

Department of Veterans Affairs

Antibiogram 2.0

Antibiogram Expansion Mobile Application

User Guide



September 2014

Version 2.0

Revision History

Note: The revision history cycle begins once changes or enhancements are requested after the document has been baselined.

Date	Version	Description	Author

Artifact Rationale

A User Guide is a technical communication document intended to give assistance to people using a particular system. It is usually written by a technical writer, although it can also be written by programmers, product or project managers, or other technical staff. Most user guides contain both a written guide and the associated images. In the case of computer applications, it is usual to include screenshots of the human-machine interface(s), and hardware manuals often include clear, simplified diagrams. The language used is matched to the intended audience, with jargon kept to a minimum or explained thoroughly. The User Guide is a mandatory, increment-level document, and should be updated to reflect the contents of the most recently deployed increment.

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1. Introduction

This document provides an overview of the continuous development and evolving functionality of the Antibigram mobile application. The Antibigram application is a web-based application developed to provide Department of Veteran's (VA) medical staff with readily accessible antibiotic resistance data from any VA facility.

1.1. Purpose

The User's Guide is authored by LongView International and Technology, Inc. for the purpose of capturing and describing the capabilities of the mobile application developed. The User Guide provides guidance and clarification regarding the functionality of the mobile application, as well as identifies the important features and familiarizes users with the navigational elements of the Antibigram 2.0 application.

1.2. Overview

Currently, VA Providers use static Portable Document Format (PDF) antibiogram reports, either as hard copies or stored on their desktops, to view a specific facility's antibiogram data. With the PDF, providers are not able to search, filter, or manipulate any of the report data to view the information they want to see. Additionally, antibiogram data changes of time and there is no visual representation of data available with static PDF in comparison to the functionality this mobile application will provide. As a result, the Veterans Health Administration's (VHA) Clinical Public Health Group requested the development of a robust mobile application containing antibiogram data to discourage users from viewing old, outdated antibiogram reports. The Antibigram mobile application assists Department of Veterans Affairs (VA) medical staff by providing the capability for VA Providers to search for and share information related to antibiotic drugs, as well as identify restrictions and patterns at their local facilities.

Antibiogram 2.0 is a stand-alone app that integrates and expands upon the core functionality of the original Antibigram 1.0 application. Antibigram is a web-based application developed to provide Department of Veteran's (VA) Medical staff with facility-level Antibigram data, specifically the facility data used to estimate the likelihood that certain organisms are susceptible to specific antibiotics. Antibigram 2.0 has evolved to provide the ability to express the Antibigram data using nationally recognized reference and authoritative terminology standards (e.g., Logical Observation Identifiers, Names and Codes (LOINC), and Systemized Nomenclature of Medicine – Clinical Terms (SNOMED CT), as well as advanced filtering features to allow for aggregate, consolidated, and expansive search results. Antibigram 2.0 also allows the user to select a default facility to persist throughout the application.

1.2.1. Antibigram 2.0 Functionality

At a high level, Antibigram 2.0 provides the following capabilities:

1. A VA Provider using the Antibigram app can select a filter to view antibiotic susceptibility as a percentage or as a ratio, where the numerator expresses the number of susceptible isolates and the denominator expresses the total number of tested isolates for a given bacteria and antibiotic treatment.
2. A VA Provider using the Antibigram app can see Antibiotic resistance data over the past 12 and 24 months.

3. A VA Provider using the Antibigram app can enter a name directly, or use the interactive search panel to filter results for the facility in context by Gram Positive Cocci, Gram Negative Rods, Gram Positive Rods, and Gram Negative Cocci.
4. A VA Provider using the Antibigram app can select an option to display only common species at an aggregate (parent) level consistent with CLSI standards for the facility and search filter in context.
5. A VA Provider using the Antibigram app can select an option to display all species and organism rollup data for the facility and search filter in context.
6. A VA Provider using the Antibigram app can select a search option to suppress or display low isolate data for the facility and search filter in context.
7. A VA Provider using the Antibigram app will have an option to select and change a default facility that will persist throughout the application.
8. A VA Provider using the Antibigram app will be able to share facility-level Antibigram data (in PDF) using the inherent features of the local device.
9. The Antibigram 2.0 application will map to and display the data using nationally recognized reference and authoritative terminology standards such as LOINC and SNOMED codes stored within the CDW.

1.3. Project References

The following documentation was leveraged for the creation of this User Guide:

- Antibigram 2.0 Concept Paper
- Antibigram 2.0 BRD
- Antibigram Technical Design

1.3.1. Stakeholders Information

Type of Stakeholder	Description	Responsibilities
Requester	Kathleen L. Frisbee, Co-Director, Connected Health	Submitted request. Submits business requirements. Monitors progress of request. Contributes to BRD development.
Business Owner(s)/Program Office(s)	Richard Martinello, M.D., Chief Consultant, Clinical Public Health Group Shaman Singh, M.D. Dr., Clinical Lead, Connected Health VHA Office of Informatics and Analytics	Provide final approval of BRD with sign-off authority. Provide strategic direction to the program. Elicits executive support and funding. Monitors the progress and time lines.
Business Subject Matter Expert(s) (SME)	David Ross, M.D., Director, HIV/HCV and Public Health Pathogens Program	Provide background on current system and processes. Describe features of current systems, including known problems. Identify features of enhancement.

