

PAEDIATRIC NURSING PRACTICE MANUAL
SECTION 8

CARE OF THE CHILD WITH A SURGICAL CONDITION

8.3 POSTOPERATIVE CARE

8.3.6 NURSING ASSESSMENT AND MANAGEMENT OF POSTOPERATIVE URINARY RETENTION IN INPATIENTS 5 YEARS AND ABOVE

This document excludes the Paediatric Intensive Care Unit.

Aim

The risk of bladder damage due to sustained overstretch of the bladder related to urinary retention in the post operative period will be minimised in children older than 5 years and adolescents.

Definition

Post operative urinary retention (POUR) is:

1. Any scanned volume that exceeds estimated bladder capacity, when a patient has attempted to void, but could not, within one hour of scanning. ¹ **OR**
2. Where only small volumes can be passed or constant dribbling is present. ¹⁻³ **OR**
3. Where the patient is in pain or distress where the scanned volume is less than Estimated Bladder Capacity (EBC).⁴

Key Point

1. If POUR occurs, this is to be discussed with the named consultant to determine the preferred management (intermittent or indwelling catheterisation). Out of hours please contact the on-call surgical RMO.

Populations excluded from this guideline:

The populations listed below require special precautions;

- Patients with abdominal wounds (bladder scanning contraindicated) ⁵
- Patients with pre-existing sensory and/or motor impairment (eg. muscular dystrophy, spina bifida, cerebral palsy) ^{6, 7}
- Children or adolescents for whom catheterisation for urine output is a part of their daily lives
- Children or adolescents who have undergone a Same Day surgical procedure, who have otherwise met discharge criteria, and who have received appropriate bladder care education.

Factors that increase the risk of developing postoperative urinary retention

Patients with one or more of these factors are at **HIGH RISK** for POUR

- Spinal or epidural anaesthetic, particularly bupivacaine, ropivacaine or fentanyl ^{6, 8-14}
- Patients administered opioids including codeine, fentanyl, morphine, oxycodone or pethidine ^{6, 10, 12, 15, 16}
- Poorly controlled pain ^{6, 7, 13, 14, 17}
- History of urinary problems ^{12, 14}

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- Surgery of the pelvis (hernia, anorectal, urologic, major gynaecologic) ^{1, 3, 5, 7, 9, 11, 14, 15}
- Surgery that immobilises (eg. lower extremity orthopaedics) ^{13, 19}
- Large volumes of perioperative IV fluids ^{16, 19}
- Operation time more than 1 to 2 hours ^{8, 18}

Calculating Estimated Bladder Capacity

- Patient under 12yrs Estimated Bladder Capacity (mL) = (age in yrs x 30) + 30 ²⁰⁻²³
- Patient 12yrs and above Estimated Bladder Capacity = 500mL ^{6, 7, 20, 22}

Estimated Bladder Capacity by Year Group

| Age (years) | Estimated Bladder Capacity (mL) |
|--------------|---------------------------------|
| 5 | 180mL |
| 6 | 210mL |
| 7 | 240mL |
| 8 | 270mL |
| 9 | 300mL |
| 10 | 330mL |
| 11 | 360mL |
| 12 and above | 500mL |

Notes:

1. Where a patient's regular voiding frequency grossly differs from the norm, the following alternative Estimated Bladder Capacity calculations may be used:
 - 5-11 yrs of age [(1-2mL/kg) ²⁴ x 24hr] ÷ patients regular number of voids in 24 hrs
 - 12 yrs and above [(0.5-1mL/kg) ²⁴ x 24hr] ÷ patients regular number of voids in 24 hrs
2. Discuss with RMO the suitability of outpatient follow up regarding voiding frequency.

