# Trust Guideline for the use of Fetal Fibronectin and AmniSure

## A clinical guideline recommended for use

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| **In:** | Maternity |
| **By:** | Obstetricians, midwives |
| **For:** | Women with suspected preterm labour or preterm rupture of membranes |
| **Division responsible for document:** | Women's and Children's Services |
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| **If Yes – does the strategy/policy deviate from the recommendations of NICE? If so, why?** | N/A |

**Version and Document Control:**

| Version Number | Date of Update | Change Description | Author |
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| 5 | 10/04/2020 | Change of brand of swab used to diagnose preterm labour from Actim Partus to Fetal Fibronectin | Mr C Bircher |
| 6 | 26/06/2020 | Change of brand of swab used to diagnose PROM from Actim PROM to AmniSure | Mr C Bircher |
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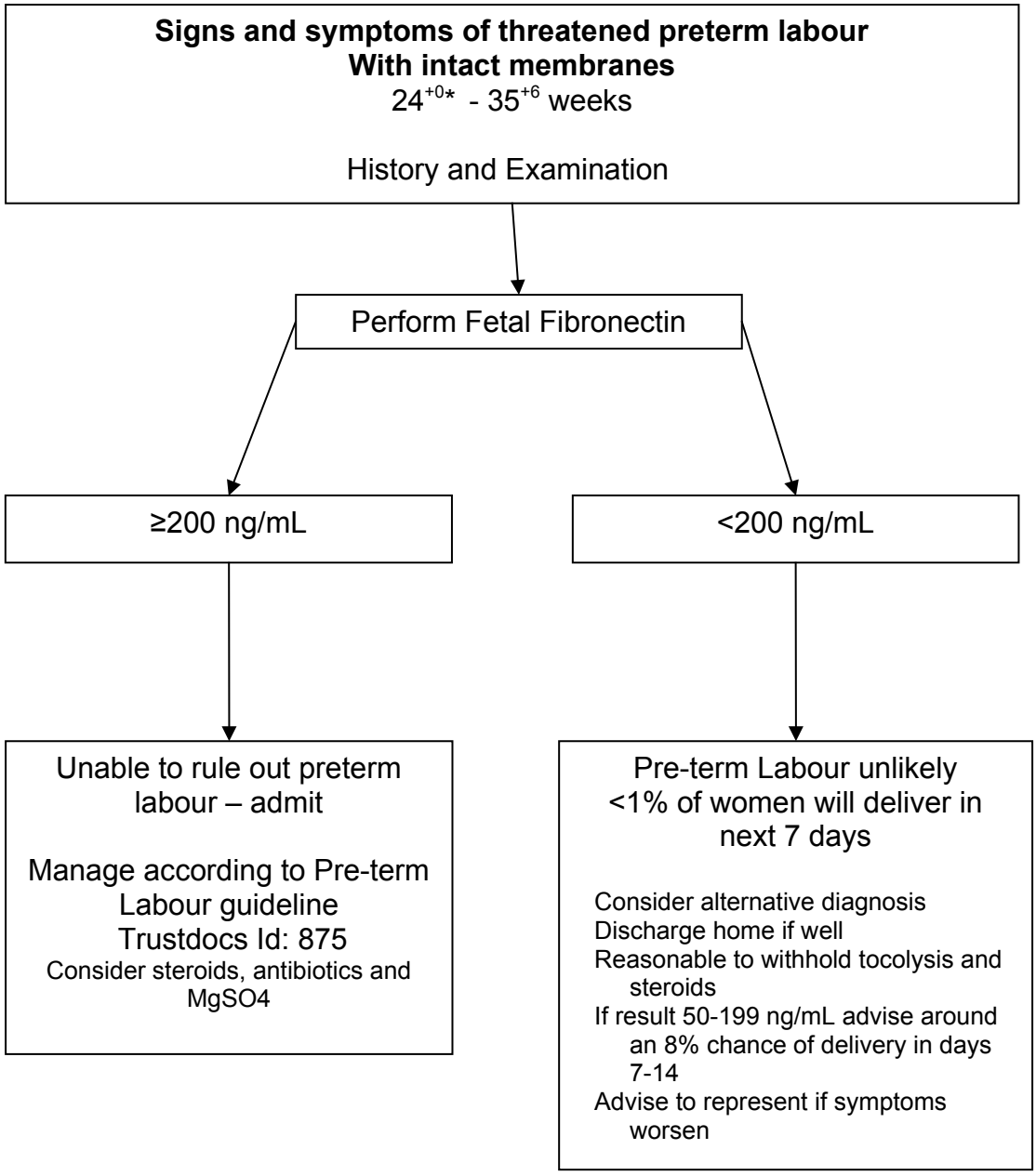
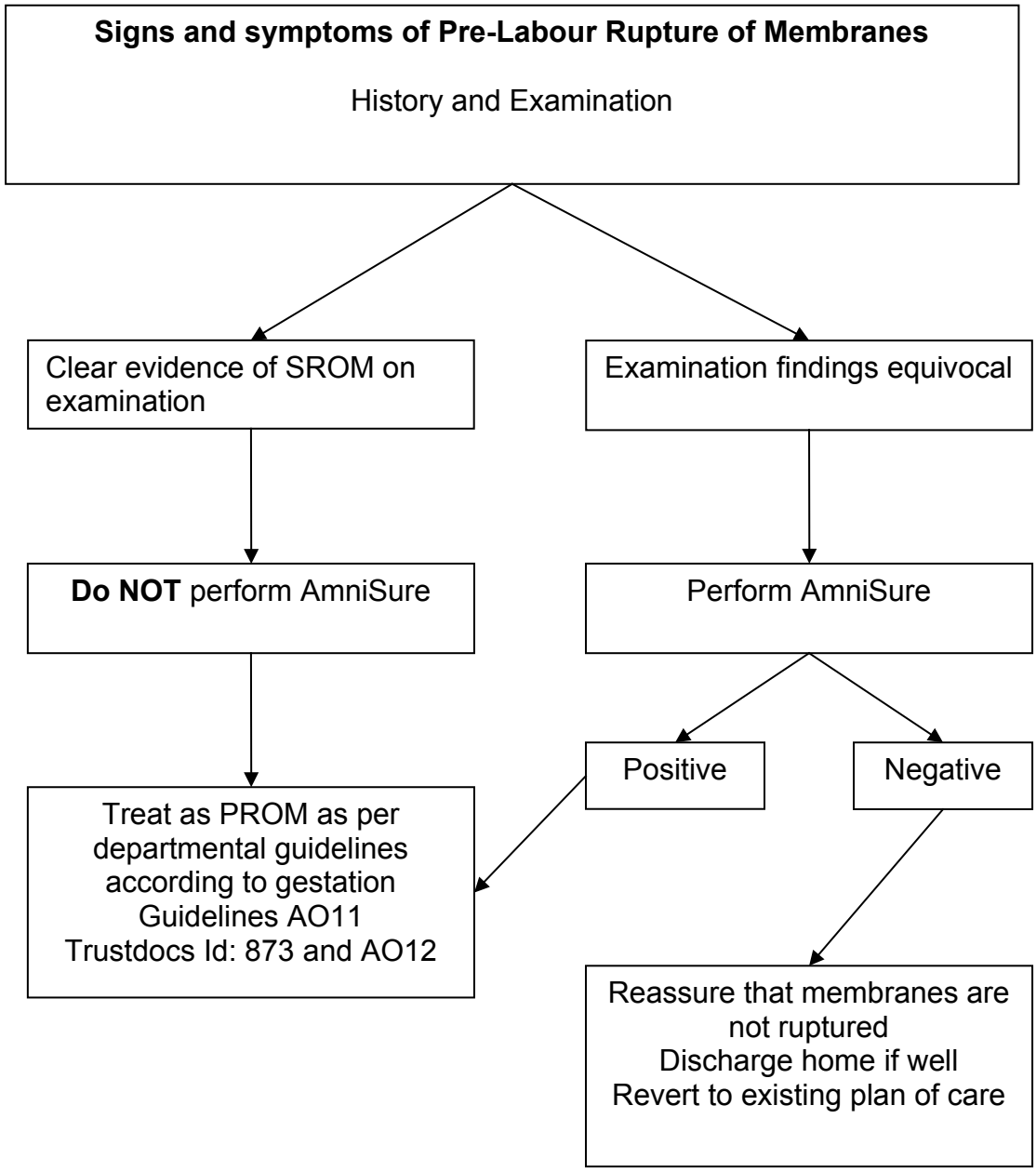
## Algorithm for use of Fetal Fibronectin




