Summary Recommendation: Do NOT use Urine PCR testing. Stick to CBC, UA with C&S.

I have serious concerns that Urine PCR testing will lead to increased inappropriate use of antibiotics. If the physician/NP/PA does not understand the intricacies of the test, it is not unreasonable to expect that antibiotics may be prescribed when they are not needed, the wrong antibiotic may be prescribed, or an antibiotic with a broader than needed spectrum may be used. All of these cases increase the potential for antibiotic resistance and unnecessary antibiotic prescribing.

In general, PCR testing is VERY sensitive. It will pick up ANY bacteria that is in the sample. In urine, it will amplify contaminants, colonizers, as well as pathogenic organisms.

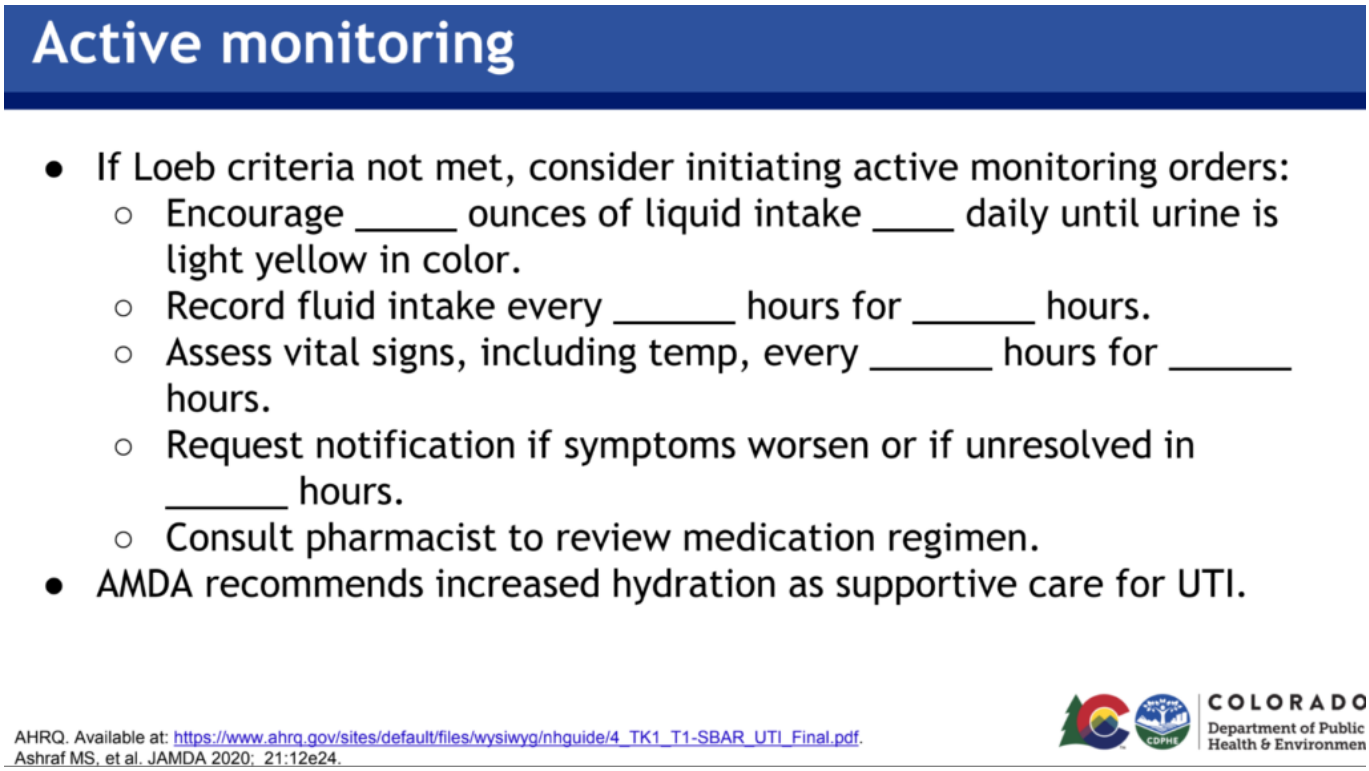
Urine PCR tests do NOT provide organism antibiotic sensitivities. The test identifies bacterial genes known to cause antibiotic resistance, but it does NOT provide clinically useful antibiotic sensitivities. The existence of a drug resistant gene in one single non-pathologic, contaminating organism could lead one to believe that a powerful broad-spectrum antibiotic is needed when in fact it is not.