Type of Stakeholder	Description	Responsibilities
Technical SME(s)	[REDACTED]	Provide technical background information about the current software and requested enhancements.
User SME(s)	[REDACTED]	Ensure that the enhancements will account for current business processes and existing software capabilities.
Internal App Owner	[REDACTED]	Manage contractual requirements and expectations, and provide final approval of internal development and concept paper submission.
Internal Product Owner	[REDACTED]	Capture all core, remediation, and future Develop App Concept Paper, incorporating all core, remediation, and future requirements and functionality to be developed.
Internal Technical Lead	[REDACTED]	Oversee and facilitate all technical requirements and functionality.

1.3.2. Coordination

This application required extensive coordination among all parties involved. Once buy-in was obtained, and the application was approved from all necessary parties, the Agilex/Longview product and development teams met internally, as well as held weekly status meetings with the user and technical SMEs to incorporate their feedback along the way. Upon integration into the MAE environment, the application will run through a formal Compliance process inclusive of SQA, Compliance review, and V&V. Once the appropriate approvals have been granted, the application will move through a pilot phase prior to national release. This will need to be a collaborative effort along the way to ensure a seamless transition of Antibioqram 2.0 into production.

1.3.3. Help Desk

Technical Help Desk support for the application shall be provided for users to obtain assistance with the mobile application.

Help Desk Contact Information	
VA Help Desk	1-855-673-4357

1.4. Organization of the Manual

This User's Manual consists of the following sections:

1.4.1. Background and Overview of the application

This section provides insight into why this application may be helpful, the background of the application and an overview of its intended functionality.

1.4.2. System Summaries and Dependencies

This section provides a general system overview and outlines the system uses in supporting the activities of the user and staff. This section also lists any known dependencies to-date.

1.4.3. Antibigram 2.0 Functionality

This section provides screen shots and a high level overview of each feature within the application.

1.4.4. Use Case

This section provides a use case of how Antibigram 2.0 will be helpful in real-world scenarios.

1.4.5. Troubleshooting

This section provides direction on how to report feedback or issues encountered.

1.5. Acronyms and Abbreviations

Term	Definition
BRD	Business Requirements Document
CDW	Corporate Data Warehouse
CPRS	Computerized Patient Record System
IOC	Initial Operating Capability
ISO	International Organization for Standardization
M.D.	Medical Doctor
OIT	Office of Information and Technology
OM	Operations and Maintenance
PDF	Portable Document Format

Term	Definition
RTM	Requirements Traceability Matrix
SME	Subject Matter Expert
SSO	Single Sign On
UI	User Interface
VA	Department of Veterans Affairs
VHA	Veterans Health Administration
VistA	Veterans Health Information Systems and Technology Architecture
VP	Virtual Private Network

2. System Summary

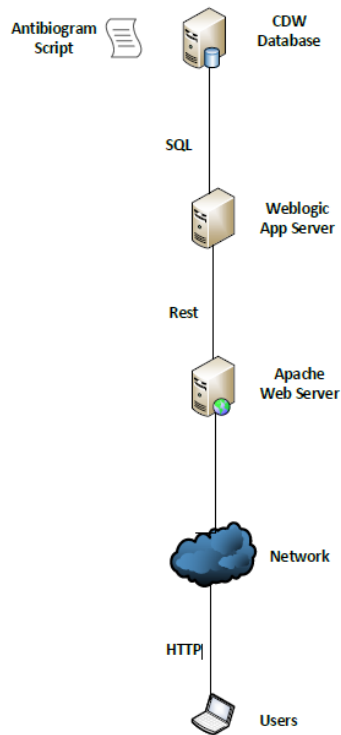
This section provides a general system overview and outlines the system uses in supporting the activities of the user and staff.

2.1. Dependencies

- The currency of the information will be limited by the currency of the information from the VA source system.
- This application will require a stable, secure, mobile platform that allows for easy access from government issued mobile devices to existing VA resources and infrastructure.
- The primary and secondary stakeholders should be available for further functional and non-functional requirements definitions as well as for user feedback during development.
- Compatibility with the security profile issued by the OneVA EA ETA-compliant MDM.
- A major dependency for successful development and implementation of this mobile application is for VA to have an OIT approved Mobile Governance Board.
- Maintenance of the Antibioqram structure will need to be manually executed using a script.

