks' gestation, induction of labour or Caesarean birth is associated with small increases in perinatal morbidity and neurodevelopmental delay. The AFFIRM study found that standardised management for AFM including ultrasound scan for fetal biometry, liquor volume and umbilical artery Doppler and planned birth (by induction of labour or Caesarean birth) for women with recurrent AFM after 37 weeks increased obstetric intervention and admission to neonatal unit, but did not reduce perinatal mortality (14). Thus, a recommendation for birth needs to be individualised and based upon evidence of fetal compromise (for example, abnormal CTG, EFW <10th centile or oligohydramnios) or other concerns (for example, concomitant maternal medical disease, such as hypertension or diabetes, or associated symptoms such as antepartum haemorrhage).

Any decision to offer birth before 39 weeks should be a consultant decision based on individual risk factors and cervical assessment, and should include a discussion with the woman around the lack of evidence showing reduced mortality, and higher intervention rates as well as transient tachypnoea of the newborn and admission to neonatal units. This should be documented in the maternal records.

4.5 39 weeks gestation and beyond

If the woman is reporting AFM at 39 weeks gestation or beyond, she should be referred to a maternity assessment unit for full assessment as described in 4.3.

Induction of labour (IOL) after 39 weeks has been associated with reduction in perinatal mortality without increases in assisted or caesarean birth. IOL is associated with increased likelihood of admission to neonatal units and possibly an increase in shoulder dystocia (21, 22). These risks should be discussed with the woman and an individualised plan made. In the absence of any other indication, IOL can be offered from 39 weeks.

In all instances where IOL is offered / discussed, women should be made aware of the process and the possible benefits and risks, including potential psychological impact, of IOL in that context.

If the woman remains non-reassured regarding fetal movements, but declines IOL she should have a senior review for an individualised plan of care. Depending on risk factors and gestation this may include the option of daily fetal monitoring by CTG. Women should be aware that fetal monitoring assesses the wellbeing of the baby at that point in time and has no predictive role.

5. Ultrasound Assessment

The use of ultrasound in the instance of AFM lies in its potential ability to identify conditions that could contribute to a perceived reduction in fetal movement, as well as conditions that are associated with poorer perinatal outcomes and increased risk of stillbirth (23).

The AFFIRM Trial assessed the use of ultrasound (in particular amniotic fluid volume and umbilical artery Doppler) when presenting with reduced fetal movements and showed no change in stillbirth rates, and demonstrated an increase in IOL, Caesarean birth, and time on neonatal unit (10).

However, up to 30% of women presenting with AFM have a small for gestational age baby, so there needs to be some further assessment, within the confines of limited sonography capacity. It is therefore advised that women with recurrent AFM (as defined above) or have significant risk factors (as listed in table 1) for stillbirth should have an ultrasound assessment for growth, liquor volume and Doppler (if not done in the preceding 2 weeks), within 24 hours (or next working day at weekends and bank holidays). Where women presenting with AFM already have an identified problem such as slow growth or small for gestational age then an ultrasound for liquor volume and doppler should be performed within 24 hours (or next working day).

Any concerns identified on ultrasound should be managed according to the issue identified.

Whilst awaiting scan it is important to emphasise the need to report further concerns. For some very high-risk women it may be appropriate to consider daily (or more frequent) cCTGs until the scan can be undertaken.

6. Management of AFM at the onset of labour

All women presenting to the maternity unit, or at home in labour, should be asked about their fetal movements prior to labour as part of the initial assessment of fetal wellbeing.
Women who are otherwise midwifery led care and have experienced episodes of altered fetal movements, more than 21 days apart with normal investigations, and report fetal movements are normal in the 24 hours prior to labour, continue to fulfil the criteria for the All-Wales Clinical Pathway for Normal Labour (AWCPNL).

If fetal concerns are identified via the initial assessment of the AWCPNL, including altered fetal movements in the previous 24 hours, then there should be an offer of continuous eFM via CTG on the obstetric unit due to the lack of evidence to recommend monitoring via intelligent intermittent auscultation (IIA) where there is suspected fetal compromise.

7. Increased Fetal Movements

On some occasions women may contact maternity services because they are concerned about increased or excessive fetal movement. There are limited 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 (3, 4, 5). 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 (24, 25).

