

Evidence Table; Clean Intermittent Catheterisation Nursing Clinical Guideline

| Reference | Evidence Level (I-VII) | Key findings, outcomes or recommendations |
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| Barken, K.B., (2022). A scoping review on the impact of hydrophilic versus non-hydrophilic intermittent catheters on UTI, QoL, satisfaction, preference, and other outcomes in neurogenic and non-neurogenic patients suffering from urinary retention. <i>BMC Urology</i> . 22(1):153. | Systematic literature search V | -Scoping review compared hydrophilic-coated with non-coated catheters in neurogenic and non-neurogenic patients with respect to satisfaction, preference ,adverse events, UTI's, quality of life, cost effectiveness, pain and discomfort -37 original articles and 40 reviews were included -children complained about slippery catheters which might have compromised cleanliness -Findings support hydrophilic catheters, however most studies were small with high dropout rates -Recommend larger studies and additional training in children |
| Chaudhry, R., et al. (2017). Risk Factors Associated With Recurrent Urinary Tract Infection in Neurogenic Bladders Managed by Clean Intermittent Catheterization. <i>Urology</i> 102: 213-218 | Retrospective analysis chart review IV | - A 6-year retrospective chart review of patients who perform CIC 8months to 58 years; 194 patients: 147(75%) no UTI or infrequent, 48(25%) had frequent UTI. -Younger age was a significant predictor for frequent UTI's -Low bladder compliance trended toward frequent UTI's but did not reach statistical significance -Larger multicentre studies will be required to allow more robust statistical analysis |
| DeFoor, W., et al. (2017). Results of a prospective randomized control trial comparing hydrophilic to uncoated catheters in children with neurogenic bladder. <i>Journal of Pediatric Urology</i> , 13(4):373-375 | Randomised control trial II | - 78 children aged 2-17 years with neurogenic bladder on CIC enrolled for 1 year -In children with neurogenic bladder on CIC, hydrophilic catheters may decrease the risk of UTI's and should be offered as an option to patients and families. -No significant difference were seen in urethral injury, haematuria or difficulty passing the catheters -Some patients found the hydrophilic catheters hard to handle due to slippery coating -A larger multi-centre study may be helpful to confirm findings |

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| <p>Elzeneini, W., et al. (2019). Early start of clean intermittent catheterization versus expectant management in children with spina bifida. <i>Journal of Pediatric Surgery</i> 54:322-325</p> | <p>Retrospective cohort comparison study IV</p> | <ul style="list-style-type: none"> - Compared 114 infants in recent cohort to 126 infants in historical cohort -DMSA scan showed renal scarring in 18.8% of the recent cohort versus 39% of the historical cohort -Significant reduction in scar formation in patients with SB with the routine institution of early CIC , particularly in girls was shown -Recommend IDC then CIC from birth in all patients with SB(depend on availability of continence nurse) |
| <p>Faleiros, F., et al. (2018). Intermittent catheterization and urinary tract infection: A comparative study between Germany and Brazil. <i>Journal of wound, ostomy and continence nursing.</i> 45(6): 521-526.</p> | <p>Quantitative, descriptive, correlational study VI</p> | <ul style="list-style-type: none"> -Describe and compare factors that affect UTI rates in people with SB and neurogenic bladder dysfunction before and following initiation of CIC -200 participants recruited from public rehabilitation hospital in the state of Minas Gerais Brazil and German participants were drawn from different regions of the country -Data collected through survey questionnaire -Brazilians mostly used assisted CIC, while Germans performed self CIC -Use of CIC reduced both group incidence of UTI. -Self CIC promoted greater reduction of UTI |
| <p>Foster, C. S., et al. (2017) Utility of a routine urinalysis in children who require clean intermittent catheterization. <i>Journal of Pediatric Urology</i> 13(5): 488.e1-488.e5</p> | <p>A cross-sectional study IV</p> | <ul style="list-style-type: none"> - Cross sectional study of 133 children who required CIC. - In children with neurogenic bladder who require CIC, specific routine urinalysis, lack of leukocyte esterase, large leukocyte esterase and nitrate have some utility in differentiating between patients with and without UTI's. -There is a significant need for a better marker of UTI in this unique patient population. |

