

Research will help GPs diagnose urinary tract infections in children

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Urinary tract infections (UTI) in young children can lead to kidney damage, but are notoriously difficult to diagnose in primary care because symptoms can often be vague and unclear.

A definitive diagnosis can only be achieved by a [urine test](#), but collecting urine samples from babies and children under five is a challenge.

After a three-year study involving more than 7,000 children, researchers have developed a technique to help GPs and nurses to decide from which children a urine sample should be collected. The technique could reduce the amount of time and effort used to collect unnecessary [urine samples](#) and increase sampling among children most likely to have a UTI. The researchers hope this will also help GPs and nurses better target antibiotic prescribing so only those who are likely to benefit from antibiotics receive them.

Funded by the National Institute for Health Research (NIHR), results from the DUTY (Diagnosis of Urinary Tract infections in Young children) study, which involved researchers from Universities of Bristol, Southampton, Cardiff and Kings College London, are published in the *Annals of Family Medicine* today [Monday 11 July].

The study found a symptoms-and-signs-based clinical rule is superior to routine clinician diagnosis and performs well in identifying young children for non-invasive urine sampling.

Alastair Hay, a GP and Professor of Primary Care at the University of Bristol's Centre for Academic Primary Care, co-led the research. He said: "We found GPs and nurses should look out for children who have pain/crying passing urine, smelly urine, had a previous UTI, absence of severe cough, or severe illness is present. Three or more of these symptoms suggest it is worthwhile going to the effort of getting a urine sample. Surprisingly, fever was not a useful indicator for identifying children with UTI in [primary care](#)."

The researchers recommend a clean catch sample should be obtained if possible. Recently published research from the same group in the *British Journal of General Practice* found that samples collected using a nappy pad also provide useful information, but have higher rates of contamination, which can increase false positive and false negative diagnoses. They also found that positive dipstick tests for white blood cells, nitrites or blood in [urine](#) were also indicators for a possible UTI, and can help to decide whether or not to prescribe an antibiotic.

Christopher Butler, a GP and Professor of Primary Care in the Nuffield Department of Primary Care Health Sciences, University of Oxford, co-led the research. He said: "The study was funded by the research arm of the NHS (the NIHR) after NICE found there was a lack of evidence regarding which symptoms and signs GPs and nurses should use to diagnose UTI in [young children](#) in primary care.

"Most of the previous studies had been conducted in hospitals, and such evidence is not always applicable to people consulting in primary care. The DUTY study is the largest, most comprehensive primary care study of its kind and we believe has generated important, clinically useful evidence that will inform updates of NICE guidance for managing this important condition."

More information: 'Improving the Diagnosis and Treatment of

Urinary Tract Infection in Young Children in Primary Care: Results from the DUTY Prospective Diagnostic Cohort Study' by Alastair Hay et al in *Annals of Family Medicine*

'Nappy pad urine samples for investigation and treatment of UTI in young children: the 'DUTY' prospective diagnostic cohort study' by Butler et al in *The British Journal of General Practice*.

Provided by University of Bristol

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