(1G) Recommendations for Prevention of Urinary Tract Infections In the Long-Term Care Setting

Introduction: Urinary tract infection (UTI) is a common healthcare-associated infection in Long-Term Care (LTC) facilities and the most common cause of hospitalization for bacterial infection. Several evidence-based prevention strategies have been defined that can decrease the incidence of UTIs, including drug-resistant infections, in the long-term care setting.

I. Prevention Strategies:

A. Antimicrobial Use:

Approximately 30% to 50% of non-catheterized residents in LTC facilities and almost all chronically catheterized residents have asymptomatic bacteriuria. Antimicrobial treatment of asymptomatic bacteriuria has not shown to decrease the occurrence of symptomatic infection, alter chronic urinary symptoms such as incontinence, or decrease mortality. Therefore, the Infectious Disease Society of America (IDSA) and the Society of Healthcare Epidemiology of America (SHEA) both recommend not screening for and not treating asymptomatic bacteriuria in elderly institutionalized residents of long-term care facilities (1A recommendation) and using antimicrobials only for symptomatic urinary infections. The use of prophylactic antibiotics for the prevention of recurrent UTIs also is not recommended in this population. This only leads to the creation of drug resistant organisms.

B. Therapy to Improve Functional Status, particularly Ambulation:

Independent walking is associated with a 69% decrease in risk of hospitalization for UTI; maintaining or improving walking is associated with a 39% to 76% risk reduction; and, for residents who are non-ambulatory at baseline, improvement in their ability to move in bed or transfer is associated with a 38% risk reduction.

C. Hydration and Urinary Flow:

Bacterial eradication from the urinary tract is partially dependent on urine flow and voiding frequency. Improving fluid intake and urinary flow may decrease bladder colonization. Therefore, adequate hydration is important and may improve the results of antimicrobial therapy or decrease side effects when treating UTIs. Preventing constipation also can decrease bladder retention/flow issues.

D. Eliminating or Minimizing the Use of Anchored Indwelling Urinary Catheters:

Medical necessity for the use of indwelling catheters should be established and daily monitoring of on-going necessity should be conducted. IDSA recommends removing or replacing indwelling urinary catheters (>14 days old) before culturing and initiating antimicrobials for a UTI. If a urinary catheter cannot be discontinued, consideration should be

given to the use of condom catheters for men when appropriate (can only be used on circumcised males and difficult to maintain with dementia residents). When a permanent urinary device must be utilized and a condom catheter is not appropriate, use of intermittent in-and-out catherization or placement of a suprapubic catheter should be considered.

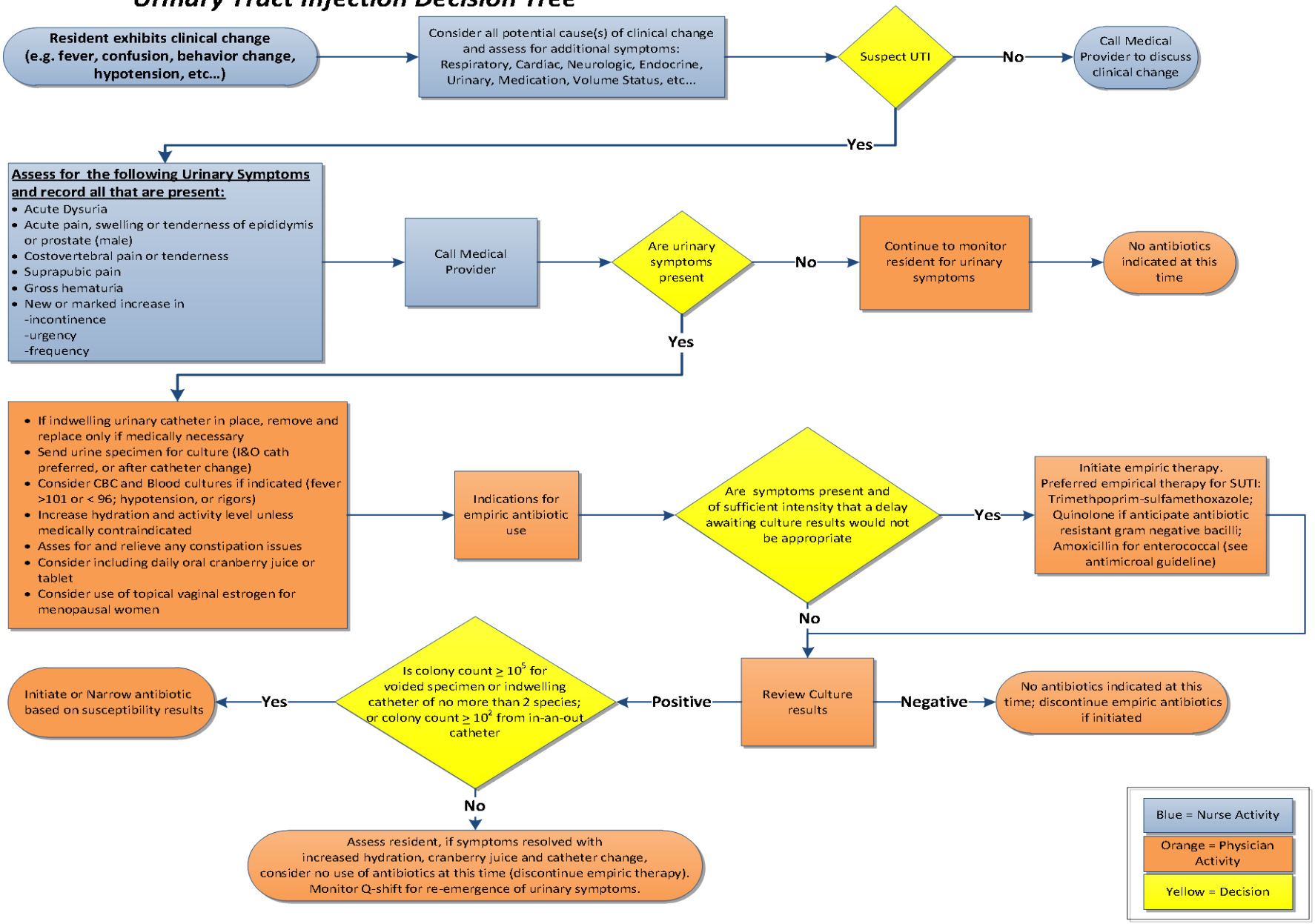
E. Cranberry Juice or Tablets:

