

LUMBAR PUNCTURE

This LOP 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 Operations Procedure (LOP).

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INTRODUCTION

LP is an investigative procedure to sample CSF for microscopy and culture for evidence of bacterial, viral or fungal infection, biochemical analysis for protein and sugar levels or markers of metabolic disorders. In some cases (eg. haemorrhagic hydrocephalus), LP is performed to limit ventricular dilatation.

1. AIM

- To obtain a sample of CSF.

2. PATIENT

- Neonates

3. STAFF

- Medical and nursing staff

4. EQUIPMENT

- Spinal Needle – (usually 22G)
- Dressing Pack
- Sterile plastic drape x 1
- Sterile green drapes x 3
- 2 mL syringe
- 1mL syringe
- 3 x Sterile Yellow Top Specimen Tubes (5 ml capacity)
- Chlorhexidine Acetate Aqueous Solution 0.05% w/v (Blue solution)
- Hat & Sterile surgical gloves
- Sterile Gown
- Blue Incontinent sheet
- 25% Oral Sucrose
- Neutral Detergent
- 25G Needle (Orange)
- 1% Xylocaine (2 mL ampoule)

NOTE: Anatomical Landmarks
Lumbar Punctures should be performed at or below the L4 level.
The L4 landmark in infants is the same as in older children (the line of the top of the iliac crests)

5. CLINICAL PRACTICE

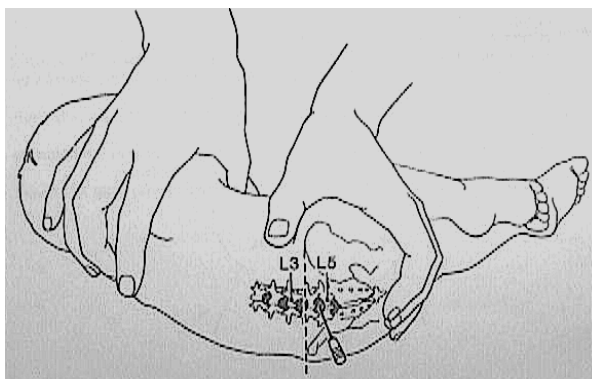
1. Explain the procedure to infant's parent/s and obtain consent. Complete the *Clinical Procedure Safety Checklist Level 1* form. (Picture 1)

Clinical Procedure Safety Checklist Level 1	
Patient's Name _____	MRN _____
Correct Patient Identification Confirmed <input type="checkbox"/>	Known Allergy/Adverse Reaction Check Yes <input type="checkbox"/> No <input type="checkbox"/>
Informed consent <input type="checkbox"/>	
Procedure Name _____	
Procedure 1	_____
Procedure 2	_____
Procedure 3	_____
Proceduralist's Name: _____	Date: _____
Proceduralist's Signature: _____	Designation: _____
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Picture 1

LUMBAR PUNCTURE cont'd

2. Check resuscitation equipment is available and working: (R1)
 - Suction equipment
 - Neopuff/resuscitator
 - Oxygen
3. Wash hands.
4. Proceduralist must examine the infant, orientate to the infant's anatomy and identify the insertion site prior to scrubbing.
5. Collect equipment. Clean work surface with Neutral Detergent.
6. Proceduralist puts hat and mask on. Scrub hands. Put sterile gown and gloves on.
7. Assistant administers oral sucrose prior to starting the procedure (Refer to Drug Book). If Nil Orally and on Morphine Infusion, a bolus dose should be prescribed and administered. (R2)
8. Assistant opens the sterile plastic drape for the proceduralist to drape the work-surface.
9. Assistant opens the dressing pack and remainder of equipment onto the sterile plastic field.
10. Assistant checks with the proceduralist the correct antiseptic solution before putting it in the plastic tray of the dressing pack.
11. Proceduralist checks the local anaesthetic with assistant before drawing it up in a 2 mL syringe.
12. Assistant places a blue incontinent sheet under the infant. The infant is nursed in a lateral decubitus position with legs fully flexed (knee-chest position) (Picture 2) and the back at the edge of the bed/cot. (R3)



Picture 2

13. RN caring for the infant must observe the clinical condition of the infant during the procedure.
14. The procedure
 - Clean the identified lumbar area with antiseptic solution. Start at the interspace and prep in a widening circle and over the iliac crest. Allow antiseptic solution to dry.
 - Apply drapes around the sterilised area. Administers local anaesthetic to the insertion site.
 - Insert the spinal needle into the designated area of the spine. Enter skin strictly in midline. Aim at between 70° and 90° slightly headwards. (R4)
 - When the spinal need is through the skin – STOP. Wait for the infant to re-settle.
 - Advance the needle by 0.5cm further in and removes the stylet to check for CSF.
 - If there is no CSF, advance by 0.5cm again and re-assess.
 - Allow CSF to drip 5 drops into each of the 3 sterile specimen tubes. The tubes must be numbered according to collection sequence.
 - Cap the tubes to avoid contamination.
 - Replace the stylet in the needle before withdrawing the needle from the puncture site.
 - Apply pressure to the puncture site.
 - Apply a spot bandaid to the site.
15. Nurse infant in supine position for 1 hour after the procedure if there is no evidence of distress or reactions.

LUMBAR PUNCTURE cont'd

16. Send the correctly labelled specimens with correctly completed form/s in a pathology sample plastic bag to pathology via the Shute.
17. Discard equipment used, clean work-surface and return any unused packets of equipment back in storage.
18. Monitor the infant post-procedure:
 - Check LP site for bleeding or CSF leakage for 24 hours.
 - Infant's body temperature.
 - Oxygen saturation for 4 hours if infant was sedated during the procedure.
 - If sedated, infant should be nil orally for 1 hour post procedure.
 - Remove the spot bandaid after an hour.

6. DOCUMENTATION

- Integrated Clinical Notes
- Medication Chart
- Observation Chart
- NICUS Database

7. EDUCATIONAL NOTES

- The procedure is 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.

8. RELATED POLICIES/PROCEDURES/CLINICAL PRACTICE LOP

- N/A

9. RISK RATING

- Low

10. NATIONAL STANDARD

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11. REFERENCES

- Neonatal Handbook, Neonatal Handbook Editorial Board, Webmaster, Last updated: 2009.
- NSW Health Policy Directive PD 2007 079 – Correct Patient, Correct Procedure and Correct Site
- SESIAHS Area Clinical Operations Policy Directive, March 2007 - PD 015. Consent for medical treatment – patient information

12. ABBREVIATIONS AND DEFINITIONS OF TERMS

ABBREVIATIONS & DEFINITIONS OF TERMS			
LP	Lumbar Puncture	CSF	Cerebrospinal Fluid
RN	Registered Nurse		

ROYAL HOSPITAL FOR WOMEN
 LOCAL OPERATING PROCEDURES
NEONATAL SERVICES DIVISION

Approved by
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LUMBAR PUNCTURE cont'd

13. RATIONALES

Rationale 1	Available to use in an emergency during the procedure.
Rationale 2	Provide pain/discomfort relief.
Rationale 3	To allow ease in defining the interspace in the lumbar region for inserting the spinal needle.
Rationale 4	To correctly insert the spinal needle into the subarachnoid space of the lumbar region.

14. AUTHOR

Primary	4 th Nov. 2005	CNC K.B. Lindrea
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REVISION & APPROVAL HISTORY

Neonatal Services Division Quality Committee

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