



SECTION: 8 INFECTION, SEPTIC SCREENING AND MANAGEMENT

SEPTIC SCREENING PROCEDURES

[Blood Cultures](#)

[Ear Swab](#)

[Endotracheal Aspirate](#)

[Eye Swabs](#)

[Gastric Aspirate](#)

[Lumbar Puncture](#)

[Nasopharyngeal Aspirate \(NPA\)](#)

[Supra Pubic Urine](#)

BLOOD CULTURES

To obtain a blood sample for microbiological examination where clinically indicated. A single blood culture bottle is all that is normally required. However, if an intra-abdominal collection or necrotising enterocolitis is suspected, blood for aerobic and anaerobic pathogens should be sent in separate bottles.

EQUIPMENT

Blood culture collection is a standard aseptic procedure, performed by medical staff or nursing staff deemed competent in the insertion of an intravenous catheter. [See Aseptic Technique: Infection Control Manual.](#)

- Sterile dressing pack
- Blood culture bottle
- 2mL syringe
- Needle
- Intravenous cannula
- Alcohol swab

PROCEDURE

- Refer to procedure for intravenous line insertion if collecting blood from an intravenous cannula. When there is blood flowing back into the hub, insert needle into the hub and aspirate blood for transfer into culture bottle. For infants <28 weeks 0.5ml; infants >28 weeks 1ml.
- Remove seal from culture bottle.
- Inject blood into blood culture bottle.
- Ensure bottle is correctly labelled. It is important not to attach the patient label to the neck of the bottle as this interferes with processing of the sample.

EAR SWAB

The ear folds may reflect microbiological colonisation acquired from amniotic fluid and/or birth canal; this can persist after birth and may indicate the microorganism causing perinatal infection.

EQUIPMENT

- Charcoal medium
- Sterile swab stick

- Agar plate - If the swab is collected out of office hours, then a smear of the swab should be placed on the agar plate as this allows the process of incubation to begin immediately.

PROCEDURE

- Do not collect ear swab if infant has been bathed.
- Remove swab stick from packet, taking care not to touch the tip.
- Swab in a circular motion, around the first curvature of the ear.
- Smear onto agar if required (out of hours). Avoid smearing the edges of the plate as contamination can occur, smearing an S shape down the centre of the plate is recommended.
- Place swab into charcoal medium.

ENDOTRACHEAL ASPIRATE

To obtain pulmonary secretions for microbiological examination in ventilated infants.

EQUIPMENT

- Appropriate size suction catheter or specimen collection trap

PROCEDURE

- Turn off continuous milk feed prior to performing the procedure to prevent aspiration of milk.
- Turn suction apparatus on at a set pressure, as per suction procedure. Connect suction catheter to suction tubing.
- Measure the depth of the catheter insertion required by noting the length the endotracheal tube is cut at and adding 7cm. Correct measurement prevents deep suctioning which causes mucosal trauma.
- Remove flow sensor. If applicable, increase FiO₂ by 10% prior to suctioning.
- Insert catheter to predetermined length. Apply suction to T-piece. Withdraw catheter while maintaining suction pressure, this should not take longer than 10secs to minimise the risk of cerebral and pulmonary vasoconstriction.
- Person assisting should then turn suction apparatus off.
 - Disconnect suction catheter from tubing, wind catheter around the T-piece and place catheter back into packaging.

EYE SWABS

To obtain an eye swab for microbiological examination in an infant with persistent discharging eyes.

KEY POINTS

- An eye swab for bacterial examination should always be the first line of action. If the eye fails to respond to treatment then a swab for chlamydial and viral examination should be sent. The incubation period for Chlamydia is from day 4 up to 2 weeks of age; therefore a sticky eye in the first 4 days of life is unlikely to be indicative of chlamydial infection.



- If the infant is delivered vaginally through active genital herpes lesions, an eye swab in viral medium should be sent on admission as part of the septic screen.
- Viral transport medium (VTM) contains antibiotics to keep the virus stable on transport to the laboratory; therefore it is important **not** to use VTM for chlamydial or bacterial examination.

