



ISA Position Statement: Fetal Movement Monitoring

Version 3, August 2022

Antenatal surveillance by detection and management of decreased (reduced) fetal movements

1. Purpose of this statement

Stillbirth is a tragedy for parents and families with far-reaching psychosocial impact,¹ affecting over 2 million families worldwide annually.² Stillbirths are often preceded by maternal perception of decreased fetal movement (DFM) either in strength or frequency. DFM is also linked to other adverse perinatal outcomes such as neurodevelopmental disability, feto-maternal haemorrhage (FMH), oligohydramnios, umbilical cord complications, small for gestational age (SGA) and fetal growth restriction (FGR).³ Awareness of fetal movement and assessment of reports of DFM is a common method of antenatal surveillance for prevention of stillbirth.

The purpose of this statement is to assist countries around the world in reducing stillbirth after 28 weeks gestation through better detection and management of women with DFM.

While DFM is a common cause for concern during pregnancy⁴ most people experiencing DFM will have a healthy baby without the need for obstetric intervention. While planning an early birth may be warranted for some pregnancies, depending on the outcome of the clinical evaluation, the risks and benefits of early birth for the baby and the mother need to be carefully considered.⁵

2. Summary of what is known about the detection and management of decreased fetal movements

DFM has long been proposed as a screening tool for stillbirth.⁶ While the vast majority of women who perceive DFM do not experience adverse pregnancy outcomes, in general, the risk of stillbirth is modestly increased in women who report DFM, at 28 weeks gestation or more, compared to women who do not.⁷

Some women who have concerns about DFM delay telling their health care provider, meaning a critical window is lost to intervene and potentially avoid adverse outcome. In a recent international survey, women who had a stillbirth were less likely to have been informed about the importance of being aware of their baby's movements and of the significance of DFM.⁸ Women should be informed about the importance of being aware of baby's movements and reminded at each antenatal visit in the third trimester. Raising awareness of DFM is an essential part of antenatal care which may reduce a woman's anxiety.⁹

Research to date has not identified a robust definition of DFM based on the number of movements the woman feels over a certain time period.¹⁰ Fetal movement counting, where the woman records the number of kicks felt over a period of time (kick counting), has not been shown to reduce stillbirth¹¹. Similarly, promoting fetal movement awareness (without counting) has not been definitively shown to reduce stillbirths.⁷ Some women may find kick counting helpful to reduce anxiety and promote bonding,¹² and structured approaches to daily fetal movement awareness that involve attention to strength, frequency, and character without counting have also been shown to be enjoyable for women.¹³

A woman's perception of cessation of fetal movements, or a reduction in strength and/or frequency of movements remains the best definition of DFM (overriding any definition using counting of movements) and should be regarded as a sign of a potentially at-risk pregnancy.¹⁴

Since many women hear from others that the baby "slows down before birth", it is natural to believe that DFM toward the end of pregnancy is normal. However, while the nature of fetal movements may change near term due to restricted space and fetal behavioural development, including the development of sleep-wake cycles, an actual reduction in the strength or frequency is not considered normal.^{10,15} Although odds of stillbirth are greater in women who perceive decreased frequency of fetal movements in early third trimester (28-32 weeks) compared to late third trimester (37+ weeks), DFM is associated with stillbirth at all gestations in the third trimester.¹⁶

While further research to identify the optimal management of women with DFM is needed,¹⁷ it is well established that DFM is an indicator of fetal compromise and so a detailed clinical evaluation of all women who report DFM should be undertaken as soon as possible.¹⁸ Unfortunately, the clinical management of women with DFM is often insufficient,¹⁹ and advice to women may be inconsistent or outdated.²⁰ For example there is no evidence-base to the advice commonly given to women to have a cold drink, or something to eat to promote fetal movement, and such advice could delay clinical evaluation.¹⁵ Women who are concerned about fetal movements should always be asked to come into the maternity unit to be assessed without delay.

While most women experiencing DFM will have a healthy baby without the need for obstetric intervention, early birth may be warranted in some cases depending on the outcome of the clinical evaluation. However, the risks of increased morbidity and mortality associated with iatrogenic preterm birth are well documented.^{21,22} Even for a pregnancy that has reached 37 weeks, there is an increased risk of short- and longer-term health²³ and neuro developmental²⁴ problems for the baby with planned early birth without medical indication (i.e. 37-38 weeks compared with 39-40 weeks). Therefore, the risks and benefits of planning birth before 39 weeks should be carefully considered. Maternal and neonatal complications associated with obstetric intervention, such as caesarean section and iatrogenic preterm birth are also an important consideration for studies of DFM management.^{5,24}

Recent large-scale controlled trials in this area have shown that promoting awareness of fetal movement, combined with clinical management protocols for DFM, is associated with non-significant reductions in stillbirth.^{7,25} The impact of promoting fetal movement awareness on other

outcomes is mixed with one trial reporting an increase in inductions of labour and nursery admissions of >48 hours,⁷ and another reporting no change in inductions of labour and a reduction in composite adverse neonatal outcome.²⁵ It is noted that trials to-date have only compared fetal movement awareness and management interventions to standard care, which also involves encouraging fetal movement awareness and assessment of DFM. Further, there is indirect evidence that the stillbirth rate decreases in populations where mothers are informed about DFM and clinicians are encouraged to follow a management protocol.²⁶

For a full synthesis of the evidence, please refer to the clinical practice guidelines from the Royal College of Obstetricians and Gynaecologists (RCOG), and the Perinatal Society of Australia and New Zealand (PSANZ).

