



Findings of the 2023 HAI and AU Prevalence Survey

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Patient Case Scenario



67 yr old man admitted to the medical unit.



On Day 1, patient had an indwelling catheter and peripheral IV placed.



Day 4: Patient develops fever of 38.5 C (101.3 F) and c/o new costovertebral angle pain.



Day 4: Urine culture grows $\geq 10^5$ CFU/mL of *Escherichia coli*.



Day 5: Blood culture drawn on Day 4 is positive for *Escherichia coli* and *Staphylococcus aureus*.

Patient Case Scenario



Patient also had a recent surgery at your hospital.



Nurse documents “cellulitis” on the incision site.



Are there any additional HAIs you would consider?

Objectives

01

Describe the importance of tracking HAIs

02

Provide overview of the 2023 HAI-AU prevalence survey and describe how it was implemented in Oregon

03

Share key findings from the national survey, as well as data from Oregon

04

Discuss the future of infection control and antimicrobial stewardship in Oregon and how we can support facilities

Why track HAIs and AU?

- Protect patient safety
- Improve quality of care
- Reduce costs and resource use
- Drive continuous improvement cycles
- Combat antimicrobial resistance
- Identify and correct misuse
- Guide policy and research



Overview of the HAI-AU prevalence survey

- Multi-phase point prevalence survey conducted in ten EIP sites (CA, CO, CT, GA, MD, MN, NM, NY, OR, TN)
- Hospitals chose a survey date between May and September 2023
- EIP team reviewed medical records of randomly selected inpatients on the chosen survey date
- EIP team documented antimicrobial use and determined HAI status using National Healthcare Safety Network (NHSN) definitions

Scope of project in Oregon

- 23 hospitals participated
- Data collection occurred between June 2023 – December 2023
- 1,571 patients were reviewed
 - Each patient assigned a unique CDC ID to protect privacy
 - Initial data collection included demographics, risk factors, antimicrobial use, hospital location, admission and discharge dates

I. Identifiers (NOT transmitted to CDC)		
Patient name: _____		Date of birth (mm/dd/yyyy): _____
Patient address: _____		City: _____ State: _____ ZIP: _____
Address type: (check one)		
☐ Residential	☐ Other	
☐ Post office box	☐ Insufficient	
☐ Long-term care facility	☐ Missing	
☐ Corrections		
☐ Military		
☐ Homeless		
Hospital name: _____		Hospital unit name: _____
Room number: _____		Medical record no.: _____

II. Demographic information	
Admission date (mm/dd/yyyy): _____	CDC location code: _____
Age: _____ yrs _____ mos _____ dys _____ Unknown	Primary Payer: ☐ No charge ☐ Medicare ☐ Medicaid ☐ Private insurance ☐ Self-pay
Ethnicity: (check one) ☐ Hispanic or Latino ☐ Not Hispanic or Latino ☐ Not Documented	Race: (check all that apply) ☐ American Indian or Alaska Native ☐ Other ☐ Asian ☐ Not Documented ☐ Black or African American ☐ Native Hawaiian/other Pacific Islander ☐ White
Sex at birth: ☐ Male ☐ Female ☐ Unknown	

III. Weight and height		
Weight: _____ lbs. _____ oz. OR _____ kg ☐ Unknown	Height: _____ ft. _____ in. OR _____ cm ☐ Unknown	BMI: (record only if height or weight unavailable) _____ ☐ Unknown ☐ NA

IV. Devices and pressure injuries/ulcers present on the survey date	
Urinary catheter: ☐ Yes ☐ No ☐ Unknown	Ventilator: ☐ Yes ☐ No ☐ Unknown
Central line: ☐ Yes ☐ No ☐ Unknown If "Yes," indicate how many lines: ☐ 1 line ☐ >1 line ☐ Unknown	
Pressure injury or ulcer: ☐ Yes ☐ No ☐ Unknown	
If "Yes" did any pressure injuries or ulcers develop after admission? ☐ Yes ☐ No ☐ Unknown	
Indicate the highest stage of the pressure injuries or ulcers on the survey date: ☐ Stage 1 ☐ Stage 2 ☐ Stage 3 ☐ Stage 4 ☐ Unstageable ☐ Unknown	

Scope of project in Oregon

- Additional review completed for patients on an antimicrobial
- Vancomycin IV, fluoroquinolones, CAP, and UTI triggered even *more* data collection!
- Data analyses is ongoing