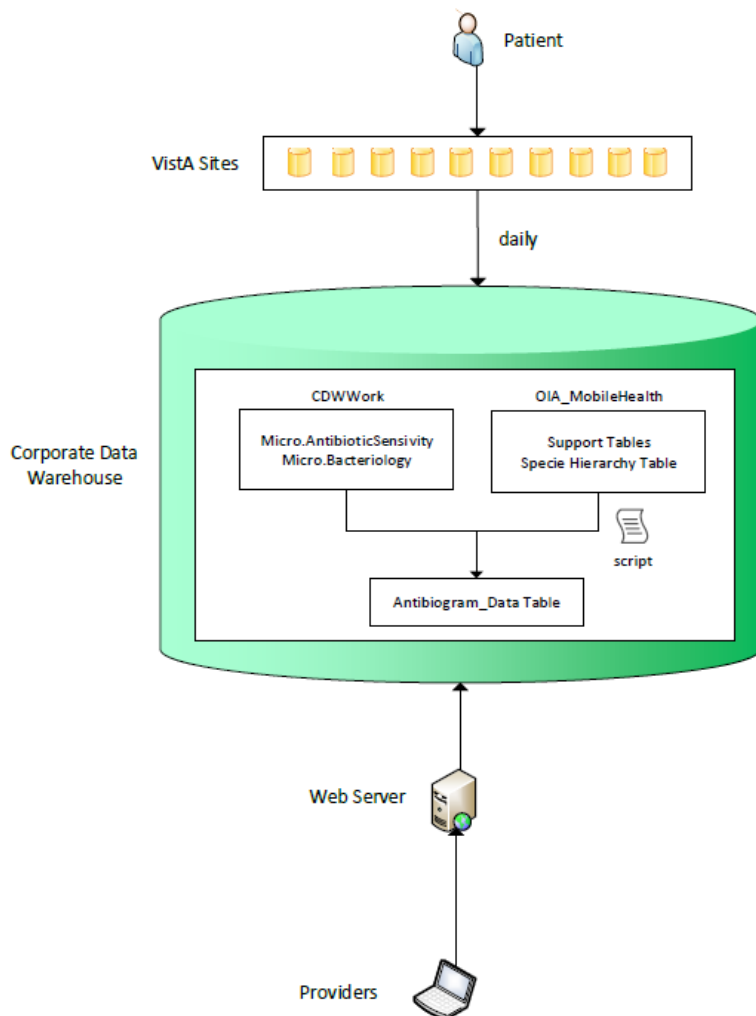
2.2. System Configuration

Antibiogram 2.0 Architecture



The Weblogic App Server pulls the antibiogram backend data needed for Antibiogram 2.0 from the CDW Database created using a series of scripts. The Apache Web Server makes a call to the Weblogic App Server to populate the data from the backend to be seen in the front end. When the end user launches the application from their browser or phone, the Antibiogram 2.0 application is displayed.

2.3. Data Flows



The data originates from VistA in the form of microbiology lab results that records if the organism was resistant or sensitive to a particular antibiotic. A set of SQL scripts pulls the necessary antibiogram data from CDWork tables and OIA_MobileHealth tables to populate the Antibigram_data table from which Antibigram 2.0 pulls. When the end user launches the application from a browser, Antibigram 2.0 will be displayed.

2.4. User Access Levels

The table below outlines the different users, user responsibilities, and respective access to the system:

User	Description	Responsibilities	System Access
------	-------------	------------------	---------------

Providers including Doctors, Physician Assistants, Nurse Practitioners, and Occupational Health Providers	Clinical care providers with the authority to prescribe medications to patients	Use antibiogram data to decide which antibiotic(s) will be best to prescribe for a particular patient	Read-Only
Nurses	VHA staff who provide a broad spectrum of care to patients but may not have prescribing authority	View antibiogram data for awareness of prevalence of drug resistant bacteria in their healthcare environments	Read-Only
Pharmacists	VHA staff who work in pharmacies to ensure the safe and effective prescribing, distribution, and use of medications	<ul style="list-style-type: none"> Collaborate with care providers to help decide which antibiotic(s) will be best to prescribe for a particular patient Use antibiogram data to make formulary selections (usually through a facility's Pharmacy and Therapeutic Committee) 	Read-Only
Quality Assurance Managers / Quality Managers	VHA staff who monitor and control the quality of clinical care and outcomes in facilities	<ul style="list-style-type: none"> Understand the trends and prevalence of antibiotic resistance Collaborate with other users to improve antibiotic prescribing 	Read-Only
System Administrators	VHA facility staff who serve as primary resources overseeing technical and functional operation of IT resources	Maintain upkeep, configuration, and reliable operation of the application as needed	Read-Only
Microbiology Lab Staff	VHA staff who work to produce antibiogram data	Ensure that all data is accurately represented and up to date in the app	Read-Only

3. Getting Started with Antibiogram 2.0

The following section provides an overview of the system functionality from initial logon through log off of the application.

