

# DEVELOPMENT AND IMPLEMENTATION OF A PROCEDURE-SPECIFIC INSTITUTIONAL PROTOCOL FOR SURGICAL PROPHYLACTIC ANTIBIOTICS

JC Gerancher, MD; John Williamson, PharmD; Chris Ohl, MD; Robert Sherertz, MD; Theresa Trivette, RN; Robert Couch, MS; Timothy Houle, PhD  
Wake Forest University Baptist Medical Center, Winston Salem, North Carolina

**Introduction:** While the selection and timing of prophylactic antibiotics for surgery moves toward a system-based approach<sup>1,2</sup>, most institutions and Operating Room Information Systems (ORIS) rely on individual health care provider preferences. We describe the development and implementation of a procedure-based institutional protocol for the administration of prophylactic antibiotics at Wake Forest University Baptist Medical Center (WFUBMC).

**Methods:** The change to an institutional protocol was initiated by the WFUBMC Center for Antibiotic Utilization, Stewardship, & Epidemiology (CAUSE)--a multiple disciplinary group from our infectious disease, pharmacy, and quality departments. Antibiotic assignments were made by CAUSE and incorporated into our ORIS's relational database (John Galt Systems, Winston Salem, NC). A new ORIS application (John Galt ProAnti) was developed as a dynamic link library (DLL). Completion of its guided user interface (GUI) was required in our Holding area, Regional area, Anesthesia, and PACU work flow. MSRA colonization status (Healthquest, McKesson Corporation, San Francisco CA) and allergy status (Centricity EMR, GE Healthcare, UK) were displayed via HL7 interfaces. Weight and age appropriate antibiotic dose was automatically populated, simultaneous documentation of a unique incision time was tied to antibiotic administration, and appropriate check boxes were included for documentation of variances. The application was set to 'pop up' initially upon starting the patient care record and then repeatedly for scheduled re-doses.

**Results:** Editing and review of the entire database for 2136 procedures took CAUSE 8 months during which time the new GUI and database were live. Upon completion of edits in 12/2010, no measured parameter for antibiotic administration showed a lower level of compliance than apparent in 2/2010 when the project began. Overall compliance was higher and incomplete documentation lower to a statistically significant degree:

Table 1: Antibiotic Non-Compliance by Month (%)

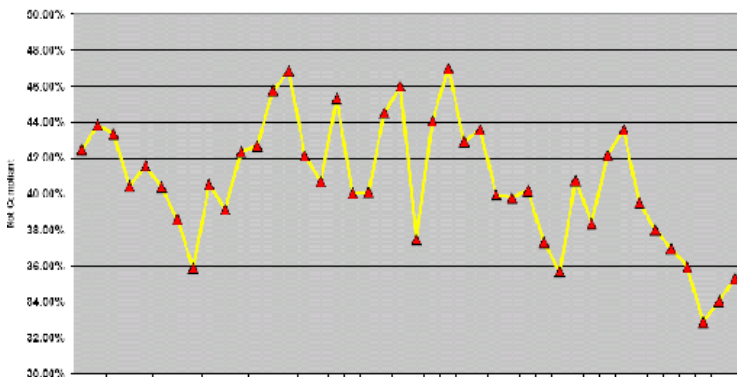


Table 2: Antibiotic Non-Compliance by Type

	2/2010	12/2010	95% CI
Given when none recommended	20%	17%	-1 to 7
None given when recommended	9%	6%	-1 to 5
Given when different recommended	10%	11%	-4 to 2
<b>Incomplete documentation</b>	<b>3%</b>	<b>1%</b>	0 to 3
<b>Overall non-compliance</b>	<b>42%</b>	<b>35%</b>	1 to 11
On-time delivery of antibiotic	98%	99%	-3 to 0
Number of patients/week	590	659	

**Conclusion:** Conversion from traditional provider preferences to procedure-specific institutional protocol was achieved with a statistically significant improvement in overall compliance. Although more complicated and obtrusive information was supplied to anesthesia providers, on-time administration remained high. At the time of this presentation, the future of this protocol is unclear as the institution considers lease of a commercial ORIS which supports only provider-specific preferences. A true systems-based approach might be better achieved by software supporting procedure-specific institutional protocols.

## References:

1. Bratzler DW, Houck PM. Antimicrobial prophylaxis for surgery: an advisory statement from the National Surgical Infection Prevention Project. *Am J Surg* 2005;189:395-404.
2. *CMS/TJC Specifications Manual for National Hospital Inpatient Quality Measures, Version 3.2 (2010)*. <http://www.jointcommission.org/PerformanceMeasurement/PerformanceMeasurement/Current+NHQM+Manual.htm>