IDWeek 2025

The IDWeek 2025 Annual Meeting showcased pivotal advances in infectious diseases, from real-world vaccine data to novel therapeutic approaches

IDWeek 2025 Annual Meeting Highlights

Location:	Atlanta, Georgia, USA
Date:	October 19th–22nd, 2025
Citation:	Microbiol Infect Dis AMJ. 2025;3[1]:10-22. https://doi.org/10.33590/microbiolinfectdisam/UVIO7409

THE IDWEEK 2025 Annual Meeting showcased pivotal advances in infectious diseases, from real-world vaccine data and innovative stewardship strategies to novel therapeutic approaches reshaping clinical care. This year's highlights reflect a continued emphasis on optimizing antimicrobial use, improving outcomes for vulnerable populations, and translating evidence into practice.

Zoster Vaccination Linked to Lower Mortality in People with HIV

A NEW real-world study presented at IDWeek 2025 reports that the recombinant zoster vaccine is associated with significantly reduced risks of death and major cardiovascular events in people living with HIV (PLWH). The analysis, conducted by researchers at Case Western Reserve University School of Medicine, Cleveland, Ohio, USA, provides new evidence supporting broader health benefits of zoster vaccination in this high-risk population.[1]

Chronic immune activation in PLWH contributes to an elevated risk of cardiovascular and neurodegenerative conditions, while herpes zoster infection can further intensify these complications. Using the TriNetX Analytics Network (TriNetX, Cambridge, Massachusetts, USA), investigators performed a retrospective matched cohort study including 3,146 adults aged ≥50 years (mean age: 58.4 years) with HIV and no prior herpes zoster diagnosis. Participants were divided by vaccination status and matched 1:1 on demographics, antiretroviral therapy regimen, comorbidities, psychiatric history, and prior vaccine exposures to ensure balanced comparison groups. After matching, the cohorts were well balanced across key variables.

During a follow-up period ranging from 90 days–7 years (median: 2.89 years in the vaccinated group and 2.78 years in the unvaccinated group), prior zoster vaccination was associated with a 47% lower hazard of all-cause mortality (hazard ratio [HR]: 0.534; 95% CI: 0.380–0.749; p=0.0002) and a 39% reduction in major adverse cardiovascular events (HR: 0.614; 95% CI: 0.481–0.783; p=0.0001). A trend toward reduced dementia risk was observed among vaccinated individuals (HR: 0.559; 95% CI: 0.237–1.32; p=0.1783), though this result did not reach statistical significance. No significant differences were found in psychiatric morbidity or Parkinsonism between the groups.

> **These findings reinforce the importance of comprehensive vaccination strategies as part of holistic care for PLWH**

The study demonstrates that zoster vaccination in PLWH is associated with improved long-term survival and lower cardiovascular risk, suggesting potential systemic benefits beyond the prevention of shingles. These findings reinforce the importance of comprehensive vaccination strategies as part of holistic care for PLWH.

Home Decolonization Reduces Complications After Kidney Transplant

A PRAGMATIC quality improvement study presented at IDWeek 2025 found that post-discharge home decolonization significantly reduced urinary tract infections (UTI) and graft failure in kidney transplant recipients, with a trend toward lower mortality. Conducted by researchers at the University of California, Irvine, USA, the study evaluated a simple, safe, and cost-effective strategy to prevent early post-transplant complications.[2]

Infections remain a leading cause of morbidity and mortality after kidney transplantation, and UTIs are particularly common in the early months post-surgery. The study examined whether daily cleansing of the surgical site and perineum with 2% chlorhexidine gluconate cloths for 3 months following discharge could reduce infection-related complications. Participants received decolonization kits at discharge, with subsequent monthly kits mailed to their homes, accompanied by detailed instructions from transplant nurses.

The study included 517 adult kidney transplant recipients, of whom 94 received the intervention and 423 served as controls, drawn from the same intervention period and a 2-year pre-intervention period. Outcomes were evaluated using Kaplan–Meier survival analysis and Cox proportional hazards models adjusted for baseline differences.

