Urinary Drainage: Collection of Urine Samples

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1. Purpose of guideline

To outline recommended best practice related to obtaining a urine specimen. Correct collection technique and transportation is imperative, to minimise suboptimal samples and contaminated specimens.

2. Scope

All medical and nursing staff employed at Te Whatu Ora | Te Toka Tumai Auckland.

3. Definitions

The following terms are used within this document.

Term	Definition
EMU	Early morning urine
MC+S	Microscopy, culture and sensitivity
MSU	Midstream urine
RN	Registered Nurse
TB	Tuberculosis
UTI	Urinary Tract Infection

4. Collection of urine samples – indications

4.1 Urine for microscopy, culture and sensitivity (MC+S)

- Test for accurate representation of the bladder bacterial count with minimal contamination by bacteria colonising the distal urethra and surrounding perineal mucosa.
- Requests for urine MC+S should be justified by clinical particulars on the request form, to reduce unnecessary testing.
- Specimen should be collected before starting antibiotic treatment. Early morning 'midstream' urine specimens are preferred. A volume of 10-30 mL of urine is required.
- Routine cleansing of urethral meatus prior to obtaining a midstream urine sample is not necessary, unless the area is contaminated with faeces or there is evidence of poor personal hygiene. Clinical studies do not demonstrate that cleaning the meatus is associated with lower rates of contamination.
- Samples to be sent in a laboratory provided specimen container, clearly labelled with patient's full name, date of birth, date and time of collection. Ensure the container lid is tightly secure to prevent leakage. It is to be accompanied by a completed laboratory form. Requests for urine MC+S should be justified by clinical particulars.
- Samples should be delivered to the laboratory as soon as possible and within two hours of collection. If a delay is expected, specimen should be refrigerated.
- Specimens for MC+S can also be collected by catheterisation (at time of insertion of an indwelling catheter or by straight in-and-out catheterisation). Specimens can also be collected from an existing catheter (6.0; 7.0)

4.2 Urine for pregnancy testing

- Test is for Human Chorionic Gonadotropin (HCG).

- Sample is collected from the first void upon waking i.e. early morning urine (EMU), as dilute urine may give a false negative result.
- The first part of the urinary stream is collected – not midstream.
- A volume of 10-30 mL of urine is required.
- Samples to be sent in a provided laboratory specimen container, clearly labelled with patient's full name, date of birth, date and time of collection. It is to be accompanied by a completed laboratory form.
- Samples to be delivered to the laboratory as soon as possible. Store sample in the fridge until it can be delivered to the laboratory - no longer than two hours.

4.3 Urine for cytology

- Test for bladder cancer screening or as part of a surveillance protocol for high-grade bladder cancer follow-up.
- Sample is collected from the second void of the day i.e. between 10am – 12pm.
- The first part of the urinary stream is collected – not midstream.
- A volume of greater than 50 ml of urine is required.
- Three samples on separate days should be collected (these do not have to be consecutive days).
- Sample to be sent in a provided laboratory specimen container, clearly labelled with patient's full name, date of birth, date and time of collection. It is to be accompanied by a completed laboratory cytology form with comments "Non Gynaecological Cytology".
- Samples should be delivered to the laboratory as soon as possible on the day of collection, as cells degenerate after 10-15 minutes at room temperature. Store sample in the fridge until it can be delivered to the laboratory – no longer than two hours.
- A Urine Cytology information sheet is available on the Urology website for Te Toka Tumai Auckland. This information sheet explains the process in detail, reducing the risk of sampling errors.
- Catheterised urine cytology specimens should be avoided as they denude normal surface epithelial cells.

4.4 Urine for *Chlamydia/Neisseria gonorrhoeae* or TB testing

4.4.1 *Chlamydia/N. gonorrhoeae* nucleic acid amplification testing:

- Patient must not have passed urine for at least one hour prior to specimen collection. Best sample is collected from first void upon waking i.e. early morning urine (EMU).
- Ideally, specimen should be collected before starting any antibiotic medication.
- The first part of the urinary stream is collected – not midstream.
- A volume of 10-30 mL of urine is required. Collection of larger volumes of urine may result in specimen dilution that may reduce sensitivity.
- Samples to be sent in a laboratory provided specimen container, clearly labelled with patient's full name, date of birth, date and time of collection. It is to be accompanied by a completed laboratory form.
- Sample must be delivered to the laboratory within 24 hours or be stored and transported at refrigerator temperature.

