

The Hierarchy of Evidence



The Hierarchy of evidence is based on summaries from the National Health and Medical Research Council (2009), the Oxford Centre for Evidence-based Medicine Levels of Evidence (2011) and Melynyk and Fineout-Overholt (2011).

- I Evidence obtained from a systematic review of all relevant randomised control trials.
- II Evidence obtained from at least one well designed randomised control trial.
- III Evidence obtained from well-designed controlled trials without randomisation.
- IV Evidence obtained from well-designed cohort studies, case control studies, interrupted time series with a control group, historically controlled studies, interrupted time series without a control group or with case- series
- V Evidence obtained from systematic reviews of descriptive and qualitative studies
- VI Evidence obtained from single descriptive and qualitative studies
- VII Expert opinion from clinicians, authorities and/or reports of expert committees or based on physiology

Melynyk, B. & Fineout-Overholt, E. (2011). Evidence-based practice in nursing & healthcare: A guide to best practice (2nd ed.). Philadelphia: Wolters Kluwer, Lippincott Williams & Wilkins.

National Health and Medical Research Council (2009). NHMRC levels of evidence and grades for recommendations for developers of guidelines (2009). Australian Government: NHMRC. http://www.nhmrc.gov.au/_files_nhmrc/file/guidelines/evidence_statement_form.pdf

OCEBM Levels of Evidence Working Group Oxford (2011).The Oxford 2011 Levels of Evidence. Oxford Centre for Evidence-Based Medicine. <http://www.cebm.net/index.aspx?o=1025>

Databases searched:	<input checked="" type="checkbox"/> CINAHL (Ebsco)	<input type="checkbox"/> Medline (Ebsco)	<input checked="" type="checkbox"/> Pubmed (NLM)	<input checked="" type="checkbox"/> Nursing (Ovid)	<input type="checkbox"/> Emcare (Ovid)
Keywords used:	"indwelling catheter" Indwelling urinary catheter" "urinary catheterisation" "insertion" "paediatrics" "paediatrics" "children" "bladder catheterization" "neonate" "removal"				
Search limits:	Neonates, 0-18yrs				
Other search comments:	Difficult to find paediatric specific information relating to: insertion procedure, catheter sizes to be used and removal procedure				

Guideline Title: Indwelling urinary catheter – insertion and ongoing care
Author(s):

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Reference (include title, author, journal title, year of publication, volume and issue, pages)	Evidence level (I-VII)	Key findings, outcomes or recommendations
Anderson, C., & Herring, R. (2019). Pediatric Nursing Interventions and Skills. In M. Hockenberry, D. Wilson, & C. Rodgers (Eds.), <i>Wong's Nursing Care of Infants and Children</i> (pp. 701-704) St. Louis, Missouri: Elsevier.		<ul style="list-style-type: none"> • Bladder catheterization procedure. Male and female specific IDC insertion techniques. • Sizing of catheter for paediatric age groups • Use of lignocaine gel
Australia and New Zealand Urological Nurses Society, (2014). Catheterisation Clinical Guidelines		<ul style="list-style-type: none"> • Securement of IDC • Documentation after insertion of IDC • Procedure of inserting IDC • Use of sterile normal saline or a cleansing solution for cleaning urethra/insertion site • Only trained Health Care Professionals trained who have knowledge & understanding of the urinary tract, the catheterisation process & the principles of asepsis should insert urethral catheters. • Outlines procedure to insert & care for urinary catheter. • A closed drainage system must be maintained for best practice in preventing CAUTI. • Urine samples should only be taken if the patient is symptomatic of UTI • Use of size 6-10 french catheters for paediatrics

Australian Guidelines for the Prevention and Control of Infection in Healthcare
(2019) pages 137-140 <https://www.nhmrc.gov.au/guidelines-publications/cd33>

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- Patient centred healthcare – including the patient in the cares and sharing their rights and responsibilities with treatments and procedures.
- Involving patients in procedures and treatments can improve infection prevention and control. Educating patients about cares and procedures of IDC.
- Indwelling urinary catheter definition
- Risks of having and IDC: extraluminal and intraluminal contamination.
- Assess the need for insertion of an indwelling urinary catheter prior to insertion, to limit catheter use and minimise duration to reduce CAUTIs.
- Healthcare workers performing catheterisation should be trained and competent
- Reasons why an IDC may be used
- Urinary catheters should be inserted using sterilised equipment (including a sterile drape) & an aseptic technique, using the smallest bore catheter possible that will not be associated with leakage.
- No advantage in using antiseptic preparations over sterile saline for cleansing the urethral meatus prior to catheter insertion. The use of lubricant or anaesthetic gel minimises urethral trauma & discomfort.
- Maintaining an aseptic, continuously closed urinary drainage system to minimise infection.
- No reduction in bacteriuria has been demonstrated when antiseptic/antimicrobial agents are used for meatal care compared with routine bathing or showering.
- Removal as soon as IDC is no longer required
- Documentation: information in relation to the need for catheterisation and details of the insertion, maintenance and removal of their catheter.
- When inserting, use an appropriate sterile, single use lubricant or anaesthetic gel
- Maintenance: drainage bag position: Fiona Newall & Sharon Kinney
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- Securement of the device should be made to thigh or abdomen to minimise tugging or stretching of the catheter.