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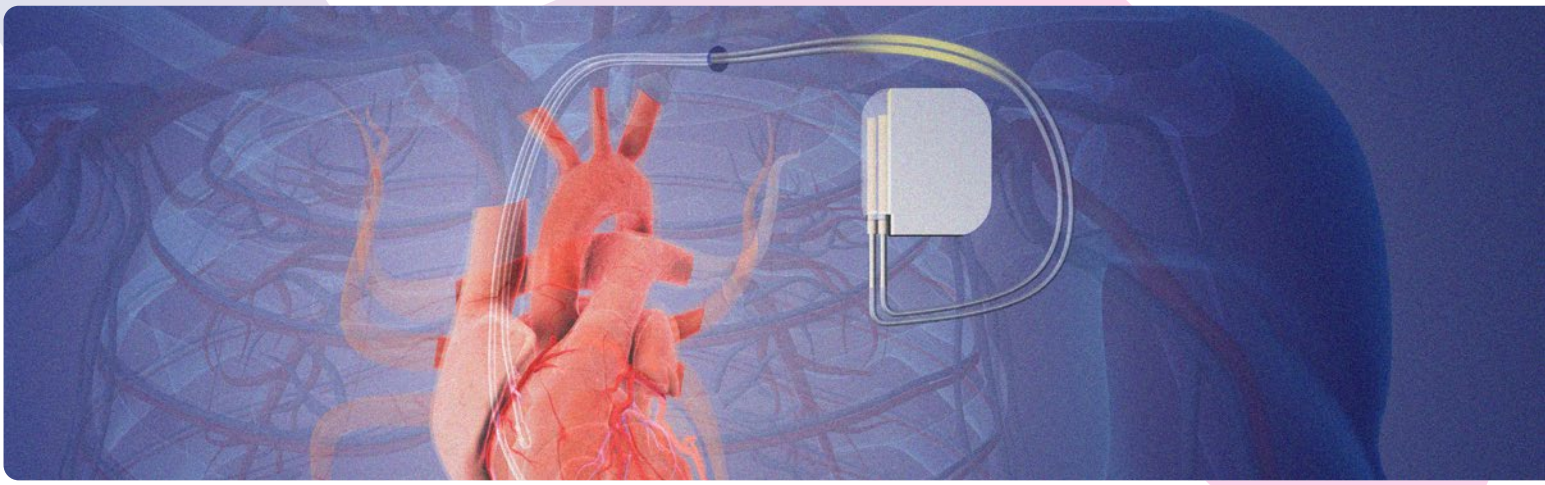
Recipients of the home decolonization intervention experienced significantly lower rates of UTI (19.2% versus 34.8%) and graft failure (0.0% versus 2.8%) compared to non-participants. Deaths were fewer in the intervention group (2.1% versus 6.2%), though this difference did not reach statistical significance. Kaplan–Meier analysis demonstrated higher bacteriuria-free survival at 30, 60, and 90 days post-transplant among participants (88.3%, 83.0%, and 80.9%, respectively) compared with controls (74.5%, 67.1%, and 65.3%; log-rank $p<0.004$). Adjusted analyses confirmed a significantly lower risk of UTI for participants (adjusted hazard ratio: 0.56; 95% CI: 0.30–0.82; $p<0.004$). Adverse events were rare, occurring in approximately 1% of participants.

These findings indicate that post-discharge chlorhexidine gluconate bathing is an effective, low-cost approach to reducing infection-related complications after kidney transplantation. The intervention provides a resistance-sparing alternative to antibiotics, offering a practical strategy to improve outcomes and support graft survival in transplant recipients.



Shorter Antibiotic Therapy Safe After Device Infections

A STUDY presented at IDWeek 2025 found that shorter courses of antibiotic therapy were as safe and effective as longer regimens following the removal of infected cardiac implantable electronic devices (CIED). The findings may help refine treatment practices and reduce unnecessary antibiotic use.[3]

Infections involving CIEDs, such as pacemakers and defibrillators, are the most common reason for lead extraction. While complete removal of the infected device is standard practice, the optimal duration of antibiotic treatment after extraction has not been clearly defined. This study is the first to evaluate how antimicrobial duration affects clinical outcomes in this setting.

