A new study covering almost all nursing home residents in Ontario, Canada, has shown highly variable urine culturing rates across facilities and a strong association of culturing with antibiotic use and *Clostridioides difficile* infection — a diagnostic “cascade effect,” the authors reported.

Nursing home urine culturing explained 40% of the variation in antibiotic use across facilities, and was an even stronger predictor of antibiotics primarily used to treat urinary tract infections (UTIs).

“Residing in a high-urine-culturing facility results in an increased likelihood of receiving a urine culture, an increased likelihood of receiving an antibiotic, and ultimately, an increased likelihood of *C. difficile* infection,” said Kevin Antoine Brown, PhD, of Public Health Ontario, the University of Toronto, and the Institute for Clinical Evaluative Sciences, and his co-investigators in an article in *Clinical Infectious Diseases* [Jun. 14, 2019; doi: 10.1093/cid/ciz482].

Nicole Brandt, PharmD, MBA, BCGB, BCPP, FASCP, professor of pharmacy practice and science at the University of Maryland School of Pharmacy, told *Caring for the Ages* that the study strengthens the evidence that “facility-level factors — not resident-level factors — influence prescribing [of antibiotics], and that there’s a cascade that happens from doing a urine culture.”

The Canadian study, which was based on quarterly assessments conducted between April 2014 and January 2017 in 591 nursing homes (covering more than 90% of nursing home residents in Ontario), used the trove of linkable medical and administrative data collected through administration of Ontario’s system of publicly funded health care.

Urine culturing, measured as the proportion of residents with a urine culture in the prior 14 days, varied from 3.4% in the lowest 10th percentile to 14.3% in the 90th percentile. It was found to be a strong predictor of antibiotic use, both before and after adjustment for 14 resident characteristics considered to be risk factors for either antibiotic receipt or *C. difficile* infections (such as days of prior hospital stays and variables relating to functional status, incontinence, and devices used).

At the facility level, each doubling in culturing was associated (after adjustment) with a 1.21-fold increase in total antibiotic use — and a 1.33-fold increase in urinary antibiotic use — in the 30 days after assessment. The incidence of *C. difficile* infection occurring during the 90 days after assessment increased 1.18-fold with each doubling of urine culturing.

The AMDA guidelines list five signs and symptoms — dysuria, urinary frequency, urinary urgency, suprapubic pain, and gross hematuria — as likely indicators of uncomplicated cystitis in nursing home residents.

The associated diagnostic algorithm can be used to promote antibiotic stewardship in various PALTC populations.

Also noteworthy, the authors reported, was the secondary observation that facilities with low urine-culturing rates had a slightly lower 30-day mortality than facilities with high urine-culturing rates. This demonstrated, they said, “that there were no gross harms related to less frequent urine culturing.”

The prevalence of asymptomatic bacteriuria in long-term care and the appropriateness of urine culturing in this setting has become a focus of antibiotic stewardship initiatives in recent years. Skilled nursing facilities now have a selection of guidelines and criteria available for the appropriate use of urine cultures and the diagnosis of UTIs.

Most recently, AMDA — The Society for Post-Acute and Long-Term Care Medicine has issued consensus recommendations for the diagnosis and empirical therapy of uncomplicated cystitis in noncatheterized nursing home residents. The guidelines are part of the Improving Outcomes of UTI Management in Long-Term Care (IOU) Project (https://paltc.org/content/iou-toolkit).

Dr. Brandt, who also serves as executive director of the Peter Lamy Center for Long Term Care Medicine, told *Caring for the Ages* that “Nursing home urine culturing is still a very thorny issue. But the [Canadian] study makes it clear that we have to start assessing urine cultures and managing antibiotic use.”

RESOURCES

- Consensus recommendations for the diagnosis and empirical therapy of uncomplicated cystitis in noncatheterized nursing home residents, [https://paltc.org/content/iou-toolkit](https://paltc.org/content/iou-toolkit)
- Customized UTI surveillance module from the CDC’s National Healthcare Safety Network, [https://www.cdc.gov/nhsn/ltc/uti/index.html](https://www.cdc.gov/nhsn/ltc/uti/index.html)

The Society provides webinars throughout the year for all those practicing in the post-acute and long-term care (PALTC) medicine continuum. Access live and recorded webinars for CME, CMD and MOC credits!

Webinars are FREE for Society members, and only $99 for non-members.

2019 HOT TOPICS INCLUDE:
- Billing & Coding
- Medical Marijuana in LTC
- Patient Driven Payment Model (PDPM)
- Opioids
- Sepsis
- 2019 Quality Payment Program (QPP) Requirements
- QAPI Regulations
- Multimorbidity
- And much more!

See UTI • page 19

paltc.org/webinars
**Algorithm for the diagnostic approach to uncomplicated cystitis in non-catheterized nursing home residents (from Nace et al., *J Am Med Dir Assoc* 2018;19:765–769)**

<table>
<thead>
<tr>
<th>Algorithm for the Diagnostic Approach to Uncomplicated Cystitis in Non-Catheterized Nursing Home Residents</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>In This A Simple Uncomplicated Bladder Infection (CRS)</strong></td>
</tr>
<tr>
<td><strong>Use a Trust Ad People</strong></td>
</tr>
<tr>
<td><strong>Trauma</strong></td>
</tr>
<tr>
<td><strong>Fever</strong></td>
</tr>
<tr>
<td><strong>Hypertension</strong></td>
</tr>
<tr>
<td><strong>Diabetes</strong></td>
</tr>
</tbody>
</table>

**The American Nurses Credentialing Center’s Pathway to Excellence® Program recognizes health care organizations that are committed to creating a positive practice environment that empowers and engages staff.** Learn more at https://www.nursingworld.org/organizational-programs/pathway/overview/.