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 (OR 0.66, 95% CI 0.46–0.93) (26).
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.

8. Auditing and monitoring

Audit should be performed using the key recommendations as indicators to identify where improvements are required, to enable changes as necessary and to provide evidence of continuous quality improvement initiatives

Auditable standards include:

1. Confirmation of 'noticing and responding to movements' discussion (All Wales Maternity Record)
2. Fetal movements discussed at every antenatal contact
3. Management of AFM is in accordance with the checklist, specifically:

    i. Was initial assessment completed within 15 minutes as per BSOTS protocol?
    ii. Was a computerised CTG performed?
    iii. Was an ultrasound scan for growth, liquor volume and Doppler performed if the mother had risk factors?
    iv. Was the ultrasound scan performed within the recommended 24hours?
    v. Was induction of labour (IOL) or delivery offered according to the guideline?

Process measures include:

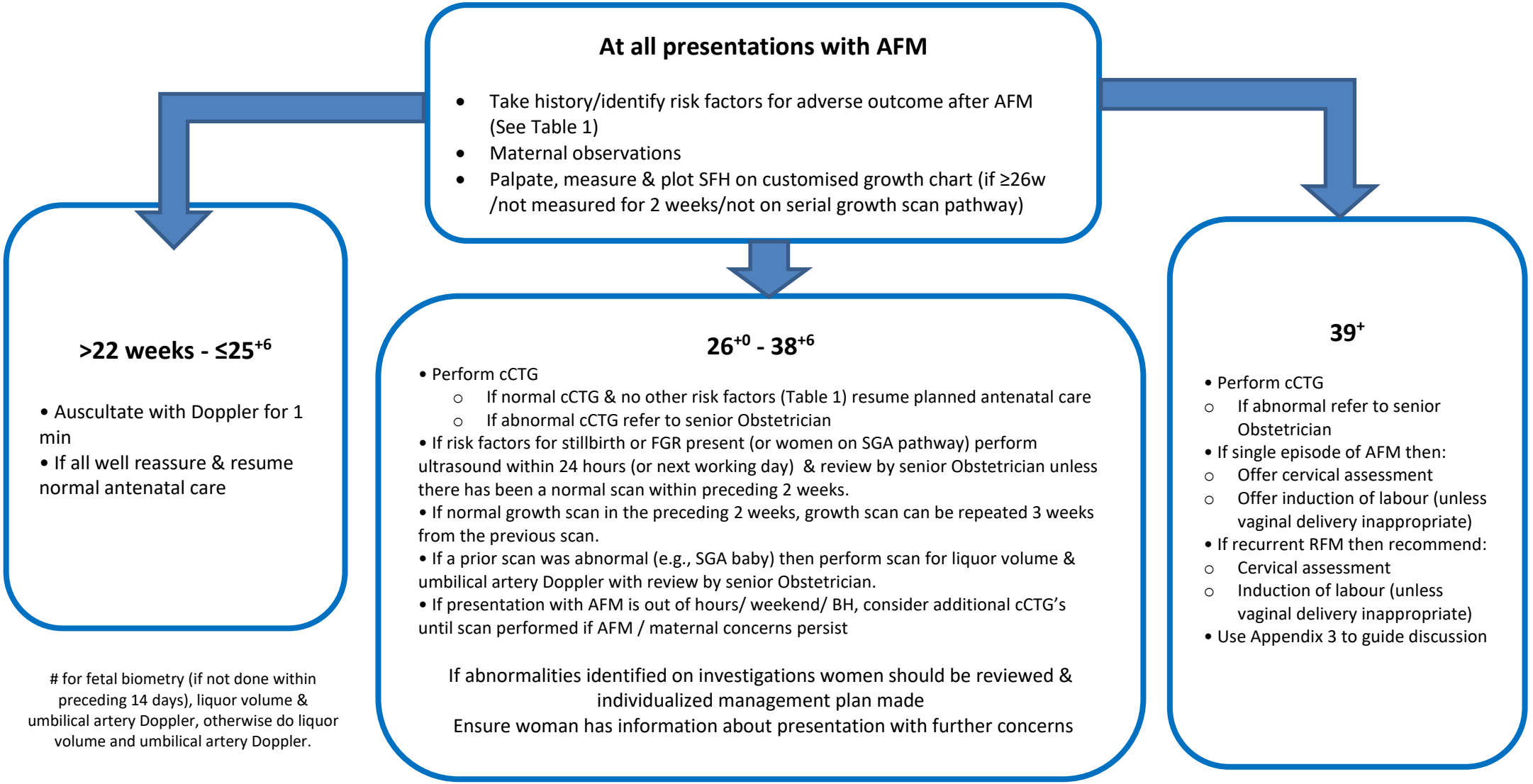
1. Proportion of women who present with AFM >24 hours
2. Proportion of women who have IOL (or birth) for AFM as sole indication