EQUIPMENT

Bacterial examination:	Chlamydial examination:	Viral examination:
Normal saline Charcoal swab Glass slide and slide carrier	Normal saline Aluminium wire shafted swab Teflon coated slide and slide carrier Clean scissors	Saline Swabstick Viral transport medium (VTM) Clean scissors

PROCEDURE

- Perform eye toilet to remove exudate from eye. If both eyes are discharging, a swab from each eye should be sent separately ensuring they are correctly labelled.
- Moisten swabstick with normal saline to provide optimum medium for bacterial/viral/chlamydial growth.
- Gently fold down lower eyelid and run swabstick across the inner surface rotating swab to ensure specimen collection. If for chlamydial examination continue on to the inner canthus and rotate the swab across the inner canthus - cells need to be collected not just exudate.
- Avoid causing trauma to eye mucosa.
- Smear swab along glass slide if applicable and place into transport medium.
- The chlamydial swab and viral swab will need to be cut with clean scissors

GASTRIC ASPIRATE

To take a gastric fluid specimen for microbiological examination on all newborn infants admitted to the unit with suspected sepsis.

EQUIPMENT

- Gastric tube
- PH/litmus test strip
- 10mL syringe
- Yellow lid specimen container

PROCEDURE

- Refer to “GASTRIC TUBE INSERTION” procedure for instructions on how to insert a gastric tube.
- Gastric aspirate must be collected prior to the infant’s first feed.
- Once tube has been inserted, connect 10ml syringe and gently aspirate gastric tube to obtain secretions for microbiological examination, the fluid swallowed during birth may reveal organisms of the maternal genital tract that may cause perinatal infections.
- If the infant requires a gastric tube, leave the tube in and secure it. Ensure the position is checked.

LUMBAR PUNCTURE

Obtain cerebrospinal fluid (CSF) for:

- Infants with suspected meningitis or sepsis.
- Drainage of CSF in communicating hydrocephalus.
- Diagnoses of metabolic disorder.
- Diagnostic procedure in seizure activity.

KEY POINTS

- Depending on the level of experience, only two attempts should be made to obtain CSF before handing over to another medical officer.
- Needles without a stylet should not be used because of the risk of an intraspinal dermoid
- The position adopted for a lumbar puncture can cause physiological instability. Throughout the procedure the infant must be monitored for tolerance and stability and the procedure should be stopped if at any time the infant's condition deteriorates.
- Infant must have continuous oxygen saturation and heart rate monitoring throughout the procedure and resuscitation equipment should be available.

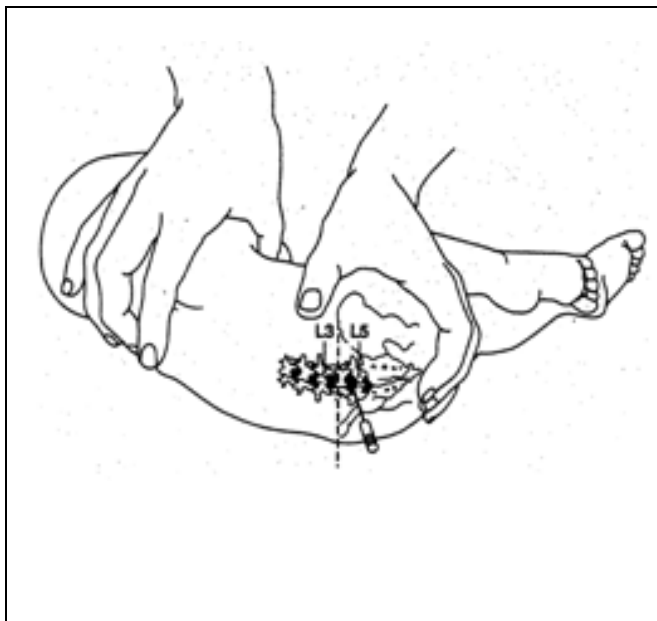


Diagram demonstrating area of puncture and position of infant during the procedure.