**Onboarding That’s Off the Mark**

Too often, Ms. Stewart suggested, facilities hire new nurses but fail to recognize the importance of onboarding, or orientation. “The problem is that we need them, so we pull them out of orientation and put them on the floor after a few days. We lose good nurses because we do this.” What these employees want and need, she said, is information about what is expected of them: what their role is and how they function as a team member. They need time to adjust to the organization’s culture, values, and mission, to learn about its policies, procedures, and leadership structure, and to discover how they can access its training and benefits.

A nursing residency program, where a brand new nurse gets extra oversight, coaching, guidance, and on-the-job, hands-on training, Ms. Stewart suggested, can turn “good employees into fantastic nurses.”

**Overlooking the Obvious**

Another potential source of good, passionate registered nurses can be found right inside the community. Licensed practical nurses (LPNs) and certified nursing assistants (CNA) are already working in the field, and at least some of them would love to advance their careers if they have the opportunity. Ms. Stewart said, “Often you can find an energetic CNA who is working multiple jobs or lots of overtime to make ends meet. We often overlook these people, but we can mentor them, provide them with tuition assistance, and help them become nurses. My experience is that these individuals stay with the organization that gave them this opportunity.”

Many times, people like this, she said, “just need someone to encourage and believe in them.”

**Keeping the Keepers**

Once you have attracted good nurses, how do you keep them? Dr. Lerner suggested, “The more tenure, the more stability you have at the top, the more likely your nurses and other staff will stay. When leaders are engaged and committed, this spreads throughout the organization.”

Employees want to feel like their input matters. “Give them a say in staffing,” Dr. Lerner recommended. “Get their ideas for improvements, and follow through on their suggestions. Create a council where people can go with a problem or complaint, and the group works together on a solution. Give them a vested role in the organization.” For instance, she said that one of her facilities had an issue with transcription errors. She brought in nurses to discuss the problem and suggest solutions. They determined that noise and distractions were contributing significantly to the problem, so they created “Quiet Space” areas where they could do transcriptions. As a result, errors went way down.

The American Nurses Credentialing Center’s Pathway to Excellence® Program recognizes health care organizations that are committed to creating a positive practice environment that empowers and engages staff. To be recognized with this designation, organizations must address a range of factors that influence bottom-line results, such as employee turnover, job satisfaction, productivity, and teamwork. Dr. Lerner suggested visiting the organization’s website (https://www.nursingworld.org/organizational-programs/pathway/overview/) and talking to Pathway-certified organizations for ideas about what makes nurses and other team members committed to their job and their employer.

Perhaps most important, said Dr. Lerner, is that “you need to have a culture of respect.” If nurses are afraid to speak up, ask a question, suggest an idea, point out a mistake (their own or someone else’s), recommend a change or new process, or offer constructive criticism, “word gets around. People will be afraid to speak up, ask questions, or new process, or offer constructive criticism,” Dr. Lerner observed, “If you are competing with others, better benefits attract people, but people don’t stay for benefits. They stay for respect and teamwork. People will work for less if they feel good about what they do.”

**Ambassadors of PALTC**

Dr. Flanagan said, “We need some forward thinkers to come up with innovative ways to get students interested in long-term care.” For starters, she suggested, “Getting students into places such as assisted living would be a breath of fresh air, and it would be a way to introduce students to older patients. We can all be ambassadors — getting out there and promoting the value of caring for older adults. We need to be cheerleaders and spread the word that this is a rewarding, exciting, clinically challenging practice setting. Passion is contagious.” Ms. Marks agreed, “I always tell my students this is an exciting time to be a nurse, and that post-acute is an exciting place to work.”

**Senior contributing writer Joanne kaldy is a freelance writer in Harrisburg, PA, and a communications consultant for the Society and other organizations.**

**UTI from page 13**

on Drug Therapy and Aging at the University of Maryland School of Pharmacy, said the challenge for many facilities lies in working such guidance into their existing workflow — and in modifying their workflow, policies, and protocols as needed to sustain the changes. “Diagnostic stewardship often [entails] reevaluating the policies and protocols that we already have in place — looking at what’s working and not working,” she said, noting that antimicrobial stewardship is an integral part of “medication stewardship” and “diagnostic stewardship” more broadly.

Identifying and integrating approaches for the diagnosis of patients with cognitive impairment and altered mental status is an important part of antimicrobial stewardship with respect to urine cultures and UTIs. “The altered mental status is one of the biggest drivers for getting a urinalysis and ordering a urine culture,” Dr. Brandt said.

Dr. Brandt and her colleagues at the center have developed a series of educational webinars on antimicrobial stewardship that are publicly accessible to medical providers and consultant pharmacists (“Antimicrobial Stewardship Educational Activities,” http://bit.ly/3150k0P). One of these webinars covers UTI diagnosis and the role of diagnostic stewardship in long-term care. Others address the incorporation of antibiotic data and how to measure its effectiveness.

The Centers for Disease Control and Prevention’s National Healthcare Safety Network offers long-term care facilities a customized UTI surveillance module (https://www.cdc.gov/nhsn/ltc/uti/index.html) that allows them to track both urine cultures and antibiotic starts for clinically suspected UTIs. The collected data can be used to assist with quality assurance and performance improvement initiatives and to inform prevention efforts.

Antibiotic use in nursing homes has been studied for years by the Institute for Clinical Evaluative Sciences. In a study published in 2015, researchers looked at the variability of antibiotic use across nursing homes; they found that residents of high-use facilities are exposed to more antibiotic-related adverse outcomes than those living in low-use facilities — even if these residents have not directly received the drugs (JAMA Intern Med 2015;175:1331–1339).

Christine kilgore is a freelance writer in Falls Church, VA.