Guidelines for the Ordering of Microscopic Urinalysis (CLP 004) **Revised June, 2012**

1 Purpose

The purpose of this Guideline is to highlight the conditions under which it is appropriate to order microscopic urinalysis in the community (non-hospital) setting. The Guideline also details the collection and handling methods for urine specimens that will ensure reliable test results.

Readers are reminded that OAML Guidelines cannot be applied to every clinical situation, nor can their content replace sound clinical judgment.

2. Background

Microscopic urinalysis should NOT be requested for general screening purposes as it only rarely provides any additional valuable information. In most instances, a "dipstick" chemical urinalysis provides adequate information for management of the patient. However, there will be some circumstances where microscopic analysis does give additional and/or quantitative information that supplements the chemical analysis. Examples include determining whether hemorrhagic urine is as a result of cystitis or other non-infectious etiologies by the presence of WBC and bacteria in the urine and/or whether a positive leuckocyte esterase is of vaginal or urinary origin.

3. Ordering Microscopic Urinalysis

While routine (chemical) urinalysis is found in the test list on the OHIP laboratory requisition, requests for microscopic urinalysis must be written in the "Other Tests" section. A clear abbreviation may be used (e.g. "urine micro").

Please note that because of the instability of unpreserved urine, and its potential for bacterial overgrowth, reflexive testing (to microscopic analysis) predicated on results of another test such as "do micro if dipstick is positive for blood" or "do C&S if WBCs, bacteria present" cannot be accommodated.

4. Specimen Collection and Handling

Ideally, microscopic analysis should be performed on a first void urine, within 2 hours of its collection. This timeline cannot be achieved for most specimens submitted to community laboratories. In order to maximize recovery of elements such as casts, WBCs, and RBCs, which might otherwise disintegrate after 2 hours, specimens must be either:

- stored refrigerated at 2ºC to 8ºC (for up to 24 hours) or
- treated after collection with a stabilizing preservative (for up to 72 hours at room temperature)

The date and time of collection should be documented on the requisition in order to ensure that these targets can be achieved.

5. Results Interpretation

Listed below are elements which may be found by the microscopic examination of urine sediments and some of the disease states/conditions associated with each of them.

Finding	Disease States/Conditions
RBCs	Bleeding anywhere in the tract, e.g. hemorrhagic cystitis, calculi, cancer, glomerulonephritis, schistosomiasis, trauma/post-surgery, anticoagulant usage.
WBCs	Infection including cystitis, pyelonephritis, sexually transmitted infections e.g. gonorrhea Drug induced Allergic Interstitial Nephritis and similar conditions
Hyaline casts (few)	A normal finding
Hyaline casts (many)	Several types of renal disease
RBC casts	Glomerulonephritis
Fine granular casts	Tubular/interstitial disease or occasionally after exercise
Coarse granular casts	A wide variety of renal disorders
Waxy casts	Chronic renal disease or failure
Fatty casts	Nephrotic syndromes occurring with various types of glomerular diseases
Renal tubular casts	Tubular necrosis, eclampsia, poisoning/toxic states
Many bacteria	Infection, contamination and/or overgrowth if improperly preserved
Schistosome ova/miricidia	Schistomiasis (hematobium)
Urate or other specific crystals	Interpret based on type of crystal found

6. Limitations

Improperly collected and preserved specimens can yield false-negative results for the presence of RBCs, WBCs and casts, and false-positive results for bacterial presence.

7. Summary

Microscopic examination of fresh or properly collected and preserved urine can assist in the diagnosis and/or management of the disease states/conditions listed above. It is highly specific for these disease states/conditions and is therefore inappropriate as a routine screening test.

The following references were used in the preparation of this guideline:

Clinical Laboratory Standards Institute (CLSI). Urinalysis; Approved Guideline-Third Edition GP16-A3 Vol.29, No 4. February 2009.

Clinical Laboratory Standards Institute (CLSI). Physician and Non-physician Provider-Performed Microscopy Testing; Approved Guideline- Second Edition POCT10-A2, No 4. December 2011.

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The OAML, through its Quality Assurance Committee, co-ordinates the development, dissemination, implementation and review of Guidelines for Clinical Laboratory Practice.

Guidelines are reviewed every 5 years or as the literature warrants. When consensus on the Guideline is achieved by the Committee, the Guideline is submitted to the OAML Board of Directors for approval before distribution to clinicians.

The comments of end users are essential to the development of guidelines and will encourage adherence. You are strongly encouraged to submit your comments on this or any other OAML Guideline to:

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