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Cloudy, Foul Smelling Urine Not a Criteria for Diagnosis of Urinary Tract Infection in Older Adults

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To the Editor

An absence of evidence-based guidelines for the management of commonly encountered infections is a significant barrier to better antibiotic stewardship in the long-term care (LTC) setting. Consequently, the peer-reviewed antimicrobial treatment algorithms developed by Dr. Zarowitz and colleagues as part of Omnicare's Geriatric Pharmaceutical Care Guidelines that were recently published in *JAMDA*¹ represent a potentially important contribution to the field.

Nevertheless, we are concerned by the authors' decision to include cloudy, foul-smelling urine as an indicator of urinary tract infection (UTI) in their algorithms (Figure 1). While there is evidence to support dysuria, frequency and lower abdominal pain as symptoms of a UTI, evidence to support foul or cloudy urine as signs of infection are lacking. There are many potential causes of change in urine characteristics including hydration status, food recently consumed, and medications. In fact, there is evidence from a clinical trial that smell fails the sniff test.² Midthun and colleagues conducted a study in which two research assistants with nursing home experience evaluated freshly voided urine for the presence of odor. The results of the "sniff" test were compared to urine analysis and culture results. The

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Conflicts of Interest

Dr. Jump discloses a research grant from Pfizer (RLPJ). Drs. Nace and Jump Co-Chair AMDA: The Society for Post-Acute and Long-Term Care Medicine's *Infections Advisory Committee (AMDA)*. The opinions contained herein are those of the authors and not necessarily those of the committee or AMDA. The authors report no other potential conflicts of interest related to the content of this letter.

positive predictive value of odor was 54% for bacteriuria and only 28% for situations in which pyuria was present with bacteriuria. It is notable that the original Loeb Criteria³ as well as a subsequent modification of these criteria⁴ and recently updated surveillance definitions⁵ explicitly excludes cloudy, foul-smelling urine as an indicator of UTI.

While the diagnosis of a UTI should be made on clinical grounds, there is compelling evidence that urine culture results have an inordinate influence on antibiotic decision-making in LTC facilities. Consequently, it is critical that urine cultures only be ordered when there is a sufficient pre-test probability of UTI. The authors' recommendation to test and treat LTC residents exhibiting cloudy, foul-smelling urine would seem to run counter to this principal and, we feel, promotes over-testing and over-treatment that could have the unintended consequence of increasing antibiotic resistance and *Clostridium difficile*.⁶ We respectfully suggest the authors revise their algorithm to remove cloudy, foul-smelling urine as an indicator of UTI.

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