MATERNITY UNIT

GUIDELINE: Management of preterm pre-labour rupture of the membranes (PPROM)

SCOPE: All midwives and obstetricians working in maternity

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PURPOSE: To guide practitioners in the best practice management for optimal outcomes for both mother and baby. To minimise fetal complications related to infection and prematurity, and to minimise maternal complications related to infection.

DEFINITIONS: PPROM for the purpose of this guideline is defined as rupture of the membranes prior to the onset of labour between 20+0 and 36+6 weeks gestation**.** Prior to 23+0 weeks gestation, the long-term prognosis is usually poor. Prior to viability each PPROM case should be assessed individually and may be managed as an outpatient in some circumstances depending upon the specialist, LMC and the woman. Management between 34+0 and 36+6 weeks may differ from that before 34+0 weeks.

GUIDELINE

PPROM is associated with greater risk factors and neonatal complications therefore a distinction must be drawn between spontaneous rupture of membranes (SROM) at term, and PPROM. The outlook for the baby with PPROM largely depends upon the gestation when SROM has occurred. It has the potential for major implications for mother and baby.

Preterm rupture of the membranes occurs in approximately 2-3% of pregnancies and is associated with 30-40% of preterm births. The majority of women with PPROM go into labour spontaneously. In general, the greatest risks to the fetus prior to 34+0 weeks gestation are the complications of prematurity. After 34+0 weeks the greatest risk to the fetus is infection.

Women are to be admitted to the maternity unit and the obstetrician notified (see flow charts). The LMC normally undertakes initial assessment and referral to the obstetrician, as a transfer of care referral. The LMC *must recommend that care be transferred to the specialist involving a three-way discussion between the LMC, the obstetrician and the woman.*

Confirmation of diagnosis is made by Amnisure testing (see flow chart); additional clinical information can be gained via speculum examination and a visual assessment of the cervix; observing pooling of liquor in the posterior fornix; visualising liquor draining from the cervix. Partosure testing is contraindicated if ROM, but if unsure if ROM has occurred while needing to exclude preterm labour, take Partosure swab PRIOR to any other tests (see Partosure guideline and flow chart). An accurate diagnosis of PPROM is crucial to management. This can be difficult at early gestations as there is a lower liquor volume.

Digital exam should be avoided (unless there is a suspicion of cord prolapse) as it increases the risk of infection without providing more information than a speculum examination.

Vaginal/rectal swabs should be taken with specific request for GBS culture. Swabs for Chlamydia trachomatis and Neisseria gonorrhea should be considered in high-risk groups — see MOH guidelines July 2008.

The woman should be assessed for signs of infection. These signs may include fever, maternal or fetal tachycardia, purulent discharge, vaginal bleeding, contractions, leukocytosis, and uterine tenderness. If these signs are present, broad spectrum antibiotics may be indicated as well as consideration for expedited birth.

Initial management involves: hospitalization, CTG for gestation ≥23+0 weeks should be performed twice daily (if gestation <23+0 weeks then listen to FH with a Doppler only). Ultrasound should be performed weekly for liquor volume and fortnightly for estimated fetal weight. Admission labs should include full blood count, CRP, swabs as noted above, and urine dip/culture.

Prophylactic antibiotics have been shown to prolong pregnancy and reduce the incidence of infection. Currently no one specific antibiotic regime appears superior, however regimes including amoxicillin-clavulanic acid appear to be inferior. At Hauora Tairāwhiti we recommend erythromycin ethyl succinate 400mg (Emycin) every 6 hours for 10 days then stop all antibiotics.

Since preterm labour is a risk factor for early onset neonatal GBS disease, women should be given GBS chemoprophylaxis in labour as per protocol.

There is no evidence to support the use of tocolytics to improve neonatal outcome, however, if PPROM occurs before 34+0 weeks, consider tocolysis to allow the administration of corticosteroids, providing there is no sign of infection, antepartum hemorrhage, or other contraindication to steroids.

Magnesium sulphate for neuroprophylaxis should be considered per protocol when birth appears imminent before 31+6 weeks.

Neonatal Unit should be notified of the admission and a paediatric consult requested to discuss neonatal implications with the woman and her whanau.