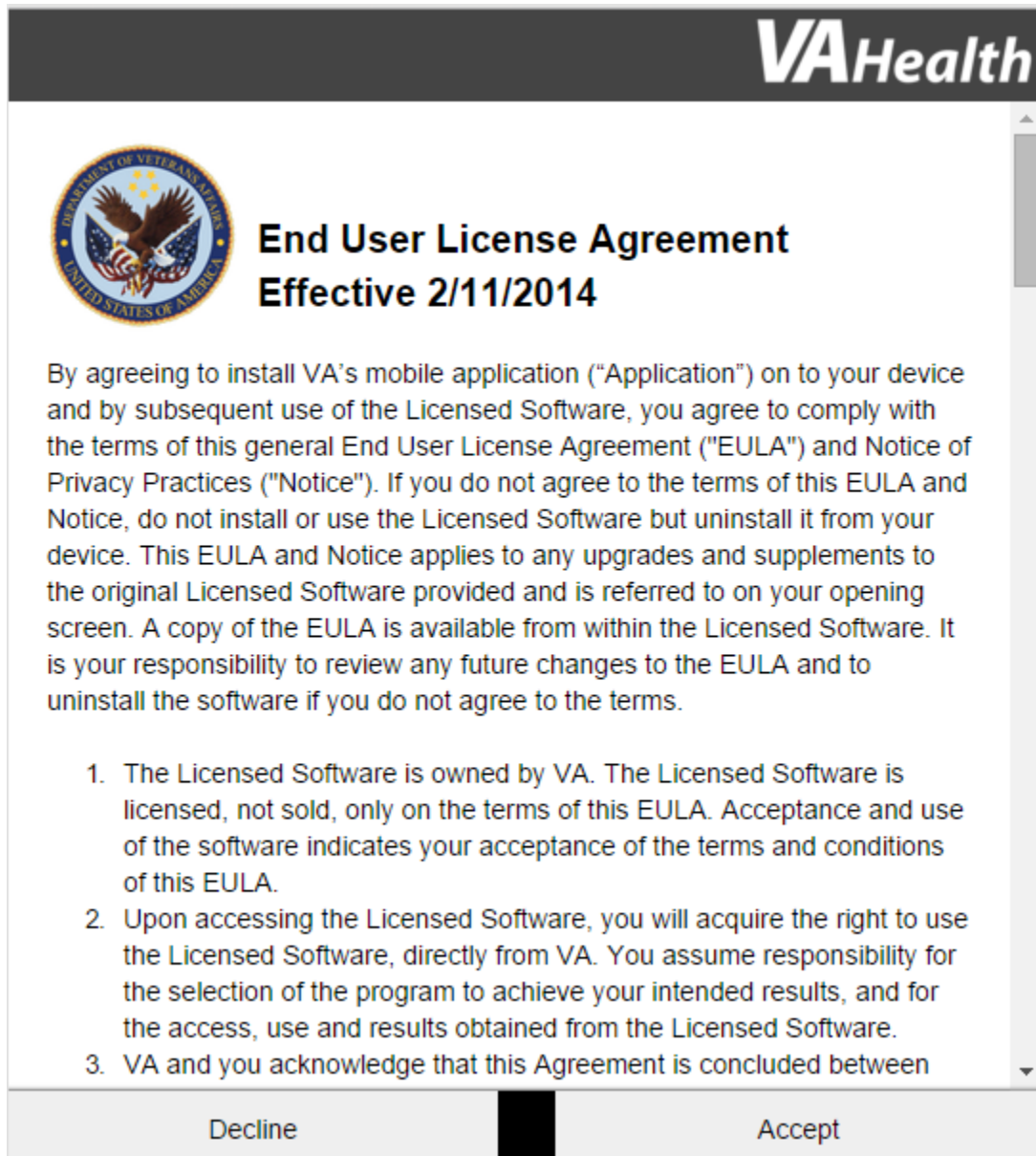
3.1. Logging On

No authentication is required for Antibiogram 2.0. The Antibiogram application is a stand-alone app that can be accessed from the LaunchPad.


3.2. System Menu and Modules

3.2.1. End User License Agreement

Upon launching the Antibioqram application from the LaunchPad, the user will be prompted to accept an End User License Agreement before proceeding to the home page of the application.



VAHealth



End User License Agreement
Effective 2/11/2014

By agreeing to install VA's mobile application ("Application") on to your device and by subsequent use of the Licensed Software, you agree to comply with the terms of this general End User License Agreement ("EULA") and Notice of Privacy Practices ("Notice"). If you do not agree to the terms of this EULA and Notice, do not install or use the Licensed Software but uninstall it from your device. This EULA and Notice applies to any upgrades and supplements to the original Licensed Software provided and is referred to on your opening screen. A copy of the EULA is available from within the Licensed Software. It is your responsibility to review any future changes to the EULA and to uninstall the software if you do not agree to the terms.

1. The Licensed Software is owned by VA. The Licensed Software is licensed, not sold, only on the terms of this EULA. Acceptance and use of the software indicates your acceptance of the terms and conditions of this EULA.
2. Upon accessing the Licensed Software, you will acquire the right to use the Licensed Software, directly from VA. You assume responsibility for the selection of the program to achieve your intended results, and for the access, use and results obtained from the Licensed Software.
3. VA and you acknowledge that this Agreement is concluded between

