

# Symptoms of cystitis probably caused by bacterial infection, even when tests are negative

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The majority of women suffering with pain when urinating, or needing to urinate often or urgently probably do have a bacterial infection, even when nothing is detected by standard urine testing.

Symptoms of a [urinary tract infection](#) (UTI) such as cystitis are common in women but, in around a quarter of cases, no [infection](#) is found using standard testing.

However, new research published in *Clinical Microbiology and Infection* and using a more sensitive test, found evidence of [bacterial infection](#) in almost all women with UTI symptoms, including those where no bacteria were found with standard testing.

The study, led by Dr Stefan Heytens from University of Ghent, Belgium, supports the idea that testing is unnecessary for women with symptoms of an uncomplicated UTI.

UTI symptoms account for between two and five per cent of women's GP appointments. In 60-80% of cases, [urine](#) testing reveals a bacterial infection.

Testing involves using laboratory techniques to detect bacteria in the urine.

These women may be offered antibiotics such as nitrofurantoin, trimethoprim or fosfomycin.

However, doctors have assumed that women with negative tests do not have a bacterial infection. In the past, this group of women may have been diagnosed with unexplained 'urethral syndrome', which some researchers have suggested could be psychosomatic.

Dr Heytens, who is a practicing GP and a researcher at the department of family medicine and primary health care at the University of Ghent, explained: "A substantial percentage of women visiting their GP with symptoms of a UTI, who test negative for a bacterial infection, are told they have no infection and sent home without treatment.

"On the other hand, women with a positive test might be given a short course of antibiotics to treat their infection."

The new research involved 308 Belgian women, including 220 who were visiting their GP for UTI symptoms and 86 healthy volunteers. All the women gave [urine samples](#).

Urine samples were tested in the standard way to see whether any bacteria grew. They were also tested using a technique called quantitative polymerase chain reaction, or qPCR. This technique is very sensitive and can be used to detect tiny quantities of DNA that come from bacteria which can cause UTIs, such as *Escherichia coli* (*E. coli*) and *Staphylococcus saprophyticus* (*S. saprophyticus*).

Among the women with UTI symptoms, standard testing detected bacteria in 80.9% of urine samples. But the qPCR test found evidence of *E. coli* in 95.9% of samples and *S. saprophyticus* in 8.6%. Combining the results of both tests found evidence of an infection in 98.2% of women with symptoms.

In the women without symptoms, standard testing picked up *E. coli* in 10.5% of samples and qPCR picked up *E. coli* in 11.6%.

Dr Heytens said: "In this study, we used a more sensitive test to look for bacteria that commonly cause UTIs. We found *E. coli* in nearly all women complaining of symptoms, even if they had a negative traditional urine culture. This suggests that if a woman has these symptoms, she probably does have a UTI.

"Our findings support previous research which indicates that traditional testing may not be helpful in uncomplicated UTIs. However, traditional urine culture tests may still have a role to play if treatment fails or if there are signs and symptoms of a more complicated UTI.

"What we don't yet know is whether all women with these symptoms would benefit from a course of antibiotics."

Dr Heytens says the findings need to be confirmed in further research. He and his colleagues also plan to investigate whether [women](#) with UTI symptoms but a negative urine test would benefit from treatment with antibiotics, and whether they can use qPCR to detect other types of [bacteria](#) which might be causing UTIs in rarer cases.

**More information:** 'Women with symptoms of a urinary tract infection but a negative urine culture: PCR-based quantification of *Escherichia coli* suggests infection in most cases.', Heyten, S et al, *Clinical Microbiology and Infection*, [DOI: 10.1016/j.cmi.2017.04.004](https://doi.org/10.1016/j.cmi.2017.04.004)

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