

Centers for Disease Control and Prevention (CDC)/Partnership for Quality Care (PQC) Best Practices: Inpatient Antibiotic Stewardship Programs (ASP)

Organized by CDC's Core Elements for Hospital ASP

- 1. Leadership Best practice:** Utilize expertise at the flagship hospital to provide physician and pharmacy leadership throughout the health system.

Current practice: A physician and pharmacy leader is identified with more pharmacists designated than physicians. Geography (physical distance) as well as integration within and across health systems provides challenges; specifically issues arise from the inability to integrate across ambulatory clinics, nursing homes and rehabilitation facilities. There are insufficient ASP personnel to run ASPs effectively given the number of beds and the number of patients receiving antibiotics at any one time. When new ASP personnel are hired, there are no personal relationships in order to change prescribing habits.

- 2. Accountability Best practice:** Person held accountable for ASP is chosen by leadership.

Current practice: Person who is held accountable for ASP is often ID physician chosen by department. Hospital epidemiologist is held accountable for the ASP.

- 3. Drug Expertise Best practice:** Drug expert is an ID Pharmacist or pharmacist with specific training in antibiotic use and experience within the organization. Kaiser Permanente Northern California has developed training materials for clinical pharmacists not trained in ID to become ASP pharmacists.

Current practice: Drug expert is an ID Pharmacist or pharmacist who may or may not have relationships with providers within the organization.

- 4. Action Best practices:**

- Pre-authorization - a tiered restriction system adapted to level of personnel, expertise and resources available at each campus.
- Individual Provider Review - review the use of antibiotics by individual providers and reach out individually to discuss prescribing behaviors.
- Integrate stewardship with microbiology services:
 - Integrate microbiology services into daily and longitudinal stewardship activities, such as MALDI, multiplex viral PCR, *C. diff* testing, antibiotic susceptibility testing.
 - Provide stewardship in the laboratory where there is targeted discussion with providers based on their use of specific laboratory testing leading to antibiotic use.

Current practice:

- Perform prospective audit and feedback – 1-5x/week.
- Use clinical decision support systems to assist with bug-drug mismatches and IV to PO conversions, as well as positive blood cultures and acute changes in renal function
- It was noted that clinical decision support systems have too many alerts. It is difficult to determine what is real and what is not based on alerts only, and how to prioritize these alerts if the ASP is not staffed appropriately.

Comments: There is a need for more robust antibiotic time-out auditing. Maimonides reports that it is difficult to implement the antibiotic time-out without running the risk of antibiotics not being continued in patients who require therapy.

5. Tracking Best practices:

- Follow the acceptance of recommendations made by ASP
- Determine the appropriateness of antibiotics prescribed

Current practice:

- Follow drug cost by quarter and year for targeted drugs
- Most common measurement is Days of Therapy (DOT)
- Track resistance rates and *C. diff* rates
- Monitor high-yield broad spectrum antibiotics and try to minimize their use via medication utilization evaluations
- Follow antibiotic susceptibility (antibiogram) trends year-to-year

Comments: Most institutions have difficulty assessing appropriateness of antibiotics ordered without utilizing an ID consult on all patients receiving antibiotics. Jackson Memorial Hospital is considering a point prevalence study to determine overall appropriateness of antibiotics ordered.

6. Reporting Best practice:

- Report back to providers DOTs, results of MUEs on specific drugs and *C. difficile* rates

Current practice: Reporting back is not routinely done. Some hospitals passively distribute antibiograms within their hospital, sometimes separated by ICU and unit, to help guide appropriate empiric therapy.

7. Education Best practice:

- Hospital-wide educational programs and Grand Rounds
- Educational activities for trainees
- Information in resident and staff orientation packages
- Academic detailing

Current practice: Institutional guidelines order sets and power plans