

The Core Elements for Antibiotic Stewardship in Action

The HQIC collaborative group that includes Alliant, Compass, IPRO and Telligen appreciates your interest in the four-part Core Elements for Antibiotic Stewardship in Action webinar series. The following are the dates, titles and links to event materials for each session:

- [Leadership and Accountability | August 29, 2023](#) (Link)
- [Pharmacy Expertise and Action | September 19, 2023](#) (Link)
- [Tracking, Reporting and Education | October 24, 2023](#) (Link)
- [National Updates and Promising Practices | November 9, 2023](#) (Link)

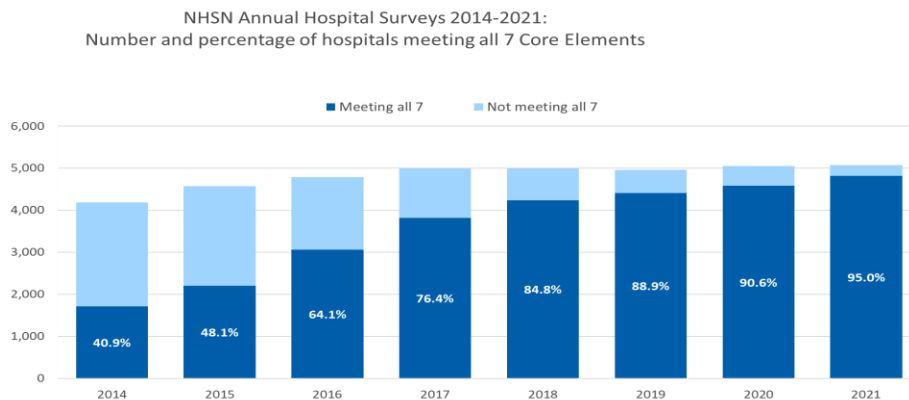
The Centers for Disease Control and Prevention's (CDC) core elements for hospital antibiotic stewardship (AS) were reviewed. Small, rural, and critical access hospital pharmacists, a CDC physician, hospitalist lead for a statewide AS medicine safety initiative and AS pharmacist lead for a health system shared strategies for actionable interventions. They also discussed ways to engage patients and families, and reviewed lessons learned that led to their success. Now, it is time to act!

Why Now

In November 2022, the CDC released their [Priorities for Hospital Core Element Implementation webpage](#) (Link) as supplemental guidance to help enhance the quality and impact of existing Antibiotic Stewardship Programs (ASPs). The [Priorities Table](#) (JPG) highlights highly effective implementation approaches and is supported by evidence and stewardship experts. Like the Hospital Core Elements, the uptake of the Priorities is tracked and reported through CDC's National Healthcare Safety Network (NHSN) and can be viewed on the [Antibiotic Resistance and Patient Safety Portal](#) (Link).

National Trends

Hospital Implementation of the CDC's 7 Core Elements for Antibiotic Stewardship



Consider Common Barriers and Solutions

Review common barriers identified during the webinar. Brainstorm ways to mitigate challenges to implementation.

- Lack of necessary resources from leadership
- Difficulty with identification of physician leader
- Information technology buy-in including data collection in electronic health record and capability to submit to NHSN
- Poor communication to next level provider, especially when there are differences in emergency health record (EHR) systems
- Prolonged duration of therapy related to provider un-ease moving from inpatient daily care to reduced intensity of care
- Lack of positive culture results, especially with pneumonia, confirming inpatient therapy was adequate for the causative pathogen

Perform a Root Cause Analysis

Complete the [CDC Hospital Antibiotic Stewardship Program Assessment Tool](#) (PDF) to identify your organization's opportunities for improvement.

Fill in the [Plan-Do-Study-Act \(PDSA\) Worksheet](#) (PDF) to identify your goal. Complete the PDSA cycle for test of change and improvement.

Craft Your AIM Statement

By (date), the team at (hospital) will implement (intervention) to improve (the problem) by (how much) to benefit (for whom).



Example: By January 2024, we will form a team and begin weekly duration of therapy audits and provide real-time feedback to providers, reducing the length of prescribing highly utilized antibiotics by 5%.