*fFN is validated from 22 weeks so can be used between 22 and 23+6 with senior doctor (Tier 3 or Consultant) involvement in the decision and if a result would affect

## Algorithm for use of AmniSure



## Trust Guideline for the use of Fetal Fibronectin and AmniSure

### Objective

**To direct the appropriate use of Fetal Fibronectin in the assessment of women with symptoms of preterm labour and intact membranes and of AmniSure in the assessment of women with suspected PROM in whom there is no obvious evidence of rupture of membranes, with a resultant improvement in care of these women.**

### Rationale

- Correctly diagnosing pre-term labour is difficult when using clinical history and examination alone, and many women will be admitted to hospital, transferred or treated unnecessarily.
- Diagnosis of Pre-term labour and / or Pre-term rupture of membranes is important because there are targeted interventions that can be given to the mother which have been proven to improve perinatal mortality and/or morbidity. For example, antenatal corticosteroids, magnesium sulphate and tocolysis.
- Fetal Fibronectin and AmniSure are simple and quick bed-side tests which can be used to aid diagnosis, with high sensitivity. A negative test can be safely relied upon to rule out Pre-term labour or PROM respectively and therefore reduce unnecessary intervention and hospital admissions.

### Scope of the guideline

This guidance is concerned with the indication, use and interpretation of Fetal Fibronectin and Actim PROM tests. For management of PROM and pre-term labour please refer to separate relevant guidelines.

### Use of FETAL FIBRONECTIN: Threatened pre-term labour with intact membranes.

Fetal fibronectin (fFN) is a fibronectin protein produced by fetal cells. It is found at the interface of the chorion and the decidua (between the fetal sac and the uterine lining). Fetal fibronectin "leaks" into the vagina if a preterm delivery is likely to occur and can be measured in a screening test.

A fFN test result <200 ng/mL gives providers confidence that preterm labour is not imminent, as less than 1% of women with this result will deliver within 7 days.

### Criteria for using Fetal Fibronectin

- Women with signs and symptoms of pre term labour from 24 weeks of gestation to 35+6 weeks
    - fFN is validated from 22 weeks so can be used between 22 and 23+6 with senior doctor (Tier 3 or Consultant) involvement in the decision and if a result would affect patient care.
- Intact membranes
- Do not use if cervix is 3cm dilated or greater

## Contraindications

- Ruptured membranes
- Cervix 3cm dilated or greater
- Any contraindication to tocolysis
- Moderate- severe vaginal bleeding. This is because moderate-severe vaginal bleeding is a reason to admit a patient, therefore fFN will not change the decision.
    - NB Testing a bloody sample can give a falsely positive result. Therefore if done in this situation and the result is <200ng/mL it can still be interpreted as a valid negative result
- Sexual intercourse (with no lubricant) within the previous 24 hours
    - NB Semen increases the fFN level by 5-6 times. Therefore if the test is done in this situation and the result is <200ng/mL it can still be interpreted as a valid negative result. If the test is done and >200ng/mL it may be a false positive but this cannot be determined. Clinical judgement is advised. If the patient is admitted then a fFN level can be done >24 hours after intercourse to give an accurate result.
- Use of lubricant for VE or internal ultrasound scan within the previous 24 hours
    - The use of lubricant can interfer the fFN sample giving an invalid result. Therefore after either you must wait >24 hours to get an accurate result.

