were 24 documented instances of nurses' notifying prescribers of patients with a low-risk penicillin allergy. Focus group data revealed nurses perceived their comprehensive documentation of penicillin allergies highly acceptable and likely to improve patient care and outcomes. Whereas nurses' notification of prescribers concerning patients meeting low-risk penicillin allergy criteria had little appeal. Nurses described the STORY mnemonic, pocket cards describing the penicillin allergy assessment mnemonic, and the associated dot phrase in EPIC as particularly helpful. **Conclusions:** A multifaceted implementation strategy showed promise in improving the comprehensive documentation of penicillin allergy histories. Future studies are needed to determine the efficacy of the multifaceted implementation strategy on penicillin allergy documentation, the selection of antibiotic prophylactic treatment, and clinical outcomes among surgical patients.

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User-Centered Education for Patients/Caregivers about Urinary Tract Infections, Asymptomatic Bacteriuria, and Antibiotics

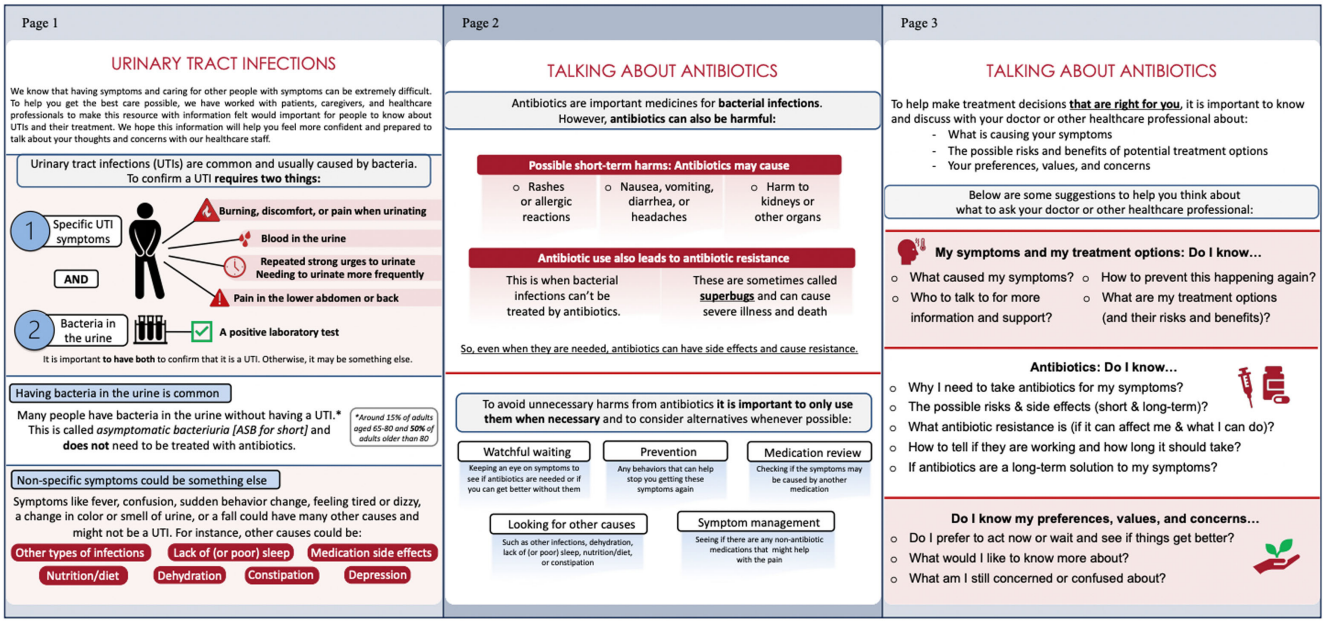
Alistair Thorpe, University of Utah; Karen Fong, University of Utah Health; Hannah Hardin, University of Utah; Brandi Muller, University of Utah School of Medicine; Julie Szymczak, University of Utah School of Medicine; Andrea White, Division of General Internal Medicine and Valerie Vaughn, University of Utah School of Medicine