Timing of birth in the absence of fetal or maternal compromise has traditionally been around 34+0 weeks. Immediate birth does not seem to improve outcomes in late preterm infants and may actually exacerbate the health burden of mild prematurity. Therefore, timing of birth from 34+0 onwards should be an individualized discussion between the woman, her partner/whanau, and the obstetric team. In women with antepartum risk factors for GBS, early planned birth may be considered after PROM at 34+0 - 36+6 weeks.

Special cases:

Very preterm PROM (<23+0 weeks)
There is no universally agreed management plan. For women with PPROM ≤20+0 weeks, the majority of these pregnancies birth soon after. Fewer than 50% of women remain pregnant beyond the first week of rupture. A guide for management is admission for observation for some time, reassess, and offer counselling after 1 week with a scan and paediatric involvement. The risks and benefits of expectant management versus pregnancy termination will then need to be discussed.

Between 20+0 to 22+4 weeks
Initial management would be the same as for <20+0 weeks. If women opt for ongoing conservative management, a plan should be developed in conjunction with the tertiary referral centre regarding corticosteroids and prophylactic antibiotics at 22+5 weeks onwards according to the same protocol for women who present with PPROM at later gestational ages. Parents should be informed that antenatal corticosteroids might provide a survival benefit while increasing the risk of survival with severe impairment.

Cervical suture
If a cervical suture is present at the time of PPROM, there is an increased risk of infection. In women with PPROM between 22+5 weeks and 34+0 weeks gestation and with no evidence of infection or preterm labour, delayed removal of the cerclage can be considered.

Twin pregnancy
Management of PPROM in twin pregnancy is similar to that of singleton.

Outpatient management

There is currently insufficient evidence to make recommendations regarding outpatient monitoring. Outpatient management is associated with decreased length of hospital stay and improved maternal satisfaction. For women with PPROM the following factors should be considered for expectant management at home following initial hospitalization:

--Cephalic presentation and engaged
--Clear liquor
--Normal fetal movements
--Afebrile
--No maternal tachycarda (HR <100 bpm)
--No fetal tachycardia (baseline HR <160)
--Has NOT had a digital vaginal examination
--Has working home telephone
--Lives less than 30 minutes away
--Able to get transport to and from hospital easily
--Likely to attend follow-up and report concerns promptly

Outpatient management could include twice weekly assessment with midwifery review and fortnightly review by obstetrician. At each maternity visit, the midwife screens for signs of infection or contractions. At each visit the midwife records:

--fetal movement
--colour and odour of amniotic fluid
--maternal temperature, respiratory rate, and heart rate
--gestational age appropriate monitoring of fetal heart tones (CTGs if ≥23 weeks)
--twice weekly blood tests (CBC and CRP)

The obstetrician arranges and reviews:

--weekly ultrasound for liquor volume
--fortnightly ultrasound for estimated fetal weight

As part of home monitoring, the woman should check her temperature and assess fetal movements twice daily. The woman should be advised to avoid swimming, taking a bath, vaginal medications or inserts, and sexual intercourse. If the woman feels unwell or the above monitoring is no longer normal (temperature ≥37.5^{o}C), she should contact her LMC who should liaise with maternity and arrange for an urgent obstetric review.

Risk factors and associated complications:

Risk factors

- A history of PPROM in a previous pregnancy (up to 32% recurrence rate)
- Prior surgery on the cervix (e.g. cone biopsy)
- Placental pathology (e.g. subchorionic haemorrhage)
- Prenatal procedures (e.g. amniocentesis)
- Cervical or vaginal infections (single most common identifiable risk factor)
- Maternal cigarette smoking (the more smoked the higher the risk)
- Antepartum bleeding (bleeding in more than one trimester increases risk 3-7x)

Fetal complications:

- Related to prematurity
- Sepsis
- Prolapsed cord
- Cord compression
- Pulmonary hypoplasia if PPROM occurs from 16 to 24 weeks. More than 90% will suffer this complication if there is anhydramnios after PPROM before 18-20 weeks.
- Positional deformities associated with persistent oligohydramnios
- Fetal malpresentation

Maternal Complications

- Chorioamnionitis
- Endomyometritis
- Placental abruption
- From operative interventions such as caesarean section