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| <p>Fumincelli, L., et al. (2017). Quality of life on intermittent urinary catheterization users and their caregivers: a scoping review. <i>Worldviews on Evidence-Based Nursing</i>. 14(4): 324-333</p> | <p>Scoping review VI</p> | <p>-Looks at the scientific evidence regarding quality of life in neurogenic bladder patients and consequently their caregivers by means of a scoping review -2945 research studies were identified; 13 studies were selected looked at quality of life regarding he urinary catheterization technique, assessment of urinary incontinence, individual perceptions of the procedure and experience with urinary catheter in childhood and adult life -Research indicate the importance of adequate professional support and appropriate health public policies</p> |
| <p>Holroyd, S., (2019). Intermittent catheterisation: challenges when children move to adult services. <i>British journal of nursing</i>. 28(18); S20-S22.</p> | <p>Expert opinion VII</p> | <p>-Transition should occur as per individual need depending on physical, social and cultural issues and not just at 18years. -CIC is first choice method for bladder drainage -Individualised assessment by an experienced specialist is required -Teaching process requires time and patience in a suitable and private environment -support for parents, family, teachers to encourage compliance and consistency of CIC is required -Multidisciplinary team across child and adult service approach will lead to improved outcome and quality of life.</p> |
| <p>Li, Y., et al. (2018) Application of clean intermittent catheterization for neurogenic bladder in infants less than 1 year old. <i>Neurorehabilitation</i> 42(4): 377-382</p> | <p>Retrospective analysis IV</p> | <p>- 76 infants with neurogenic bladder were divided into early CIC <1 year and late CIC >3 years old -Early CIC play an important role in preserving bladder function and preventing UTI's and renal deterioration in infants with neurogenic bladder especially in the first year of life.</p> |

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| <p>Prieto, J.A., et al. (2021). Intermittent catheter techniques, strategies and designs for managing long-term bladder conditions. <i>The Cochrane Database of Systematic Reviews</i>, vol. 10.</p> | <p>Systemic review I</p> | <p>-An update Cochrane review to assess impact on UTI and other complications and measure quality of life among adult and children who perform CIC -23 trials: 1339 randomised participants; result downgraded due to risk of bias and low numbers of participants - Remains unclear if UTI or other complications affected by use of aseptic or clean technique, single or multiple use catheters, coated or uncoated catheters. -More well designed trials are needed</p> |
| <p>Saadat, S.H., et al (2019). Clean intermittent catheterization: single use vs. reuse. <i>Canadian Urological Association Journal</i>, 13(2): 64-69.</p> | <p>Literature review V</p> | <p>-Search conducted from 2014-2018 -single use catheters coated and uncoated was considered to have a lower risk of UTI -Cost effectiveness of single use was confirmed by the studies -Re-use of catheters expose the patient to multiple cleaning techniques that can be difficult to adhere to and duration of catheter use that can cause multiple complications and create pressure on the healthcare system. -Larger trials to look at consideration to a patient –centred approach re catheter type usage especially in paediatric</p> |
| <p>Stein, R., et al. (2020). EAU/ESPU guidelines on the management of neurogenic bladder in children and adolescent part 1 diagnostics and conservative treatment. <i>Neurology and urodynamics</i>. 39(1): 45-57.</p> | <p>Systemic review V</p> | <p>-systematic literature review 2000-2017 -CIC should be started as soon as possible after birth in newborn with SB -close follow up including ultrasound, bladder diary, urinalysis and urodynamics are necessary within the first 6 years -Transition into adulthood can be a complicated tome with reduced compliance</p> |