Implement Changes with Leading Interventions and Best Practices

Core Elements	Beginner	Intermediate	Expert
Leadership and Accountability	Identify a leader or champion and form a multidisciplinary team. (Link)	Complete the CDC's Core Elements of Hospital AS Programs Assessment Tool (PDF).	The Association for Professionals in Infection Control and Epidemiology Choosing Surveillance Technology Webpage (Link)
	Review and write AS responsibilities into pharmacist job description and physician/hospitalist contracts.	<ul style="list-style-type: none"> Agency for Healthcare Research Quality (AHRQ) Four Moments of Antibiotic Decision Making (Link) AS Policy (PDF) 	Gain technological support for reporting within the CDC's NHSN AUR Module (Link)
Pharmacy Expertise and Action	<ul style="list-style-type: none"> Society of Infectious Diseases Pharmacists MAD-ID AS Training Program (Link) 	Implement "antibiotic timeouts" performed daily by frontline clinicians for patients receiving antibiotics by utilizing the Minnesota Department of Health's 72-Hour Antibiotic Time-Out Sample Template (PDF)	Utilize the AHRQ's Concise Antibiogram Toolkit - Comprehensive Antibiogram Template (PDF) to develop an antibiogram for your facility and share with staff at least annually
	CDC's AS Course (Link)	<ul style="list-style-type: none"> AHRQ Gap Analysis Tool (Word Document) Case Management Planning Tool (Link) Social Determinants of Health Screening Human Resources Information Professional Tool (Link) 	CDC Flowchart - Healthcare Professionals: Be Antibiotics Aware at Hospital Discharge (PDF)
Tracking, Reporting and Education	Submit AUR through the CDC NHSN AUR or calculate defined daily dose (DDD) per the World Health Organization (WHO) Anatomical Therapeutic Chemical/DDD Guidelines (Link) for top 5 commonly used antibiotics. (e.g., ceftriaxone, azithromycin, vancomycin, piperacillin-tazobactam and fluoroquinolones.)	Monitor adherence to facility-specific treatment recommendations using AU data submitted to NHSN. See the CDC AU Option Case Examples webpage (Link) and sample Antibiotic Monitoring Form (Link) from Newman Regional Health.	Perform a medication use evaluation to assess courses of therapy for selected antibiotics (e.g., piperacillin-tazobactam, carbapenems, vancomycin, fluoroquinolones) to see if there are opportunities to improve use. Utilize the CDC and PEW Charitable Trust's Strategies to Assess AU to Drive Improvements in Hospitals Guide (Link).

	Distribute data and key messaging through staff newsletters and e-mails.	Share provider-specific reports with individual clinicians. <ul style="list-style-type: none"> Northeastern Health System (NHS) Antibiotic Guide (PDF) NHS Antibioqram (PDF) 	Prepare regular reports on the measures being tracked related to antibiotic Include these data as a standing report to key stakeholders within the facility, (e.g., pharmacy and therapeutics, patient safety/quality, medical staff leadership/committees and hospital board.)
	Incorporate antibiotic stewardship education into orientation for new medical, pharmacist and nursing staff and required annual provider educational programs. View the CDC Educational Resources for Healthcare Professionals webpage (Link) .	Integrate regular (e.g., monthly or at least quarterly) updates on antibiotic stewardship and resistance into communications tools. View the CDC Continuing Education and Informational Resources webpage (Link) .	Provide targeted in-person or web-based educational presentations and messages to key providers, pharmacists and nursing groups at least annually. View the CDC Treatment Recommendations for Common Illnesses and Penicillin Allergy webpage (Link) .
The Core Elements of Antibiotic Stewardship: National Updates and Promising Practices	The AS team actively engages with the Sepsis team to review sepsis protocol and order sets to ensure right antibiotics based on local formulary and statistics. Optimize your sepsis program with the CDC Hospital Sepsis Program Core Elements webpage (Link) .	Improve diagnosis of patient to improve antibiotic stewardship with asymptomatic bacteriuria. See A Statewide Quality Initiative to Reduce Unnecessary Antibiotic Treatment of Asymptomatic Bacteriuria (Link) .	Conduct data analysis of urinalysis and urine culture ordering for inpatient vs. Emergency Department and provide individualized education.

Incorporate Health Equity and Patient and Family Engagement

- Post and share patient education tools from the CDC's "[Be Antibiotics Aware](#)" (Link) campaign
- CDC's [Patient Resources and Education \(Link\)](#) regarding antibiotic resistance and appropriate use of antibiotics
- New York State Department of Health Video - [Educating Patients About Antibiotic Use \(Link\)](#)
- Interview patients with allergies and drug reactions. [Sample Form \(Link\)](#) from Newman Regional Health.

Seek Guidance

Not sure how to identify your organization's root cause? Need help getting started implementing your selected intervention? Seeking feedback on your AIM statement? Reach out to your HQIC clinical improvement consultant for assistance.