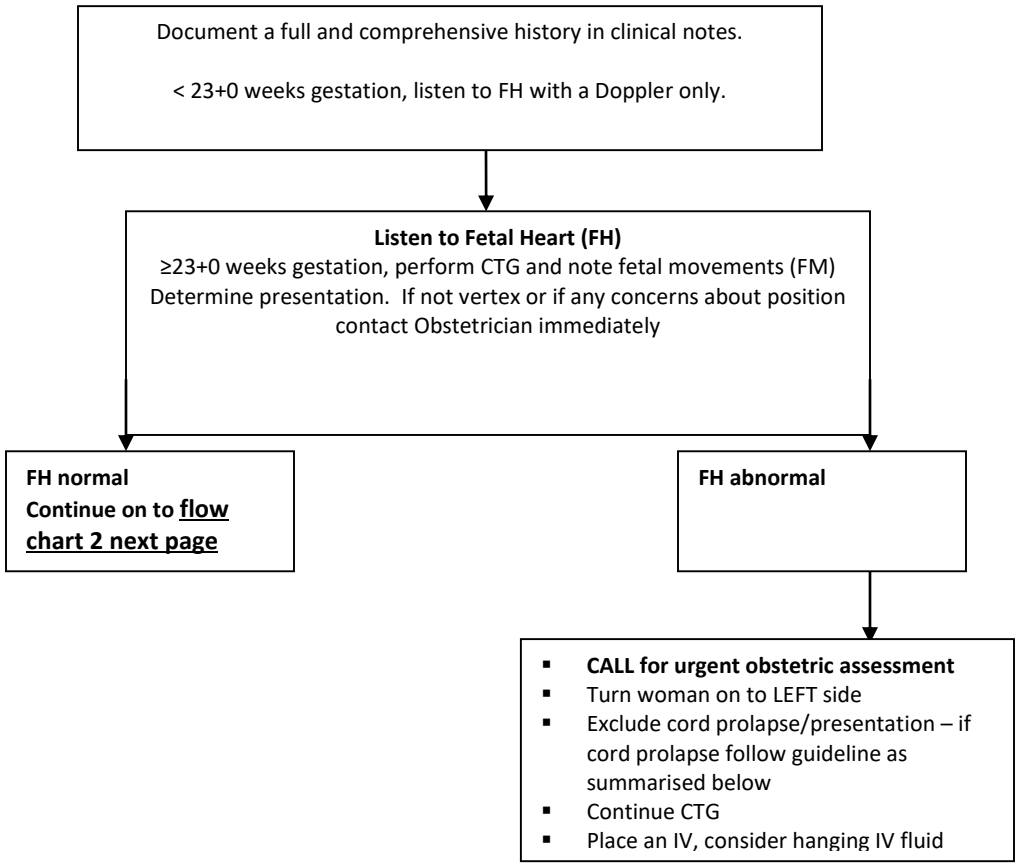
Please Note:

It is important that the paediatrician has access to the woman and her clinical notes prior to birth and where possible discusses neonatal care/outcomes with the woman, her family/whanau, LMC and or attending practitioner prior to birth.

Assessment and Management

Follow Flow charts 1-5.