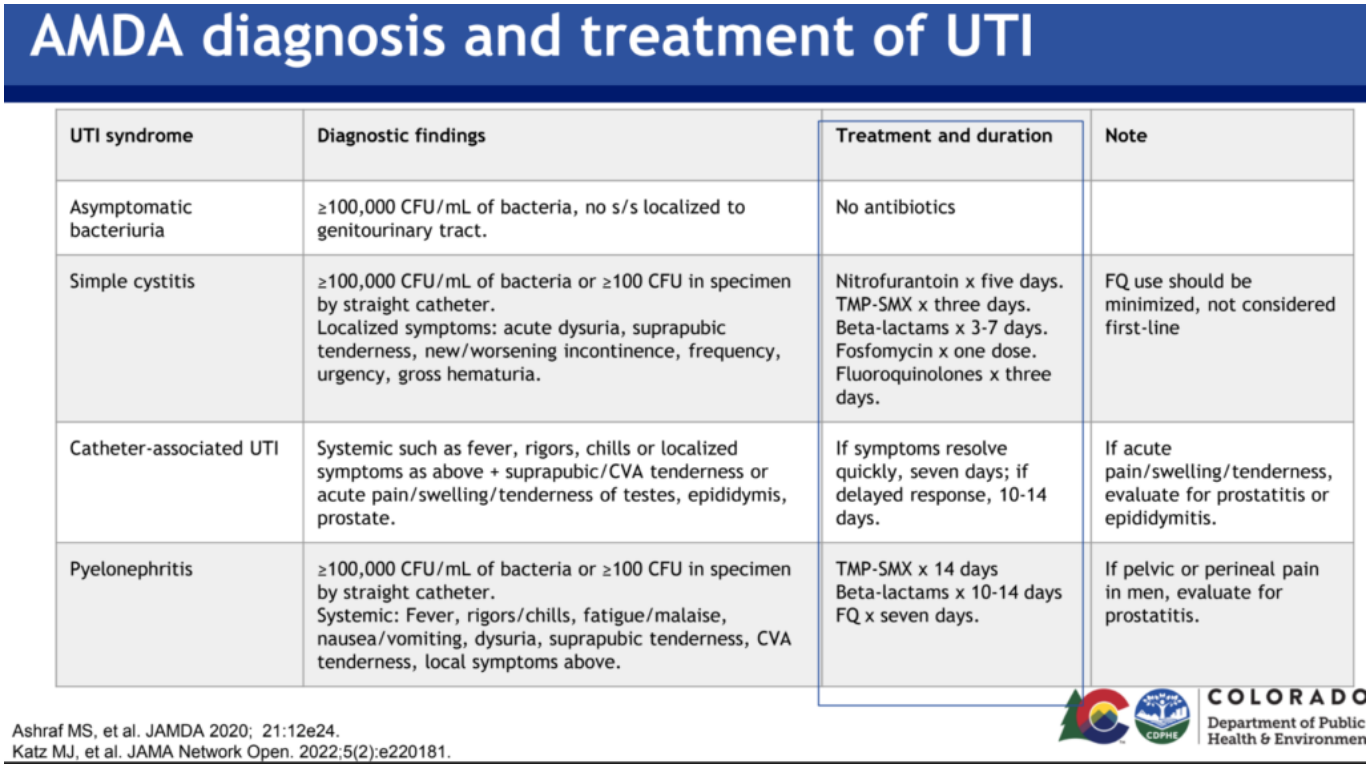
The report will usually provide antibiotic recommendations based on genetic analysis (not sensitivities). I suspect that these recommendations are primarily aimed at ensuring that there is no liability taken on by the testing company. Thus, the recommendations are often for broader spectrum antibiotics than may be clinically necessary in order to limit medico-legal liability.

CDPHE did a pretty good presentation on Urine PCR Testing….see below.

The Washington State Society for PA-LTC has a great summary opinion as well which can be found here.

CDPHE-Stewardship-Strategies-for-Interpretation-of-Novel-Urinary-Diagnostics-2.7.23Download





AMDA diagnosis and treatment of UTI

UTI syndrome	Diagnostic findings	Treatment and duration	Note
Asymptomatic bacteriuria	≥100,000 CFU/mL of bacteria, no s/s localized to genitourinary tract.	No antibiotics	
Simple cystitis	≥100,000 CFU/mL of bacteria or ≥100 CFU in specimen by straight catheter. Localized symptoms: acute dysuria, suprapubic tenderness, new/worsening incontinence, frequency, urgency, gross hematuria.	Nitrofurantoin x five days. TMP-SMX x three days. Beta-lactams x 3-7 days. Fosfomycin x one dose. Fluoroquinolones x three days.	FQ use should be minimized, not considered first-line
Catheter-associated UTI	Systemic such as fever, rigors, chills or localized symptoms as above + suprapubic/CVA tenderness or acute pain/swelling/tenderness of testes, epididymis, prostate.	If symptoms resolve quickly, seven days; if delayed response, 10-14 days.	If acute pain/swelling/tenderness, evaluate for prostatitis or epididymitis.
Pyelonephritis	≥100,000 CFU/mL of bacteria or ≥100 CFU in specimen by straight catheter. Systemic: Fever, rigors/chills, fatigue/malaise, nausea/vomiting, dysuria, suprapubic tenderness, CVA tenderness, local symptoms above.	TMP-SMX x 14 days Beta-lactams x 10-14 days FQ x seven days.	If pelvic or perineal pain in men, evaluate for prostatitis.

Ashraf MS, et al. JAMDA 2020; 21:12e24.
Katz MJ, et al. JAMA Network Open. 2022;5(2):e220181.

COLORADO
Department of Public Health & Environmen

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- Colorado Department of Public Health and Environment
- Washington State Society for Post Acute and Long Term Care Medicine. Urine Polymerase Chain Reaction (PCR) Based Testing Guidance Document (wa.gov)