

## LUMBAR PUNCTURE

*This Local Operating Procedure is developed to guide safe clinical practice in Newborn Care Centre (NCC) at The Royal Hospital for Women. Individual patient circumstances may mean that practice diverges from this Local Operating Procedure.*

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### INTRODUCTION

Lumbar puncture (LP) is a procedure to sample cerebrospinal fluid (CSF) for evidence of bacterial, viral or fungal infection, biochemical analysis or markers of metabolic disorders. In some cases (eg. haemorrhagic hydrocephalus), LP is performed to decrease ventricular dilatation.

#### 1. AIM

- To obtain a sample of CSF

#### 2. PATIENT

- Newborns

#### 3. STAFF

- Medical and nursing staff

#### 4. EQUIPMENT

- Spinal Needle
- Dressing Pack
- Sterile green drapes x 1
- 2 mL syringe
- 1mL syringe
- 3 x Sterile Yellow Top Specimen Tubes (5 ml capacity)
- Chlorhexidine 0.5% Maxi swab x 2
- Hat & sterile surgical gloves
- Sterile gown
- Mask
- 25% Oral Sucrose
- 25g Needle (Orange)
- 1% Xylocaine (2 mL ampoule)
- Blue incontinent sheet

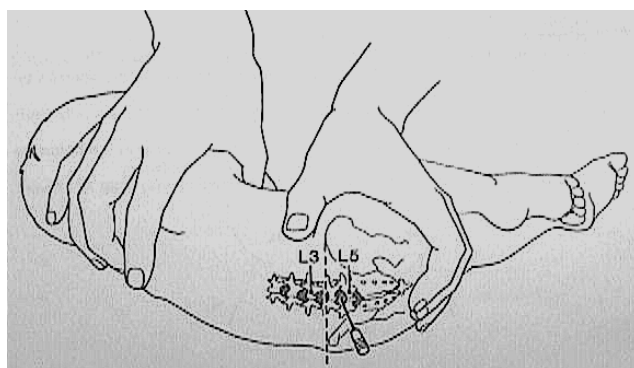
#### 5. CLINICAL PRACTICE

##### Procedure:

1. Explain the procedure to infant's parent/s and obtain consent.
2. Perform a *Clinical Procedure Safety Check* prior to procedure:
  - Log on to infant's eMR
  - Click on *Chart* on task-bar above Infant's information bar (blue bar) for drop-down field
  - Click on *Ad Hoc Charting*
  - Tick in the box for *Clinical Procedure Safety Checklist Level 1*
  - Click on *Chart* at the bottom right of page for the form
  - Complete checklist before starting the procedure
3. Check resuscitation equipment is available for use if needed:
  - Suction equipment
  - Neopuff/resuscitator
  - Oxygen
4. Perform hand hygiene.
5. Examine the infant, orientate to the infant's anatomy and identify the insertion site prior to scrubbing.
6. Collect equipment. Clean work surface with neutral detergent.

## LUMBAR PUNCTURE cont'd

7. Don hat and mask.
8. Perform procedural hand wash.
9. Don sterile gown and sterile gloves on.
10. Assistant administers oral sucrose prior to starting the procedure (refer to ANMF guideline). If on morphine infusion, a bolus dose can be considered.
11. Carer's responsibility:
  - Place a blue incontinent sheet under the infant
  - Position the infant in a lateral decubitus position with legs fully flexed (knee-chest position) (Picture 1) with the infant's back at the edge of an open bed
  - Observe the clinical condition of the infant during the procedure



Picture 1

12. Assistant:
  - Open the sterile plastic drape for the proceduralist to cover the work surface
  - Open equipment for the proceduralist
  - Check local anaesthetic with proceduralist
13. Lumbar puncture Procedure:

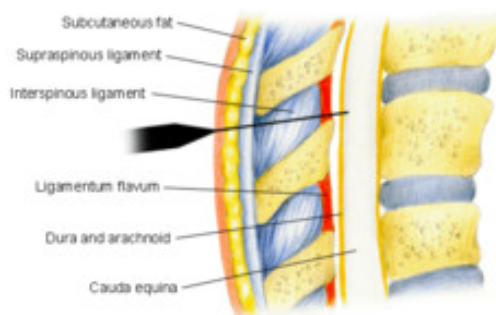
**NOTE:**

Identify anatomical landmarks before starting procedure. Lumbar Punctures should be performed at or below the L4 level (the line of the top of the iliac crests).