| PROCEDURE | ADDITIONAL INFORMATION |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| <p>Preoperatively: Encourage all continent patients to void prior to surgery.</p> | Allows more time for patient recovery before the bladder refills. |
| <p>Document (time of last void) on:</p> <ul style="list-style-type: none"> • Fluid Balance Chart [MR 935] and • Pre-op Checklist [MR 844.01]. ^{1, 3, 11, 14, 25} | |

| PROCEDURE | ADDITIONAL INFORMATION |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Postoperatively: On return to the ward, assess all patients for risk of urinary retention (see 'Risk Factors' above).</p> | <p>Patients identified as high risk of POUR can be more closely monitored, with helping measures implemented as soon as possible (as outlined on page 4).</p> |
| <p>Encourage all patients to urinate as soon as they are alert and able.</p> | <p>Voiding is more difficult if the bladder is distended.</p> |
| <p>Monitor urine output and record on Fluid Balance Chart [MR 935].</p> | |
| <p>If the patient is in pain, distress or experiencing bladder fullness at any time regardless of scanned bladder volume</p> <p>Inform shift coordinator, contact RMO and prepare for catheterisation.</p> | <p>Some patient's bladder capacities are smaller or larger than expected.^{23, 26}</p> <p>Note: RMO is to discuss intervention with named consultant.</p> <p>Some Consultants may request an indwelling catheter (PNPM 3.5.3) rather than an intermittent (PNPM 3.5.2).</p> |
| <p>If patient unable to urinate within 4 hours of arriving in the PACU:</p> <ul style="list-style-type: none"> Bladder scan Calculate Estimated Bladder Capacity (see table) <p>Patients under 12yrs (mL) = (age in yrs x 30) + 30 Patients 12yrs and above= 500mL</p> | <p>Some patients have volumes more than Estimated Bladder Capacity without sensation of fullness, pain or discomfort.^{3, 8, 27}</p> |
| <p>If scanned volume is less than Estimated Bladder Capacity:</p> <ul style="list-style-type: none"> Repeat bladder scan hourly Consider need for patient hydration | |

