



TITLE: Urine Testing in Long-Term Care: Guidelines

DATE: 9 December 2014

RESEARCH QUESTIONS

1. What are the evidence-based guidelines regarding the ordering of urine culture and sensitivity tests, dipstick tests, and urinalysis for residents in long-term care?
2. What are the evidence-based guidelines regarding proper collection of urine for urine testing in long-term care residents?
3. What are the evidence-based guidelines regarding the interpretation of urine test results?

KEY FINDINGS

No evidence-based guidelines were identified regarding the ordering of urine culture and sensitivity tests, dipstick tests, and urinalysis for residents in long-term care, the proper collection of urine for testing in long-term care, or the interpretation of urine test results.

METHODS

A limited literature search was conducted on key resources including PubMed, The Cochrane Library (2014, Issue 11), University of York Centre for Reviews and Dissemination (CRD) databases, Canadian and major international health technology agencies, as well as a focused Internet search. No filters were applied to limit the retrieval by study type for research question one and two. For research question three, methodological filters were applied to limit retrieval to health technology assessments, systematic reviews, meta-analyses, and guidelines. Where possible, retrieval was limited to the human population. The search was also limited to English language documents published between January 1, 2009 and November 27, 2014. Internet links were provided, where available.

The summary of findings was prepared from the abstracts of the relevant information. Please note that data contained in abstracts may not always be an accurate reflection of the data contained within the full article.

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SELECTION CRITERIA

One reviewer screened citations and selected studies based on the inclusion criteria presented in Table 1.

Table 1: Selection Criteria	
Population	Symptomatic and asymptomatic long-term care (LTC) residents who are: <ul style="list-style-type: none"> • incontinent with or without catheters • continent
Intervention	Urine testing (urine culture and sensitivity analysis, dipstick, urinalysis)
Comparator	None
Outcomes	Evidence-based guidelines
Study Designs	Health technology assessments, systematic reviews, meta-analyses, evidence-based guidelines

RESULTS

Rapid Response reports are organized so that the higher quality evidence is presented first. Therefore, health technology assessment reports, systematic reviews, and meta-analyses are presented first. These are followed evidence-based guidelines.

No relevant health technology assessments, systematic reviews, meta-analyses, or evidence-based guidelines were identified.

Additional references of potential interest are provided in the appendix.

OVERALL SUMMARY OF FINDINGS

No evidence-based guidelines were identified regarding the ordering of urine culture and sensitivity tests, dipstick tests, and urinalysis for residents in long-term care, the proper collection of urine for testing in long-term care, or the interpretation of urine test results; therefore, no summary can be provided.

REFERENCES SUMMARIZED

Health Technology Assessments

No literature identified.

Systematic Reviews and Meta-analyses

No literature identified.

Randomized Controlled Trials

No literature identified.

Guidelines and Recommendations

No literature identified.

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APPENDIX – FURTHER INFORMATION:

Clinical Practice Guidelines and Position Papers – Methodology Unclear

1. Proposed clinical guidelines: asymptomatic bacteriuria [Internet]. New York: ArchCare Advantage; 2012. [cited 2014 Dec 5]. Available from:
<https://www.archcare.org/static/files/approved-asb-guidelines.pdf>
2. Stone ND, Ashraf MS, Calder J, Crnich CJ. Surveillance definitions of infections in long-term care facilities: revisiting the McGeer criteria. *Infection Control and Hospital Epidemiology* [Internet]. 2012 [cited 2014 Dec 5];33(10):965-77 Available from:
<http://www.cumc.columbia.edu/studies/pnice/nursinghomes/documents/New%20Definitions%20for%20Infections%20Long-term%20Care.pdf>
3. Guideline for the diagnosis and management of urinary infection in long term care [Internet] Edmonton: Toward Optimized Practice; 2010. [cited 2014 Dec 5]. Available from:
http://www.topalbertadoctors.org/download/401/urinary_tract_infection_guideline.pdf
Urinary tract infections in long term care clinical pathway. Algorithm.
http://www.topalbertadoctors.org/download/400/UTI_algorithm.pdf