Outcome measures include:

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

9. Appendices

Appendix 1: Standard Operating Procedure (SOP) for altered fetal movements (AFM) in pregnancy



Appendix 2: Attendance with Altered Fetal Movements (AFM) Proforma

Addressograph	G: P:	EDD:
	Gestation:	AFM episode:
	Assessment by:	
	Signature:	
	Date:	

ASK, ASSESS, ACT, ADVISE	
Ask	**Comments**
Confirm there is maternal perception of AFM? How long has there been AFM? Is this the first episode? When were movements last felt?	
Assess	**Comments**
A detailed history medical / obstetric, including: Risk factors for stillbirth (Table 1): • Previous stillbirth > 20/40 • Previous SGA • Smoker (check CO levels) • Hypertension • Diabetes • Second presentation with 21 days • Unable to measure fundal height (twins/BMI >35/large fibroids) • Fundal height <10th centile / slowing growth velocity • Other	
Act	**Comments**
• Abdominal palpation • Auscultation of the fetal heart with Pinard stethoscope or hand-held Doppler for a minimum of 1 minute • A full antenatal examination including maternal heart rate, blood pressure and temperature • Measure SFH (where appropriate) • If ≥26 weeks' gestation perform cCTG to assess fetal heart rate in accordance with national guidelines • Assess for ultrasound / cervical assessment / IOL as per Appendix 1	
Advise	**Comments**
Convey results of investigations to the mother, who should be advised to re-attend if she has further concerns about AFM	

Appendix 3: Induction of Labour for Altered Fetal Movements - Discussion Aid

Investigations following maternal presentation with altered 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 and considered alongside maternal preference.
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 *1 in 13 live births*	97 per 1,000 live births *1 in 10 live births*
32 weeks 0 days – 36 weeks 6 days	16 per 1,000 live births *1 in 63 live births*	20 per 1,000 live births *1 in 50 live births*
37 weeks 0 days – 41 weeks 6 days	1.5 per 1,000 live births *1 in 666 live births*	2 per 1,000 live births *1 in 500 live births*
42 weeks 0 + days	1 per 1,000 live births *1 in 1000 live births*	1.5 per 1,000 live births *1 in 666 live births*

Data suggests that a single episode of AFM increases the risk of stillbirth by approximately 2-fold. Recurrent AFM increases this risk further to over 5-fold.
The risk of a stillbirth following a single episode of AFM after 28 weeks' gestation is 0.6% (1 in 166 pregnancies); this increased to 1.4% if women presented more than twice with AFM (1 in 71 pregnancies) (11).

The risk of having a small for gestational age baby is 9.8% following a single episode AFM after 28 weeks' gestation (1 in 10 pregnancies); this increased to 44.2% if women presented more than twice with AFM to 1.4% (2 in 5 pregnancies) (11).

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%	*1 in 435*	0.09%	*1 in 1111*
38 weeks	0.20%	*1 in 500*	0.08%	*1 in 1250*
39 weeks	0.19%	*1 in 526*	0.06%	*1 in 1666*
40 weeks	0.18%	*1 in 555*	0.08%	*1 in 1250*
41 weeks	0.22%	*1 in 454*	0.07%	*1 in 1428*

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

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

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%	*1 in 13 babies*	17.6%	*1 in 6 babies*
38 weeks	7.4%	*1 in 14 babies*	11.3%	*1 in 9 babies*
39 weeks	7.3%	*1 in 14 babies*	9.3%	*1 in 11 babies*
40 weeks	7.3%	*1 in 14 babies*	8.0%	*1 in 12 babies*
41 weeks	8.4%	*1 in 12 babies*	6.6%	*1 in 15 babies*

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 difference in Caesarean birth rates(IOL 18.6% vs. Expectant 22%) and NICU admission (IOL 11.7% vs. Expectant 13.0%).