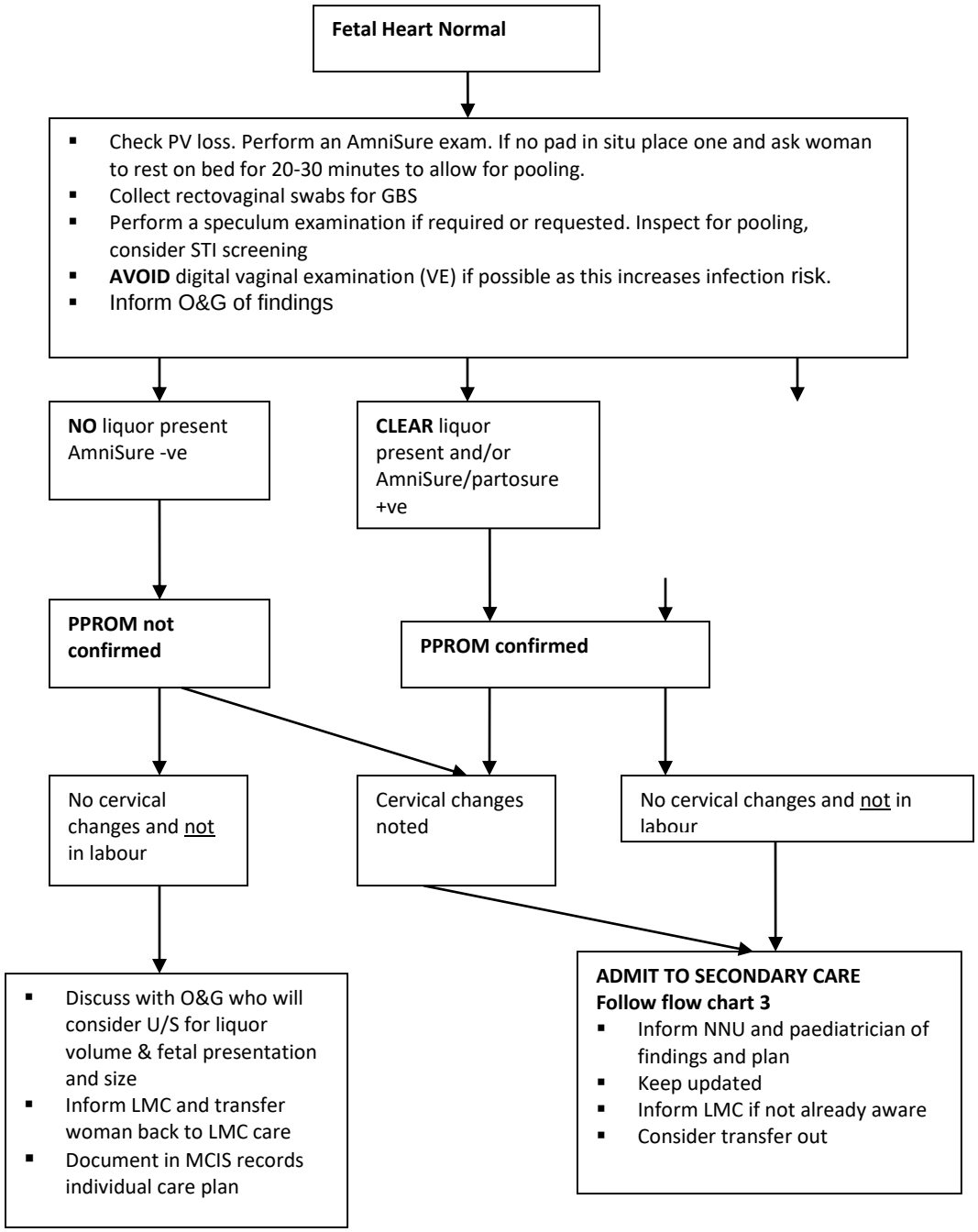
Flow chart 1 - Initial Assessment and Diagnosis of PPROM.



Cord VISIBLE/PALPABLE

- **Needs urgent obstetric assistance**
- Place woman onto hands-knees position with head down or exaggerated SIMS position.
- Place hand into vagina onto presenting part and take pressure off the cord. Place Size 16 foley catheter in bladder and fill bladder to help elevate presenting part off cord. Continue to do this while transporting the woman to theatre.
- **Obstetric assessment usually to proceed to emergency c/s under GA – category 1**

Flow chart 2 - Fetal Heart Normal (continues from flow chart 1)



Flow chart 3 -Antenatal Management PRROM confirmed (continues from flow chart 2)

PPROM CONFIRMED

- Admit to secondary care
- Discussion with O&G, woman/whanau, LMC, core midwifery team re ongoing management plan. Document this consultation in clinical notes
- Collect bloods for CBC, Group & Screen, CRP. Check with O & G if any other bloods are required
- Collect MSU to rule out UTI

If concerns, (contracting, FH abnormal, evidence of infection):

- **See flow chart 4**

Stable - mum and baby well

<u>≤32+0 weeks gestation</u>

- transfer out to tertiary unit at viability *(see transfer out guideline)*

<u>≤34+0 weeks gestation</u>

- Consider commencing Steroids – *See Celestone Protocol.*
- Commence prophylactic oral antibiotics, erythromycin ethyl succinate 400mg (Emycin) every 6 hours for 10 days then stop all antibiotics. When in labour switch to IV Penicillin as per GBS guideline unless negative GBS swab results available.
- Up date NNU and arrange for paediatrician to discuss neonatal implications and ongoing neonatal care with PPROM
- **Continues on flow chart 5**

Flow chart 4 - PPROM (concerns) Admitted to DELIVERY SUITE. (Follows on from flow chart 3)

- O & G assessment and care plan:
  - Consider birth – augmentation or c/s
  - Consider steroids
  - Consider prophylactic antibiotics (see GBS guideline)

