



Lancashire Gynaecologist

Eric Mutema

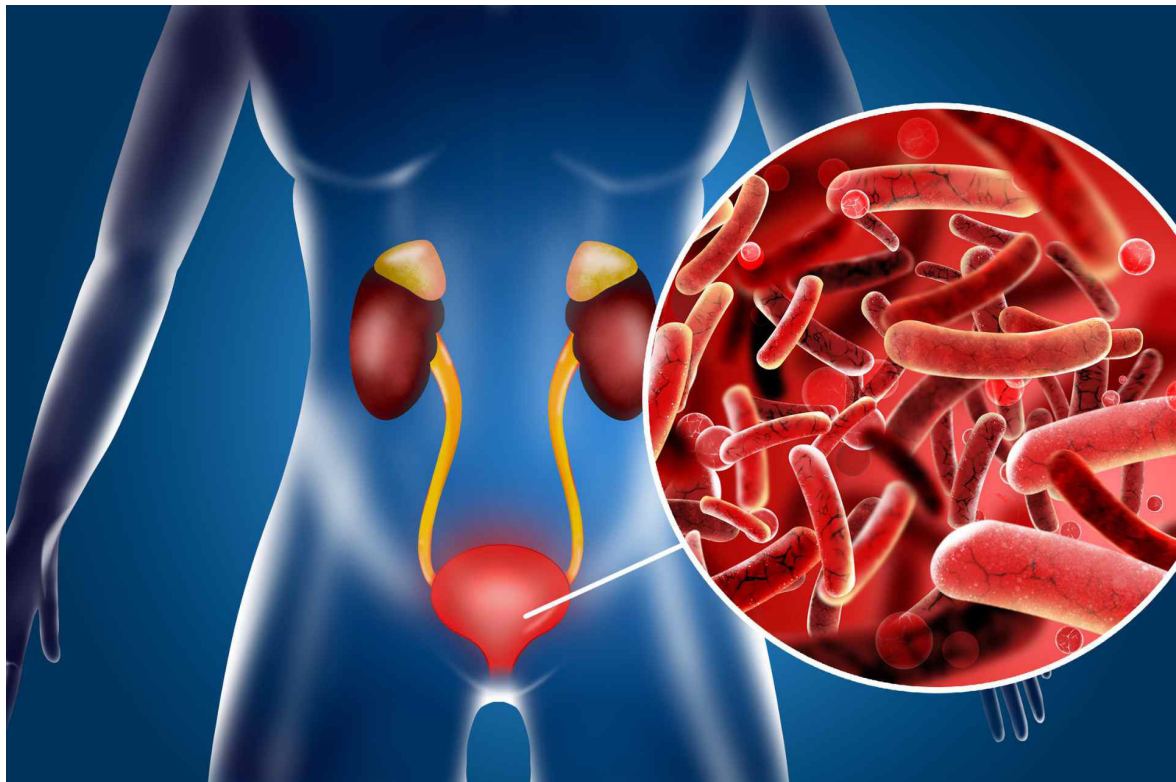
Beyond the UTI: diving into
the urinary microbiome



Beyond the UTI: diving into the urinary microbiome

If you've ever been told you "have a UTI" you might have wondered: Why does it keep coming back? Or why do some tests look normal while symptoms persist? In urogynaecology, these questions matter because the story of urinary symptoms is often bigger than a single infection episode.

One of the most exciting areas of modern research is the urinary microbiome: the community of microorganisms that live in and around the urinary tract. Understanding this ecosystem may help explain recurrent urinary symptoms and point toward more personalised, prevention-focused care.



What is the urinary microbiome?

Your body isn't sterile, yet many people are surprised to learn that the urinary tract can host its own microbial communities. Think of the microbiome as a well-balanced neighbourhood, not just a collection of "germs."

The urinary microbiome includes microorganisms that may:

- live in the bladder and lower urinary tract
- interact with the immune system
- influence urine chemistry
- compete with bacteria that can cause infection.

Importantly, researchers are still learning exactly how the microbiome behaves in different people. But the direction of evidence is clear: microbial balance may play a role in urinary health and disease risk.