## Method for carrying out Fetal Fibronectin

1. Specimen must be collected **PRIOR** to digital examination or collection of culture specimens.
2. Perform speculum examination (**using only water as a lubricant**) and rotate swab across posterior fornix for 10 seconds to allow for absorption of secretions.
3. Thoroughly mix swab in liquid extraction buffer provided for 10 seconds
4. Squeeze swab against inside of tube
5. If not testing immediately, snap the swab shaft and replace cap onto test tube until it clicks. This sample is valid for testing for up to 8 hours at room temperature.
6. When testing, remove swab and discard and place tube into stand
7. At PeriLynx analyser – select test patient on main menu, scan user ID (barcode) and press next
8. Enter rapid fFN Cassette lot number and press next.
9. Enter patient ID and press next.
10. Insert the rapid fFN cassette and prepare pipette with 200µl (0.2ml) from the patient sample collected in the buffer solution and press next.
11. Pipette 200µl (0.2ml) from the sample collected in the buffer solution into the well of the rapid fFN cassette and press Start Test
12. When testing is complete, the system will display and print the result.

13. Result will be given in ng/mL and should be interpreted and managed according to table 1 below:

| FFN Value ng/mL | % who will deliver within 1 week | % who will deliver within 2 weeks | % who will deliver at <34/40 | Suggested Management |
|---|---|---|---|---|
| **0-9** | 1 | 1.8 | 1.5 | Discharge with routine midwife follow-up |
| **10-49** | 0 | 1.6 | 8.2 | Discharge with routine midwife follow-up |
| **50-199** | 0 | 7.7 | 11.5 | Discharge but advise the woman to re-present if symptoms worsen.<br>Make sure woman is aware of risk of delivery between days 7 and 14 |
| **200-499** | 14 | 29 | 33 | Admit and inform NICU<br>Antenatal steroids<br>Tocolysis<br>GBS antibiotics if in labour<br>MgSO4 if in labour and <30/40 |
| **>500** | 38 | 46 | 75 | Admit and inform NICU<br>Antenatal steroids<br>Tocolysis<br>GBS antibiotics<br>Magnesium Sulphate if <30/40 |

(Abbott DS et al 2012)

## Use of AmniSure: Equivocal findings with history of PROM

The AmniSure test is a rapid, non-invasive strip test for the detection of the placental alpha microglobulin-1 protein (PAMG-1). It is used to help diagnose whether patients have ruptured membranes in patients presenting with signs and symptoms of PROM/PPROM. **It can be used on patients at any gestation.**

In commenting on the evidence for PAMG-1, NICE states “One prospective cohort study (n=100) found that placenta alpha-microglobulin-1 is a useful test in diagnosing P-PROM. Positive and negative likelihood ratios were very useful.” The sensitivity in this trial was 92% and the specificity 99%. This is better performing than other products on the market, including Actim PROM (a test for insulin-like growth factor binding protein-1 – IGFBP-1)

### Criteria for using AmniSure

- Women who present with history of rupture of membranes but there is **no** clinical evidence of membrane rupture**.** Women *with* clinical evidence of PROM should be treated as such without the need for this test.
- Can be used at *any* gestation.

- AmniSure can be used in the presence of semen, minimal amounts of blood, vaginal infection, after intercourse, after a vaginal examination, and in the presence of a minimal amount of water-based lubricant.