(Grobman, W. A., Rice, M. M., Reddy, U. M., Tita, A. T. N., Silver, R. M., Mallett, G., Hill, K., Thom, E. A., El-Sayed, Y. Y., Perez-Delboy, A., Rouse, D. J., Saade, G. R., Boggess, K. A., Chauhan, S. P., Iams, J. D., Chien, E. K., Casey, B. M., Gibbs, R. S., Srinivas, S. K., Swamy, G. K., … Eunice Kennedy Shriver National Institute of Child Health and Human Development Maternal–Fetal Medicine Units Network (2018). Labor Induction versus Expectant Management in Low-Risk Nulliparous Women. *The New England journal of medicine*, *379*(6), 513–523. https://doi.org/10.1056/NEJMoa1800566)

10. **References**

1) Whitworth, M., Fisher, M., Heazell, A. (2026) RCOG Green top guideline 57. Reduced Fetal Movements. *BJOG* https://doi.org/10.1111/1471-0528.70198
2) Maulik, D. (1997). Doppler velocimetry for fetal surveillance: Adverse perinatal outcome and fetal hypoxia. *Doppler ultrasound in Obstetrics and Gynecology*
3) Stacey, T., J. M. Thompson, E. A. Mitchell, A. Ekeroma, J. Zuccollo & L. M. McCowan (2011). Maternal Perception of Fetal Activity and Late Stillbirth Risk: Findings from the Auckland Stillbirth Study. *Birth* 38(4): 311-316
4) Heazell A.E.P., Warland, J., Stacey, T., Coomarasamy, C., Budd, J., Mitchell, E.A & O'Brien, L. M. (2017) Stillbirth is associated with perceived alterations in fetal activity - findings from an international case control study. *BMC Pregnancy Childbirth; 17*(1):369
5) Heazell, A. E. P., Budd, J., Li, M., Cronin, R., Bradford, B., McCowan, L. M. E., Mitchell, E.A., Stacey, T., Martin, B., Roberts, D & J. Thompson, M. D (2018). "Alterations in maternally perceived fetal movement and their association with late stillbirth: findings from the Midland and North of England stillbirth case-control study." *BMJ Open 8*(7): e020031
6) Efkarpidis, S., Alexopoulos, E., Kean, L., Liu, D & Fay, T. (2004). Case-control study of factors associated with intrauterine deaths. *Med Ged Med* 6(2): 53-58
7) Warrander, L., Batra, G., Bernatavicius, G., et al. Maternal Perception of reduced fetal movements is associated with altered placental structure and function. 2012. *PLoS ONE* 7(4):e34851. https://doi.org/10.1371/journal.pone.0034851
8) Sergent, F., Lefevre, A., Verspyck, E & Marpeau, L. (2005). Decreased fetal movements in the third trimester: what to do? *Gynecol Obstet Fertil 33*(11): 861-869
9) O'Sullivan, O., Stephen, O., Martindale, E. A. & Heazell, A. E. (2009). Predicting Poor Perinatal Outcome in Women who Present with Decreased Fetal Movements - A Preliminary Study. *Journal of Obstetrics and Gynaecology 29*(8): 705-710
10) Dutton, P. J., L. K. Warrander, S. A. Roberts, G. Bernatavicius, L. M. Byrd, D. Gaze, J. Kroll, R. L. Jones, C. P. Sibley, J. F. Froen & A. E. Heazell (2012). Predictors of poor perinatal outcome following maternal perception of reduced fetal movements--a prospective cohort study .*PLoS One 7*(7): e39784
11) Scala, C., A. Bhide, A. Familiari, G. Pagani, A. Khalil, A. Papageorghiou & B. Thilaganathan (2015). Number of episodes of reduced fetal movement at term: association with adverse perinatal GMEC RFM_Guideline. *American Journal of Obstetrics Gynecol 213*(5): 678 e671-676
12) Grant, A., D. Elbourne, L. Valentin & S. Alexander (1989). Routine formal fetal movement counting and risk of antepartum late death in normally formed singletons. *Lancet 2*(8659): 345-349
13) Mangesi, L., Hofmeyr, G.J., Smith, V & Smyth, R. M. D. (2015) Fetal movement counting for assessment of fetal wellbeing. *Cochrane Database of Systematic Reviews*
14) Norman, J., Heazell, A., et al. (2018) Awareness of fetal movements and care package to reduce fetal mortality (AFFIRM): a stepped wedge, cluster-randomised trial. *The Lancet 392* (10158);

