MATERNITY UNIT
GUIDELINE:

MANAGEMENT OF PRETERM PRE-LABOUR RUPTURE OF THE MEMBRANES (PPROM)

SCOPE:
All midwives and obstetricians working in maternity

AUTHOR:
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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 24-36+6 weeks gestation. Prior to 24 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 and 37 weeks may differ from that before 34 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.

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 by speculum examination; pooling of liquor in the posterior fornix; visualising liquor draining from the cervix; if there is no evidence of pooling then test with AmniSure (see flow chart). Partosure testing is contraindicated if ROM, but if unsure if ROM has occurred, 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.

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
- 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 delivery 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.

Document a full and comprehensive history in clinical notes. Determine position. If not vertex or if any concerns about position contact Obstetrician immediately.

Listen to Fetal Heart (FH)

> 24 weeks gestation, perform CTG and note fetal movements (FM)
< 24 weeks gestation, listen to FH with a Doppler only.

FH normal
Continue on to flow chart 2 next page

FH abnormal

- CALL for urgent obstetric assessment
- Turn woman on to LEFT side, commence O2 via Hudson mask
- Check for cord prolapse/presentation
- Continue CTG
- Place an IV, consider hanging IV fluid

NO cord visible/palpable
- Needs URGENT obstetric assessment and individual management plan documented in clinical notes

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)

Fetal Heart Normal

- Check PV loss. If no pad in situ place one and ask woman to rest on bed for 20-30 minutes to allow for pooling.
- Check PV loss. If considering Partosure, no need to perform an AmniSure exam.
- Perform a speculum examination. Inspect for pooling. Collect partosure (unless obvious ROM), AmniSure (unless obvious ROM), high vaginal swabs (HVS) for micro, culture & sensitivity (MC&S).
- AVOID digital vaginal examination (VE) if possible as this increases infection risk.
- Inform O&G of findings

NO liquor present
AmniSure/Partosure -ve

PPROM not confirmed

- No cervical changes and not in labour
  - Discuss with O&G who will consider U/S for liquor volume & fetal presentation and size
  - Inform LMC and transfer woman back to LMC care
  - Document in MCIS records individual care plan

CLEAR liquor present and AmniSure/partosure +ve

PPROM confirmed

- Cervical changes noted

COLOURED liquor present - e.g. Meconium or blood
- Inform O&G immediately
- Continue CTG

COLOURED liquor present - e.g. Meconium or blood
- Inform O&G immediately
- Continue CTG

ADMIT TO SECONDARY CARE
Follow flow chart 3
- Inform NNU and paediatrician of findings and plan
- Keep updated
- Inform LMC if not already aware
- Consider transfer out
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. 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

**Contracting but FH normal and no evidence of infection – consider tocolytics or magnesium sulfate neuroprophylaxis if delivery imminent (see inhibition of preterm labour guideline, magnesium sulfate neuroprophylaxis guideline)**
Provide thrombo-prophylaxis in the form of compression stockings and flowtrons if prolonged hospitalization anticipated.

**Stable - mum and baby well**

- **<32 weeks gestation**
  - Consider transfer out to tertiary unit (see transfer out guideline)

- **<34 weeks gestation**
  - 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.
  - Update NNU and arrange for paediatrician to discuss neonatal implications and ongoing neonatal care with PPROM
  - Continues on flow chart 5

- **34-36+6 weeks gestation or poor dating at 34 weeks**
  - Admit and consider delivery. Or
  - Admit and await spontaneous labour or IOL after discussion with O&G consultant
  - Refer to Pre term labour protocol.
**Flow chart 4 - PPROM (concerns) Admitted to DELIVERY SUITE. (Follows on from flow chart 3)**

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

- 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, then every 4 hourly for 24 hours, then every 6 hourly until delivery
  - 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 delivery 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 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 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 delivery
- 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 delivery 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 delivery:

*(See relevant associated guidelines)*

It is important that paediatricians have access to the woman and her clinical notes prior to delivery 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 paediatrician taking into consideration gestation, general condition and weight. Consult with Paediatrician re 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 delivery and be present in the room for the birth. If possible NNU should be notified of the labour and/or imminent delivery, discuss with the paediatrician.

Babies >35 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, delivery, 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 weeks gestation may need to be transferred to NNU care. Babies >36 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 delivery guideline
- Intrapartum fever
- Magnesium sulfate neuroprophylaxis guideline
REFERENCES
Acknowledgement to Waikato DHB and Women’s National, Auckland DHB for sharing their protocols

Ministry of Health (2012). Guidelines for Consultation with Obstetric and related Medical services (Referral guidelines).


Duff, P. (May 2016) Preterm premature (prelabor) rupture of membranes. Downloaded on July 2016 from: http://www.utdol.com/online/content/topic.do?topicKey=pregcomp/15867#

McElrath, T (May 2016) Midtrimester preterm premature rupture of membranes. Downloaded July 2016 Up to date.

RCOG Green-top Guideline No.44. Preterm Prelabour Rupture of Membranes. October 2010.


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