The cost effectiveness of combined rapid tests (Multistix) in screening for urinary tract infections

Fowlis G A, Waters J, Williams G

Record Status
This is a critical abstract of an economic evaluation that meets the criteria for inclusion on NHS EED. Each abstract contains a brief summary of the methods, the results and conclusions followed by a detailed critical assessment on the reliability of the study and the conclusions drawn.

Health technology
Use of combined rapid tests (Multistix) in screening for urinary tract infections.

Type of intervention
Screening.

Economic study type
Cost-effectiveness analysis.

Study population
Urology outpatients and renal transplant patients.

Setting
The economic study was carried out at a hospital in London, UK.

Dates to which data relate
Not given.

Source of effectiveness data
Derived from a single study.

Link between effectiveness and cost data
Costing was carried out retrospectively (after the effectiveness results were known).

Study sample
No power calculations were carried out. The sample consisted of 200 urology outpatients and 200 renal transplant patients.

Study design
Case series/multicentre (urology department and renal transplant unit) study. There was no follow up of patients.

Analysis of effectiveness
It seems that the analysis of the clinical study was based on ‘intention to treat’. Health outcomes were the sensitivity and
specificity rates and the positive and negative predictive values (PPV & NPV).

**Effectiveness results**

Outcome results for the patients from the renal transplant unit and the urology outpatients' department were, respectively: a 90% and 96% sensitivity, 85% and 86% specificity, 52% and 50% PPV, 98% and 99% NPV. Combined rapid testing (CRT) diagnosed UTI in 25% mid-stream urine (MSU) of the urology outpatient sample and 26% of the renal transplant samples' MSU, while the corresponding laboratory results were 12.5% and 13.5% respectively. 50% of all CRT diagnosed UTI were false positives in both patient groups. However 75% of total MSU can be excluded from further laboratory analysis. No p-values or 95% confidence intervals were given.

**Clinical conclusions**

Multistix were better at excluding urinary tract infections (UTI) when the readings were negative than in confirming a diagnosis of UTI when the result was positive. This was due to the small number of false negative results.

**Measure of benefits used in the economic analysis**

Sensitivity and specificity rates and the positive and negative predictive values (PPV & NPV).

**Direct costs**

No statement that cost and quantity were analysed separately. Health service costs were considered. The estimation of the costs was based on cost data at Hammersmith Hospital. The price date was not reported.

**Currency**

UK pounds sterling (€).

**Sensitivity analysis**

No sensitivity analysis was carried out.

**Estimated benefits used in the economic analysis**

Outcome results for the patients from the renal transplant unit and the urology outpatients' department were, respectively: a 90% and 96% sensitivity, 85% and 86% specificity, 52% and 50% PPV, 98% and 99% NPV. Combined rapid testing (CRT) diagnosed UTI in 25% mid-stream urine (MSU) of the urology outpatient sample and 26% of the renal transplant samples' MSU, while the corresponding laboratory results were 12.5% and 13.5% respectively. 50% of all CRT diagnosed UTI were false positives in both patient groups. However 75% of total MSU could be excluded from further laboratory analysis.

**Cost results**

The cost of each combined rapid test (CRT) was 0.50p, laboratory analysis at Hammersmith Hospital was estimated to be 4.00 for non-cultured mid-stream urine and 10 for cultured mid-stream urine.

**Synthesis of costs and benefits**

Combined rapid tests (CRT) was the dominant strategy.

**Authors' conclusions**

Combined rapid tests are useful for selecting potentially infected urine. When the test gives a negative result, the possibility of urinary tract infections can be excluded. CRTs therefore improve patient care by their rapidity, reduce
exposure to unnecessary antibiotics and reduce laboratory costs.

**CRD Commentary**
The economic analysis could have been more informative. A more rigorous clinical analysis would have included statistical information about the sample size and the results.

**Bibliographic details**

**PubMedID**
7837191

**Other publications of related interest**

**Indexing Status**
Subject indexing assigned by NLM

**MeSH**
Cost-Benefit Analysis; Humans; Kidney Transplantation; London; Mass Screening /economics; Outpatient Clinics, Hospital; Predictive Value of Tests; Reagent Strips /economics; Sensitivity and Specificity; Urinary Tract Infections /diagnosis /prevention & control; Urology Department, Hospital /economics

**AccessionNumber**
21995005504

**Date bibliographic record published**
18/06/1996

**Date abstract record published**
18/06/1996