## Contraindications

- Do NOT use in women with a history of threatened preterm labour where there is no history suggestive of rupture of membranes.
- Additional diagnostic testing is usually not necessary to confirm risk for women with advanced cervical dilatation.
- Active vaginal bleeding as this can affect the result and it is a reason to keep the patient in hospital. As above, AmniSure can be used with minimal amounts of blood.
- In rare cases, when a sample is taken 12-24 hours or later after a rupture has occurred and the leakage of amniotic fluid has stopped, the test may not detect ROM due to several factors including (but not limited to) resealing of the rupture, denaturing antigen etc. Periodic retesting in such cases may be advisable.

## Method for carrying out AmniSure

- **Collecting the sample:**
    - Have the patient lie on her back, speculum is optional, but the test can be performed without a speculum. Have a timer/stop clock ready.
    - Take the solvent vial by its cap and ensure all liquid in the vial has dropped to the bottom. Open the solvent vial and place it in a vertical position to prepare.
    - Use only the sterile flocked swab provided with the AmniSure Test kit. Remove the swab from its packet holding the shaft, not the tip.
    - The tip of the swab should not touch anything prior to insertion into the vagina.
    - Hold the swab in the middle of the shaft and with the patient lying on her back, carefully insert the tip of the sterile swab into the vagina until your fingers contact the skin (no more than 5-7cm deep) for **1 minute**.
    - Remove swab from the vagina and ensure swab tip does not touch anything after removal prior to inserting into the solvent vial.
    - If the swab is light pink or spotted with blood (trace amounts), this is okay and can still be tested. If the swab is red and saturated with blood, the test should not be used.
- **Testing the sample:**
    - Remove the swab from the vagina, immediately place the tip into the provided solvent vial, and rotate swab for **1 minute**.
    - Remove the swab from the vial and discard swab.

  - Tear open the foil pouch at the tear notches and remove the AmniSure test strip holding the blue end.
  - Insert the white end of the test strip with the two arrows facing downwards into the vial with the solvent.
  - Wait for **5 minutes** or until you see 2 lines (whichever is sooner) and remove the test strip.

- **Reading results:**
  - Extract test strip from the vial and read the results on a clean, dry, flat surface and immediately record the results.
  - **POSITIVE** = 2 lines visible. This indicates the membranes have ruptured. Even if the second line is faint or broken, this result is still positive.
  - **NEGATIVE** = 1 line visible. This indicates there is NO rupture of membrane.
  - **NO LINES =** The test is not valid.
  - Do not interpret the result based on the intensity of the lines.
  - AmniSure is a qualitative test, do not interpret a quantitative result from the test.
  - Do not read results 10 minutes after dipping the test strip into vial.

### Negative AmniSure Result

- Women found to be negative using the AmniSure test will no longer require admission and can be safely discharged home.
- These women will no longer require USS to assess liquor volume and avoid repeated visits to the hospital for maternal and fetal well being monitoring.

### Positive AmniSure Result

- Women who are pre-term will have targeted interventions according to the duration of pregnancy to improve perinatal mortality and morbidity (antenatal corticosteroids +/- tocolysis or induction of labour if term) See PPROM Guideline Trustdocs Id: 873.
- Women who are term will be offered induction of labour. See Pre-labour rupture of membranes >37 weeks Guideline Trustdocs Id: 872.

### Clinical audit standards

The Maternity Services are committed to the philosophy of clinical audit, as part of its Clinical Governance programme. The standards contained in this clinical guideline will be subject to continuous audit, with multidisciplinary review of the audit results at one of the monthly departmental Clinic Governance meetings. The results will also be summarised and a list of recommendations formed into an action plan, with a commitment to re-audit within three years, resources permitting.

### Summary of development and consultation process undertaken before registration and dissemination

The authors listed above reviewed this guideline on behalf of Maternity Guidelines Committee who has agreed the final content.

This version has been endorsed by the Maternity Guidelines Committee.

## Distribution list / dissemination method

Trust intranet

## References / Source documents.

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