4.4.2 TB testing:

- Three early morning urines (EMUs) are collected on three consecutive days i.e. collecting the first void upon waking.
- A urine volume of at least 50 ml is required for each sample.

- Samples to be sent in a TB Gastric/EMU collection bottle clearly labelled with patient's full name, date of birth, date, and time of collection. It is to be accompanied by a completed laboratory form.
- Label each specimen day one, day two or day three.
- Each sample must be delivered to the laboratory as soon as possible following collection. If a delay is expected, refrigerate specimen until able to be delivered.

4.5 Screening for normal/abnormal urine constituents

- Dipsticks might be used when there is low suspicion of a UTI to assist with the decisions to refer for MC+S or not. If there is high suspicion of a UTI, or if screening for asymptomatic bacteriuria during pregnancy, the sample should be sent for MC+S regardless of the dipstick result.
- This can be achieved using "Reagent Dipsticks". These are strips impregnated with chemicals which react by changing colour when the stick is dipped quickly into urine, thus indicating the presence/amount of the following constituents:
  - Protein
  - Leucocyte esterase (marker of white blood cells)
  - Nitrites (marker of gram-negative bacteria)
  - Glucose
  - Ketones
  - Heme (marker of red blood cells, haemoglobin or myoglobin)
  - Urinary pH
- The urine specimen should be a midstream specimen to avoid contamination.
- Urine should be tested immediately after collection in a plastic collecting dish.

4.6 24-hour urine collections

Measures how much urine is produced in a 24-hour period, the pH of the urine and the amount of certain substances in it such as calcium, sodium, uric acid, oxalate, citrate and creatinine.

Note: For some patients with long-term catheters who require 24-hour urine collections (e.g. spinal patients who are recurrent stone formers), collecting urine via the catheter is acceptable. The sample does not have to be sterile. However, these patients are encouraged to empty and change the urinary drainage bag at the beginning of the collection.

4.6.1 Inpatient procedure (usual process for some renal patients):

Step	Action
1.	All urine voided within a 24-hour period must be collected.
2.	Provide a large bowl containing a jug, collection bottle labelled with the date, time and patient's name. This equipment may be stored in the toilet.
3.	Place a "24-hour collect" sign on the end of the patient's bed.
4.	If the patient has a catheter/nephrostomy tube, ensure the drainage bags are labelled "24-hour collect".
5.	Tell the patient not to discard the preservative in the container.
6.	Advise the patient not to void directly into the 24-hour container.
7.	Ask the patient to empty the bladder (or catheter bag) at a specified time – 0800 hours is ideal as the collection is then completed within laboratory hours.
8.	Discard urine voided/collected at 0800 hours and then collect all urine for the next 24 hours. The start time and date must be written on the bottle.
9.	The following morning, ask the patient to empty their bladder/catheter bag at 0800 hours and add this to the collection. This is the total 24-hour collection. The finish time and date must be written on the bottle.

Step	Action
10.	Send labelled collection bottle in a sealed clear plastic bag, with appropriate laboratory form, to the laboratory.

4.6.2 Outpatient (usual process for most urology patients):

Step	Action
1.	For patients being discharged home who need to do a 24-hour urine collection, please ensure they have the following information obtained from the Renal website (found in Triage Process for Kidney Stones under Useful Links). • CC6710 24-hour urine tests for recurrent kidney stones laboratory request forms X2. • CC7040 24-hour urine tests for kidney stones – patient information on how to collect. • CC7041 community and hospital laboratory collection centres.

5. Procedure for mid-stream urine collection (including patient instruction)

5.1 Equipment

- Collecting dish or boat (for females).
- Laboratory provided specimen container with patient label attached.
- Completed microbiology request form with date and time of specimen collection and clinical particulars – indicate request MC+S on the form.
- Biohazard specimen bag.

5.2 Pre-procedure

Step	Action
1.	Identify patient as per formal patient identification policy.
2.	Explain rationale for specimen collection and gain verbal consent.
3.	Ensure privacy. Have plastic collecting dish ready and specimen container in the bathroom.

5.3 Procedure

Step	Action
1.	Ask patient to wash their hands and remove underclothing.
2.	Females: Instruct patient to separate labia wide apart and to pass first portion of urine into the toilet. Then to catch middle part of urine flow into the collecting dish and finish off voiding into the toilet. Carefully pour urine sample from collecting dish into specimen container. Take care not to touch the inside of the container or lid.
3.	Males: Instruct patient to retract foreskin (in uncircumcised males) and pass first portion of urine into the toilet. Then to catch middle part of urine flow into the specimen container and finish off voiding into the toilet. Take care not to touch the inside of the container or lid.

