



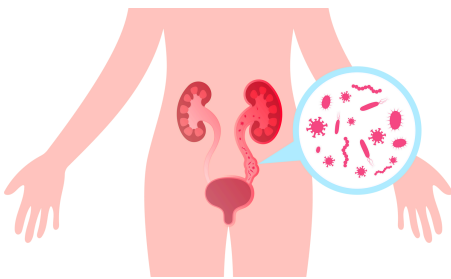
# ABSOLUTE SCOOP

## DID YOU KNOW?

It is recommended to approach recurrent UTIs preventively as opposed to utilizing antibiotic medication management as first line.

Examples:

- Liberal fluid intake
- Post-coital voiding
- Wiping front to back to avoid perineal contamination



## EFFECTIVE STRATEGIES TO PREVENT RECURRENT UTI'S

*Written by Courtney Myers, PharmD, BCGP, Consultant Pharmacist*

Urinary tract infections (UTIs) are the most common infection in adults 65 years and older. Establishing the diagnosis in older adults is complicated due to the higher prevalence of chronic urinary symptoms and cognitive impairment. In this population, there is a high prevalence of asymptomatic bacteriuria (15-20%), which can lead to overdiagnosis and unnecessary treatment and/or prophylaxis. By understanding prevention and non-antibiotic strategies to manage recurrent UTIs along with the limitations of nitrofurantoin for prophylaxis through antimicrobial stewardship, you can minimize unnecessary antibiotic exposure to residents, potential adverse drug events, and reduce the contribution to antimicrobial resistance.

Recurrent UTIs refers to  $\geq 2$  infections in six months or  $\geq 3$  infections in one year. Most recurrences are thought to represent reinfection rather than relapse or ongoing unresolved infections. Typically, it is not advised to treat recurrent UTIs with prophylactic antibiotics unless it has been clearly distinguished between a relapsing infection versus a reinfection. Relapsing infections warrant more extensive urological evaluation (i.e. imaging) but is often reserved for individuals who have other features such as structural or functional genitourinary tract abnormalities. By treating recurrent UTIs with prophylactic antibiotics, the resident may unnecessarily experience adverse drug events along with contributing to antimicrobial resistance.

It is recommended to approach recurrent UTIs preventively as opposed to utilizing antibiotic medication management as first line. Although many behavioral approaches have not been adequately tested and studied, it is reasonable to consider this as a method of prevention to minimize antibiotic exposure. A few of the suggested behavioral approaches are included but are not limited to: liberal fluid intake, post-coital voiding, and wiping front to back to avoid perineal contamination. These strategies could be considered when evaluating recurrent UTIs in a resident and incorporating them into antimicrobial stewardship programs.

After non-medication strategies are exhausted, additional strategies that may be considered to minimize antibiotic exposure could be methenamine or cranberry products. Evidence suggests that both methenamine or cranberry can effectively reduce the incidence of UTIs and are generally well tolerated depending on resident and provider preferences. Methenamine hippurate utilization was studied for up to 12 months with periodic evaluation to reassess efficacy. This medication should not be used in eGFR  $< 30$ ml/min, renal/hepatic dialysis residents, residents with gout, and care should be taken to evaluate drug interactions prior to starting this medication or other medications after methenamine is initiated. Other commonly used non-antibiotic therapies include D-mannose and probiotics, but they lack supportive data for efficacy. These strategies may be considered after non-medication related options are exhausted, and the resident and provider are looking for another option.

