

Comprehensive Antibigram Toolkit

Phase 4 Monitoring

It will be important to monitor the antibiogram program by (1) soliciting feedback from prescribing clinicians (physicians, nurse practitioners, physician assistants) and nursing home staff on ways to improve the usability of the antibiogram and (2) tracking the prescribing of different types of antibiotics. Infections and antibiotic use generally are monitored through the nursing home's infection-control log. Additional tracking of the use of broad- and narrow-spectrum antibiotics, and/or the appropriateness of certain antibiotics for particular infections, will provide input on the effect of the antibiogram program. Urinary tract infections and pneumonia are common nursing home infections, and they can be tracked readily through the nursing home's infection-control log. A key aim of monitoring is to track (1) the use of antibiotics with high levels of resistance as empiric antibiotics and (2) the use of broad- versus narrow-spectrum antibiotics.

Timeframe. Tracking the prescribing of antibiotics—either broad or narrow spectrum—for certain infections can begin during the planning and assessment phase to provide baseline information on prescribing practices. Continued tracking after implementation of the program may allow some estimation of the impact of the program. At staff meetings during the initial implementation, program champions should solicit prescribing clinicians' feedback on the antibiogram program. Formal evaluation of the antibiogram program should not occur until after prescribing clinicians have had sufficient experience using the antibiogram. This timeframe will depend on the number of residents at the nursing home, the number of prescribing clinicians, and the number of antibiotic prescriptions written. It is suggested that nursing home staff use the antibiograms for at least 6 months before being asked for formal feedback.

Action Checklist

Quality-Improvement Program

- Add monitoring of antibiotic prescribing patterns to the current quality-improvement program. The nursing home's infection-control program likely tracks and reports on a monthly or quarterly basis the numbers, types, and room locations of infections. Adding information on the use of broad- or narrow-spectrum antibiotics will require the advice of the nursing home's infectious diseases consultant (if available), the pharmacist, and/or the nursing home's medical director to identify the antibiotics in each category. Similarly, if treatment for specific conditions (e.g., urinary tract infections) is tracked, the determination of the "appropriate" antibiotics based on the nursing home's antibiogram will require input from the medical director or other physician experienced in interpreting the antibiogram.
 - Current evidence-based guidelines for treating common infections in nursing facilities should be consulted.^{1,2,3}
 - A sample antibiotic-prescribing tracking sheet is included in the Materials Included section of this chapter.

¹Furman CD, Rayner A.V, Tobin E P. Pneumonia in older residents of long-term care facilities. *Am Family Physician*. 2004;70(8):1495-1500. PMID:15526736.



Agency for Healthcare Research and Quality
Advancing Excellence in Health Care • www.ahrq.gov



- Guidelines for the appropriate use of antibiotics for pneumonia need to be developed locally. Nursing home staff can develop a list of appropriate and inappropriate antibiotics for pneumonia that is specific for the nursing home and based on recent guidelines.² This list should be developed in conjunction with the medical director, pharmacist, and infectious diseases consultant (if available).

Monitoring

- Solicit feedback from prescribing clinicians and nurses regarding use of the antibiogram. Develop a brief feedback tool similar to the initial survey used with prescribing clinicians, and administer it after several months of experience using the antibiogram. Surveys will need to be distributed (as hard copy or electronic via email), collected, and results tabulated. Results should be summarized and presented to the nursing home's Quality-Improvement Team and to the individuals on the Antibiogram Implementation Team. Modifications of the antibiogram will be decided by nursing home administration and members of the Antibiogram Implementation Team.
- A sample feedback survey is in the Materials Included section of this chapter.

Revisions to Antibiograms

The antibiogram should be updated regularly to reflect the needs of the nursing home staff and to incorporate new microbiological-susceptibility data. Suggestions about improving the format of the antibiogram can be solicited at regular intervals. The update schedule will depend on the size of the nursing home, volume of microbiological specimens sent to the laboratory, and willingness of the laboratory to generate new data. Because smaller sample sizes provide less reliable data, smaller nursing homes and those that send smaller numbers of microbiological specimens to the laboratory should plan to update less frequently than larger facilities, but the antibiogram should be updated at least annually. The same steps that were followed in developing the initial antibiogram should be followed when new data are incorporated. As the laboratory and the facility staff are now familiar with antibiograms, revisions and updates should require less work and little retraining.

Materials Included

Quality Assurance

- Antibiotic Use Tracking Sheet
- Quality-Improvement Review Tool for Antibiotic Use in Urinary Tract Infection

Monitoring

- Prescribing Clinician Feedback Survey

²American Thoracic Society and the Infectious Diseases Society of America. Guidelines for the management of adults with hospital-acquired, ventilator-associated, and healthcare-associated pneumonia. Official statement of the American Thoracic Society and the Infectious Diseases Society of America. *Am J Respir Crit Care Med.* 2005;171:388-416. PMID: 15699079.

³Nicolle LE, SHEA Long-Term Care Committee. Urinary tract infections in long-term-care facilities. *Infect Control Hosp Epidemiol.* 2001;22(3):167-175. PMID: 11310697.