Background: Older adults (aged ≥65) are at high risk of harm from overdiagnosis and overtreatment of urinary tract infections (UTIs) with antibiotics. Involving patients/caregivers in their antibiotic treatment decisions has potential to improve prescribing. To engage effectively, patients/caregivers must have sufficient knowledge about UTIs, asymptomatic bacteriuria (ASB: bacteria in the urine without signs of UTI), and antibiotics and opportunities to share their concerns and treatment preferences with healthcare staff. Patient education is one of the core elements of antibiotic stewardship recommended by the Centers for Disease Control and Prevention but, there are few resources for patients/caregivers about UTIs and antibiotics, leaving a knowledge gap as to what effective patient/caregiver antibiotic education for UTIs looks like. We sought to better understand the perspectives of patients/caregivers at high-risk of antibiotic overuse for UTIs and create an educational leaflet on UTIs, antibiotics, and ASB. **Method:** Between 11/2022 and 03/2023, we conducted virtual semi-structured interviews with patients ≥65yrs who had experienced UTI and caregivers about their needs, experiences, and preferences for educational support. Interviews lasted ~1 hour. Audio recordings were transcribed verbatim. NVivo software managed the data, which we analyzed using thematic analysis. **Results:** We conducted 9 interviews (5 patients, 4 caregivers). Interviewees expressed desire to be involved in their treatment decisions and learn more about antibiotics and alternative strategies (themes shown in Figure 1). Reported reasons for limited involvement in decisions included lacking the knowledge and confidence to ask questions, emotional factors (e.g., embarrassment/stress), deference to healthcare staff, and time constraints. Healthcare staff behaviors were described both as barriers (e.g., assertive treatment decisions) and facilitators (e.g., effective communication) of patient/caregiver engagement. Interviewees were eager for printed and digital educational support that

Figure 1. Themes with exemplar quotes.

Theme 1- Patient and caregiver needs		
Greater involvement in treatment decisions	*Improved knowledge of antibiotics*	*Discussion of alternatives to antibiotics*
"Before I would be like, yep, they gave me this medication and I'm going to take it but now, I'm a lot more asking those questions as to why am I taking this, why are they prescribed for me and how or what is the reason why you believe these are going to help?" – *Patient*	"[…]maybe something about how antibiotics work a little bit, kind of what they do, how they tackle infections[…]maybe why one is better than the other because that was the situation here, the basic antibiotics didn't work and why they know this one works. So, explaining the purpose of antibiotics and maybe even some caution about what antibiotics should or shouldn't do." – *Caregiver*	"I mean none were suggested in our situation, but I think that would be helpful because, again, in terms of empowering and giving patients and families options because I think options in these particular cases are critical[…]if something could have been used that wasn't used or not even considered; just giving patients options is very, very empowering." – *Caregiver*
Theme 2- Patient/caregiver related reasons for limited involvement:		
Deference to healthcare staff	*Lack of knowledge/confidence to ask questions*	*Emotional factors*
"We just trusted the doctors because that's their job to diagnose and treat the issue, we are, of course, going to take their – I trust their opinion because that's their profession, I understand that's what they go to school for, so I wasn't going to question it." – *Caregiver*	"[…]even when we were discharged to the hospital, they were just saying like we are going to continue with the antibiotics that the doctor had put her on, and we just moved forward from there. So I didn't question anything because I didn't know any better." – *Caregiver*	"I didn't believe that I could really ask a lot of questions because, when you go to the doctor you're very sick, you're not in your right mindset, you're not in your right headspace to be advocating for yourself or asking questions at that point" – *Patient*
Theme 3- Perceptions of healthcare staff behaviors		
Assertive treatment decisions limit patient/caregiver involvement	*Effective communication fosters patient/caregiver involvement*	*Time constraints limit patient/caregiver involvement*
"They kind of approach you with, okay, this is our treatment plan. This is what we are going to do[…]But the why behind it wasn't there. I think that would have been more helpful." – *Caregiver* "Both times was just..'Hey, we are going to give you antibiotics because we think you have an infection; sign this paper'. So, it really wasn't a conversation." – *Patient*	"These discussions really made me respect these doctors because I had never heard specialists or clinicians take that time to truly dig in to what's going on and you can tell they cared about it and they truly cared about you getting better" – *Patient*	"Spend more time! Two to three minutes isn't enough time. But I also want to acknowledge too, that I recognize that they've got many patients to see and that time constraint is a very big issue and challenge for clinicians." – *Caregiver*
Theme 4- Educational tool preferences		
Print and digital options	*Content tailored to users' specific situations and backgrounds*	*Help to prepare for conversations with healthcare staff*
"Myself… a pamphlet. Like material I could take with me because I don't always have the time to sit and read right at that moment." – *Patient* "Maybe something like just a general piece of paper, especially with these older folks, They were 90. I mean, they were not going to go online. I'm going to go online, and I can look stuff up and ask questions but I think that would have been more beneficial to have just a simple pamphlet or form." – *Caregiver* "Two, three different ways of delivery: printed, an app, even a website I think is a good idea to have more than one way of delivering." – *Patient*	"I feel like the tools will help people like myself and I do feel like it would help those minority groups which I can also relate and I feel like it would provide more comfort and ease when you are doing caregiving." – *Caregiver* "Maybe having a lot of different options on there of different sections, pros and cons of antibiotics, facts and myths about them. Just kind of having different subcategories of if you're looking for this you can click on this, if you're looking for this, click on this and it will take you more into it." – *Patient*	"[…]I think having that help of like here, you know what, are you concerned or do you struggle with bringing something up to your doctor? Here, let us help you because we all go through the same stuff, so here are ways to help you because you're not alone in that aspect." – *Patient* "I know a lot of people that don't have an educational background and they don't know how to ask questions. Some of them are fearful of it and I think it's just common when you are coming from a minority group and so I think that question prompts would be really effective." – *Caregiver*

