



HEALTHCARE-ASSOCIATED INFECTIONS PROGRAM



Using the National Healthcare Safety Network Antimicrobial Use Option: A Case Study

HOAG MEMORIAL HOSPITAL PRESBYTERIAN
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The hospitals in the Hoag health network (Hoag Hospital Newport Beach, Hoag Hospital Irvine, and Hoag Orthopedic Institute) use the National Health Safety Network (NHSN) Anti-microbial Use (AU) Option to track and analyze their antimicrobial use data.

CASE STUDY: USING NHSN AU DATA TO IMPROVE ANTIMICROBIAL USE

Hoag sought to use NHSN AU to benchmark its usage data against other hospitals of similar size and type using the Standardized Antimicrobial Administration Ratio (SAAR). The SAAR is a risk-adjusted measure that compares actual versus predicted antimicrobial use. ASP staff use the SAAR to identify antimicrobials and locations in the hospital where usage exceeds what is predicted. Using the SAAR, Hoag determined that its usage of meropenem was higher than other comparable hospitals reporting to NHSN. Hoag developed clinical treatment guidelines for use of meropenem, reviewed order sets that recommended meropenem, and whenever possible recommended narrow spectrum antimicrobials. These activities contributed to a trended decrease in meropenem days of therapy over 12 months.

A NOTE ABOUT THIRD-PARTY SOFTWARE:

Although not required for NHSN AU reporting, third-party software can facilitate generating data in the appropriate format. In general, third-party software extracts and combines data from electronic health record (EHR), Admission Discharge Transfer (ADT), and electronic Medication Administration Record (eMAR) systems to conduct surveillance and produce reports.

IMPLEMENTING NHSN AU REPORTING: CREATING A BUSINESS CASE

Hoag purchased a third-party software platform to support their healthcare-associated infection surveillance efforts and antimicrobial stewardship program (ASP). Hoag infection control and pharmacy staff required senior leadership approval to justify the cost associated with purchasing a third-party software. Hoag created a business plan and demonstrated return on investment by reviewing how the third-party system would save time by automating antimicrobial stewardship reports.

Recommendations:

- Gain leadership approval early in the implementation process.
- Make a strong business case for the utility of monitoring antimicrobial usage.
- Collaborate with other hospitals that have implemented NHSN AU reporting using the same electronic health record platform. They may be able to offer valuable advice that will reduce the time and effort needed to implement AU reporting at your facility.

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ESTABLISHING A THIRD-PARTY SOFTWARE PLATFORM

Hoag's IT department worked closely with infection control staff over a period of approximately six months to implement the software, with support from the third-party software vendor. Hoag required two months to implement AU reporting to NHSN after implementing the third-party software.

Recommendations:

- Allocate resources from the infection control and IT departments for the software setup process and ensure buy-in and prioritization from both departments.
- If purchasing a third-party software system, anticipate 75% of time and effort will go towards software implementation and 25% will go to NHSN AU report setup.
- Confirm availability of technical support from any involved vendors and the NHSN Help Desk (nhsn@cdc.gov) prior to implementation.

VALIDATING AND VERIFYING AU DATA

After establishing the third-party software, Hoag IT staff validated the data were in the correct format, and verified the calculations and results were accurate. Staff verified the numerator (Days of Therapy) and denominator (Days Present) by comparing the results in the AU report against manual calculations. Staff also compared the aggregate AU report data against actual data from a selected unit. During verification of Days Present, staff found that their manual count did not match the output in the AU report. Hoag's financial system defined Days Present differently from NHSN. Hoag resolved this issue in the third-party software. Additionally, after verifying the facility-wide inpatient NHSN report,

staff found extra days in the Admission Days count. To resolve this discrepancy, Hoag manually entered Admission Days into the third-party software's interface each month to match the actual count until the vendor resolved the issue.

Recommendations:

- Verify that the calculations performed on data submitted to the NHSN AU Option are correct and that the data make logical sense, in addition to validating that the data are in the correct format.
- Account for differences in definition of locations and calculations (e.g., Days Present) between

NHSN AU AT YOUR FACILITY

Increasing numbers of hospitals nationwide use the NHSN AU Option to better understand their antimicrobial use patterns and identify targets for ASP intervention. Greater numbers of hospitals submitting AU data will improve the SAAR. To learn more about available resources for hospitals implementing the NHSN AU Option, email the HAI Program at haiprogram@cdph.ca.gov or visit www.cdph.ca.gov/hai.

Hoag is a nonprofit regional health care delivery network in Orange County, California. Hoag's two acute-care hospitals – Hoag Hospital Newport Beach and Hoag Hospital Irvine – offer a comprehensive mix of health care services that include five institutes providing specialized services in the following areas: cancer, heart and vascular, neurosciences, women's health and orthopedics through Hoag's affiliate Hoag Orthopedic Institute, which consists of an orthopedic hospital and two ambulatory surgical centers.