

Nearly 1 in 5 Urinary Tract Infections Linked to Contaminated Meat, Study Finds

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STORY AT-A-GLANCE

- › Nearly 1 in 5 urinary tract infections (UTIs) in a large Southern California study were attributed to E. coli strains of food-animal origin, most likely spread through contaminated meat — adding to what earlier research has shown
- › Poultry appeared to be the main reservoir of these bacteria, with chicken and turkey accounting for about 74% of the meat samples carrying the strain types linked to these UTIs, while all retail meats showed high contamination levels
- › These bacteria, known as extraintestinal pathogenic E. coli (ExPEC), can reach your kitchen via raw meat and enter your body through undercooking or cross-contamination, where they may colonize your urinary tract and, in severe cases, spread to your bloodstream
- › Overuse of antibiotics in concentrated animal feeding operations (CAFOs) fuels the growth of drug-resistant E. coli, a broader concern because resistant infections are harder to treat. Although in the Southern California study, multidrug resistance was less common among the meat-linked strains than among other UTI strains
- › You can help lower your risk by avoiding CAFO meats, choosing grass fed and regeneratively raised options, improving food choices and personal hygiene, and supporting urinary health with methylene blue (under the guidance of a health care professional), cranberries, and D-mannose

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Urinary tract infections (UTIs) are among the most common bacterial infections worldwide, with an estimated 404.6 million cases in 2019 — and women are affected the most.¹ They're often blamed on hygiene habits or anatomy, but a growing body of research points to another contributor — contaminated meat.

For years, I've reported that *E. coli* from animals raised in concentrated animal feeding operations (CAFOs) is a hidden contributor to these infections. Now, research published in *mBio* adds to what earlier studies have shown — estimating that a significant share of UTIs can be traced to the same types of bacteria found in store-bought meat.² This strengthens the growing body of evidence that the problem isn't just personal hygiene, but also a food supply widely contaminated with potentially harmful bacteria.

This matters because it broadens what “food safety” means. It's not only about proper cooking or refrigeration — it's about the systemic use of antibiotics in industrial farming that shapes the bacterial landscape you're exposed to daily. These findings also reinforce what I've warned about since at least 2019 — what's on your plate may influence your risk of infection. Understanding how these infections begin (and what you can do to lower your risk) is an important step in protecting your urinary and overall health.

Study Links a Significant Share of UTIs to *E. coli* From Meat

For the *mBio* study — a cross-sectional genomic experiment conducted within the Kaiser Permanente Southern California health system — researchers analyzed more than 23,000 *Escherichia coli* (*E. coli*) isolates from patients' urine samples and more than 12,600 retail meat samples collected between 2017 and 2021 across Southern California.³ Researchers then genetically sequenced a subset of about 5,700 bacterial isolates from both human UTIs and retail meat to estimate how many of these infections came from food animals.

What they found was striking. Using a statistical model that reads genetic markers of host origin, they estimated that nearly 18% of the UTIs were caused by zoonotic *E. coli*, meaning strains that likely passed from food animals to humans, most plausibly through

contaminated meat. The researchers noted that their model could not tell which specific type of meat an infection came from, or rule out other routes of contact with animals. The share was higher in high-poverty neighborhoods, where 21.5% of *E. coli* UTIs were estimated to be zoonotic.

- **Most contaminated meat came from poultry and pork** — Poultry appeared to be the primary reservoir for the highest-risk *E. coli* strains, but all retail meat was heavily contaminated. Chicken and turkey were identified as the top carriers. Of the meat samples carrying strain types associated with meat-linked UTIs, 74% came from chicken (38%) or turkey (36%). Pork and beef also had high contamination rates (54% and 47%, respectively), but accounted for smaller shares of the infection-linked strain types (12% and 14%, respectively).

Contamination rates were as high as 82% in turkey and 58% in chicken purchased from major grocery chains. Researchers identified many of these as extraintestinal pathogenic *E. coli* (ExPEC) — strains capable of causing infection outside the gut — which suggests that virulent strains originating in food animals were entering the human food chain and causing infections in people's urinary tracts and bladders.