- Draw up 2 mL of local anaesthetic.
- Clean the identified lumbar puncture site with chlorhexidine maxi swabsticks – start at the interspace and prep in a widening circle and over the iliac crest.
- Allow antiseptic solution to dry and repeat cleaning.
- Apply green drape.
- Administer local anaesthetic to the insertion site.
- Insert the spinal needle into the designated area of the spine.

**LUMBAR PUNCTURE cont'd**

- Enter skin strictly in midline - aim for a 90° angle, slightly towards the head of the infant. (Picture 2)



Picture 2

- STOP when the spinal needle is through the skin.
  - Wait for the infant to re-settle.
  - Advance the needle by 0.5 cm and remove the stylet to check for CSF.
    - Advance by 0.5cm again and re-assess if there is no CSF
    - Allow CSF to drip 5 drops into each of the 3 sterile specimen tubes
    - Label the tubes according to collection sequence
    - Cap the tubes to avoid contamination
    - Replace the stylet in the needle before withdrawing needle from the puncture site
    - Apply pressure to puncture site
    - Apply a spot band-aid to site
14. Discard equipment used.
  15. Clean work surface and return any unused packets of equipment back to storage.
  16. Send correctly labelled specimens with correctly completed form/s in a sample plastic bag to pathology via the chute.
  17. Nurse infant in supine position for 1 hour post procedure if there is no evidence of distress or reactions.
  18. Monitor the infant post-procedure:
    - Check LP site for bleeding or CSF leakage for 24 hours
    - Body temperature
    - Oxygen saturation for 4 hours if infant was sedated during the procedure
    - If sedated, infant should be nil by mouth for 1 hour post procedure
    - Remove the spot band aid at next cares
  19. Document procedure in infant's eMR notes.

**6. DOCUMENTATION**

- eMR
- Neonatal Observation Chart
- NICUS database

**7. EDUCATIONAL NOTES**

- The procedure should be performed under sterile conditions.
- Positioning of the infant is vital to the success of the procedure.
- Flexion of the spine is important to open up the interspinous spaces and stretch the skin over the processes allowing for better definition of landmarks.

- Flexing the neck will compromise the infant's airway and potentially increase cerebral venous pressure.

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4.



LOCAL OPERATING PROCEDURE  
**NEONATAL SERVICES DIVISION**

Approved by Quality & Patient Safety Committee  
16/4/2020

**LUMBAR PUNCTURE cont'd**

**8. RISK RATING**

- Low

**9. NATIONAL STANDARD**

- Standard 1 Clinical Governance
- Standard 3 Preventing and Controlling Healthcare-Associated Infection
- Standard 4 Medication Safety
- Standard 5 Comprehensive Care
- Standard 6 Communicating for Safety
- Standard 8 Recognising and Responding to Acute Deterioration

**10. ABBREVIATIONS AND DEFINITIONS OF TERMS**

NCC	Newborn Care Centre	CSF	Cerebrospinal Fluid
LP	Lumbar Puncture	ANMF	Australasian Neonatal Medicines Formulary

**11. REFERENCES**

- Clinical Procedure Safety, PD2017\_032 at [https://www1.health.nsw.gov.au/pds/ActivePDSDocuments/PD2017\\_032.pdf](https://www1.health.nsw.gov.au/pds/ActivePDSDocuments/PD2017_032.pdf)
- Consent to Medical and Healthcare Treatment Manual, IB2020\_010 at [https://www1.health.nsw.gov.au/pds/ActivePDSDocuments/IB2020\\_010.pdf](https://www1.health.nsw.gov.au/pds/ActivePDSDocuments/IB2020_010.pdf)

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Revised	17/11/2015	KB Lindrea, CNC
Revised	31/3/2020	KB Lindrea, CNC

**REVISION & APPROVAL HISTORY**

November 2005 Primary document created and approved by RHW Quality Committee  
January 2010 Revision approved by RHW NCC LOPs Committee  
November 2015 Revision approved by RHW NCC LOPs Committee  
March 2020 Revision approved by RHW NCC LOPs Committee

**FOR REVIEW: 2025**