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Antibiotic prophylaxis may be used in recurrent UTIs in selected cases. Antibiotic choice should be based on susceptibility patterns of the strains causing the resident’s previous UTIs, drug allergies, and potential for interactions with other medications. The more common agents used are nitrofurantoin and trimethoprim-sulfamethoxazole. Generally, fluoroquinolones are avoided unless there are no other options because of resistance, intolerance, and potential for adverse drug events. After initiation of prophylactic antibiotics, reevaluation at 3 months is performed to assess for response and tolerability. The use of trimethoprim-sulfamethoxazole for as long as five years was reported to be effective and well tolerated. Nitrofurantoin has also been shown to be safe and well tolerated in the long term (12 months). Of note, there are concerns with nitrofurantoin. Although rarely, long term use of nitrofurantoin has been associated with neuropathy, chronic hepatitis, and pulmonary toxicity. It should be generally avoided in resident’s with creatinine clearance (CrCl) <30ml/min. Also, if a Culture and Sensitivity is positive for *Proteus mirabilis*, then, nitrofurantoin’s spectrum of activity will not cover this organism and discontinuation of the medication should be strongly considered. Long term use of any prophylactic antibiotic increases the risk of *Clostridioides difficile* (*C. diff*) infections and altering gut microbiome. It is reasonable to consider an antibiotic-free period may reduce the risk of *C. diff* and restore the gut microbiome. Long term prophylactic antibiotic use may cause changes to the perineal and vaginal flora which may increase the risk of cystitis. A period off antibiotics could allow repopulation of protective flora upon discontinuation. If prophylactic antibiotics are utilized, ongoing stewardship activities focusing on continued need for therapy and reducing the risk of adverse drug events are priority.

Multi-drug resistant organisms are prevalent in older adults residing in nursing facilities. One strategy to enhance antimicrobial stewardship in nursing homes is avoiding the overuse of antimicrobials, such overutilizing prophylactic antibiotics. Primary management strategies for UTIs should prioritize non-pharmacological options first before looking into medications to manage prevention efforts. Long term exposure to antibiotics could cause adverse drug events in residents and contribute to antimicrobial resistance. Evaluation of your facility’s use of prophylactic antibiotics along with alternative management strategies could be a potential Quality Initiative – Performance Improvement (QAPI) for the Infection Preventionist. Absolute Pharmacy has both an Infection Control and Antimicrobial Stewardship programs to assist with evaluation and management efforts. Ask your Account Manager or Consultant Pharmacist for more information.

**Resources:**  
 1. Hooton TM. Clinical practice. Uncomplicated urinary tract infection. *N Engl J Med.* 2012 Mar 15;366(11):1028-37. doi: 10.1056/NEJMc1104429. PMID: 22417256.  
 2. Lexicomp. *Lexi.com.* Published 2019. <https://online.lexi.com/lco/action/home>  
 3. Petty LA, Vaughn VM, Flanders SA, Malani AN, Conlon A, Kaye KS, Thyagarajan R, Osterholzer D, Nielsen D, Eschenauer GA, Bloemers S, McLaughlin E, Gandhi TN. Risk Factors and Outcomes Associated With Treatment of Asymptomatic Bacteriuria in Hospitalized Patients. *JAMA Intern Med.* 2019 Nov 1;179(11):1519-1527. doi: 10.1001/jamainternmed.2019.2871. PMID: 31449295; PMCID: PMC6714039.  
 4. Rodriguez-Villodres A, Martin-Gandul C, Peñalva G, Guisado-Gil AB, Crespo-Rivas JC, Pachón-Ibáñez ME, Lepe JA, Cisneros JM. Prevalence and Risk Factors for Multidrug-Resistant Organisms Colonization in Long-Term Care Facilities Around the World: A Review. *Antibiotics (Basel).* 2021 Jun 7;10(6):680. doi: 10.3390/antibiotics10060680. PMID: 34200238; PMCID: PMC8228357.

## About the Author



*Outside of work, Courtney enjoys spending time with her 4 kids and husband. When she is not chasing her kids, she enjoys cooking, gardening, traveling, and feeding her cows marshmallows.*

Courtney Myers is one of the Consultant Pharmacists at Absolute Pharmacy. She joined the team in 2014, starting in operations and moving into consulting. She earned her Board Certification in Geriatrics as well as earning a certification in Antimicrobial Stewardship through the Infectious Disease Society of America (IDSA). She is a graduate of Ohio Northern University Raabe College of Pharmacy where she obtained her doctorate in pharmacy and minor in public health. Courtney serves as the District 14 Trustee for the Ohio Pharmacist Association (OPA) and is a member of the American Society of Consultant Pharmacists (ASCP).

**What kind of bean never grows in the garden?**

A jellybean.



**How excited was the gardener about spring?**

So excited that he wet his plants.