

Comprehensive Antibigram Toolkit

Phase 3 Implementation

After the antibiogram has been developed, the nursing home team will need a plan for how the program will be introduced and sustained. Nursing home management should decide if a new policy is required; if so, this must be developed and communicated. Procedures to cover the roles and responsibilities of key staff as well as the multiple operational processes involved may be necessary. The procedures developed for the antibiogram program should serve as the foundation for implementing the program and will likely require input from all members of the antibiogram team (i.e., nursing staff, medical director, and administration). During the implementation phase, the antibiogram team will also develop a timeline for rolling out the antibiogram (if not already developed during the planning phase), training materials for clinical staff, training for all staff affected, and the initial implementation.

Timeframe. Preliminary work on program procedures should begin after the decision to move forward has been made but before the antibiogram is complete. The team will need to consider the nursing home's unique characteristics, needs, and resources to develop the new policy (if needed) and procedures. Training should be conducted just prior to implementation.

A sample timeline is included as part of Phase 1, Assessment and Planning.

Action Checklist

Policy and Procedures

- If a new policy is required, it should include a statement of the nursing home's commitment to quality care, the goal of the antibiogram, implementation of the program, and date of issue.
- Draft procedures should include a statement of the purpose and scope of the program, the identification of the person/position responsible for the procedure, the procedure itself, and the required documentation signed by the person authorizing the procedure. The draft procedures should cover:
 - Development of the antibiogram
 - Communication of the antibiogram to prescribing clinicians and hospital emergency departments
 - Training (initial and ongoing) for nursing staff and prescribing clinicians
 - Quality monitoring
- Management should arrange for a review of the policy (if developed) and procedures as well as make any revisions required.
- The date for the adoption of the policy (if developed) and procedures should be set and the policy and procedures communicated to prescribing clinicians and nursing home staff.
 - Draft a letter to prescribing clinicians that contains background information on antibiograms, the timeline for implementation, a copy of the policy and procedures, and plans for training sessions.



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- Check with the medical director to identify all prescribing clinicians who care for the nursing home’s residents as well as those who cover for regular prescribing clinicians to arrange for training on the use of antibiograms.
- Inform nursing (and nursing support) staff of the new policy/procedures at a regular staff meeting (or through whatever means the nursing home uses to communicate to the nursing staff). Arrange time for a nursing in-service training on antibiograms and the new procedures that will be employed. It is expected that this training on the policies and procedures will require 10 minutes.
- Develop training materials (see below) and handouts that can be used by shift supervisors to reach all staff.
- Sample policy and procedure documents are in the Materials Included section of this chapter.

Development and Delivery of Training Materials

- Antibiogram training should be delivered as in-person educational sessions. Presenters may include the nurse educator and/or the infection-control nurse to train the nursing staff, and the medical director to train the prescribing clinicians (physicians, nurse practitioners, or physician assistants). Opportune times to hold a training session include during in-service training for nurses and during monthly staff meetings for prescribing clinicians.
- The training sessions should be scheduled after program development and creation of new policy and procedures (if needed) and before program implementation. Inclusion of the following materials is recommended for use during nurses’ and prescribing clinicians’ training sessions.

Factsheet

- The training materials for both the nursing staff and/or the prescribing clinicians should include a one-page factsheet to introduce the antibiogram program. The factsheet should briefly describe what an antibiogram is, how it will be created, and why it is important. It should also mention the potential impact of implementing the program.
- A sample factsheet is included as part of Phase 1 and are in the Materials Included section of this chapter and Phase 1 for your convenience.

PowerPoint Presentation

- Training materials should also include an in-person, step-by step, detailed presentation of the antibiogram program specific to the nursing home. As this presentation is the backbone of the training session for both nurses and prescribing clinicians, it should be presented in a clear and organized manner. We recommend that the trainer (e.g., nurse educator for nursing staff, medical director for prescribing clinicians) organize and deliver the detailed description of the antibiogram program as a PowerPoint Presentation. The content of the presentation should include a discussion of the “what and why” of antibiogram use and instructions on how to read and utilize the nursing home-specific antibiogram report. If new policy and procedures have been developed for this program, communication of these can be included in the PowerPoint presentation. The trainer should allow approximately 30 minutes (40 minutes if new policy and procedures are included) to present the material, including answering any questions.
- Sample nurse and prescribing clinician PowerPoint presentations are in the Materials Included section of this chapter.