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- Continuous CTG for at least 2 – 4 hours and then reassess by O & G. Observe and document FM and uterine activity.
- Ongoing observations include:
  - Report any changes from normal parameters to O & G
  - 2 hourly BP, temp, pulse (refer to intrapartum fever guidelines if temperature ≥ 38 degrees Celsius) for first 24 hours, then every 4 hourly for 24 hours, then every 6 hourly until birth
  - Assess uterine tightenings/contractions – any changes in condition or signs of labour
  - Observe PV loss and report abnormal changes
  - CTG twice daily with daily fetal movement assessment by mother
- Keep O & G, NNU and LMC informed
- It is the O & G responsibility to plan and clearly document ongoing clinical management

See *preterm labour and birth* guideline.

REMEMBER keep VEs to a minimum, use a speculum where possible.
Keep MCIS documentation updated.

Flow chart 5 - PPROM (no concerns) well mum and baby - Admitted to Maternity
Follows on from flow chart 3

Obstetrician to document care plan:

- If gestation <34+0 weeks consider STEROIDS and prophylactic antibiotics **Erythromycin ethyl succinate 400mg (Emycin) orally every 6 hours for 10 days** or until delivered whichever comes first
- If gestation >34+0 weeks discuss prophylactic antibiotics with obstetrician
- Inform LMC of ongoing management if not already aware.

Maternal observations and investigations while on ward

- 2 hourly temp and pulse for first 24 hours, then 4 hourly for next 24 hours, then every 6 hourly until birth
- Daily BP unless otherwise indicated or requested by doctor.
- Observe PV loss. Save and check PV pads at least QID and report abnormal changes to doctor.
- If decrease in FMs noted, CTG and advise mother to observe pattern of fetal movements. Consider BPP.
- Blood Tests – Weekly CBC and C- Reactive Protein or as per care plan.

Assessment of fetal wellbeing

- Twice daily CTG, if not regularly tightening/contracting.
- Consider as necessary serial U/S for liquor volume, fetal growth and Dopplers.
- Arrange for NNU staff to discuss likely neonatal concerns, e.g. low blood sugars, feeding, respiratory distress syndrome etc.

- Inform the O&G immediately of any abnormal signs or changes in maternal or fetal condition including non-reassuring CTG.
- Close liaison with NNU, paediatrician and LMC is essential.
- Woman may require transfer to Delivery Suite for ongoing management changes and or birth if maternal or fetal condition deteriorates.
- If woman is discharged antenatally, it is essential that the discharge plan is well documented and a follow up clinic appointment is made. The LMC should be informed as soon as possible and a copy of the discharge letter outlining ongoing care should be given within 24 hours of discharge. A copy of the midwifery plan should be given to the woman.

At the time of birth:

(See relevant associated guidelines)

It is important that paediatricians have access to the woman and her clinical notes prior to birth and where possible discuss neonatal care/outcomes with the woman, her family/whanau, LMC and or attending practitioner prior to birth.

The midwife or attending practitioner should check and prepare the baby resuscitaire. Ensure that the special neonatal resuscitation boxes are open, ready to use.

The baby may or may not require admission to NNU and infection screen. This will depend on the paediatrician taking into consideration gestation, general condition and weight. Consult with Paediatrician regarding need for infection screen from baby.

It is highly recommended that ALL preterm babies <35 weeks gestation have a paediatrician notified of labour and/or imminent birth and be present in the room for the birth. If possible NNU should be notified of the labour and/or imminent birth, discuss with the paediatrician.

Babies >35+0 weeks gestation up to 36+6 weeks gestation and who appear well at birth will be checked by a paediatrician as required. If there are concerns during the labour, birth, or if the baby is unwell at birth, the paediatrician should be requested to attend the birth or see the baby immediately after birth as clinically indicated.

Once delivered babies <36+6 weeks gestation may need to be transferred to NNU care. Babies >36+6 weeks will be assessed by the paediatrician and at their discretion can either go to ward with mother or transferred to NNU where appropriate.

ASSOCIATED DOCUMENTS

Caesarean section (preparation for) guideline
Partosure guideline
GBS guideline
Inhibition of preterm labour guideline
Transfer out guideline
Referral of neonates to paediatric service guideline
Preterm labour and birth guideline
Intrapartum fever
Magnesium sulfate nueroprophylaxis guideline

REFERENCES

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Authorised by (Head of Department Obstetrics)

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