

SUPRAPUBIC ASPIRATION (SPA) OF URINE (BLADDER TAP)

PROCEDURE [®]

DOCUMENT SUMMARY/KEY POINTS

- Suprapubic aspiration is used in infants less than age 2 years to obtain a sterile urine sample by passing a needle through the lower abdominal wall directly into the urinary bladder.
- A urine culture obtained by SPA is considered the 'gold standard' for detecting bacteriuria.
- Any growth of pathogenic bacteria in an SPA specimen is felt to be significant.
- Not all infants are suitable for the procedure. See [Exclusion Criteria](#).

CHANGE SUMMARY

- Additional reference: neonatal skin preparation

READ ACKNOWLEDGEMENT

- SCHN Clinical staff: Medical Officers and Nurses caring for infants less than 2 years of age who require SPA must be thoroughly apprised of this document prior to attempting the procedure.

This document reflects what is currently regarded as safe practice. However, as in any clinical situation, there may be factors which cannot be covered by a single set of guidelines. This document does not replace the need for the application of clinical judgement to each individual presentation.

Approved by:	SCHN Policy, Procedure and Guideline Committee	
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Team Leader:	Staff Specialist	Area/Dept: Emergency SCH

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Suprapubic Aspiration (SPA)

Suprapubic aspiration is a method of obtaining sterile urine sampling by means of passing a needle through the lower abdominal wall directly into the urinary bladder. A urine culture obtained by SPA is considered the 'gold standard' for detecting bacteriuria. The suprapubic approach avoids potential contamination from the genital area. Any growth of pathogenic bacteria in an SPA specimen is felt to be significant. Bedside ultrasound (USS) or bladder scanning is indicated as an adjunct to SPA.

Purpose and Scope

The purpose of this guideline is to assist clinicians performing in a safe, effective method of SPA collection

Responsibilities

The individual clinician is responsible for ensuring knowledge, expertise and supervision as needed to perform SPA.

Management is responsible for ensuring that clinicians who undertake this practice are provided with appropriate knowledge, training and supervision.

Definition of Terms

SPA: abbreviation for suprapubic aspiration. It may also be referred to as a bladder tap

UTI: urinary tract infection

Indications^{1, 2, 3}

SPA may be indicated in incontinent children less than 2 years of age when the collection of sterile urine is necessary and urethral contamination must be avoided.

"If a clinician decides that a febrile infant with no apparent source for the fever requires antimicrobial therapy to be administered because of ill appearance or another pressing reason, the clinician should ensure that a urine specimen is obtained for both culture and urinalysis before an antimicrobial agent is administered; the specimen needs to be obtained through catheterization or SPA"⁶, Action Statement 1

Inclusion Criteria –

May be considered in infants and children:-

- Under 3 months of age when a 'time critical' component of a septic workup is required.
- Under 2 years when there is an imperative to confirm urinary tract infection (UTI), such as multiple contaminated specimens in a symptomatic child.
- With previous UTI with unusual or resistant organisms.
- On prophylactic antibiotics.
- With other conditions, such as frequent diarrhoeal stools, in whom an uncontaminated specimen is required.

- With special anatomic considerations, such as labial adhesions or minimally retractile foreskin or phimosis.

Urethral catheterisation is widely used in lieu of suprapubic bladder aspiration. It is often more successful in obtaining an adequate volume⁴ and is less painful for the infant^{5,8}. Both techniques are invasive however catheterisation carries with it higher risk of introducing pathogens and therefore has a higher incidence of contamination¹⁰. Both procedural techniques are suitable for the collection of urine specimens for urine culture in confirming UTI.⁸

Exclusion Criteria

- Voided within the preceding 30 minutes or a bladder volume less than 10mL⁷
- Bleeding diathesis
- Abdominal distension
- Massive organomegaly
- Internal urogenital or gastrointestinal abnormality
- Previous bladder or pelvic surgery
- Known coagulopathy
- Overlying soft tissue infection

Complications

Although SPA is an invasive procedure, few serious complications have been reported.

Microscopic haematuria is common¹

Rare complications may include macroscopic haematuria, bladder haematoma or haemorrhage, gastrointestinal perforation or abdominal wall abscess.

Procedural Preparation

[Patient Information sheet](#) should be provided, discussed with parents/carers and verbal consent obtained

The child should not have passed urine in the preceding 30-60 minutes

Topical anaesthetic may be applied if the child is stable and time permits

Confirm adequate bladder urine volume by one or more of the following:-

- USS: maximum AP and transverse diameters are 2cm or greater⁷
- Volumetric bladder scan: minimum 10mL⁷
- Gently percuss the bladder: dull to percussion, fundus 1-2 finger breadths above the pubic symphysis

Use of a bladder scan or ultrasound improves the success rate by as much as 79% to 90%.^{1,6} Scanning may also be useful in deferring an attempt. Ultrasound needle guidance by experienced clinicians may also be employed to facilitate successful collection.¹

If the child is stable, SPA should be performed prior to other invasive or distressing procedures. This may avoid spontaneous voiding which may result in delayed specimen collection and commencement of treatment.