Researchers reviewed 747 patient cases between June 2013–December 2023, identifying 79 patients who met inclusion criteria for extraction due to bacteremia or lead-associated infection. Patients were grouped by antibiotic duration of ≤2 weeks or >2 weeks. Baseline characteristics were similar between cohorts. The median duration of antibiotic therapy was 12.6 days for patients receiving ≤2 weeks of antibiotics and 38.6 days for those receiving >2 weeks of antibiotics.

Kaplan–Meier survival analysis showed no significant difference in survival between the two groups (hazard ratio: 0.693; 95% CI: 0.085–5.652; p=0.438). There were no significant differences in recurrent bacteremia (7% versus 6%; p=0.952), infectious complications (27% versus 30%; p=0.817), hospital length of stay (mean: 9.9 versus 13.3 days; p=0.360), postoperative ICU disposition (0% versus 17%; p=0.112), or rates of cardiac arrest (7% versus 5%; p=0.577).

Relapse or recurrence occurred in five patients, all of whom had infections caused by *Staphylococcus aureus* (n=3) or *Serratia* species (n=2) and had either a left ventricular assist device or a valve replacement.

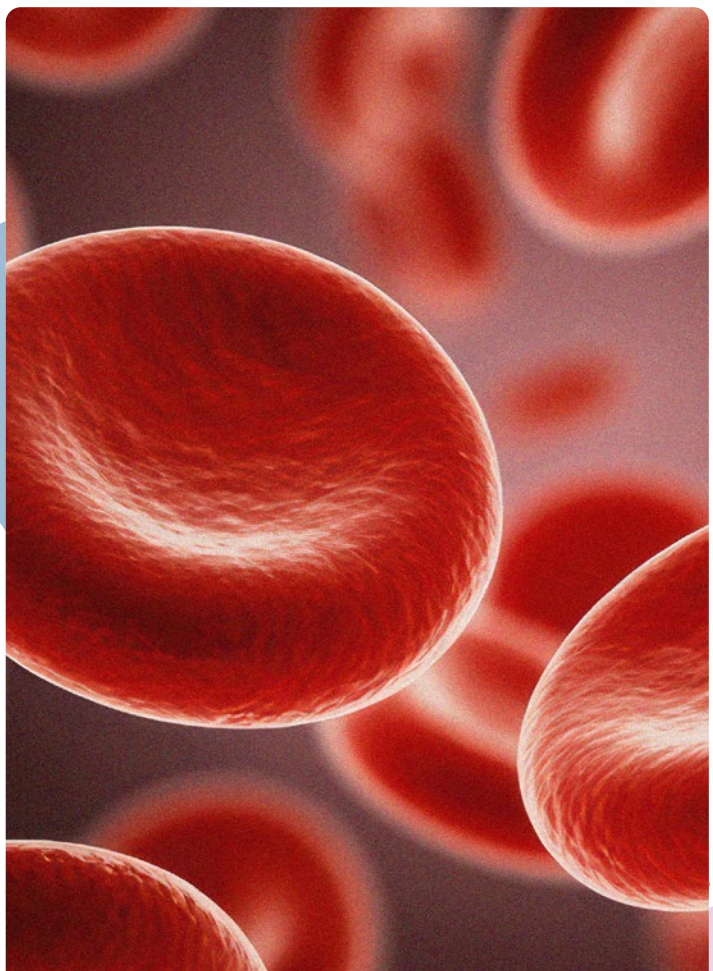
The findings indicate that shorter durations of antibiotic therapy, defined as 2 weeks or less, after CIED lead extraction are not associated with increased mortality or higher rates of recurrent bacteremia. Further studies are needed to determine optimal antibiotic duration and identify risk factors for recurrence in this patient population.

High Mortality Found in Daptomycin-Resistant Vancomycin-Resistant *Enterococcus* Infections

A STUDY from the National Taiwan University Hospital, Taipei, Taiwan, presented at IDWeek 2025, reported high mortality rates among patients with bloodstream infections caused by daptomycin-resistant vancomycin-resistant *Enterococcus*. The research revealed several key prognostic factors and treatment implications for this emerging antimicrobial threat.[4]

From 2010–2024, investigators analyzed 2,230 vancomycin-resistant *Enterococcus* bloodstream infection episodes, identifying 120 cases that met the criteria for daptomycin resistance. The median patient age was 67.3 years, with 57.5% being male. Primary bloodstream (45.8%) and urinary tract infections (43.3%) accounted for most cases.