Reference Guides

4. Delanghe D, Speeckaert M. Preanalytical requirements of urinalysis. *Biochem Med (Zagreb)* [Internet]. 2014 [cited 2014 Dec 5];24(1):89–104. Available from:
<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3936984/pdf/biochem-24-1-89-12.pdf>
5. Interpreting urine dipstick tests in adults: a reference guide for primary care [Internet]. Dunedin, New Zealand: pbac; 2013. [cited 2014 Dec 5]. (best tests). Available from:
<http://www.bpac.org.nz/BT/2013/June/docs/BT19-pages-10-21.pdf>
6. Waldi HL, Fink RM, Makic M, Oman KS. Catheter-associated urinary tract infection prevention [Internet]. 4th ed. In: Boltz M, Capzuti E, Fulmer T, Zwicker D, editors. *Evidence-based geriatric nursing protocols for best practice*. New York: Springer Publishing; 2012. p. 388-408 [cited 2014 Dec 5]. (National Guideline Clearinghouse summary). Available from:
<http://www.guideline.gov/content.aspx?id=43936&search=urinary+tract+infection>
See: Major Recommendations – Assessment of Catheter-associated Urinary Tract Infection (CAUTI) (surveillance criteria for CAUTI)
7. Guidelines and Protocols Advisory Committee. Macroscopic and microscopic urinalysis and the investigation of urinary tract infections [Internet]. Victoria (BC): British Columbia Ministry of Health Services; 2009 Apr 22. [cited 2014 Dec 5]. Available from:
<http://www.bcguidelines.ca/pdf/urinalysis.pdf>

Non-Randomized Studies

8. Sundvall PD, Elm M, Ulleryd P, Molstad S, Rodhe N, Jonsson L, et al. Interleukin-6 concentrations in the urine and dipstick analyses were related to bacteriuria but not symptoms in the elderly: a cross sectional study of 421 nursing home residents. *BMC Geriatr* [internet]. 2014 [cited 2014 Dec 5];14:88. Available from:

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4137105/pdf/1471-2318-14-88.pdf>

9. D'Agata E, Loeb MB, Mitchell SL. Challenges in assessing nursing home residents with advanced dementia for suspected urinary tract infections. *J Am Geriatr Soc* [Internet]. 2013 Jan [cited 2014 Dec 5];61(1):62-6. Available from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3545416/pdf/nihms413569.pdf>
10. Sundvall PD, Ulleryd P, Gunnarsson RK. Urine culture doubtful in determining etiology of diffuse symptoms among elderly individuals: a cross-sectional study of 32 nursing homes. *BMC Fam Pract* [Internet]. 2011 [cited 2014 Dec 5];12:36. Available from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3142216/pdf/1471-2296-12-36.pdf>
11. Arinzon Z, Peisakh A, Shuval I, Shabat S, Berner YN. Detection of urinary tract infection (UTI) in long-term care setting: is the multireagent strip an adequate diagnostic tool? *Arch Gerontol Geriatr*. 2009 Mar;48(2):227-31.
12. Sundvall PD, Gunnarsson RK. Evaluation of dipstick analysis among elderly residents to detect bacteriuria: a cross-sectional study in 32 nursing homes. *BMC Geriatr* [Internet]. 2009 [cited 2014 Dec 5];9:32. Available from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2724370/pdf/1471-2318-9-32.pdf>

Review Articles

13. Nace DA, Drinka PJ, Crnich CJ. Clinical uncertainties in the approach to long term care residents with possible urinary tract infection. *J Am Med Dir Assoc*. 2014 Feb;15(2):133-9.
14. Rowe TA, Juthani-Mehta M. Urinary tract infection in older adults. *Aging Health* [Internet]. 2013 Oct [cited 2014 Dec 5];9(5). Available from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3878051/pdf/nihms537914.pdf>
15. Genao L, Buhr GT. Urinary tract infections in older adults residing in long-term care facilities. *Ann Longterm Care* [Internet]. 2012 Apr [cited 2014 Dec 5];20(4):33-8. Available from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3573848/pdf/nihms-438930.pdf>
16. Ariathianto Y. Asymptomatic bacteriuria - prevalence in the elderly population. *Aust Fam Physician*. 2011 Oct;40(10):805-9.

Additional References

17. Nicolle LE. Catheter-related urinary tract infection: practical management in the elderly. *Drugs Aging*. 2014 Jan;31(1):1-10.
18. Diagnostic technology: alternative sampling methods for collection of urine specimens in older adults [Internet]. Oxford, UK: Diagnostic Horizon Scanning Centre; 2013 Jan 4. [cited 2014 Dec 5] (Horizon scan report 0028). <http://madox.org/sites/default/files/pdf/Horizon%20scanning%20report0028%20Urine%20collection%20in%20older%20adults.pdf>