Figure 2. A three-page antibiotic education leaflet informed by themes



could provide tailored content to help improve their knowledge and prepare for future conversations with healthcare staff. From this feedback we developed an educational leaflet (Figure 2). **Conclusions:** Involving patients/caregivers in antibiotic treatment decisions represents an opportunity to intervene before patients experience antibiotic overuse. Our findings offer important insights on patient/caregiver' educational needs and preferences as well as perceived barriers to engaging in antibiotic treatment decisions for UTI. We used these insights to inform the development of educational materials about UTIs, ASB, and antibiotics for patients/caregivers and plan to test their use through multiple mediums with tailoring for unique patient needs, experiences, and backgrounds.

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Antimicrobial Use in Veterans Affairs Community Living Centers, 2015 - 2019

Christian Dalton, University of Utah; Tina Willson, University of Utah Division of Epidemiology; Brigid Wilson, Northeast Ohio VA Healthcare System; Taissa Bej, Northeast Ohio VA Healthcare System; Nadim El Chakhtoura, Institute for Computational Biology; Sunah Song, Institute for Computational Biology; Oteshia Hicks, Louis Stokes Cleveland VA Medical Center; Corinne Kowal, Department of Veteran Affairs; Makoto Jones, VA Pittsburgh Healthcare System; Steven Handler, VA Pittsburgh Healthcare System; Robin Jump, VA Pittsburgh Healthcare System and Vanessa Stevens, US Dept Veterans Affairs

Background: Optimizing antimicrobial use (AU) among post-acute and long-term care (PALTC) residents is fundamental to reducing the morbidity and mortality associated with multidrug-resistant organism (MDROs), as well as unintended social consequences related to infection prevention. Data on AU in PALTC settings remains limited. The U.S. Department of Veteran Affairs (VA) provides PALTC to over 23,000 residents at 134 community living centers (CLCs) across the United States annually. Here, we describe AU in VA CLCs, assessing both class and length of therapy. **Methods:** Monthly AU between January 1, 2015 and December 31, 2019 was extracted from the VA Corporate Data Warehouse across 134 VA CLCs. Antimicrobials and administration routes were based on the National Healthcare Safety Network AU Option protocol for hospitals. Rates of AU were measured as the days of therapy (DOT) per 1,000 resident-days. An antimicrobial course was defined as the same drug and route administered to the same resident with a gap of ≤ three days between administrations. Course duration was measured in days. AU Rates were measured as the days of therapy (DOT) per 1,000 resident-days. **Results:** The most common class of antimicrobial course administered during the study period was beta-lactam/beta-lactamase inhibitor combinations (15%) followed by fluroquinolones (14%), extended-spectrum cephalosporins (12%) and glycopeptides (11%; Figure 1). Neuraminidase inhibitors had the longest median (IQR) course duration (10 (IQR 8) days), followed by tetracyclines (8 (IQR 8) days), and then folate pathway inhibitors, nitrofurans and 1st/2nd generation cephalosporins (7 (IQR 7) days). Overall, 60% of antimicrobial courses were administered orally, with fluroquinolones the most frequently administered orally (20%). From 2015 – 2019, the annual rate of total antimicrobial use across VA CLCs decreased slightly from 213.6 to 202.5 DOT/1,000 resident-days. During the 5-year study period, fluroquinolone use decreased from 27.47 to 13.36 DOTs/1,000 resident-days. First and 2nd generation cephalosporin use remained relatively stable, but 3rd or greater generation cephalosporin use increased from 14.70 to 19.21 DOTs/1,000 resident-days (Figure 2). **Conclusion:** The marked decrease in the use of fluoroquinolones at VA CLCs from 2015-2019 is similar to patterns observed for VA hospitals and for non-VA PALTC facilities. The overall use of antibacterial agents at VA CLCs decreased slightly during the study period, but other broad-spectrum agents such as 3rd or greater generation cephalosporins increased over the same period. The strategies used to decrease