- **Zoonotic strains were genetically distinct, supporting cross-species transmission** — Genetic sequencing revealed that the bacteria in these UTIs carried mobile genetic elements — small packages of DNA — more typical of those found in food animals than in humans. These genetic markers acted like fingerprints, pointing to an animal origin.

Once inside the human body, these animal-derived bacteria can establish themselves in the urinary tract, and because most invasive *E. coli* infections begin there, they may (in severe cases) progress to the bloodstream. However, note that this featured study examined only community-acquired UTIs, not bloodstream infections. This finding adds to evidence that the food supply is an underrecognized route by which UTI-causing strains reach people.

- **Women and older men were most affected** — Among the thousands of patients studied, nearly 90% were women, and the average patient age was 50 years old. Among women, 19.7% of E. coli UTIs were zoonotic — more than twice the proportion seen in men (8.5%).

Among men, those with zoonotic infections tended to be older — an average age of 73 years old, compared with 65 years old for men with other E. coli UTIs. These groups may face increased risk due to hormonal, anatomical, and immune differences, though the study did not examine why.

- **Socioeconomic inequality was linked to higher risk** — Living in high-poverty areas was associated with 1.6 times higher odds that a UTI was zoonotic, compared with low-poverty areas. The researchers proposed several possible explanations, including weaker adherence to food safety rules in resource-poor retail settings, improper storage temperatures, and gaps in food handling and hygiene practices.

In other words, people in poorer neighborhoods may be exposed to more contaminated meat and have fewer resources to lower their risk. The researchers called for stronger measures along the food supply chain — not just personal hygiene — to reduce these risks.

- **Antibiotic-resistant bacteria were found in both meat and humans** — Some of the E. coli strains isolated from meat showed resistance to commonly used antibiotics, including ampicillin and tetracycline. Resistance was also found in human samples, and antibiotic use in agriculture is one recognized route by which resistance can spread to people — although in this study, multidrug resistance was significantly less common among the meat-linked strains than among other UTI strains.

Some E. coli in the study were also resistant to multiple drug classes, which can limit treatment options. When antibiotic-resistant infections occur, they can require stronger medications and, in some cases, hospital care.

How Industrial Farming Practices May Contribute

The overuse of antibiotics in animal agriculture is breeding stronger, more resilient bacteria. CAFOs, where thousands of animals live in cramped, unsanitary conditions, provide the perfect environment for pathogens to evolve.

When meat from these operations reaches consumers, it can carry those bacteria with it. Thorough cooking kills *E. coli*, but bacteria can survive in undercooked meat or spread from raw meat to hands, cutting boards, and other foods. Over time, this exposure may form an overlooked pipeline between CAFOs and infections in the community.

- ***E. coli* from poultry carried the greatest risk of spreading from animals to people** — The data showed that chicken and turkey accounted for nearly three-quarters of the meat samples carrying strain types linked to these UTIs. Specific bacterial lineages appeared repeatedly in both meat and human infections.

These included strain types known to cause infections outside the gut. The researchers reported that the highest-risk zoonotic strains were most prevalent among poultry *E. coli* populations.

- **Genetic analysis pointed to where these bacteria came from** — The researchers used a statistical model, trained on 17 host-associated genetic markers, to estimate whether a given *E. coli* genome looked more like one from a human or a food animal source. This allowed them to estimate how many infections likely came from food animals.

They found that nearly 1 in 5 UTI samples in people carried bacteria inferred to be of food-animal origin, while only 0.6% of meat isolates were inferred to be of human origin. This indicates that transmission was happening primarily from animals to people, not the other way around.

- **Reducing antibiotic use in livestock may help curb resistance** — The researchers noted that after California passed Senate Bill 27 — limiting antibiotic use in farm animals — resistance to two antibiotics targeted by the law, ampicillin and

tetracycline, was lower among meat samples than in an earlier study conducted in Arizona.

