The diagnosis of UTI in children under 2 years of age in primary care

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Introduction

The aim of the HTA programme is to ensure that high quality research information on the costs, effectiveness and broader impact of health technologies is produced in the most efficient way for those who use, manage, provide care in or develop policy for the NHS. Topics for research are identified and prioritised to meet the needs of the NHS. Health technology assessment forms a substantial portfolio of work within the National Institute for Health Research and each year about fifty new studies are commissioned to help answer questions of direct importance to the NHS. The studies include both primary research and evidence synthesis.

Question

Which clinical features of potential infection are useful in making a preliminary diagnosis of UTI in children less than 2 years of age and indicate the need for a urine specimen to be taken?

1 **Technology:** Urine sampling methods and tests.
2 **Patient group:** Children under about 2 years of age.
3 **Setting:** Primary care and other settings in the community.
4 **Control or comparator:** Reference standard is microbiology and culture (or to be specified by researcher).
5 **Design:** Primary research to inform the development of a diagnostic algorithm and to determine which clinical features of infection (febrile, poor feeding, vomiting, irritability, etc.) indicate the need to undertake urine sampling for MC & S and whether urine dipstick testing contributes usefully to the decision making process.
6 **Primary outcomes/quality of life:** Develop and validate a decision aid to help in the identification of children at risk of UTI in primary care settings. Secondary outcomes: diagnostic accuracy, changes in patient management, timeliness of testing, cost-effectiveness.
7 **Minimum duration of follow-up:** To be specified and justified in the proposal.

Background to commissioning brief:

The question of when to test for UTI has been evaluated in a number of studies. The presence of specific symptoms of UTI, including dysuria, frequency, suprapubic discomfort, and flank pain, should lead to testing and investigation. However, young children with UTI may present with non-specific symptoms such as poor feeding, vomiting, irritability, jaundice (in newborns) or fever alone, and a broader approach to testing may be appropriate.

Studies in emergency departments suggest that up to 5% of children under the age of 2 presenting with fever have UTI, and over half of these would have been given alternative diagnoses such as otitis media had the urine not been tested as part of the study. Acute complications in young infants include systemic infection.

Urine collection methods include: clean catch, suprapubic aspiration, catheterization, pads and sterile urine bag. Suprapubic aspiration and catheterization are considered better methods to minimize contamination, but are not done in primary care, are painful and invasive. Urinalysis is done with a dipstick to determine levels of different constituent in the urine, e.g. blood, protein, white cells, leukocyte esterase and nitrites.