UTIs are not always a “simple infection”

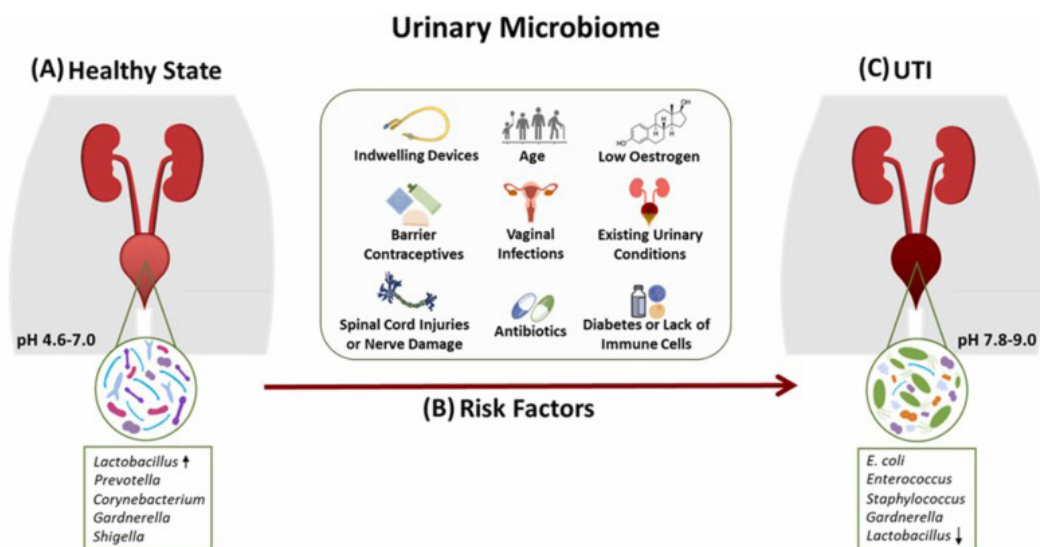
A classic UTI is typically driven by bacteria entering the urinary tract most commonly *E. coli*, and multiplying.

But when someone has repeated symptoms, the cause isn't always straightforward.

Consider these possibilities:

- True recurrent UTIs: repeated infections caused by bacteria.
- Persistent symptoms with negative or borderline tests: symptoms may relate to inflammation, irritation, or microbial imbalance rather than an active infection.
- Trigger-and-response cycles: certain exposures (sexual activity, hormonal changes, constipation, hydration patterns) may alter the urinary environment and immune response.

That's where the urinary microbiome becomes relevant. Rather than viewing UTIs only as an intruder/bacteria story, we can begin to ask “Was the urinary environment more vulnerable in the first place?”



How the microbiome might influence UTI risk

Researchers believe several mechanisms could link the microbiome to susceptibility:

Colonisation resistance

A healthy microbial community may help “crowd out” harmful bacteria, making it harder for infection-causing strains to take hold.

Immune modulation

Microbes can influence local immune signalling. When the immune system is appropriately regulated, it may respond to threats more effectively.

Biofilm formation and persistence

Some bacteria can form biofilms (structured communities that are harder to clear). A shift in microbiome balance may make biofilms more likely.

Inflammation and irritation

If the urinary tract becomes chronically irritated, it may create conditions that favour dysbiosis (imbalance) and symptoms that overlap with infection.

“Dysbiosis” and the role of imbalance

Dysbiosis refers to a disruption in the normal microbial balance. In urogynaecology, dysbiosis is an appealing framework because it helps explain why some people experience:

- recurrent urinary symptoms
- variable urine test results
- symptom flares without clear bacterial growth.

It's also why prevention strategies may need to focus beyond treating the infection when it appears. Instead, the goal becomes: support an environment where harmful bacteria struggle to dominate.



The microbiome and bladder health: why it matters for urogynaecology

Urinary symptoms don't always fit neatly into one diagnosis. Many patients experience overlapping conditions such as:

- recurrent UTIs
- bladder pain syndrome / interstitial cystitis spectrum conditions,
- urinary urgency and frequency,
- pelvic floor dysfunction that coexists with bladder symptoms,
- post-menopausal urinary changes.