The use of cranberry juice has been a home remedy for UTIs. Several studies have indicated that the use of cranberry juice or tablets can reduce the risk of recurrent UTIs, especially among women.

F. Vaginal Estrogen (topical preparations):

Several studies have investigated the link between loss of estrogen due to menopause and the increase in UTIs among women. This is the result of the decrease in lactobacillus (normal vaginal flora), due to the loss of estrogen. Without vaginal lactobacillus, an environment suitable for *E-coli* growth is present.

Urinary Tract Infection Decision Tree



UTI Empiric Antibiotic Therapy

	Gram (-)	Gram (+)	E. coli	Enterococcus	Proteus	Klebsiella	Pseudomonas	Citrobacter	Morganella
1st	Trim/Sulfa DS*	Trim/Sulfa DS*	Trim/Sulfa DS*	Ampicillin	Ampicillin	Cefuroxime	Levofloxacin**	Trim/Sulfa DS*	Ciprofloxacin
	BID x 3-5 days	BID x3-5days	BID x 3-5days	500mg TID x7d	500mg QIDx7d	250mg BIDx7d	500mg 1st day	BID x3-5days	500mg BID
							then 250mg		x 7 days
							q24h x 4-6days		
2nd	Amox/Clav **	Amox/Clav**	Amox/Clav **	Amox/Clav**	Trim/Sulfa DS*	Ertapenem**	Pip/Tazo **	Levofloxacin**	Imipenem**
	875mg BID x7d	875mg BID x7d	875mg BID x7d	875mg BID x7d	BID x 3-5days	1gmq24hx7d	3.375gm IV	500mg 1st day	500mg IV
							q6h x 7 days	then 250mg	q6h x 7 days
								q24h x 4-6days	
3rd	Cefuroxime **	Cefuroxime **	Cefuroxime **	Vancomycin	Cefuroxime**	Ceftriaxone	Imipenem **	Ceftriaxone	Pip/Tazo**
	250mg BID x7d	250mg BID x7d	250mg BID x7d	IV renal dose	250mg BIDx7d	1gmq24hx5-7d	250mg IV	1gm q24h	3.375gm IV
							q6h x 7 days	x5-7d	q6h x 7 days
				~for VRE=					
4th	Ertapenem **	Ertapenem **	Ertapenem **	Zyvox 600mg	Ceftriaxone	Levofloxacin***	Ceftazadime**	Pip/Tazo**	Ceftriaxone^
	1gm q24h x 5-7d	1gm q24h x5-7d	1gm q24h x5-7d	po/IV BIDx7d	1gmq24hx5-7d	500mg 1st day	250mg IV	3.375gm IV	1gm q24h
						then 250mg	q12h x 7 days	q6h x 7 days	x 7 days
						q24h x4-6days			
5th	Ceftriaxone	Ceftriaxone	Ceftriaxone		Levofloxacin**	Nitrofurantoin		Ceftazadime**	
	1gm q24h x 5-7d	1gm q24h x5-7d	1gm q24h x5-7d		500mg 1st day	***100mg BID		250mg IV	
					then 250mg	x 7 days		q12h x 7 days	
					q24h x4-6days				
6th	Levofloxacin**	Levofloxacin **	Levofloxacin**						
	500mg 1st day	500mg 1st day	500mg 1st day						
	then 250mg	then 250mg	then 250mg						
	q24h x 4-6days	q24h x4-6days	q24h x 4-6days						

* Trimeth/Sulfa DS requires renal dosing if est CrCl< 30ml/min and if also on WARFARIN- need to cut WARFARIN dose by half and monitor INR

** denotes that any of these antibiotics require renal dosing- see literature for dosing changes

***Nitrofurantoin is INEFFECTIVE if est CrCl is not GREATER THAN 60ml/min

^ denotes that Ceftriaxone and other 3rd generation Cephalosporins have increased resistance patterns

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