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Prediction model for proper use of antibiotics in symptomatic patients with suspected urinary tract infection in primary care: observational study

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Background & Aim: Urinary Tract Infections (UTIs) are a frequent reason to prescribe antibiotics in primary care. Proper use of antibiotics (i.e. correct decision to prescribe) is decisive to curb the development of antibiotic resistance strains. Thus, we aim to develop a diagnostic score to predict proper use of antibiotics in symptomatic patients with suspected UTI in primary care.

Method: Prospective observational study comparing diagnostic pathways with gold standard (culture and susceptibility testing at a reference microbiological laboratory). From December 2014 to December 2015, 40 practices in the capital region in Denmark consecutively recruited symptomatic patients with suspected. On the day of the index consultation, clinical history, diagnostic work-up, treatment and other relevant decisions made during the consultation were registered. A diagnostic score will be developed using logistic regression with graphical models to investigate relationships of conditional dependence of the combination of the diagnostic pathways (history, dipsticks, microscopy, culture in practice, sensibility test in practice) with proper use of antibiotics as a dependent variable.

Results: 530 patients participated in the study, although preliminary results from the first 100 patients are presented as data collection has just finished, then the final results and the prediction model will be ready in June for presentation at the conference. Overall, 53% had a positive culture, while 85% were classified as having a UTI. The unadjusted diagnostic error was 6 times higher when using only the diagnostic tools (history, dipsticks and microscopy) in comparison to the use of (history, dipsticks, microscopy and culture in practice).

Conclusions: from the preliminary data, the combination of the disjunctive pairing of history + dipstick + microscopy + culture in practice is the best option to secure appropriate use of antibiotics in symptomatic patients with suspected Urinary Tract Infection in primary care.