EQUIPMENT

- Chlorhexidine swabstick 1.0% or Povidone-iodine solution (infants <27 weeks)
- Dressing pack / gown / gloves / sterile drapes
- Lumbar puncture needle - 25G to be used (22G available if required).
- Sterile specimen bottles – appropriate bottles for specific tests
- Non-occlusive dressing (Tegaderm 4cm x 4cm)

[See Aseptic Technique: Infection Control Manual.](#)



PROCEDURE

- Hold the infant firmly in the lateral position, keeping the head and trunk well flexed. This allows for easy detection of landmarks.
- Observe infant's tolerance closely for possible airway obstruction, apnoea, bradycardias, hypoxia.
- Identify the L4-L5 interspace as site for lumbar puncture. The space above L4 should not be penetrated as this can lead to spinal cord and spinal nerve damage.
- Clean wide area thoroughly.
- Insert the needle in the midline with steady force aimed towards the umbilicus.
- Advance the needle slowly and then remove the stylet to check for appearance of fluid..
- Collect at least 10 drops in each sterile container.
- Maintain pressure on the area with sterile gauze until the site has stopped leaking.
- Wash off povidone-iodine solution.or chlorhexidine solution.
- Place non-occlusive dressing over site and leave intact for 24hrs

NASOPHARYNGEAL ASPIRATE (NPA)

To obtain nasopharyngeal secretions for microbiological or virology testing in infants with clinical signs of a viral or bacterial upper respiratory tract infection.

KEY POINTS

- If collecting an aspirate for viral **and** bacterial testing it is important not to add VTM to the aspirate as it contains antibiotics to protect the virus, but it may destroy the bacteria.
- If collecting an aspirate just for viral studies add a few drops of VTM.
- If collecting an aspirate for bacterial studies add a few drops of saline.

EQUIPMENT

- Specimen suction set and N/S ampoule (for bacterial studies)
- Vial of transport medium (VTM) – for viral studies only

PROCEDURE

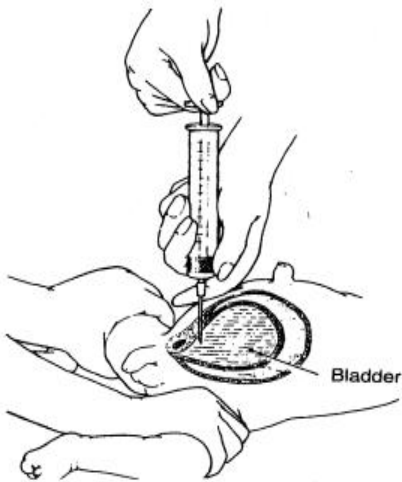
- Attach the specimen set to the suction apparatus and turn on to no more than 50mmHg to minimise mucosal trauma.
- Kink catheter to stop suction, and then pass the catheter into the nasopharynx. Release catheter and slowly withdraw.
- **BACTERIAL SAMPLE** Suction a few drops of saline into the specimen set.
- **VIRAL SAMPLE** Suction a few drops of the viral transport medium into the specimen set. Remove the specimen set from the suction apparatus and seal with white cap.

SUPRA PUBIC URINE

Obtain a sterile sample of urine for a septic or metabolic screen. Supra-pubic urine aspirate is performed by medical staff using standard aseptic technique. [See Aseptic Technique: Infection Control Manual.](#)

PROCEDURE

- Position infant supine. Hold legs in frog-like position.
- Check infant has not just voided.
- Locate site of bladder puncture: 0.5cm – 2cm above the pubic symphysis in the midline of the lower abdomen.
- Prepare skin.
- Advance needle perpendicular to abdomen to ensure correct anatomical position and avoid bowel perforation.
- Advance the syringe whilst applying minimal negative pressure.
- Do not advance any further once urine is obtained to avoid trauma to the posterior bladder wall.
- Remove needle and apply pressure until bleeding has stopped.



EQUIPMENT

- 2mL Syringe
- 23G Needle
- Alcohol wipe
- Sterile container

REFERENCES

1. Boxwell G. Neonatal Intensive Care Nursing. 2nd ed. London: Routledge; 2010.

Related Guidelines: [Aseptic Technique: Infection Control Manual](#).

RESPONSIBILITY

Policy Sponsor	Neonatology Clinical Care Unit
-----------------------	---------------------------------------

Initial Endorsement	
----------------------------	--

Last Reviewed	February 2010, July 2014, August 2015
----------------------	---------------------------------------

Last Amended	November 2015
---------------------	---------------

Review date	November 2018
--------------------	---------------

Do not keep printed versions of guidelines as currency of information cannot be guaranteed. Access the current version from the WNHS website