The overall 28-day mortality rate reached 47.5%. Multivariable analysis showed that a higher Charlson Comorbidity Index (CCI; adjusted odds ratio [aOR]: 1.30; p=0.02), elevated Pitt bacteremia score (aOR: 1.35; p<0.01), and lower platelet count (aOR: 0.98; p<0.01) were independently linked to increased mortality.



Of the 120 patients, 101 (84.1%) received daptomycin while 19 (15.8%) received linezolid. Patients treated with moderate daptomycin doses (8–11 mg/kg) had higher mortality (aOR: 3.30; p=0.04) than those receiving doses greater than 11 mg/kg. No significant difference in survival was found between high-dose daptomycin and linezolid (aOR: 2.02; p=0.39).

Recurrent bacteremia occurred in about 9% of cases, showing no major variation between treatment groups (15.6% versus 18.2%; p=0.82).

Researchers concluded that high-dose daptomycin, at or above 11 mg/kg, may offer comparable outcomes to linezolid despite laboratory indications of resistance. They emphasized that optimizing dosing and managing underlying risk factors are essential to improving patient survival.

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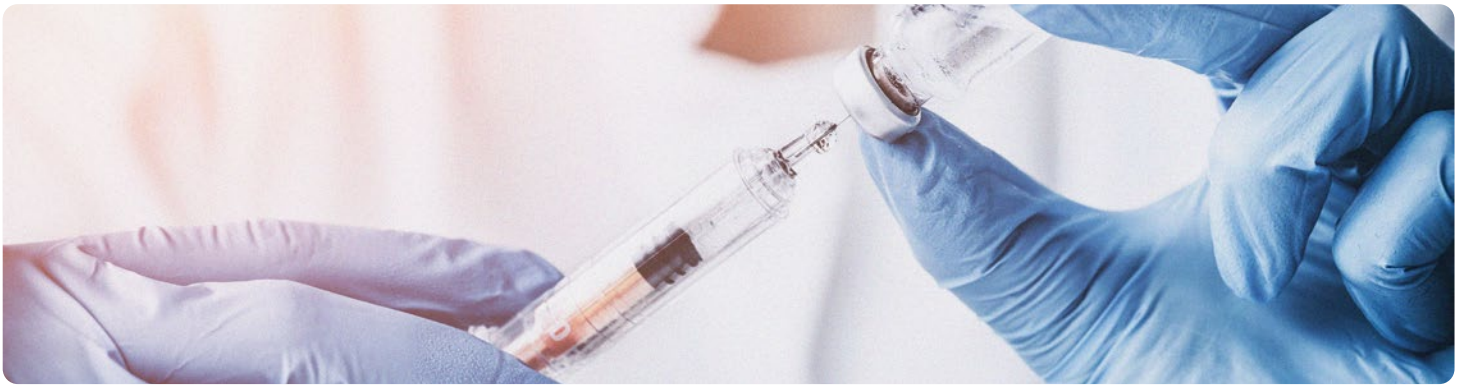

Real-World Evidence for Dalbavancin in *Staphylococcus aureus* Infective Endocarditis

USING the TriNetX Global Collaborative Network (TriNetX, Cambridge, Massachusetts, USA), a new study presented at IDWeek 2025 has found that the use of dalbavancin in people who inject drugs (PWID) with *Staphylococcus aureus* infective endocarditis (IE) is associated with lower mortality and fewer adverse events compared with standard intravenous (IV) antibiotic therapy, supporting its role as a safer and more practical treatment option in this high-risk population.[5]

Treating IE in PWID remains a major clinical challenge. Prolonged IV antibiotic courses are often difficult to complete due to social, behavioral, and logistical barriers. Discharging patients with peripherally inserted central catheters carries risks of line misuse, reinfection, and treatment failure. Dalbavancin, a long-acting lipoglycopeptide that allows for infrequent dosing, is an alternative for those unable to safely receive outpatient parenteral antibiotic therapy. However, its real-world effectiveness relative to conventional regimens has not been clearly established.