5.4 Post procedure

Step	Action
1.	Ensure adequate specimen volume and lid is secure on specimen container. Place in biohazard bag and place laboratory form in the outer sleeve of the bag. Document time, date and request MC+S on request form. Transport immediately to the laboratory (within two hours).

Step	Action
2.	Patient to wash their hands.

6. Collection of catheter specimen of urine immediately after inserting a urinary catheter

- Once the urinary catheter has been inserted in an aseptic manner, and before the drainage bag has been connected, the initial urine drained should be discarded, to eliminate the risk of false-positive cultures caused by urethral flora that may have been collected in/on the catheter during insertion.
- The following 30 ml should be collected in a laboratory provided specimen container.
- Once completed, the drainage bag can be connected and the catheter secured, as per procedure.
- Document on the request form that it is a catheter specimen urine (CSU) from a newly inserted catheter.

7. Procedure for catheter specimen collection from an existing catheter

Patients who have had a catheter inserted will show increased rates of bacteriuria within 72 hours of catheterisation.

Bacterial colonisation of a catheter leads to biofilm build-up along the inner and outer walls of urinary catheters from urethral organisms and proteins. Only collect urine for culture from symptomatic patients.

If a long-term indwelling catheter has been in place for more than two weeks and a urinary tract infection is suspected, the catheter should be changed prior to obtaining a urine specimen for culture as per 6.0.

If a long-term indwelling catheter has been in place for less than two weeks and a urinary tract infection is suspected, the catheter urine specimen must be obtained using an aseptic technique as per 7.0.

7.1 Equipment

- 18 g sterile needle
- 20 ml sterile syringe
- Alcohol wipe
- Non sterile gloves
- Kidney dish – to place syringe and needle into
- Laboratory specimen container with patient label
- Completed microbiology request form
- Biohazard specimen bag

7.2 Pre-procedure

Step	Action
1.	Identify patient as per formal patient identification policy.
2.	Explain rationale for specimen collection and gain verbal consent.
3.	Ensure privacy.

Step	Action
4.	Expose catheter tubing and aspiration port. Check that catheter is draining well, and urine is present in the tubing.
5.	Wash hands and assemble equipment. Open specimen container and place with lid upwards, on a nearby surface. Avoid touching the inside of container or the lid.
6.	Note: Clamping the catheter tubing for 10 minutes prior to obtaining the catheter urine specimen can be helpful in allowing an adequate volume of urine to accumulate. Clamping of the catheter tubing is necessary when the catheter has no sampling port.

7.3 Procedure

Step	Action
1.	Perform hand hygiene and don non-sterile gloves. Disinfect aspiration port with alcohol swab (situated proximal to catheter in drainage tubing) and allow to dry.
2.	Insert the needle in a 45-degree angle into aspiration port and aspirate minimum of 10 ml of urine with the needle and syringe. Remove needle and transfer urine into the specimen container.
3.	Cap container securely. Place used needle and syringe in kidney dish. Do not recap needle.
4.	Using second alcohol swab, clean aspiration port.
5.	Dispose of needle and syringe in sharps container.
6.	Remove gloves. Wash and dry hands.
7.	If catheter tubing is clamped – remember to unclamp.

7.4 Post procedure

Step	Action
1.	Place container in biohazard bag and place laboratory form in the outer sleeve of the bag.
2.	Document time, date and request MC+S on request form. Also, document on request form that it is a CSU from a long-term vs newly inserted catheter.
3.	Transport immediately to the laboratory (within two hours).
4.	Perform hand hygiene.

Note: Never collect sample from a used drainage bag, because multiplication of organisms within this reservoir occurs, resulting in inaccurate results.

Note: If the drainage tubing does not have a sampling port, options are:

- Place catheter and drainage tubing onto sterile gauze. Swab connection between the catheter and drainage bag using an alcohol swab. Allow to dry. Disconnect the drainage bag, whilst holding the catheter to avoid contamination, and collect accumulated urine from catheter

OR

- Assemble a new drainage bag ready. Swab connection between the catheter and existing drainage bag using an alcohol swab. Allow to dry. Remove existing drainage bag and attach the new one. Return 20 minutes later to collect fresh urine from the new drainage bag.

8. Procedure for catheter specimen collection from a urostomy stoma (ileal conduit)

The sample collection will take several minutes because the urostomy serves only as a passageway for the urine, not as a reservoir.