Tetracycline resistance, for example, was 34.4% in this study, compared with 49.9% in the earlier study. The researchers suggested this may reflect changes in agricultural antibiotic use and called for further research into whether such policies can reduce resistance in human infections. If so, cleaning up the meat supply could help reduce the number of drug-resistant UTIs and other infections.

Practical Steps to Lower Your Risk of Foodborne UTIs

If you've ever battled a UTI, you know how disruptive it is. Burning urination, constant urges, and fatigue leave you desperate for relief. But if you've been eating conventional meat — especially chicken or pork — you may be exposed to these bacteria more often than you realize.

Fortunately, there's a lot you can do about it. Once you understand where these infections can start, you can take steps to lower your risk. Below are several suggestions. Keep in mind that a UTI needs to be evaluated by a health care professional, and symptoms such as fever, back or side pain, nausea, or blood in the urine need prompt medical attention because they can signal a kidney infection.

- 1. Eliminate CAFO meat from your diet** — The single biggest step you can take is cutting out meat from CAFOs. These crowded, industrial farms breed bacteria like *E. coli*, which end up in your food. I recommend avoiding all conventional chicken, pork, and beef. Choose grass fed beef from regenerative farms instead.

These animals live cleaner lives, without unnecessary antibiotics or unsanitary housing, which may mean their meat carries a lower bacterial load. Note however, the featured study tested conventional retail meat and did not compare farming methods. If you still eat chicken or pork, choose only organic and pasture-raised

sources, though I advise avoiding chicken and pork altogether because of their high linoleic acid (LA) content — excess LA has been linked to inflammation and may impair mitochondrial function.

- 2. Consider methylene blue and cranberries for urinary support** — Pharmaceutical-grade methylene blue is one option I've found to be helpful, when prescribed by a health care professional. It passes through your kidneys into your bladder, where it is thought to concentrate enough to act against harmful bacteria. By shuttling electrons back and forth, oxidative stress is generated inside bacteria such as *E. coli*, disrupting their energy production.^{4,5} Doctors used it as a urinary antiseptic from the 1890s until the 1930s and 1940s.⁶ For most adults, the dose typically used for acute UTI is one 65-milligram tablet three times a day with water after meals, taken only for a few days.

Use only pharmaceutical-grade methylene blue in capsule or tablet form, prescribed by a health care professional and sourced from a compounding pharmacy.

Industrial or aquarium-grade methylene blue is not suitable for human use.

Methylene blue isn't appropriate for everyone, including people taking serotonergic medications such as selective serotonin reuptake inhibitor (SSRI) antidepressants or those with G6PD deficiency, so your prescriber needs to review your medications and health history first.

Whole cranberries or organic cranberry juice — not the sweetened kind — may also help; compounds in cranberries have been studied for their ability to make it harder for bacteria to stick to your urinary tract walls. D-mannose, a naturally occurring sugar found in small amounts in cranberries and other fruits, has also been studied for urinary tract support.

- 3. Upgrade your kitchen hygiene habits** — Even if you eat high-quality meat, handling it carelessly still spreads bacteria. Always wash your hands before and after touching raw meat. Keep cutting boards and knives separate for meats and vegetables.

Disinfect countertops with hot water, soap, and vinegar afterward. Cook meat thoroughly as well — the researchers highlight proper cooking, along with handwashing and avoiding cross-contamination, as essential to reducing exposure.

If you use reusable shopping bags, wash them regularly — raw meat packaging often leaks. These habits seem small, but they're the first defense against infection-causing microbes that would otherwise make their way from your kitchen to your body.

- 4. Adopt cleaner personal hygiene to block bacteria entry** — Many UTIs begin with bacteria traveling from the rectal area to the urethra, especially in women. Always wipe front to back after using the bathroom. I recommend using a bidet for a more thorough clean, particularly if you're prone to recurring infections or caring for someone who is.