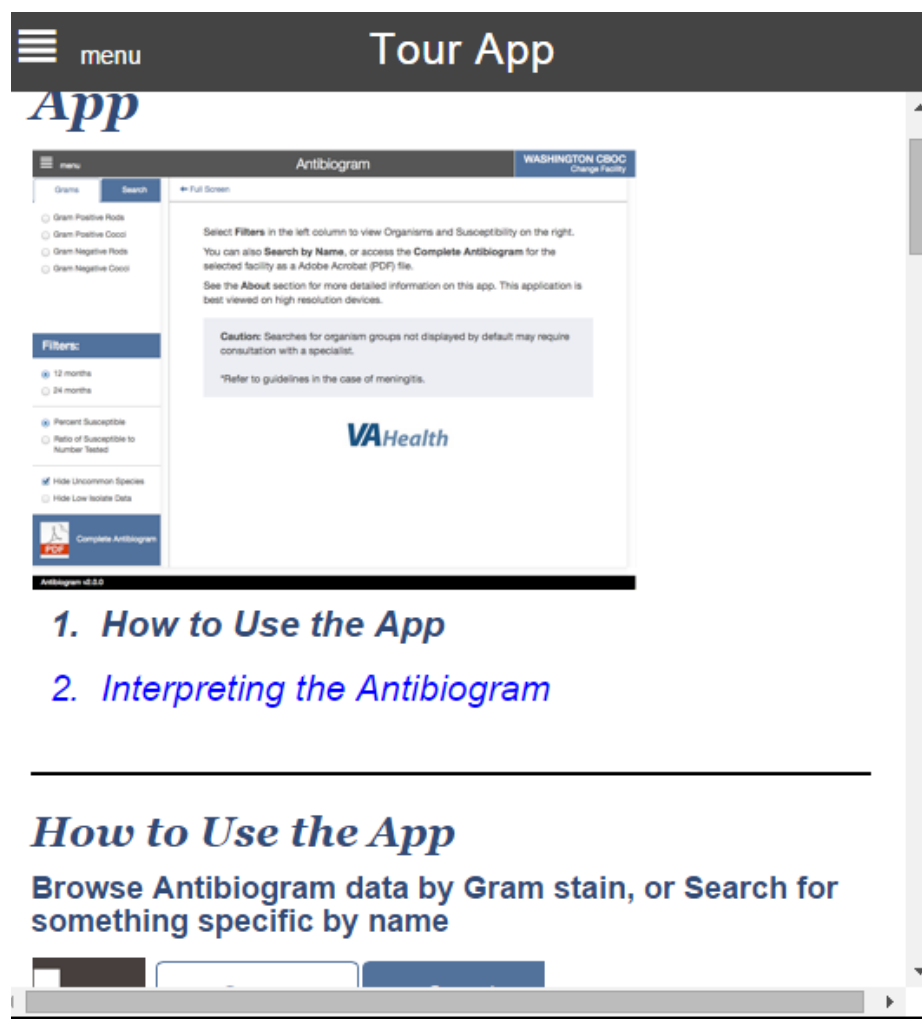
Decline Accept

Accept End User License Agreement

Once the End User License Agreement has been reviewed and accepted, the user will be taken to the landing page where he or she is able to select a facility to search. If the user declines the EULA, they will be taken back to the LaunchPad.

3.2.2. Visual Help

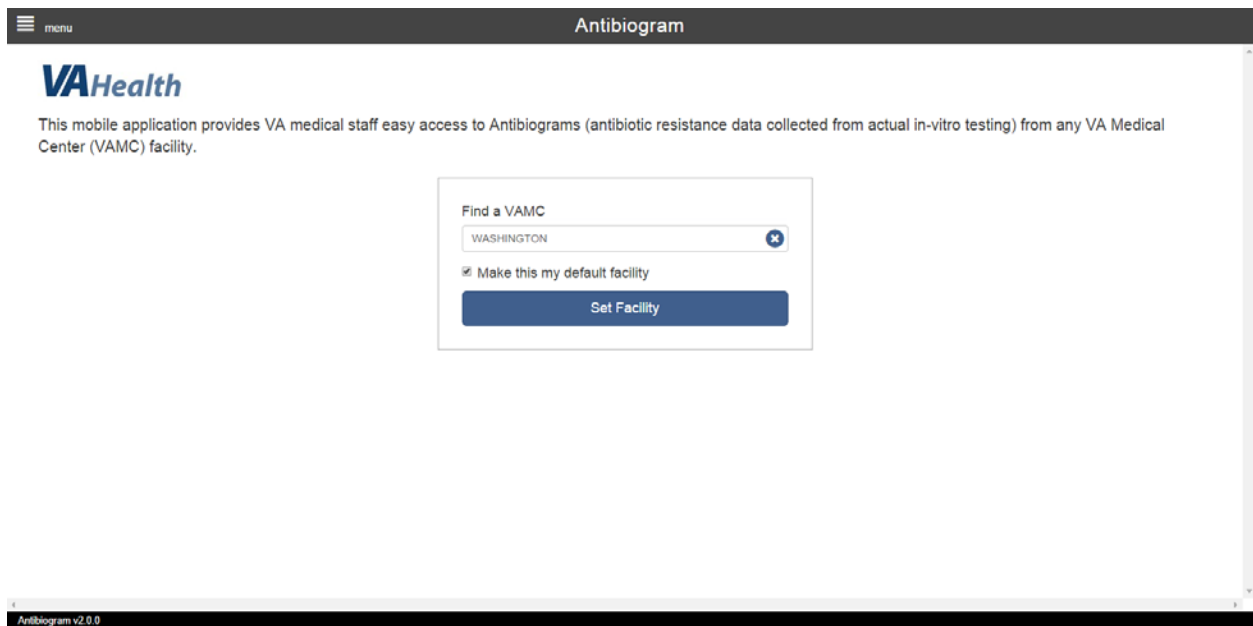
Once the End User License Agreement has been accepted, the user will be presented with a Getting Started page, which includes a link to the User Guide and an overview of the intended function of each filter. The user will need to read the content of the page, and select the option to proceed to Antibigram before being able to interact with the application. The user has the option to select or deselect the option to “Do not show this tutorial again” depending on whether the user is accessing the application from a shared workspace. If the user enables that option, the user will not be prompted with the Visual Help content after the first time they access the application from within the same device and browser.