<p>Fasugba, O., Koerner, J., Mitchell, B. G., & Gardner, A. (2017). Systematic review and meta-analysis of the effectiveness of antiseptic agents for meatal cleaning in the prevention of catheter-associated urinary tract infections. <i>Journal of Hospital Infection</i>, 95(3), 233-242.</p>		<ul style="list-style-type: none"> • 14 studies revealed there was no difference in the incidence of CAUTIs when comparing different cleaning agents before urinary catheter insertion and during catheter use in the prevention of CAUTIs • Solutions included; chlorhexidine, saline, povidone-iodine and water
<p>Galiczewski, J. M. (2017). An intervention to improve the catheter associated urinary tract infection rate in a medical intensive care unit: direct observation of catheter insertion procedure. <i>Intensive Critical Care Nursing</i>. 40:26–34. <i>Intensive & Critical Care Nursing</i>, 41, 2. https://doi.org/10.1016/j.iccn.2017.04.002</p>		<ul style="list-style-type: none"> • Insertion technique of IDC for male and females. Cleansing of area for insertion of IDC • Equipment needed for IDC insertion. • Preparing patient for the procedure • Retract gently once balloon is filled, until you feel resistance to check position and security
<p>Gould, C., Umscheid, C., Agarwal, R., Kuntz, G., Pegues, D., & the Healthcare Infection Control Practices Advisory Committee (HICPAC). (2009) Guideline for prevention of catheter associated urinary tract infections (2009) Updated: June 6, 2019. https://www.cdc.gov/infectioncontrol/pdf/guidelines/cauti-guidelines-H.pdf</p>		<ul style="list-style-type: none"> • Indications for IDC insertion • Inappropriate uses for IDC insertion • Only insert IDC if necessary and minimise duration as appropriate, particularly those at risk of CAUTI • Insertion steps of IDC • Must be an appropriately trained health care professional inserting IDC • IDC maintenance: maintaining a closed drainage system, when to replace IDC and collecting system, keeping an unobstructed drainage system. • PPE use: standard precautions • Routine hygiene – water and soapy water for cleaning meatus when IDC insitu

Government of Western Australia Department of Health (2015). Indwelling Catheter: Blockage. Clinical Guideline, Women's and Newborn Health Service, King Edward Memorial Hospital.

- Health care workers need to be trained in how to insert urinary catheters
- Evidence based guideline which outlines procedures for unblocking urinary catheters, both in closed system and open catheter situations.
- Equipment required for insertion and removal of IDC
- Neonatal catheter size guide
- Identifying that flushing of an IDC should only be performed by senior medical staff competent in catheter care
- Involve the parents where possible when providing non-pharmalogical pain relief, distraction and restraint.
- IDC site should be observed with nappy changes 3-4hrly. Observe for leaking at catheter site, tension, redness and discharge. Report and document any abnormalities to the medical team immediately (Neonates).
- Urinary drainage should be documented 1-2 hourly. Colour and concentration of urine should be observed and documented (neonates).
- Unless otherwise specified by the treating team, normal urine output is 0.5ml2ml/kg/hr. Report any variations to the medical team (Neonates).

<p>Government of Western Australia Department of Health. Urethral Catheterisation Neonatal Guideline. (2019).</p>		<ul style="list-style-type: none"> • Procedural guideline for IDC insertion of a neonate – male and female • Preparation of environment and equipment needed for the procedure of insertion and removal • IDC removal equipment and removal procedure • Specimen collection procedure • Position drainage bag to prevent backflow of urine or contact with the floor. Gravity is important. Ensure the drainage bag is below the level of the bladder •
<p>Holroyd, S. (2019). Indwelling catheterisation: evidence-based practice. <i>Journal of Community Nursing</i>, 33(5), 40-46.</p>		<ul style="list-style-type: none"> • Indications for IDC insertion • Common causes of IDC blockage or bypassing and tips to improve practice. • Securing IDC to thigh or abdomen to minimise any tugging or stretching of the catheter, thereby reducing traction on the urethra
<p>NHS Southern Health, Urinary Catheter Care Guidelines (2020)</p>		<ul style="list-style-type: none"> • Safe removal of IDC. Remove as soon as no longer required, to decrease risk of urinary tract infection, using a clean, non-touch technique. • Adequate assessment of reasoning for IDC and assessment for any risks involved before completing the procedure • Documentation of procedure and urinary catheter cares • Aseptic technique should be used to prevent infection • Urethral catheterisation definition
<p>Pradhan, S. K., & Das, K. (2017). Urinary Bladder Catheterization. <i>Practical Procedures in Pediatric Nephrology</i>, 4.</p>		<ul style="list-style-type: none"> • Catheter sizes to use for paediatric IDC • Using lignocaine gel (2%) if necessary, waiting 2-3 minutes to take effect

<p>Royal College of Nursing Catheter Care RCN Guidance for Healthcare Professionals (2019)</p>	<p>VII</p>	<ul style="list-style-type: none"> • Indications for IDC insertion • Aseptic technique/environment when performing IDC insertion/care • Paraphimosis definition
<p>Rowe, J. (2020). Urinary catheter management. Starship Hospital New Zealand.</p>		<ul style="list-style-type: none"> • Size of Foley catheters used for children • Insertion of urinary catheter procedure • Indwelling catheter guideline for paediatric patients

Australian Guidelines for the Prevention and Control of Infection in Healthcare (2010) pages 137-140 <https://www.nhmrc.gov.au/guidelines-publications/cd33>