If you're prone to UTIs, consider showers instead of baths, which may make it easier for bacteria to reach your urethra. Before any sexual activity, wash up — both partners. These habits are simple, free, and may help keep the bacteria that cause UTIs from getting a foothold in the first place.

- 5. Support your urinary tract and immune health daily** — Strengthening your defenses from the inside out helps your body resist infection. Stay well hydrated — let your thirst be your guide and aim for clear, pale-yellow urine throughout the day. Limit processed foods that feed bad bacteria.

Get daily sunlight, which supports immune function through improved mitochondrial energy production. If you've been eating a diet high in seed oils, build up exposure gradually — avoid high-intensity sun until you've been off seed oils for four to six months, then aim for sun around solar noon. And reduce stress, since chronic stress suppresses your immune system and makes you more susceptible to infections. A strong, well-nourished body is better equipped to resist bacteria — even when exposed.

By focusing on these steps, you may lower your risk of future UTIs and reduce your exposure to the broader effects of industrial agriculture. Choosing clean, responsibly sourced food is one practical way to lower your exposure and support your microbiome. The next time you shop, remember: a smart place to start protecting your urinary tract is what's on your plate.

FAQs About UTIs from Contaminated Meat

Q: How common are UTIs, and what role does meat play?

A: An estimated 404.6 million UTI cases occurred worldwide in 2019, making them one of the most widespread bacterial infections. While they're often attributed to hygiene or anatomy, evidence suggests that contaminated meat is an important source — particularly poultry. In the mBio study, nearly 1 in 5 UTIs were attributed to *E. coli* strains of food-animal origin, with poultry appearing to be the main reservoir — adding to what earlier research has shown.

Q: What kind of bacteria from meat are causing these infections?

A: The infections are caused by extraintestinal pathogenic *Escherichia coli* (ExPEC), a virulent type of *E. coli* that can cause infections outside the intestines. These bacteria can enter the human food chain through contaminated meat, reach people through undercooked meat or cross-contamination, and establish themselves in the urinary tract. Once there, they trigger painful symptoms like burning urination, pelvic discomfort, and frequent urges to urinate.

Q: Which meats are most contaminated with harmful *E. coli*?

A: All four types of retail meat tested had high contamination rates, but poultry appeared to pose the greatest risk. In the mBio study, 82% of turkey and 58% of chicken samples tested positive for E. coli, and chicken and turkey together accounted for about 74% of the meat samples carrying strain types linked to these UTIs.⁷ Pork and beef accounted for smaller shares of these strain types, even though contamination levels remained high at 54% and 47%, respectively.

Q: Why is antibiotic resistance such a major concern?

A: Some of the E. coli strains from both meat and human samples showed resistance to commonly used antibiotics, including ampicillin and tetracycline. Routine antibiotic use in livestock is widely considered a driver of resistance that can make infections in people harder to treat — although in this study, multidrug resistance was less common among the meat-linked strains than among other UTI strains. After California's Senate Bill 27 restricted antibiotic use in agriculture, resistance to two targeted antibiotics was lower in meat samples than in an earlier study, and the researchers called for further research into whether such policies reduce resistance in human infections.

Q: What steps can I take to protect myself from foodborne UTIs?

A: Start by avoiding meat from CAFOs and choosing grass fed, regeneratively raised beef instead. I recommend skipping chicken and pork altogether, since poultry appeared to be the main reservoir of these strains in the study, and both are high in LA. For urinary health support, options discussed earlier include cranberries, D-mannose and, when prescribed by a health care professional, pharmaceutical-grade methylene blue.

Practice good kitchen hygiene — wash your hands, clean surfaces, cook meat thoroughly, and separate cutting boards for meat and vegetables. Finally, adopt healthy personal habits, like using a bidet and staying hydrated, to help your body

resist infection.

This article is for informational purposes only and does not constitute medical advice. Consult a qualified healthcare provider before making changes to your health regimen.

Sources and References

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- ^{2, 3, 7} [mBio October 23, 2025](#)
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