Visual Help: Tour of the App

3.2.3. Landing Page

Once the user has read through the Visual Help page and selects “Continue to Antibigram”, they will be taken to the app landing page where he or she will be able to select the VA facility from which the antibiogram data will be specific to. The user has the option to enable the facility as a default facility that, once selected, would populate the respective antibiogram and will remain in context throughout the navigation of the application until manually changed. If and when desirable, the user can choose another facility at any point from within the application to see the respective antibiogram data.

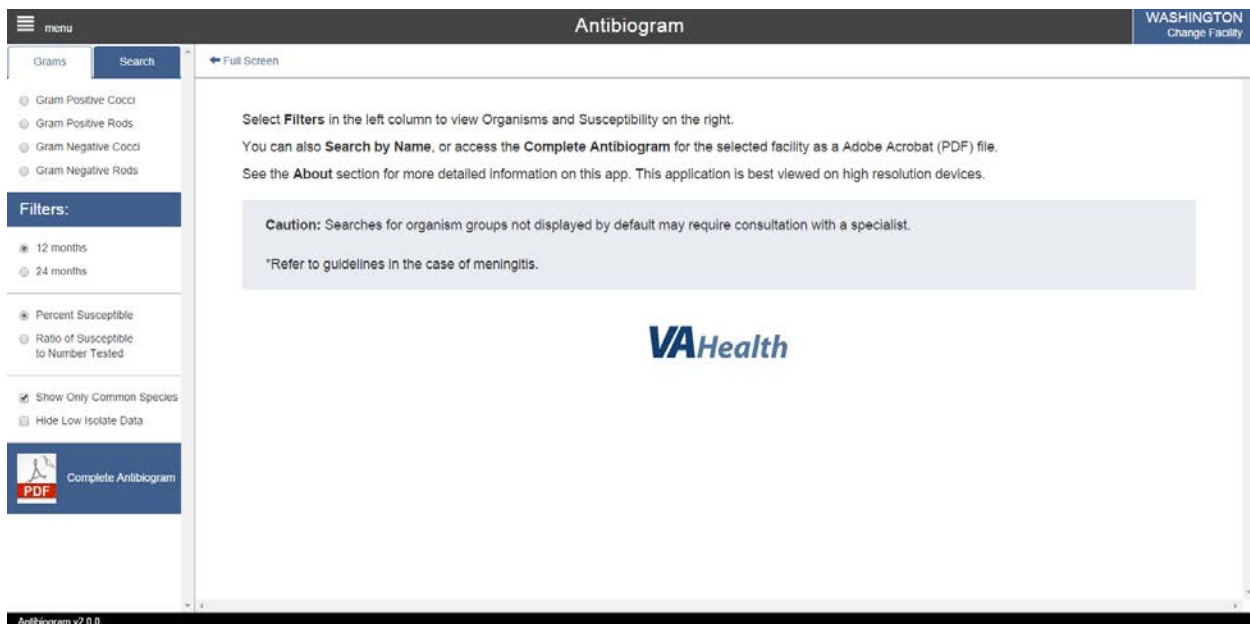


The screenshot displays the 'Antibigram' app interface. At the top, there is a dark header bar with a 'menu' icon on the left and the title 'Antibigram' in the center. Below the header, the 'VAHealth' logo is visible on the left, followed by a descriptive paragraph: 'This mobile application provides VA medical staff easy access to Antibigrams (antibiotic resistance data collected from actual in-vitro testing) from any VA Medical Center (VAMC) facility.' The main content area features a 'Find a VAMC' section with a text input field containing 'WASHINGTON', a blue circular icon with a plus sign to its right, a checked checkbox labeled 'Make this my default facility', and a blue 'Set Facility' button. At the bottom of the screen, a dark footer bar displays 'Antibigram v2.0.0'.

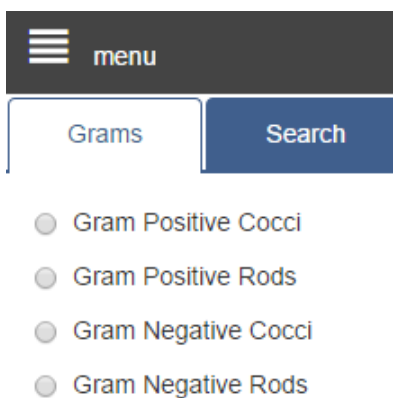
Landing Page: Select Facility

3.2.4. Home Page

Once the user has accepted the EULA and read through the Visual Help page, they will be taken to the home screen where they will have the option of searching by Gram Stain buckets or searching directly by Gram Stain, Species, or Organism Name. The user will have the option to toggle between either search option, as well as enable and disable filters to see the desirable antibiogram data.



Home Page



Search by Gram Stain Buckets

If searching by Gram bucket, they will have the option of searching by Gram Positive Cocci, Gram Positive Rods, Gram Negative Cocci and Gram Negative Rods. The respective antibiogram will be displayed for whichever bucket is selected for the facility in context.

menu

Grams

Search

Search by Gram Stain,
Species, or Organism

Direct Search Option

The user will also have the option to directly enter the name of the Gram Stain, Species, or Organism for which they'd like to view. As letters are entered, the search box will auto-populate a list of suggestions based on what has been entered. The list of suggestions will be the top 5 results for the letters entered, which is calculated using a ranking of the total number of isolates for the facility in context. This helps the user quickly identify and select one of the more common species, if desirable. They can continue to refine their entry if they're looking for something different.