The research team conducted a retrospective, propensity score-matched cohort study of adults aged 18 years and older with *S. aureus* IE and a history of substance use. Patients treated with dalbavancin (n=288) were matched 1:1 with those receiving standard IV antibiotics, including vancomycin, daptomycin, cefazolin, linezolid, or nafcillin (n=288), based on age and sex. The primary outcome was 1-year all-cause mortality, while secondary endpoints included recurrent bacteremia, acute kidney injury, *Clostridioides difficile* infection, and rash. The median patient age was 38 years, and 49.3% were male. At 1 year, mortality was significantly lower with dalbavancin at 6.9%, compared to 15.6% with standard IV antibiotics, with a risk difference of –8.7 percentage points (95% CI: -13.8–-3.6; hazard ratio [HR]: 0.44; p=0.002). Dalbavancin was also associated with reduced acute kidney injury (11.4% versus 30.6%; HR: 0.32; p<0.001), rash (6.9% versus 12.8%; HR: 0.52; p=0.015), and recurrent bacteremia (52.8% versus 60.4%; HR: 0.36; p=0.001).

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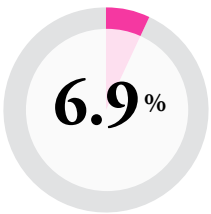

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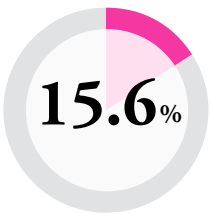


with standard IV antibiotics

These findings indicate that dalbavancin may provide an effective and safer alternative to traditional IV therapy for *S. aureus* IE in PWID. Incorporating dalbavancin into clinical pathways could improve adherence, reduce hospital readmissions, and lessen complications related to IV access.

Host-Response Testing Reduces Hospitalizations After Urgent Care Visits

RESEARCH presented at IDWeek 2025 has demonstrated that integration of the MeMed BV® (MMBV; MeMed, Tirat Carmel, Israel) host-response test into clinical decision-making in urgent care centers (UCC) is associated with improved patient outcomes, including reduced hospitalization rates within 7 days of discharge.[6]

Inappropriate antibiotic prescribing remains a significant challenge in UCCs, where diagnostic uncertainty is often high due to limited consultation time and restricted access to diagnostic tools. MMBV, an FDA-cleared test that evaluates the host immune response by combining levels of three immune proteins into a bacterial likelihood score, assists clinicians in distinguishing bacterial from viral infections. The test demonstrates a negative predictive value greater than 98%, making it a reliable aid in guiding antibiotic prescribing decisions and enhancing antimicrobial stewardship efforts.

This retrospective analysis assessed real-world data from 3,758 adult patients tested with MMBV during visits to 10 UCCs between April–December 2022. Of these, 59.3% were female and the median age was 42 years (interquartile range: 31–58). Bacterial results were reported in 858 patients (22.8%), viral in 2,404 (64.0%), and equivocal in 496 (13.2%). It was also revealed that patients with bacterial MMBV results were older (median: 51 versus 39 years) and more frequently diagnosed with lower respiratory tract infections (29.6% versus 9.4%). Among those with bacterial results, antibiotic treatment was associated with significantly fewer hospitalizations within 7 days (7.3% versus 36.1%; $p<0.001$). For viral results, withholding antibiotics correlated with a lower rate of lower respiratory tract infection diagnosis (4.2% versus 29.5%) and fewer hospitalizations (2.5% versus 5.3%; $p=0.003$).

This study shows that the incorporation of MMBV into urgent care workflows appears to improve clinical outcomes while supporting appropriate antibiotic prescribing. By providing clinicians with timely host-response insights, MMBV may reduce unnecessary antibiotic exposure, hospital admissions, and associated healthcare costs. Further prospective studies could evaluate its integration into broader infection management protocols and explore long-term impacts on antimicrobial resistance trends.