Aseptic non touch technique is required

An assistant must be ready to catch a spontaneous passage of urine in a specimen jar from the time the nappy is removed

Assistance is also required to hold the child in position and provide comfort measures

Consider oral sucrose for pain in children less than 3 months of age at commencement of the procedure (See: [Sucrose Guideline](#)).

Equipment

- USS or bladder scanner with gel
- Dressing pack
- Skin prep:
 - **Infants age less than 6 weeks** – aqueous chlorhexidine (0.5% where available) ¹⁰
 - **Children and Infants age 6 weeks and above** - swabs x 3 of 2% chlorhexidine and 70% alcohol
- Needle: 23G x 1 1/4" (32mm, blue)
- Syringe 3mL or 5mL
- Sterile gloves
- Specimen jar
- Fenestrated drape (optional)
- Adhesive dressing (optional)
- Oral syringe and sucrose oral solution (if using for procedural pain in infants under 3 months of age)
- Assistant to hold infant or child
- Request form and bag for specimen

Procedure 1, 2, 3,

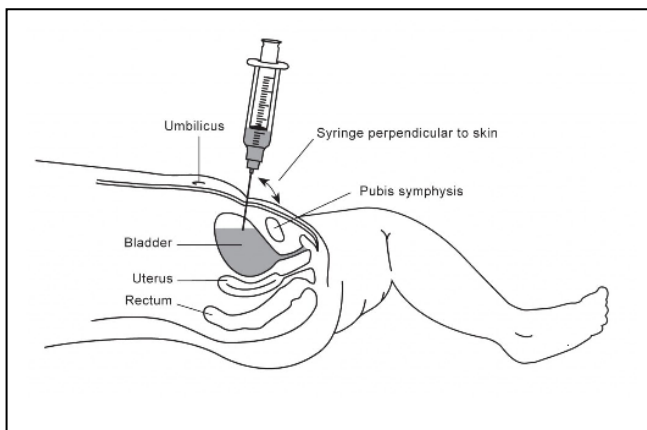
Never undo the nappy until you have a specimen jar at hand and someone ready to catch urine

The child is to be securely held in supine position with legs extended and together or in a frog leg posture (clinician preference). The aim is to stabilise the child, minimise pelvic movement and to enable capture of a specimen in case of spontaneous urination. Comfort and distraction measures should be integrated

Skin prep: cleanse a wide area of the lower abdomen with the recommended antiseptic solution. Allow skin to dry prior to needle insertion

An optional fenestrated drape may be used

Identify the needle insertion point: abdominal midline, 1-2 cm above the pubic symphysis, along the lower abdominal crease. The aim is for the needle to puncture the centre of a full bladder.



<http://kidshealthwa.com/guidelines/suprapubic-urine-aspiration/>

- Insert the needle:
- Perpendicular to the skin in all directions. Anatomically, this equates to advancing the needle through the abdominal wall in a slightly cephalad/umbilical direction, angled approximately 20degrees from the vertical, while applying mild negative pressure to the syringe.
- Do not aim the tip of the needle down into the pelvic region as the bladder is predominantly abdominal in infants.
- Puncture the skin quickly, as if popping a balloon
- Advance 2-3 cm, to the hub of the needle if needed, and aspirate. A distinct change in resistance may be felt as the needle passes through the bladder wall.
- If urine is not immediately aspirated, continue aspirating as the needle is withdrawn
- If unsuccessful, withdraw the needle to just under the skin and advance at an angle with the needle aimed slightly more cephalad (towards the umbilicus, away from the pelvis). Do not repeat this procedure

- If still unsuccessful, further attempts should be at the discretion of the senior medical officer and an alternate method of urine collection should be considered. The child should be hydrated in the interim.
- When urine is obtained, remove the needle from the syringe prior to expelling the sample into a sterile labelled container. Seal the specimen jar in a transport bag with the completed request form, at the bedside. A urinalysis should be performed on part of the sample prior to transport to the laboratory.
- An adhesive dressing may be applied to the puncture site

Post-Procedure

- No specific care required. See parent Factsheet (below).

Related Documents

- Sucrose: Management of short duration procedural pain in Infants
<http://webapps.schn.health.nsw.gov.au/epolicy/policy/4022>
- Factsheet: **Catheterisation and supra pubic urine aspiration**
http://www.schn.health.nsw.gov.au/~catheterisation_and_supra_pubic_urine_aspiration-en.pdf

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