3. Best practice points

- All women should be given written and verbal information about normal fetal activity including the importance of fetal movements by 28 weeks gestation. Pregnant women first become aware of fetal movements between 16- and 24-weeks' gestation. By 26-28 weeks (start of the third trimester) most women perceive regular daily fetal movements and should be advised to observe movements each day from this gestation onwards. For most women this is easier to do in the evening when the baby is most likely to be active/have strong movements.^{15,27} If a woman observes that her baby has not moved for a day (cessation of movement), or she perceives a reduction in the strength and/or frequency of her baby's movements, she should contact her health care provider that day for assessment and not defer to the following day. Please refer to information brochures for women from RCOG and PSANZ (available in multiple languages).
- Women with DFM should be seen, without delay, by their health care provider, who should undertake a thorough evaluation, and formulate a plan of care based on clinical findings. The goal of the evaluation is to urgently rule out imminent or recent fetal demise (stillbirth), and to assess for common risk factors such as fetal growth restriction and decreasing placental function. The following assessment is a consensus-based recommendation for all women with DFM:
 - Identify any maternal risk factors for stillbirth or fetal growth restriction and follow local protocols for care where these are present.
 - Exclude pathology through testing: fetal death (confirm via ultrasound/Doppler) or non-reassuring fetal status (abnormal cardiotocograph trace), fetal growth restriction and other abnormalities (clinical or ultrasound assessment).
 - On the basis of the above assessment; formulate an individualized management plan using principles of shared-decision making.
 - After review, women who do not have abnormal findings should be reassured about their decision to contact care and recommended to attend again if concerned about their baby's movements in the future.

If a diagnosis of fetal death is made, the woman should be provided compassionate, respectful care.²⁸ Please refer to PSANZ Care after Stillbirth and Neonatal Death guidelines.

- Ongoing management will depend on the individual clinical situation but includes:
 - Specific care where complications are identified.

- Closer surveillance and consideration of the risks and benefits of early delivery. Women should be given appropriate information to enhance shared decision making.

4. Research gaps

We concur with the recommendation from the Cochrane review authors⁹ on the need for future research in the area of fetal movement monitoring, including: assessing the sensitivity and specificity of fetal movement counting in detecting fetal compromise; its effectiveness in decreasing perinatal mortality in high-risk and low-risk women; and its acceptability and ease of use by women. In addition, assessment of the sensitivity, specificity, acceptability, and effectiveness of other methods of promoting fetal movement awareness (without counting) should also be evaluated.

Further research is needed to determine the optimal management strategy for women who present with DFM, including those with multiple presentations.¹⁷ Available evidence on interventions in relation to fetal movements is largely from high-income country settings. Further research is needed to explore the place of fetal movement interventions in low- and middle-income country settings, where the burden of stillbirth is higher.

Some women with stillbirth have reported other changes in movements before their baby was stillborn, such as sudden fluttering or brisk, almost violent, movements.^{16,29} There is limited research on the association of such movements with subsequent stillbirth. Further research may help to better understand this phenomenon.

5. Ongoing research

The CEPRA trial (Netherlands, UK, and Australia) is testing measurement of the cerebroplacental ratio as a tool for determining timing of birth in appropriate for gestational age fetuses at term amongst women with DFM (www.zorgevaluatienederland.nl), trial registration number NL7557).

Work at Tommy's Research Centre University of Manchester is underway to conduct a systematic review of studies of interventions for DFM as well as to establish a core outcome set for use in studies relating to awareness and clinical management of DFM (<https://pubmed.ncbi.nlm.nih.gov/34886899/>).

An individual participant data meta-analysis of trials involving fetal movement interventions to reduce stillbirth is also underway. Protocol registered on Prospero https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42021222997

6. Further reading

For further reading please see guidelines from the Royal College of Obstetricians and Gynaecologists (RCOG) [RCOG Green-top Guideline on Reduced Fetal Movements](#) and the Perinatal Society of Australia and New Zealand (PSANZ) [PSANZ Clinical Practice Guideline for Management of Decreased Fetal Movement](#).

7. Development of this Statement and Consultation

This is the second update of the statement first produced in December 2009 after broad consultation with ISA member organizations and subsequently updated in June 2017.

8. What has changed in this update

The major recommendations from the previous version of this position statement (June 2017) remain unchanged. The statement has been updated to include current evidence.

9. Planned revisions

This position statement will be revised in 2025 or earlier if required, based on new evidence becoming available.

10. Feedback welcome

Please send comments to ISA for consideration in the next update or contact Dr Billie Bradford billie.bradford@mater.uq.edu.au.

11. Acknowledgements

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