Sterile urine cannot be collected from a used urostomy appliance.

DO NOT INSERT A CATHETER TO OBTAIN A SPECIMEN WHEN STENTS ARE PRESENT.

8.1 Equipment

- New pouch or pouching system (either one-piece or two-piece pouch)
- Dressing pack
- Sodium chloride 0.9%
- Sterile guard
- Laboratory specimen container with patient label
- Non-sterile gloves – one pair
- Sterile gloves – one pair
- Sterile gauze squares
- Soft paper towels / wash cloths for cleaning prior to replacing pouch
- Nelaton catheter (male length): 16Fr
- Sterile water soluble lubricant
- Brown paper rubbish bag
- Biohazard specimen bag
- Laboratory request form

8.2 Pre-procedure

Step	Action
1.	Identify patient as per formal patient identification policy.
2.	Explain rationale for specimen collection and gain verbal consent.
3.	Ensure privacy.
4.	Position patient in a semi reclined position.
5.	Perform hand hygiene and assemble equipment in a sterile manner.

8.3 Procedure

Step	Action
1.	Perform hand hygiene and don non-sterile gloves.
2.	Carefully remove urostomy pouch and discard. If 2-piece system, leave flange in place.
3.	Drape sterile guard around and under stoma.
4.	Remove non-sterile gloves and perform hand hygiene.
5.	Don sterile gloves.
6.	Clean stoma with sodium chloride 0.9% and sterile gauze, using a circular motion from stoma opening outward.
7.	Blot stoma dry with sterile gauze.
8.	Place open end of Nelaton into the specimen container.
9.	Lubricate Nelaton open end (where holes are)
10.	Gently insert the tip of Nelaton into stoma **no more than 5 cm – 7.5 cm.** If resistance is felt whilst inserting, gently twist the Nelaton until it slides in.
11.	**THE NELATON SHOULD NEVER BE FORCED.**
12.	Hold the catheter in position until urine begins to drain.
13.	Allow first few drops to drip out onto the sterile gauze and discard.
14.	Catch 10 ml urine in specimen container.
15.	Collecting a sufficient amount of urine may take a few minutes (5-15 minutes).
16.	Remove catheter carefully.

Step	Action
17.	Cap container securely.
18.	Clean and dry stoma and peristomal skin.
19.	Replace new pouching appliance.
20.	Discard supplies as per local policy.

8.4 Post procedure

Step	Action
1.	Remove gloves. Wash and dry hands.
2.	Place container in biohazard bag and place laboratory form in the outer sleeve of the bag.
3.	Document time, date and request MC+S on request form. Also, document on request form that it is a urostomy catheter specimen.
4.	Transport immediately to the laboratory (within two hours). Perform hand hygiene.

9. Procedure for clean catch urine collection method from a urostomy stoma (ileal conduit)

9.1 Equipment

- New pouch or pouching system (either one-piece or two-piece pouch)
- Dressing pack
- Sodium chloride 0.9%
- Sterile guard
- Laboratory specimen container with patient label
- Non-sterile gloves – one pair
- Sterile gloves – one pair
- Sterile gauze squares
- Soft paper towels / wash cloths for cleaning prior to replacing pouch
- Brown paper rubbish bag
- Biohazard specimen bag
- Laboratory request form

9.2 Pre-procedure

Step	Action
1.	Identify patient as per formal patient identification policy.
2.	Explain rationale for specimen collection and gain verbal consent.
3.	Ensure privacy.
4.	Position patient in a semi reclined position.
5.	Perform hand hygiene and assemble equipment in a sterile manner.

9.3 Procedure

Step	Action
1.	Perform hand hygiene and don non-sterile gloves.
2.	Carefully remove urostomy pouch and discard.
3.	Drape sterile guard around and under stoma.
4.	There may be a collection of mucous where the stents exit the stoma. Use a piece of dry

Step	Action
	gauze to gently remove the mucous without dislodging the stents.
5.	Remove non-sterile gloves and perform hand hygiene.
6.	Don sterile gloves.
7.	Cleanse the outside ends of the stents with sodium chloride 0.9%.
8.	Blot the stents with sterile gauze.
9.	Allow the first few drops of urine from the stents to drip onto sterile gauze and then discard.
10.	Hold specimen container under the stents and collect 5-10 ml of urine.
11.	Collecting a sufficient amount of urine may take a few minutes (5-15 minutes).
12.	Clean and dry the stoma and peristomal skin.
13.	Replace new pouching appliance.
14.	Discard supplies as per local policy.