If a Gram Stain is selected, the antibiogram will populate and the user will see the name of the Gram Stain selected and all respective Species and Organism rollups in a hierarchical display. Similarly, if a Species is selected, the antibiogram will populate the Species and all of its descendants as organisms. A legend will remain visible at the bottom of every search page that helps the user identify low isolate data, as well as differentiate between Gram Stain, Species, and Organism rows.

menu

Grams

Search

Search by Gram Stain,
Species, or Organism

GRAM POSITIVE COCCI

Filters:

12 months

24 months

Percent Susceptible

Ratio of Susceptible to Number Tested

Show Only Common Species

Hide Low Isolate Data

PDF

Complete Antibiogram

Full Screen

		AMPICILLIN	CEFZOLIN	LEVOFLOXACIN	PENICILLIN	VANCOMYCIN
Gram Positive Cocci	# of Isolates					
Staphylococcus aureus	1248	60	46	53	38	43
methicillin-resistant Staphylococcus aureus	765	60	40	58	41	48
methicillin-susceptible Staphylococcus aureus	202	38	16	13	15	16
Staphylococcus lugdunensis	252	43	74	45	67	42
Streptococcus pneumoniae	1463	43	36	54	27	48

Groups

Species

Organisms

< *30 isolates - interpret with caution

Search Results

Antibiogram Expansion Mobile Application

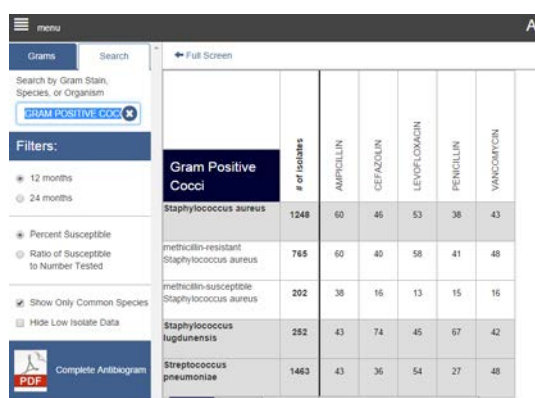
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Using the left-hand search panel, the user will have the option to display antibiogram data for the facility in context over the last 12 or 24 months. Similarly, the user will have the option of viewing the data expressed as a percentage or ratio. The ratio displayed will show the total number of susceptible isolates over the total number of tested isolates for a particular organism and antibiotic. This view is particularly helpful so that users do not misinterpret the results for low isolate data, in particular. For example, if there is an equal number of susceptible isolates as there are tested isolates for a particular organism and antibiotic, the percentage will be expressed as 100% suggesting a positive result. However, the data may not have an ample sample size and may be 1 over 1, for example, which is considered low isolate data and should be interpreted with caution. Low isolate data has been defined throughout the application as anything less than 30 isolates for a particular organism. The search panel can be expanded or collapsed using the arrow.

3.2.5. Refining Filters

Because of the overwhelming density of the data and varying levels of experienced end users, the application will allow the user to refine their search results to hide any low isolate data and to show only common species, if desirable. Similarly, if the “Hide Low Isolate” filter is selected, any rows with a total number of isolates less than 30 will be hidden. These filters are meant to help consolidate unhelpful data or refine the antibiogram data to meet the needs of the end user.



The screenshot shows the AntibioGram application interface. On the left is a search panel with a 'menu' button at the top. Below it are tabs for 'Grams' and 'Search'. The 'Search' tab is active, showing a search bar with 'GRAM POSITIVE COCCI' entered. Below the search bar are filter options: '12 months' and '24 months' (selected), 'Percent Susceptible' and 'Ratio of Susceptible to Number Tested' (selected), 'Show Only Common Species' (checked), and 'Hide Low Isolate Data' (unchecked). At the bottom of the search panel is a 'Complete AntibioGram' button with a PDF icon. The main area displays a table of antibiogram data for Gram Positive Cocci. The table has columns for the organism, the number of isolates, and the percentage of susceptibility for various antibiotics: AMPICILLIN, CEFADIZOLIN, LEVOPOLAXAZIN, PENICILLIN, and VANCOMYCIN. The data is as follows:

Gram Positive Cocci	# of Isolates	AMPICILLIN	CEFADIZOLIN	LEVOPOLAXAZIN	PENICILLIN	VANCOMYCIN
<i>Staphylococcus aureus</i>	1248	60	46	53	38	43
methicillin-resistant <i>Staphylococcus aureus</i>	765	60	40	58	41	48
methicillin-susceptible <i>Staphylococcus aureus</i>	202	38	16	13	15	16
<i>Staphylococcus lugdunensis</i>	292	43	74	45	67	42
<i>Streptococcus pneumoniae</i>	1463	43	36	54	27	48

“Show Only Common Species” Enabled

The list of common species are identified in the corresponding Concept Paper for AntibioGram 2.0. If the “Show Only Common Species” filter is selected, the user will see aggregate species data for the most common species for the particular Gram Stain selected. MSSA, MRSA and *Staphylococcus lugdunensis* organisms are included in the respective aggregate (parent) calculation, but will remain broken out and visible on their own rows. These are the only exceptions that will be displayed at the organism level when the “Show Only Common Species” filter is enabled.