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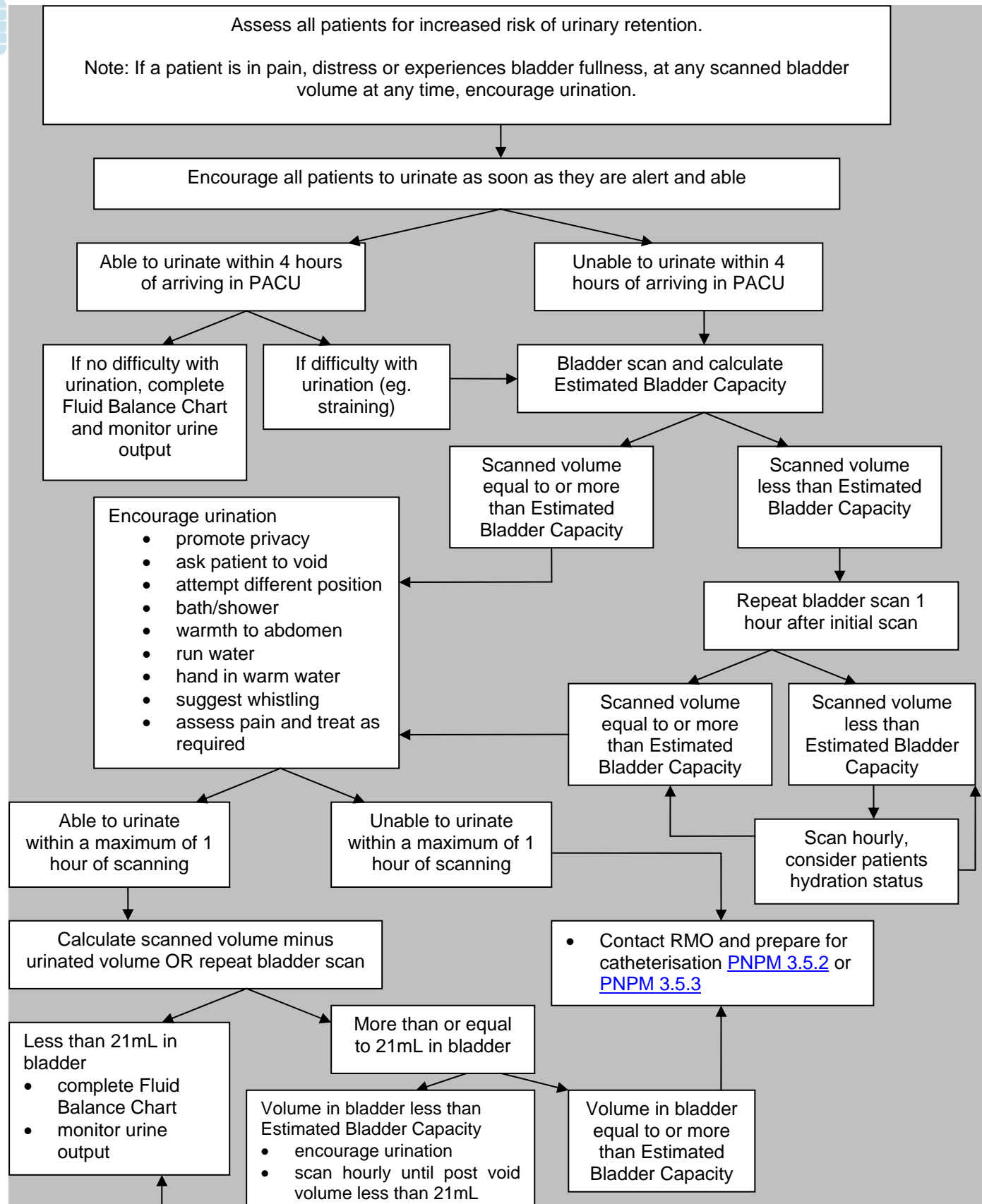
| PROCEDURE | ADDITIONAL INFORMATION |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>If scanned volume is equal to or more than Estimated Bladder Capacity encourage urination:</p> <ul style="list-style-type: none"> • Promote privacy ^{6, 16} • Ask patient to void ^{17, 19, 25} • Attempt different position ^{6, 19} • Bath/shower ^{6, 28} • Warmth to abdomen ^{6, 14, 16, 17} • Get the patient to listen to the sound of running water ^{6, 17, 19} • Hand in warm water ^{6, 17} • Suggest whistling • Assess pain and treat as required | <p>Helping measures have been shown to be effective in 90% of patients who have difficulty voiding.¹⁶</p> |
| <p>If patient able to urinate within 1 hour of bladder scan (where scanned volume is equal to or more than Estimated Bladder Capacity):¹</p> <ul style="list-style-type: none"> • Calculate scanned volume minus urinated volume OR repeat bladder scan • If less than 21mL in bladder, complete Fluid Balance Chart [MR 935] and monitor urine output • If equal to or more than 21mL in bladder but less than Estimated Bladder Capacity, encourage urination and scan hourly until post void volume less than 21mL • If equal to or more than Estimated Bladder Capacity remains in bladder, contact RMO and prepare for catheterisation | <p>Some patients with POUR can overcome the resistance to urinate but can not empty their bladder completely.¹⁻³</p> <p>For all ages, normal urine volume post void should be less than 5mL (additional 16mL added for possible scanner inaccuracy).^{22, 29}</p> |
| <p>If patient unable to urinate in less than 1 hour from bladder scan:¹</p> <p>Contact RMO and prepare to catheterise according to Consultant instruction.</p> | <p>Bladder distension for more than 3-4 hours damages the bladder.³⁰⁻³²</p> <p>Intermittent catheterisation is the treatment of choice, unless there is a possible cause of retention which may take longer than a few hours to resolve (eg. large swelling or trauma to abdomen or groin).^{1, 3-5, 7, 14, 20, 25}</p> <p>Note; Some Consultants may request an indwelling catheter (PNPM 3.5.3) rather than an intermittent (PNPM 3.5.2).</p> |

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