9.4 Post procedure

Step	Action
1.	Remove gloves and perform hand hygiene.
2.	Place specimen container in biohazard bag and place laboratory form in the outer sleeve of the bag.
3.	Document time, date and request MC+S on request form. Also, document on request form that it is a urostomy stoma specimen.
4.	Transport immediately to the laboratory (within two hour). Perform hand hygiene.

10. Procedure for catheter specimen collection from a continent urinary diversion (urinary reservoir)

- A urinary reservoir is fashioned from the bowel or the patient's own bladder.
- The reservoir can also be called a pouch.
- A channel is created from the appendix, ureter or ileum.
- The channel connects the reservoir to the abdominal surface, with the opening on to the abdominal wall called a stoma.
- The urinary diversion is continent because of the valve arrangement, which prevents urinary leakage.
- Examples of continent urinary diversions include Mitrofanoff, Monti and Indiana.

10.1 Equipment required

- Procedure trolley
- Sterile catheterisation pack
- Cleaning solution – sodium chloride 0.9%
- Sterile water soluble lubricant
- Non-sterile gloves - one pair
- Sterile gloves - two pairs
- Sterile gauze squares
- Extra sterile gauze to cover the stoma
- Non-irritating tape
- Sterile Nelaton catheter

- Waste bag
- Sterigel
- Specimen container

10.2 Pre-procedure

Step	Action
1.	Identify patient as per formal patient identification policy.
2.	Explain rationale for specimen collection and gain verbal consent.
3.	Ensure privacy.
4.	Position patient in a semi reclined position.
5.	Perform hand hygiene and assemble equipment in a sterile manner.

10.3 Procedure

Step	Action
1.	Perform hand hygiene and don non-sterile gloves. Remove gauze dressing over stoma if present and discard.
2.	Remove non-sterile gloves, perform hand hygiene and don first pair of sterile gloves.
3.	Clean stoma with cleansing solution-soaked swabs, using a circular motion from stoma opening outward.
4.	Blot stoma dry with sterile gauze.
5.	Remove gloves and perform hand hygiene. Put on second pair of sterile gloves.
6.	Drape the sterile guard around and under stoma and place the drainage receptacle on the sterile guard.
7.	Lubricate the lower third of the catheter with lubricant.
8.	Gently insert the tip of the Nelaton into the stoma until urine drains into the receptacle. If resistance is felt whilst inserting, gently twist the Nelaton until it slides in. The Nelaton should never be forced.
9.	The initial urine drained should be discarded to eliminate the risk of a false-positive culture.
10.	Catch at least 10 ml of urine in the specimen container.
11.	Withdraw the catheter.
12.	Clean and dry stoma and peristomal skin. If required, apply a sterile gauze square over stoma and secure with tape.
13.	Discard supplies as per local policy.

10.4 Post procedure

Step	Action
1.	Remove gloves and perform hand hygiene.
2.	Place specimen container in biohazard bag with laboratory form in the outer sleeve of the bag (with time, date documented).
3.	Document on request form that specimen is from a continent urinary diversion.
4.	Transport immediately to the laboratory (within 2 hours). Perform hand hygiene