A microbiome perspective doesn't replace diagnosis it supports it. By understanding how symptoms, inflammation, hormone status and microbial balance interact, clinicians can tailor care more precisely.

Common factors that may affect urinary microbiome balance

While every person is different, several influences are known (or suspected) to affect urinary ecosystems:

Hormonal changes (especially post-menopause)

Changes in oestrogen can affect vaginal and urinary microbial balance, which may influence UTI risk and urinary symptoms.

Sexual activity

Intimate activity can alter bacterial exposure and movement, potentially affecting microbial balance.

Hydration and urine concentration

Less frequent urination or concentrated urine may create conditions that are less favourable for urinary balance.

Bowel health and constipation

Gut–vaginal–urinary connections are increasingly discussed in research. Bowel regularity can influence urinary symptoms for many patients.

Antibiotic exposure

Antibiotics treat infections, but they can also temporarily shift microbial communities. For some individuals, repeated courses may contribute to imbalance (which is why prevention strategies matter).



Could microbiome testing help?

This is an important question and the honest answer is: It's evolving. Microbiome research is rapidly expanding, but clinical testing for urinary microbiome composition is not yet standard in every setting.

However, your urogynaecologist may still use available tools such as:

- urine culture results (when symptoms occur)
- urinalysis patterns
- symptom diaries and triggers
- pelvic examination (including hormonal status)
- evaluation for non-infectious causes of urinary symptoms.

Even without routine microbiome tests, your care plan can still reflect microbiome principles: reducing harmful triggers, improving urinary environment resilience, and supporting long-term prevention.

What prevention can look like

Every plan should be individual, but prevention often includes a combination of strategies such as:

Targeted management of recurrent UTIs

Based on culture-confirmed infections and timing.

Hormonal support when appropriate

For some patients, local oestrogen therapy may help reduce recurrence and support microbial balance.

Behavioural and lifestyle adjustments

Examples include hydration optimisation, bladder habits, and bowel regularity.

Pelvic floor support

Tightness or dysfunction in pelvic floor muscles can contribute to urgency and discomfort – sometimes alongside or mistaken for infection.

Discussion of antibiotic-sparing approaches

Depending on your history and risk profile, your clinician may discuss preventive options and when antibiotics are (or aren't) appropriate.

When to seek care promptly

Seek medical assessment if you have:

- fever, chills, or feeling unwell,
- flank (side/back) pain,
- blood in the urine,
- persistent burning or urinary frequency that doesn't settle,
- recurrent symptoms that are affecting quality of life.

For ongoing urinary symptoms, early evaluation can help avoid a cycle of repeated treatment without clear benefit.

The take-away

The urinary microbiome offers a new lens on urinary symptoms. Instead of viewing a UTI purely as an isolated event, we can increasingly understand it as part of a broader system where microbial balance, inflammation, hormones, bowel health, and triggers all interact.

Mr Eric Mutema
Consultant Obstetrician and Gynaecologist
MBChB, MRCOG



How the Lancashire Gynaecologist can help

Mr Eric Mutema is a highly experienced and respected Consultant Obstetrician and Gynaecologist. He founded his private practice, the Lancashire Gynaecologist, to provide a service to women in Lancashire and beyond and respond to the shortage of specialist gynaecological services available to women missing out on individualised care and treatment. The Lancashire Gynaecologist offers patients individual attention, an empathetic, compassionate approach and patient-centred care. His patients will receive a full consultation that takes their overall health into account and subsequent treatments will be tailored to meet the needs of the individual woman. So please don't wait and put off seeking treatment; we're available, convenient and we can help you.



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Eric Mutema

For more information, contact:

Cheryl Wood
Secretary to:
Mr Eric Mutema
Consultant Obstetrician and Gynaecologist
MBChB, MRCOG

Tel: 07835487700

Call: info@lancashiregynaecologist.co.uk

lancashiregynaecologist.co.uk