Portable Bladder Scanner Use
(BVI 3000/BVI 9400 and the Cubescan 700)
Standard Operating Procedure
within Doncaster Care Group
1. **Aim**

To provide staff with best practice guidelines for performing ultrasound bladder scans.

Ultrasound Bladder scanning is a non-invasive procedure that measures urinary bladder volume. Bladder scanning should be used in preference to using an indwelling catheter to measure urinary residuals on the grounds of acceptability and low incidence of adverse effects (NICE 2015)

Appropriate and timely use of the scanner can prevent unnecessary catheterisation, assist in the managing of incontinence and help diagnose urinary and bladder dysfunction

2. **Scope**

This SOP applies in all areas where patients are nursed or cared for including patients in their own homes, community continence clinics, In-patient environments, and intermediate care and day care facilities

3. **Link to overarching policy and/or procedure**

This procedure links to the Catheterisation and Best Practice Guidelines Policy:


4. **Procedure**

The bladder scanner will only be used by a trained healthcare practitioner i.e. Qualified nurse, Health care assistants within the Specialist Continence Service and also by some Healthcare Assistants on in-patient wards who have received training and are competent in the procedure.

4.1 **Clinical Indications for use of Bladder Scanner**

- To check for retention of urine, if symptoms suggest incomplete bladder emptying
- To check for retention of urine prior to commencing Anticholinergic Therapy. Residuals over 100mls should not be commenced on Anticholinergic therapy
- To monitor urine output in those patients commenced on Anticholinergic therapy to ensure bladder function has not been compromised
- Assessing the degree of retention before catheterisation
- Assessing volume of urine in bladder if catheter appears to be blocked or not draining
- After a trial without catheter, evaluation of whether a patient is able to void and to what degree
• Patients with neurogenic bladder should have regular bladder scanning to monitor residual urine e.g. for patients with progressive multiple sclerosis
• Intermittent self catheterisation training aid
• Biofeedback mechanisms
• Aid bladder retraining

4.2 Urinary Retention

Urinary retention can occur for a variety of reasons including;

• A physical or neurological impediment which obstructs the flow of urine or prevents the detrusor muscle from effective contraction
• Effects of medication including Anticholinergic drugs, opiates and epidural analgesia
• Psychological effects
• Functional ability i.e. not being able to sit on the toilet properly to empty properly
• Effects of surgery

4.3 Signs and Symptoms of Urinary Retention

• Hesitancy
• Nocturia
• Straining to void
• Sensation of incomplete emptying of the bladder
• Post micturition dribble
• Urinary Tract Infection
• Prostatic symptoms
• Palpable bladder
• Frequency
• Urgency
• Dysuria

4.4 Contraindications for use

• If the patient has a wound where the scanner head would usually be placed
• If the patient withholds consent

4.5 False Readings

• Anxiety about the procedure
• Foley catheter
• Intravesical mass
• Obesity
• Fluid filled cyst
• Patient on their side during the procedure
- Pregnancy
- Volumes over 1000mls
- Volumes under 100mls
- Anatomical anomalies

4.6 Care of the CUBEscan 700 and the Verathone BVI 3000 / BVI 9400

- **Storage** – The scanner will be stored in the supplied case in a cool dry place. It is especially important to protect the probe head.

- **Handling** – When the machine is in use place it on a steady surface. For the BVI 3000, always rest the probe on the rubber part of the handle.

- **Cleaning of the scanner and the probe** – The scanner and probe must be cleaned in accordance with both manufacturers’ guidelines and in line with Infection Prevention and Control recommended practice which is detergent wipes. If the patient has a known infection then further disinfection is required using a disinfectant wipe.

- Each locality will have a designated base for their bladder scanner. This base is to have a designated member of staff who will be responsible for ensuring the maintenance of the scanner is carried out according to the maintenance contract. When the scanner is due for calibration, or if the scanner is not working properly contact the Continence Health Advisory Service who will arrange the bladder scanner to be serviced.

The bladder scanners will be annually serviced by De Smit Medical

- **BVI 3000/BVI 9400** Always ensure that you have a spare battery fully charged with the. When charging the battery, ensure that the battery is removed from the charging unit when fully charged to prevent battery damage.

*The Cubescan 700* has a built in battery, when the unit is on charge the green and orange lights signal the battery is having a bulk charge to increase the batter’s capacity fast. Once the orange light has gone out it is important to keep the scanner on charge for a further 2 hours as the battery will still be charging but at a slower rate. (Green light permanently on) Should the battery appear to lose its charge quickly then operate the bladder scan by the mains and when possible charge the unit overnight.

- Ensure the printer paper is loaded properly in the scanner.

- A supply of cleaning wipes and ultrasound gel should to be kept with the scanner.
• All manufacturer’s instructions must be adhered to and care taken to prevent damage to the equipment. Should any part of the equipment be damaged, this should be reported immediately.

• Please note that in transit the temperature may fall and the scanner can become too cold. If the unit does not switch on after holding the power button down for two seconds or the screen ‘flickers’ put the scanner in a warm environment for approximately 30 minutes before retrying.

4.7 Procedure

There are four accepted methods of carrying out the scan procedure (Addison 2000):

1. A bladder scan is performed before and after voiding to assess the residual volume.

2. The patient is asked to void and then a scan is taken within 10 minutes.

3. The bladder scan is performed first and if any urine is present the patient is asked to void into a jug which is then measured. The difference between the volume in the bladder according to the scan and the volume of the voided urine gives the residual volume.

