Reviewer's report

Title: Factors affecting the accuracy of the urine dipstick test for the detection of bacteriuria or urinary tract infections. A meta-analysis.

Version: 1  Date: 29 September 2003

Reviewer: Masahiro Hiraoka

Reviewer's report:

General
The authors reviewed many previous reports on the use of urinary dipstick test for diagnosis of urinary tract infection or asymptomatic bacteriuria in order to analyze factors affecting the accuracy of the test. They selected appropriate reports based on well-defined criteria. From the analysis of these reports, they found that the clinical setting and study population were the major sources of heterogeneity. They presented recommendations for practice.

The reviewer considers that either of the nitrites or esterase test alone is not accurate enough for the diagnosis, because the highest sensitivity of nitrites (0.71 for elderly population) and sensitivity of esterase in most settings is not high enough. The inappropriately low sensitivity means a significant number of patients with false negatives. These patients would suffer damage from the misdiagnosis if the disease were significant as the author described on Background. The reviewer believes, therefore, that the disjunctive pairs of both tests should be used so that the test could detect most (e.g. at least 80%) of the abnormalities. Even with the disjunctive pairs, positive test results cannot predict precisely whether the patient really has the disease. The reviewer, therefore, believe that the test can be used only as a screening test for detection of the disease and that the patient with positive test results should be diagnosed by urine culture.

Discretionary Revisions (which the author can choose to ignore)

Minor Compulsory Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

Specific comments
1) p17, line 9 from the bottom: ?a negative test result? should be changed to ?a negative result for both tests of nitrites and esterase? and ?, and when both test results ---? should be deleted. -c)
2) p17, line 7 from the bottom: a negative result should be followed by ?for both tests? -c)
3) p17, line 5 from the bottom: a negative result should be followed by ?for both tests? -c)
4) p17, line 4 from the bottom: ?, while a positive nitrite test confirms a infection? should be deleted, since the predictive values are only 88%, 70%, and 78%, respectively. -c)
5) p17, line 4 from the bottom: ?Only in urology patients a positive leukocyte-esterase may predict an infection? should be deleted (-c), since the probability is only 68%.
6) p17, the bottom line: ?In general a positive nitrite test confirms infection? should be deleted (-c), since the positive predictive value of a nitrite test in general population is only 0.33 (Table 4).
7) p18, line 6: ?The lower cut-off point, at less than 1000 mcu/ml, used mainly in supra-pubic urine-collection, resulted in a high accuracy through higher sensitivities? seems wrong. Lower cut-off point in bacterial culture detect bacteriuria in more patients, while the urine dipstick test seems
harder to detect abnormalities in urine with lower bacterial counts.

**Advice on publication:** Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

**Level of interest:** A paper whose findings are important to those with closely related research interests

**Quality of written English:** Acceptable

**Declaration of competing interests:**

None