Point-of-Care Hepatitis C Virus RNA Testing Enhances Homeless Care

PERSONS experiencing homelessness (PEH) face a disproportionately high burden of chronic hepatitis C virus (HCV) infection and often encounter significant barriers to diagnosis, follow-up, and treatment. Conventional point-of-care (POC) HCV antibody tests only indicate prior exposure rather than active infection, creating delays in linking individuals to care. The Cepheid Xpert HCV test (Cepheid, Sunnyvale, California, USA) offers a rapid method to detect active HCV RNA, allowing health providers to diagnose infection and begin treatment more quickly. A recent study, presented at IDWeek 2025, evaluated the use of the Xpert HCV test within a street medicine model to improve HCV care among PEH.[7]

From November 2024–February 2025, weekly street medicine outreach runs were conducted. Individuals were offered testing using a finger-stick blood sample, which was analyzed for both HCV antibody and active HCV RNA on a POC Cepheid Xpress system (Cepheid, Sunnyvale, California, USA). Those who tested positive for HCV RNA received confirmatory bloodwork, including viral load and genotype testing, and were assessed for eligibility for simplified treatment with direct-acting antivirals. Eligible participants were provided medication directly on a weekly or biweekly basis, accompanied by adherence support. Viral load was measured again at the end of treatment to assess response.

Among the individuals tested, 20 were HCV antibody-positive and 13 had active infection. Twelve were able to complete additional bloodwork, and all met guideline-based criteria for simplified direct-acting antiviral therapy. Nine patients began treatment, four completed therapy, and three achieved undetectable viral RNA at the end of treatment. No HIV or hepatitis B co-infection was observed. The average time from testing to initiation of treatment was approximately 20 days.

These findings show that rapid RNA-based POC testing can successfully identify active infection and facilitate timely treatment among PEH. Integrating such testing into street medicine can meaningfully advance HCV elimination efforts in highly marginalized populations.

Blood Culture Shortage Impact on Antibiotic Use

A RECENT study, presented at IDWeek 2025, described how a national shortage of blood culture (BCx) supplies prompted the implementation of targeted mitigation measures at a large academic medical center.[8]

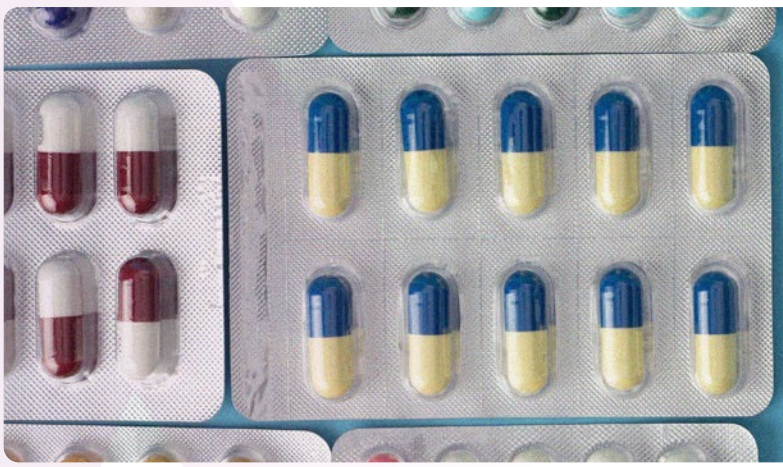
BCx contamination rates also decreased from 1.96% to 1.66%, suggesting improved diagnostic stewardship

These measures aimed to decrease unnecessary BCx use while evaluating potential effects on antibiotic prescribing practices, contamination rates, and key outcomes related to sepsis management. Clinicians were supported through electronic clinical decision support tools that offered soft stops on repeat cultures, required acknowledgement for repeat BCx performed within 48 hours, and suggested alternative testing options. Education efforts were directed across the institution, with particular focus on areas with historically high BCx utilization, including the emergency department and oncology units.