4. The patient is given large amounts of fluid to drink. When they experience the urge to void a scan is taken. The patient is then asked to void. After voiding a second scan is taken to give the post void residual.

5. Procedure for use of the Bladder Scanner

Equipment Required

• Bladder scanner
• Ultrasound gel
• Wipes

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<thead>
<tr>
<th>Action</th>
<th>Rationale</th>
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<tbody>
<tr>
<td>1</td>
<td>Explain and discuss the procedure to the patient</td>
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<td>2</td>
<td>Ensure privacy</td>
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<td>3</td>
<td>Wash hands with liquid soap and water, dry thoroughly with paper towel. <strong>NB.</strong> If in patients own home use liquid soap and water, dry with kitchen roll. If these facilities are not</td>
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<td>Action</td>
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<td>available use hand wipes followed by alcohol hand gel (Refer to Hand hygiene Policy)</td>
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<td>4 Assemble the bladder scanner according to the manufactures instructions, switch the scan on and set the scanner for the appropriate gender / condition</td>
<td>To ensure correct function of the scanner</td>
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<td>5 Assist the patient into a supine position with head raised</td>
<td>To achieve appropriate position and access to patient</td>
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<td>6 Adjust clothing to expose the lower abdomen</td>
<td>To access the pelvic area</td>
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<td>7 Place an ample quantity of ultrasound gel on the probe head. Palpate the patient's pubic bone and place the probe midline on the patient’s abdomen, approximately one inch (3 fingers above the pubic bone)</td>
<td>To achieve an accurate measurement To prevent cross-infection</td>
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<td>8 Standing at the patient’s right side, place the probe on the gel and aim towards the expected location of the bladder. For most people this means tilting the probe slightly towards the patient’s coccyx</td>
<td>To locate the bladder and ensuring the scan clears the pubic bone for an accurate scan</td>
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<td>9 Press the SCAN button located on the probe. As the scan progresses, sections of the bladder will appear on the console screen. When you hear the end-tone, the scan is complete. When you have 3 consistent readings and a clear image through scanner press print</td>
<td>To record accurate measurement of bladder image and volume To provide printed record</td>
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<td>10 At the end of the procedure the scanner head should be wiped free of gel and cleaned with a detergent wipe</td>
<td>To prevent cross-infection</td>
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<td>11 Remove the remaining gel from the patient’s abdomen using wipes and allow the patient to redress</td>
<td>To ensure comfort and dignity</td>
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<td>12 Ensure all waste is disposed of in line with RDaSH policy</td>
<td>To prevent cross-infection</td>
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<tr>
<td>13 Wash hands (Refer to Hand Hygiene Policy)</td>
<td>To prevent cross-infection</td>
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<td>14 Explain the results to the patient</td>
<td>To ensure patient understands</td>
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<tr>
<td>Action</td>
<td>Rationale</td>
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<td>15</td>
<td>If bladder contains a residual of urine under 200mls, teach bladder emptying techniques. If residual greater than 200ml, check U&amp;E’s and rescan in 7 days. If residual remains above 200mls contact Specialist Continence Service or Urology for further advice. (See Appendix 1 Retention of urine care pathway)</td>
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<td>16</td>
<td>Document the results in patients' care plan and attach the print out of the results.</td>
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</table>

6. REFERENCES


Department of Health (DoH) (2005) Essence of care. Benchmarking for Privacy and Dignity, Record Keeping, Continence and Bladder and Bowel Care.

Department of Health (DoH) Essential Steps to Safe Clean Care (2007) Preventing the Spread of Infection


7. APPENDICES

Appendix 1 Retention of Urine Care Pathway
Flow Chart for Bladder Scanning

Indications for performing a bladder scan:
- Feeling of incomplete emptying
- Difficulty in voiding, poor stream
- Urge and frequency in voiding
- Frequent UTI’s
- Catheter blocked/by-passing
- On Anticholinergic Therapy

Perform Pre and Post void bladder scan

Post Void Residual Urine < 200mls

Check for constipation

If patient is on Anticholinergic therapy consider stopping

Check correct sitting position

Teach Double Voiding

Treat Urinary Tract Infection (UTI)

If patient continues to be symptomatic, refer to the Specialist Continence Service

Post Void Residual Urine > 200mls

If residual >1000mls refer to Secondary care

Take U&E’s

Check for constipation

If patient is on an Anticholinergic therapy, stop.

Males-Commence on an Alpha Blocker (Flomax)

Treat UTI

If no urine drained, female patients will need referral to Gynaecology-GP to arrange Ultra sound scan

Consider draining residual urine using an Intermittent catheter (Unless first time male, follow pathway for Acute Painful Retention, Chronic Painless Retention in men will need referral to secondary care for first time catheterisation)
Repeat bladder scan a week later

Residual still present

Check U&E's

If abnormal, needs referral to Urology

Insert Urethral Catheter with leg bag

If within normal limits indwelling catheter with flip flow valve (if appropriate)

Refer to the Continence Health Advisory Service for a Trial Without Catheter (TWOC)

(Continence Health Advisory Service)

If TWOC Fails teach Intermittent Self Catheterisation (ISC), if unsuitable for ISC, insert indwelling catheter with Flip flow valve (if appropriate) and Refer to Urology