Nursing Home Vignettes

- The final recommended component of the training materials is a series of four vignettes that serve as a learning tool for prescribing clinicians. The vignettes describe common nursing home clinical situations that prescribing clinicians may face in the nursing home setting. The prescribing clinicians are presented with the vignettes and asked to make clinical prescribing decisions based on the information. Then they are asked to discuss their rationales for the antibiotic-prescribing decisions that they made. Later, prescribing clinicians are presented with the same vignettes, but in the second round, they are asked to refer to an antibiogram when making their clinical-prescribing decisions. Again, they are asked to discuss their prescribing decisions. They can be asked to discuss the difference in their decisionmaking based on the use of the antibiogram. Two of these vignettes are included in the Training Slides for prescribing clinicians. They are provided here for use as worksheet handouts.
- Sample vignettes and discussion questions are in the Materials Included section of this chapter.

Dissemination of the Antibiogram

Nursing Home Web Site

- If the nursing home has a Web site or Intranet, uploading an image of the most current antibiogram ensures that prescribing clinicians and nurses have a permanent, accessible place to find relevant nursing home information before prescribing antibiotics to a resident. It also allows nursing home directors to provide the Web site hyperlink when they send periodic emails to prescribing clinicians reminding them of the antibiogram, or when they send the newest version of the antibiogram. One issue to consider is whether to post the antibiogram on the nursing home's external Web site or internal Intranet. As the antibiogram does not contain identifiable residents' information, there is no restriction to placing it on an external Web site. In addition, having it on an external Web site will allow offsite prescribing clinicians, such as on-call prescribing clinicians and emergency department physicians to access the antibiogram. While every nursing home's Web site employs different Web styles and themes, the recommendations listed below can assist in making the Web site antibiogram operate most effectively. Consider the following when disseminating the antibiogram on the nursing home's Web site:
 - Devote a specific Web page to the antibiogram so that it is not lost among other information.
 - Include a link on the main page of the nursing home's Web site or, if you have one, the employees' homepage so that the link is prominent and easy to find.
 - Include a hyperlink to the antibiogram Web page that is easy to remember. For instance, [http://www.\[ournursinghomesite\].com/antibiogram](http://www.[ournursinghomesite].com/antibiogram). This link could be especially useful if an emergency department physician needs to locate your nursing home's antibiogram.
 - Upload the antibiogram as an image, in a PDF, rather than as a table that is posted directly on the Web site in html form. This format will allow greater flexibility in sizing and pose fewer formatting differences across computer screens.
 - Left-align the antibiogram Web page. If the Web site uses a side menu bar on the left side of the screen, remove it if possible to enable seeing the entire antibiogram without scrolling left and right. If the left side menu cannot be removed, consider splitting the tables to enable the reader to see the antibiogram without scrolling left to right (see pocket card for possible formatting).

- Offer the option to download a copy of the antibiogram from the Web site. Having a download link for a PDF version allows prescribing clinicians or nurses to save the antibiogram to their computer or print off a hard copy, giving them access to information offline. Some facilities may find that having a direct-link URL for antibiogram downloads is a better option than creating and formatting a Web page that displays the antibiogram on the page.
- Include a copy of the antibiogram factsheet on the Web site.

Pocket Card

- Antibiogram information can also be distributed as a pocket card for prescribing clinicians to carry. Pocket cards should be printed on heavy paper or cardstock for durability. Nursing home staff may elect to produce and share a short version of the antibiogram pocket card in which the antibiogram alone is presented. Because it contains only the report itself, this version can be produced as a credit-card size card with only one fold. However, the details and explanation of the antibiogram are not included on the short version and would have to be referenced elsewhere. Alternatively, nursing home staff can produce and share a long version of the pocket card that includes the antibiogram as well as detailed information about the report. This version is also produced as a credit-card size card but requires two folds. The detailed information that is contained on the long version of the pocket card will be filled in by the nursing home and be specific to the antibiogram that appears on the pocket card.
- Short and long versions of sample pocket cards are in the Materials Included section of this chapter.