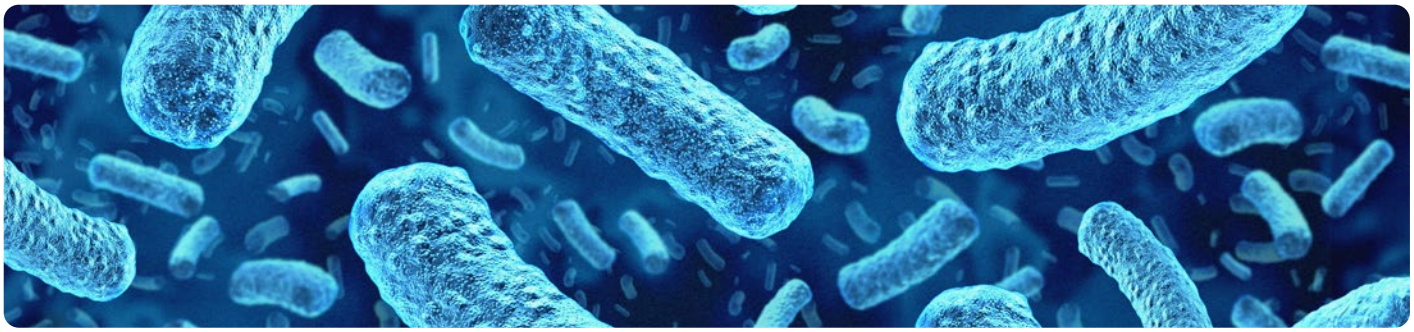
This retrospective pre- and post-intervention study compared data from a pre-shortage period (July 2023–May 2024) to the shortage period (July 2024–November 2024). The primary outcome was antibiotic days of therapy per 1,000 patient-days. Secondary outcomes included the number of blood cultures obtained, sepsis core measure performance, length of stay, inpatient mortality, and rates of blood culture contamination. Statistical comparisons were performed using the Wilcoxon rank sum test.

BCx utilization declined significantly during the shortage, decreasing from a median of 1,846 to 1,205 cultures. Despite concerns that reduced culture availability might lead to increased empiric antibiotic use, overall antibiotic consumption remained stable. Notably, in the emergency department, use of vancomycin, cefepime, and ceftriaxone decreased significantly. Patient outcomes were not negatively affected: inpatient mortality remained unchanged, and length of stay showed a modest reduction. BCx contamination rates also decreased from 1.96% to 1.66%, suggesting improved diagnostic stewardship.

These findings indicate that targeted mitigation strategies can effectively reduce BCx use during shortages without compromising antibiotic stewardship or sepsis care. The reductions in selected antibiotics and contamination rates further support careful culture utilization as a component of high-quality clinical practice.



> **“These findings indicate that targeted mitigation strategies can effectively reduce BCx use during shortages”**



Real-World Impact of the 2021 Infectious Diseases Society of America/Society for Healthcare Epidemiology of America *Clostridioides difficile* Infection Guidelines

NEW RESEARCH presented at IDWeek 2025 has provided the first large-scale, real-world evidence of how the 2021 Infectious Diseases Society of America (IDSA)/Society for Healthcare Epidemiology of America (SHEA) *Clostridioides difficile* infection (CDI) treatment guidelines have reshaped clinical practice, improved patient outcomes, and influenced healthcare costs across the USA.[9]

The 2021 guideline update recommended fidaxomicin over vancomycin as the preferred first-line therapy for both initial and recurrent CDI, and bezlotoxumab as an adjuvant treatment for high-risk patients. In this new analysis, Angela Wu and colleagues from the Baylor College of Medicine, Houston, Texas, USA, examined over 1.2 million CDI encounters from 2018–2024 using the Epic Cosmos database, comparing treatment patterns and outcomes before and after the guideline release in June 2021.

Following implementation, the researchers observed clear shifts in prescribing behavior: fidaxomicin use tripled from 3.1% to 9.6%, vancomycin use rose slightly, and bezlotoxumab prescriptions increased five-fold, while metronidazole use dropped by nearly half. Importantly, these changes coincided with a measurable clinical benefit. The odds of 30-day CDI recurrence fell by 4% immediately after the guideline update (odds ratio: 0.96; 95% CI: 0.94–0.97; p=0.001), and recurrence trends flattened in the months that followed.