Clinical information					
1. Check any of the following ICD-10 codes that were <u>present on admission</u> for this patient: ☐ None ☐ Unknown ☐ N10 ☐ N11.0 ☐ N11.1 ☐ N11.8 ☐ N11.9 ☐ N12 ☐ N15.1 ☐ N15.9 ☐ N16 ☐ N28.84 ☐ N28.85 ☐ N28.86 ☐ N30.00 ☐ N30.01 ☐ N30.10 ☐ N30.11 ☐ N30.20 ☐ N30.21 ☐ N30.30 ☐ N30.31 ☐ N30.40 ☐ N30.41 ☐ N30.80 ☐ N30.81 ☐ N30.90 ☐ N30.91 ☐ N34.0 ☐ N34.1 ☐ N34.2 ☐ N39.0 ☐ R82.71 ☐ R82.90 ☐ N41.0 ☐ N41.1 ☐ N41.2 ☐ B37.49 ☐ O23.00 ☐ Other (specify): _____					
2. UTI onset date (mm/dd/yy): _____ or _____ ☐ Prior to survey hospitalization but specific date unknown ☐ Unable to determine					
3. UTI signs and symptoms in first 2 hospital days; check all that apply: ☐ None ☐ Fever ☐ Frequency ☐ Costovertebral angle (CVA) pain or tenderness ☐ Nausea or vomiting ☐ Visible blood in urine ☐ Suprapubic pain, swelling or tenderness ☐ Urgency ☐ Abdominal pain ☐ Mental status changes or functional decline ☐ Rigors ☐ Urinary incontinence ☐ Pain or burning with urination					
4. Did the patient have an indwelling urinary catheter in place for ≥ 2 days on the day of UTI onset <u>or</u> on the day prior to UTI onset (or if onset date unknown, on the day of survey hospital admission)? ☐ Yes ☐ No ☐ Unknown					
4a. If yes, were any of the following done within 5 days after UTI onset date (or if onset date unknown, within 5 days after survey hospital admission)? ☐ Catheter changed ☐ Catheter removed ☐ Catheter neither changed nor removed ☐ Unknown					
Antimicrobial treatment					
5. Was the patient receiving antimicrobial treatment for this UTI before the survey hospitalization? ☐ Yes ☐ No ☐ Unknown					
6. Present-on-admission (POA) UTI treatment during the survey hospitalization: First date (mm/dd/yy): _____ or ☐ Unknown Last date (mm/dd/yy): _____ or ☐ Unknown					
7. Complete the table for all antimicrobial drugs given to treat POA UTI during the survey hospitalization:					
No.	Drug name*	First date (mm/dd/yy)	First route	Last date (mm/dd/yy)	Last route
1		☐ Unk	☐ IV ☐ IM ☐ PO ☐ INH	☐ Unk	☐ IV ☐ IM ☐ PO ☐ INH
2		☐ Unk	☐ IV ☐ IM ☐ PO ☐ INH	☐ Unk	☐ IV ☐ IM ☐ PO ☐ INH
3		☐ Unk	☐ IV ☐ IM ☐ PO ☐ INH	☐ Unk	☐ IV ☐ IM ☐ PO ☐ INH
4		☐ Unk	☐ IV ☐ IM ☐ PO ☐ INH	☐ Unk	☐ IV ☐ IM ☐ PO ☐ INH
5		☐ Unk	☐ IV ☐ IM ☐ PO ☐ INH	☐ Unk	☐ IV ☐ IM ☐ PO ☐ INH
More than 5 antimicrobial drugs were given to treat POA UTI: ☐					

Key Findings - HAI

- HAI prevalence has reduced since last survey!
 - 4.0% in 2011
 - 3.2% in 2015
 - 2.6% in 2023
- Pneumonia continues to remain the most common HAI
- Reduction in CLABSI and CAUTI infections
- Surgical site infections remain stable
- Patients were 26.9% less likely to have an HAI in 2023 compared with 2015
- Estimated national burden still exceeds 500,000 HAIs in US hospitals

HAI-AU Survey 2023 - Oregon vs All Sites

	Oregon	All Sites
Participating hospitals	23	218
Eligible patients surveyed	1571	13,653
Number of patients on ventilator	71 (4.5%)	671 (4.9%)
Number of patients with urinary catheter	218 (13.9%)	2,216 (16.2%)
Number of patients with at least one central line	202 (12.9%)	2054 (15.0%)
Patient outcome	63 (4%) died	534 (3.9%)
HAIs present	44 (2.8%)	355 (2.6%)
Predominant HAI type	GI 10 (23.3%) SSI 8 (18.6%) BSI 7 (16.3%) PNEU 5 (11.6%) UTI 5 (11.6%)	PNEU 102 (28.7%) SSI 82 (23.1%) GI 56 (15.8%) BSI 47 (13.2%) UTI 35 (9.9%)

Potential reasons for the decline

- Decrease in *C. difficile* infection
 - Change in testing practices
- Modification of NHSN definitions
- Better infection control and antimicrobial stewardship practices?



Key Findings – AU

- About one in two inpatients received an antimicrobial in 2023
- Ceftriaxone, vancomycin, and piperacillin-tazobactam were the most common antimicrobials
- Fluoroquinolone use declined from 9.2% to 2.8%
- Third- and fourth-generation cephalosporin use increased from 12.3% to 18.6%
- Prophylactic antimicrobials remain an area of improvement

Antimicrobial Use in Oregon

- 45% of patients in Oregon received or were scheduled to receive an antimicrobial agent on the survey date or the day prior
- 72% of antimicrobials used for treatment of active infection
- Oregon saw similar changes in fluoroquinolone (↓) and 3rd and 4th generation cephalosporin (↑) use
- IV vancomycin use stayed about the same (10%)



Final Thoughts



- We are on the right track!
 - All participating hospitals had at least some FTE dedicated to infection prevention (0.3-6 FTE)
 - All participating hospitals report they have a multidisciplinary team promoting appropriate antimicrobial use
- Data may be used as leverage to support antimicrobial stewardship and infection control activities
- You can contribute to public health knowledge!
- Other ways we can support (e.g. Infection Prevention Consults, Antibiotic Stewardship Honor Roll)

ORIGINAL ARTICLE

Health Care–Associated Infection Key Findings – HAI in U.S. Hospitals, 2023 versus 2015

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Open Forum Infectious Diseases

MAJOR ARTICLE



Antimicrobial Use in U.S. Hospitals: Comparison of 2015 and 2023 Prevalence Surveys

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Thank you!

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