Email

- Emails should be sent to all prescribing clinicians at regular intervals to remind them that the nursing home has implemented the antibiogram program. The email should include the antibiogram as an attachment, as well as a hyperlink to the nursing home antibiogram Web page if one has been created. A high-priority email should be sent when a new antibiogram is available (often annually) with the message indicating that the old antibiogram should be discarded and replaced with the new antibiogram.
- Information that should be conveyed in the email to prescribing clinicians includes:
 - Nursing home name
 - Period for which the antibiogram is valid
 - Description of the antibiogram
 - Contact person at the nursing home
 - Links (if applicable) for Web and/or mobile download URL
- A sample email to prescribing clinicians is in the Materials Included section of this chapter.

Smart Phone Application

- A smart phone application would allow prescribing clinicians to access the antibiogram on their cellular phones and provide them with a convenient way to access the nursing home’s aggregated antibiotic data.

Smart phones are increasingly used by prescribing clinicians at nursing homes and hospitals. However, no one particular platform is valid across all cellular phones (i.e., Android, iPhone, or BlackBerry). Descriptions follow of three options currently available for smart phone applications.

- SMS application. An SMS application would allow the assigned nursing home staff to text a specific URL with a brief message to the appropriate prescribing clinician. The URL downloads the antibiogram directly as a PDF, instead of directing one to a Web site. Prescribing clinicians using smart phones would select the URL in the text, and the PDF would download and open. This would require: (1) posting the PDF on a Web site /Web page, (2) compiling and posting a list of prescribing clinicians' cell phone numbers, and (3) preparing a standard, brief (<140 characters) message, inclusive of the URL, to send to the prescribing clinician, e.g., "Please review the Shady Groves Nursing Home antibiogram here: <http://www.shadygroves.com/ab.pdf>." Although this application has a relatively small start-up and operating cost, involving only the cost of sending and/or receiving messages, it may not be the most efficient or effective way to send this information to the prescribing clinicians.
- Downloadable application. A downloadable application (app) is another possible method for disseminating the antibiogram to clinical providers. Although our research found that developing a downloadable app to accommodate the antibiogram is feasible, it is not a practical approach for the vast majority of nursing homes. The cost to build an app is significant (\$3,000–\$10,000), and a separate system must be built for every mobile operating system (e.g., Blackberry, iPhone). Practical limitations should be considered; for example, app software becomes obsolete as soon as the smart phone software is upgraded, thus requiring more resources to upgrade.
- Mobile browser-enabled Web page. A mobile browser-enabled Web page is formatted specifically to enable viewing on the screen of an Internet-ready cellular phone. The general recommendations for a Web page also apply to a Web page formatted for cellular phones. Whether the nursing home posts the antibiogram on the Web page or offers a URL for direct PDF download, the table will need to be sized for optimal viewing on a cellular phone. When considering the size of the table (and the formatting necessary), note that the size and quality of smart phone screens vary by vendor and model. It is recommended that rather than posting the antibiogram to the Web page, the nursing home create a URL for direct downloads. Having a direct download will allow prescribers to view the antibiogram offline; this method will save staff from having to format the antibiogram and upload it to the mobile browser-enabled Web page.

Posting Hard Copies

- Antibiograms should be posted in the nursing home in convenient locations so as to be easily accessible when nurses call the prescribing clinicians to discuss residents' treatment. It is recommended that hard copies of antibiograms be printed on color card stock, easily distinguishable from other reference documents, and be laminated for durability. To reduce confusion over versions of the antibiogram, it is recommended that updated antibiograms be printed on a different color card stock than the previous version. It may helpful to document the locations of where the antibiograms are posted so that old copies can be replaced as new versions are created.

- The following are options for where hard copies can be placed throughout the nursing home:
 - By each phone in each nurses' station
 - At the front of every Medication Book
 - In front of the prescribing clinician's orders section of the medical record
 - Stapled to the referral forms that accompany residents when they are transferred to the emergency department

Materials Included

Policy and Procedures

- Sample Policy Document
- Sample Procedures Document

Training Materials

- Antibigram Factsheet
- Training Slides for Prescribing Clinicians
- Training Slides for Nursing Home Nurses
- Sample Vignettes and Discussion Questions

Dissemination Materials

- Sample Pocket Card, Short Version
- Sample Pocket Card, Long Version
- Sample Email for Distribution of the Antibigram