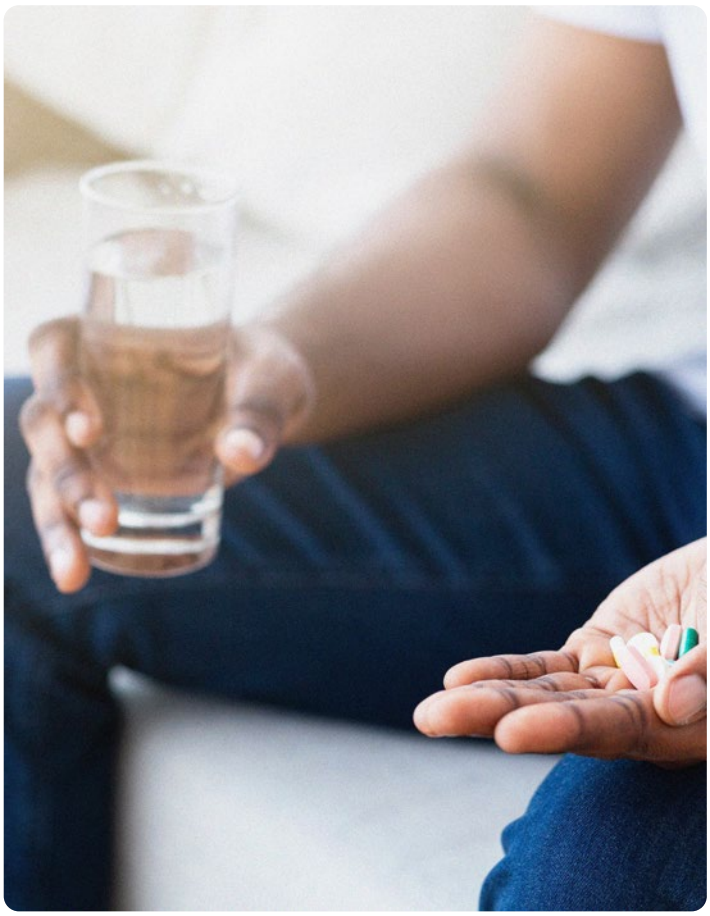
While hospital length of stay increased briefly after implementation, it declined significantly over time as practices stabilized. However, the financial impact was notable: total monthly CDI-related costs surged by nearly 20 million USD in the immediate post-guideline period, largely due to the higher costs of fidaxomicin and bezlotoxumab. Despite this, the study found no ongoing upward cost trend in the following years.

The authors concluded that adoption of the 2021 IDSA/SHEA CDI guidelines has led to fewer recurrences and improved care outcomes, but also emphasized the importance of addressing the economic burden associated with newer, higher-cost therapies. These findings underscore the balance between evidence-based advances and cost sustainability in infectious disease management.

Short Antibiotic Courses Safe for Newly Defined Uncomplicated Urinary Tract Infections

THE LATEST research presented at IDWeek 2025 suggests that shorter antibiotic courses may be just as effective, and potentially safer, for hospitalized patients with urinary tract infections (UTI) under the new Infectious Diseases Society of America (IDSA) definition of uncomplicated UTI.[10]

The forthcoming IDSA complicated UTI guidelines redefine complicated UTI as infections extending beyond the bladder, meaning that many patients previously classified as having complicated infections would now fall under the uncomplicated category. This reclassification expands the group of patients eligible for shorter antibiotic treatment durations, a shift that could significantly impact prescribing practices and antimicrobial stewardship nationwide.



Researchers analyzed data from 68 hospitals in Michigan, USA, collected between November 2021–November 2024, encompassing 13,784 hospitalized patients with UTI, of whom 1,854 met the new uncomplicated UTI definition. Using a target trial emulation framework and rigorous statistical adjustments, the study compared outcomes between patients receiving short (3–5 day) and long (6–14 day) antibiotic regimens.

Results showed no significant difference in 30-day recurrence rates between the two treatment durations (odds ratio: 0.73; 95% CI: 0.45–1.17). However, patients treated with shorter courses experienced fewer antibiotic-related adverse events (odds ratio: 0.33; 95% CI: 0.12–0.95). Common characteristics, including comorbidities and infection severity, were similar between groups, and ceftriaxone was the most frequently prescribed empiric antibiotic.

The findings reinforce growing evidence that short-course antibiotic therapy is both effective and safer for patients with UTIs that do not extend beyond the bladder. By minimizing antibiotic exposure without compromising efficacy, this approach could help curb adverse drug effects and reduce the risk of antimicrobial resistance.

The authors concluded that the results provide strong real-world support for shorter antibiotic durations in patients meeting the new uncomplicated UTI definition, aligning with the IDSA's evolving recommendations for optimized, evidence-based antimicrobial use.

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