11. Supporting evidence

- Baerheim A, Digranes A, & Hunskaar S. (1992). Evaluation of urine sampling technique: bacterial contamination of samples from women students. *British journal of general practice*, *42*(359), 241-243.
- Baron, E. J., Miller, J. M., Weinstein, M. P., Richter, S. S., Gilligan, P. H., Thomson Jr, R. B., ... & Pritt, B. S. (2013). A guide to utilization of the microbiology laboratory for diagnosis of infectious diseases: 2013 recommendations by the Infectious Diseases Society of America (IDSA) and the American Society for Microbiology (ASM) a. *Clinical infectious diseases*, *57*(4), e22-e121.
- Burd, E. M., & Kehl, K. S. (2011). A critical appraisal of the role of the clinical microbiology laboratory in the diagnosis of urinary tract infections. *Journal of clinical microbiology*, *49*(9 Supplement), S34-S38.
- Dolan, V. J., & Cornish, N. E. (2013). Urine specimen collection: how a multidisciplinary team improved patient outcomes using best practices. *Urologic nursing*, *33*(5).
- Faller, N. A., & Lawrence, K. G. (1994). Obtaining a urine specimen from a conduit urostomy. *AJN The American Journal of Nursing*, *94*(1), 37.
- Gilbert, R. (2006). Obtaining a catheter specimen of urine. *Nursing times*, *102*(19), 22-23.
- Higgins, D. (2008). Specimen Collection. *Nursing times*, *104*(20), 26-27.
- Lab PLUS Phlebotomy Services. (2010*). Patient information – Instructions for collecting a midstream urine*. Retrieved from: http://www.labplus.co.nz
- Lab tests. (2015). *Patient information sheets: Urine specimen for culture; 24 hour urine collection; Urine specimens for creatinine clearance and cytology*. Retrieved from: http://www.labtests.co.nz.
- LaRocco, M. T., Franek, J., Leibach, E. K., Weissfeld, A. S., Kraft, C. S., Sautter, R. L., ... & Cornish, N. E. (2016). Effectiveness of preanalytic practices on contamination and diagnostic accuracy of urine cultures: a laboratory medicine best practices systematic review and meta-analysis. *Clinical Microbiology Reviews*, *29*(1), 105-147.
- Leaver, R. B. (2007). The evidence for urethral meatal cleansing. *Nursing Standard, 21*(41), 39.
- Lifshitz, E., & Kramer, L. (2000). Outpatient urine culture: does collection technique matter?. *Archives of internal medicine*, *160*(16), 2537-2540.
- Mahoney, M., Baxter, K., Burgess, J., Bauer, C., Downey, C., Mantel, J., ... & Sheppard, S. (2013). Procedure for obtaining a urine sample from a urostomy, ileal conduit, and colon conduit: a best practice guideline for clinicians. *Journal of Wound Ostomy & Continence Nursing*, *40*(3), 277-279.
- Mcgoldrick, M. (2015). Urine specimen collection and transport. *Home healthcare now, 33*(5), 284-285.
- Meyrier, A. (2017). Sampling and evaluation of voided urine in the diagnosis of urinary tract infection in adults. *Up toDate, Calderwood, MD (Ed), Up toDate*. Retrieved from: http://www.uptodate.com
- Nasiriani, K., Kalani, Z., Farnia, F., Motavasslian, M., Nasiriani, F., & Engberg, S. (2009). Comparison of the effect of water vs. povidone-iodine solution for periurethral cleaning in women requiring an indwelling catheter prior to gynecologic surgery. *Urologic Nursing*, *29*(2).
- Schneeberger, C., van den Heuvel, E. R., Erwich, J. J. H., Stolk, R. P., Visser, C. E., & Geerlings, S. E. (2013). Contamination rates of three urine-sampling methods to assess bacteriuria in pregnant women. *Obstetrics & Gynecology*, *121*(2 PART 1), 299-305.
- Ünlü, H., Şardan, Y. Ç., & Ülker, S. (2007). Comparison of sampling methods for urine cultures. *Journal of Nursing Scholarship*, *39*(4), 325-329.
- Wilson, M. L., & Gaido, L. (2004). Laboratory diagnosis of urinary tract infections in adult patients. *Clinical infectious diseases*, *38*(8), 1150-1158.
- Wullt, B., Agace, W., & Mansson, W. (2004). Bladder, bowel and bugs—bacteriuria in patients with intestinal urinary diversion. *World journal of urology*, *22*, 186-195.

12. Legislation

New Zealand legislation

- Health Practitioners Competence Assurance Act 2003
- Privacy Act 1993
- Health and Disability Commissioner (Code of Health and Disability Services Consumers' Rights) Regulations 1996
- Health Information Privacy Code 2020
- Human Rights Act 1993
- Official Information Act 1982

New Zealand standards

- Nursing Council of New Zealand Competencies for Registered Nurses
- Health and disability sector standards (2008)

13. Associated documents

Te Toka Tumai Auckland policies and guidelines

- Hand Hygiene
- Urinary Drainage - Intermittent Catheterisation
- Urethral Catheter Management
- Informed Consent
- Waste Management
- Standard Precautions – Infection Control

Other

- Urine for cytology patient information sheet

14. Disclaimer

No guideline can cover all variations required for specific circumstances. It is the responsibility of the health care practitioners using this Te Toka Tumai Auckland guideline to adapt it for safe use within their own institution, recognise the need for specialist help, and call for it without delay, when an individual patient falls outside of the boundaries of this guideline.

15. Corrections and amendments

The next scheduled review of this document is as per the document classification table (page 1). However, if the reader notices any errors or believes that the document should be reviewed ***before*** the scheduled date, they should contact the owner or Document Control without delay.