Additional Resources

Presentation slides:

- The HQIC Collaborative Group Antibiotic Stewardship Core Elements in Action Series:
 - [Session 1: Leadership and Accountability](#) | August 29, 2023
 - [Session 2: Pharmacy Expertise and Action](#) | September 19, 2023
 - [Session 3: Tracking, Reporting and Education](#) | October 24, 2023
- [CMS HQIC Community of Practice Call](#) | November 9, 2023

AHRQ Resources:

- [Toolkit to Improve Antibiotic Use in Acute Care Hospitals](#) (Link)
- [Antibiotic Time Out Tool](#) (PDF)
- [Team Antibiotic Review Form](#) (PDF)

CDC Resources

- Core Elements of Antibiotic Stewardship Programs webpage
 - [Core Elements of Hospital Antibiotic Stewardship Programs](#) (PDF)
 - [Priorities for Hospital Core Element Implementation](#) (Link)
 - [Implementation Resources for Hospitals](#) (Link)
 - [Implementation of Antibiotic Stewardship Core Elements at Small and Critical Access Hospitals](#) (Link)
 - [Antibiotic Stewardship Core Elements at Small and Critical Access Hospitals](#) (PDF)
- [Antibiotic Resistance Threats in the United States 2019](#) (Link)

WHO Resources:

- [2021 AWaRe Classification](#) (Link)
- [Priority Pathogen List for R&D of New Antibiotics](#) (Link)

Research:

- [Implementing an Antibiotic Stewardship Program: Guidelines by the Infectious Diseases Society of America and the Society for Healthcare Epidemiology of America](#) (PDF)
 Barlam, T.F., Cosgrove, S.E., Abbo, L.M., MacDougall, C., Schuetz, A.N., Septimus, E.J., Srinivasan, A., Dellit, T.H., Falck-Ytter, Y.T., Fishman, N.O., Hamilton, C.W., Jenkins, T.C., Lipsett, P.A., Malani, P.N., May, L.S., Moran, G.J., Neuhauser, M.M., Newland, J.G., Ohl, C.A., Samore, M.H., Seo, S.K., & Trivedi, K.K. (2016). Implementing an antibiotic stewardship program: Guidelines by the infectious diseases society of America and the society for healthcare epidemiology of America. *Clinical Infectious Diseases*, 62(10), 51-77. doi: 10.1093/cid/ciw118.
- [Identifying Higher-Volume Antibiotic Outpatient Prescribers Using Publicly Available Medicare Part D Data — United States, 2019](#) (Link)
 Gouin, K.A., Fleming-Dutra, K.E., Tsay, S., Bizune, D., Hicks, L.A., & Kabbani, S. (2022). Identifying higher-volume antibiotic outpatient prescribers using publicly available Medicare part D data — United States, 2019. *CDC Morbidity and Mortality Weekly Report*, 71(6), 202-205. doi: 10.15585/mmwr.mm7106a3external icon
- [Antibiotic Overuse After Hospital Discharge: A Multi-hospital Cohort Study](#) (Link)
 Vaughn, V. M., Gandhi, T. N., Chopra, V., Petty, L. A., Giesler, D. L., Malani, A. N., Bernstein, S. J., Hsaiky, L. M., Pogue, J. M., Dumkow, L., Ratz, D., McLaughlin, E. S., & Flanders, S. A. (2021). Antibiotic overuse after hospital discharge: A multi-hospital cohort study. *Clinical Infectious Diseases: An Official Publication of the Infectious Diseases Society of America*, 73(11), e4499–e4506. doi:10.1093/cid/ciaa1372
- Procalcitonin Guidance:
 - [Cleveland Clinic Journal of Medicine 1-Minute Consult: Can Procalcitonin Guide Decisions About Antibiotic Management?](#) (Link)
 Fakheri, R.J. (2019). Can procalcitonin guide decisions about antibiotic management? *Cleveland Clinic Journal of Medicine*, 86(5) 307-311. doi: 10.3949/ccjm.86a.18074
 - [A Retrospective Analysis of the Impact of a Hospital Pharmacist-led Procalcitonin Protocol](#) (Link)
 Cowey, C.K. & Wilson, E. (2021). A retrospective analysis of the impact of a hospital pharmacist-led procalcitonin protocol. *American Society of Health-System Pharmacists*, 79(4), 239-243. doi: 10.1093/ajhp/zxab413

Hospital Forms and Examples:

- [Phillips County Hospital's Infection Control Prevention Log \(PDF\)](#)
- “Drug Bug” [Bacteria Treatment Card \(Link\)](#) for urinary tract infections example from Boone County Hospital
- Hawarden Regional Healthcare Education and Guideline Examples:
 - [Management of C. Diff Infection Guidelines \(PDF\)](#)
 - [Cellulitis Treatment Antibiotic Guidelines \(PDF\)](#)
 - [Hospital-Acquired Pneumonia Guidelines: 2021 Update \(PDF\)](#)
 - [2022 Asymptomatic Bacteriuria Education \(PDF\)](#)
 - [Chronic obstructive pulmonary disease Exacerbation Guidelines \(PDF\)](#)