ANTIBIOTIC TREATMENT OF UNCOMPLICATED URINARY TRACT INFECTION IN WOMEN: A COMPARATIVE COST-EFFECTIVENESS STUDY

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OBJECTIVES: Assess the relative cost-effectiveness of the three antibiotics recommended in England for first-line treatment of uncomplicated urinary tract infection (UTI) compared with oral fosfomycin.

METHODS: Decision-tree economic model of the treatment pathway for adult women with signs and symptoms of uncomplicated UTI in primary care in England; from presentation up to two treatment rounds. Patients experienced recovery, persistence, pyelonephritis and/or hospitalisation. Taking account of antibiotic resistance levels. Aggregating costs of prescriptions, primary and secondary care treatment and diagnostics. Comparing: fosfomycin 3g once, nitrofurantoin 50mg qid 7 days, nitrofurantoin modified release 100mg bid 7 days, nitrofurantoin 100mg qid 3 days, pivmecillinam 200mg tid 7 days, pivmecillinam 400mg bid 3 days, pivmecillinam 200mg bid 7 days, trimethoprim 200 mg bid 7 days, trimethoprim 200mg once. Outcome measures: estimated treatment cost and number of cases resolved, persisting, developing pyelonephritis and requiring hospitalisation per 1,000 patients treated. Cost-effectiveness in terms of cost per UTI resolved.

RESULTS: Using central estimates of costs, effectiveness and resistance, trimethoprim 200mg bid 7 days was estimated to be both the cheapest (£60 per patient) and most cost-effective (£69 per UTI resolved) treatment. Probabilistic sensitivity analysis showed that the three most cost-effective treatments also had the least uncertainty around their estimates: trimethoprim 200mg bid 7 days (median=£65 per resolution, interquartile range (IQR)=£40), fosfomycin 3g stat (median=£78, IQR=£40). This ranking was not sensitive to alternative resistance rates or estimated three-day treatment effectiveness.

CONCLUSIONS: Trimethoprim 200mg bid is likely to be the most cost-effective first-line treatment for uncomplicated UTI in women (three days is currently recommended). If the resistance rate is expected to be higher than the 14.9% tested here, or where adherence to a multi-dose treatment regimen is an issue, a single 3g dose of fosfomycin is likely to be the next most cost-effective solution.