1629-1638. Doi.org/10.1016/s0140-6736(18)31543-5

15) Hofmeyr, G. J. & N. Novikova (2022). Management of reported decreased fetal movements for improving pregnancy outcomes (Review). *Cochrane Database Systematic Reviews 4:* CD009148

16) Confidential Enquiry into Stillbirths and Deaths in Infancy (2001). 8th Annual Report, London, Maternal and Child Health Research Consortium

17) Draper, E. S., Kurinczuk, J. J & Kenyon, S o. b. o. MBRRACE-UK. (2015). MBRRACE-UK Perinatal Confidential Enquiry: Term, singleton, normally formed, antepartum stillbirth. Leicester, The Infant Mortality and Morbidity Studies, Department of Health Sciences, University of Leicester

18) Greater Manchester and Eastern Cheshire Strategic Clinical Networks. (2019). Reduced Fetal Movement (RFM) in pregnancy guideline.

19) Grivell, R., Alfirevic, Z., Gyte, G., & Devane, D. (2015). Antenatal cardiotocography for fetal assessment. *Cochrane Database Systematic Reviews* 12(9) doi:10.1002/14651858.CD007863.pub4

20) NHS England. (2023) Saving babies' lives care bundle version three: a care bundle for reducing perinatal mortality

21) Bhatia, M., Mitsi, V., Court, L., et al. (2019). The outcomes of pregnancies with reduced fetal movements: a retrospective cohort study. *AOGS* Vol 98 (11): 1450-1454. Doi.org/10.1111/aogs.13671

22) Sharp I., T. Adeyeye, L., Peacock, A., Mahdi, K., Farrant, A.N., Sharp, S.L., Greenwood & Heazell, A. E. P. (2021). Investigation of the outcome of pregnancies complicated by increased fetal movements and their relation to underlying causes - A prospective cohort study. *Acta Obstet Gynecol Scand. 100*(1):91-100

23) Kalisse, T., Farrell, A. M., Verling, A. M., Rutherford, E., Ravinder, M., Khalid, A., O'Donoghue, K. (2024). National Clinical Practice Guideline: Reduced Fetal Movements. *National Women and Infants Health Programme and The Institute of Obstetricians and Gynaecologists.*

24) Huang, C., Han, W & Fan, Y. (2019). Correlation study between increased fetal movement during the third trimester and neonatal outcome. *BMC Pregnancy Childbirth 19*(1):467

25) Sharp, I., Adeyeye, T., Peacock, A, Mahdi, K., Farrant., Sharp, A. N., Greenwood, S. L & Heazell, A. E. P. (2021). Investigation of the outcome of pregnancies complicated by increased fetal movements and their relation to underlying causes - A prospective cohort study. *Acta Obstetric Gynecol Scand. 100*(1):91-100

26) Whitehead, C. L., Cohen, N., Visser, G. A & Farine, D. (2020). Are increased fetal movements always reassuring? *The Journal of Maternal-Fetal & Neonatal Medicine, 33*:21, 3713-3718, DOI: 10.1080/14767058.2019.1582027

27) Smyth, R., et al (2016). Women's and clinicians perspectives of presentation with reduced fetal movements: a qualitative study. *BMC Pregnancy Childbirth* 16: 280

28) MBRRACE – UK Perinatal Confidentail Enquiry 2020: Stillbirth and neonatal deaths in twin pregnancies. University of Leicester https://www.npeu.ox.ac.uk/mbrrace-uk

29) Turner, J., Flenady, V., Ellwood, D. (2021) Evaluation of pregnancy outcomes among women with decreased fetal movements. *JAMA network Open* 4:e215071 doi:10.1001/jamanetworkopen.2021.5071