menu						
Grams						
Search by Gram Stain, Species, or Organism						
GRAM POSITIVE COCCI						
Filters:						
12 months						
24 months						
Percent Susceptible						
Ratio of Susceptible to Number Tested						
Show Only Common Species						
Hide Low Isolate Data						
Complete Antibigram						
Full Screen						
Gram Positive Cocci		# of Isolates	AMPICILLIN	CEFAZOLIN	LEVOFLOXACIN	PENICILLIN
Staphylococcus aureus		1248	60	46	53	38
Community associated methicillin resistant Staphylococcus aureus		199	35	79	75	67
Hospital associated methicillin resistant Staphylococcus aureus		333	52	32	60	40
Methicillin resistant Staphylococcus aureus		233	83	33	33	27
Methicillin susceptible Staphylococcus aureus		202	38	16	13	15
Vancomycin resistant Staphylococcus aureus		281	76	80	75	50
Staphylococcus lugdunensis		252	43	74	45	67
Streptococcus pneumoniae		1463	43	36	54	27
Streptococcus pneumoniae serogroup 11		426	10	40	10	11
Streptococcus pneumoniae serogroup 12		321	5	14	87	24
Streptococcus pneumoniae serogroup 15		225	86	4	23	6
Streptococcus pneumoniae serogroup 16		262	65	50	59	19
Groups Species		Organisms	< *30 isolates - interpret with caution			

“Show Only Common Species” Filter Disabled

Similarly, if the “Hide Low Isolate” filter is selected, any rows with a total number of isolates less than 30 will be hidden. These filters are meant to help consolidate unhelpful data or refine the antibiogram data to meet the needs of the end user.

menu						
Grams						
Search by Gram Stain, Species, or Organism						
GRAM POSITIVE COCCI						
Filters:						
12 months						
24 months						
Percent Susceptible						
Ratio of Susceptible to Number Tested						
Show Only Common Species						
Hide Low Isolate Data						
Complete Antibigram						
Full Screen						
Gram Positive Cocci		# of Isolates	AMPICILLIN	CEFAZOLIN	LEVOFLOXACIN	PENICILLIN
Hospital associated methicillin resistant Staphylococcus aureus		333	52	32	60	40
Methicillin resistant Staphylococcus aureus		233	83	33	33	27
Methicillin susceptible Staphylococcus aureus		202	38	16	13	15
Vancomycin resistant Staphylococcus aureus		281	76	80	75	50
Staphylococcus lugdunensis		252	43	74	45	67
Streptococcus pneumoniae		1463	43	36	54	27
Streptococcus pneumoniae serogroup 11		426	10	40	10	11
Streptococcus pneumoniae serogroup 12		321	5	14	87	24
Streptococcus pneumoniae serogroup 15		225	86	4	23	6
Streptococcus pneumoniae serogroup 16		262	65	50	59	19
Streptococcus pneumoniae serogroup 17		211	67	67	83	50
Streptococcus pneumoniae serogroup 35		18	33	33	16	15
Groups Species		Organisms	< *30 isolates - interpret with caution			

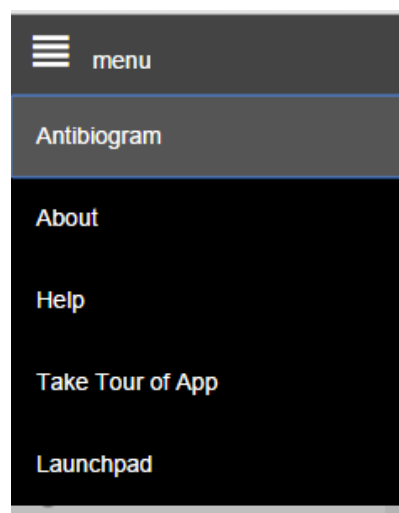
“Hide Low Isolate Data” Filter Disabled

	# of Isolates	AMPICILLIN	CEFAZOLIN	LEVOFLOXACIN	PENICILLIN	VANCOMYCIN
Gram Positive Cocci						
Community associated methicillin resistant Staphylococcus aureus	199	36	70	75	67	24
Hospital associated methicillin resistant Staphylococcus aureus	333	52	32	60	40	80
Methicillin resistant Staphylococcus aureus	233	83	33	33	27	42
Methicillin susceptible Staphylococcus aureus	202	38	16	13	15	16
Vancomycin resistant Staphylococcus aureus	281	76	80	75	60	42
Staphylococcus lugdunensis	252	43	74	45	67	42
Streptococcus pneumoniae	1463	43	36	54	27	48
Streptococcus pneumoniae serogroup 11	426	10	40	10	11	58
Streptococcus pneumoniae serogroup 12	321	5	14	87	24	10
Streptococcus pneumoniae serogroup 15	225	86	4	23	6	80
Streptococcus pneumoniae serogroup 16	262	66	50	59	96	33
Streptococcus pneumoniae serogroup 17	211	67	67	83	50	50

“Hide Low Isolate Data” Filter Enabled

3.2.6. Menu

The user can navigate to the Menu icon at any point from within the application. The Menu application allows the user to return to the home page (Antibiogram), view the About content, view the Help content, review the Tour App visual help, or return to the LaunchPad.



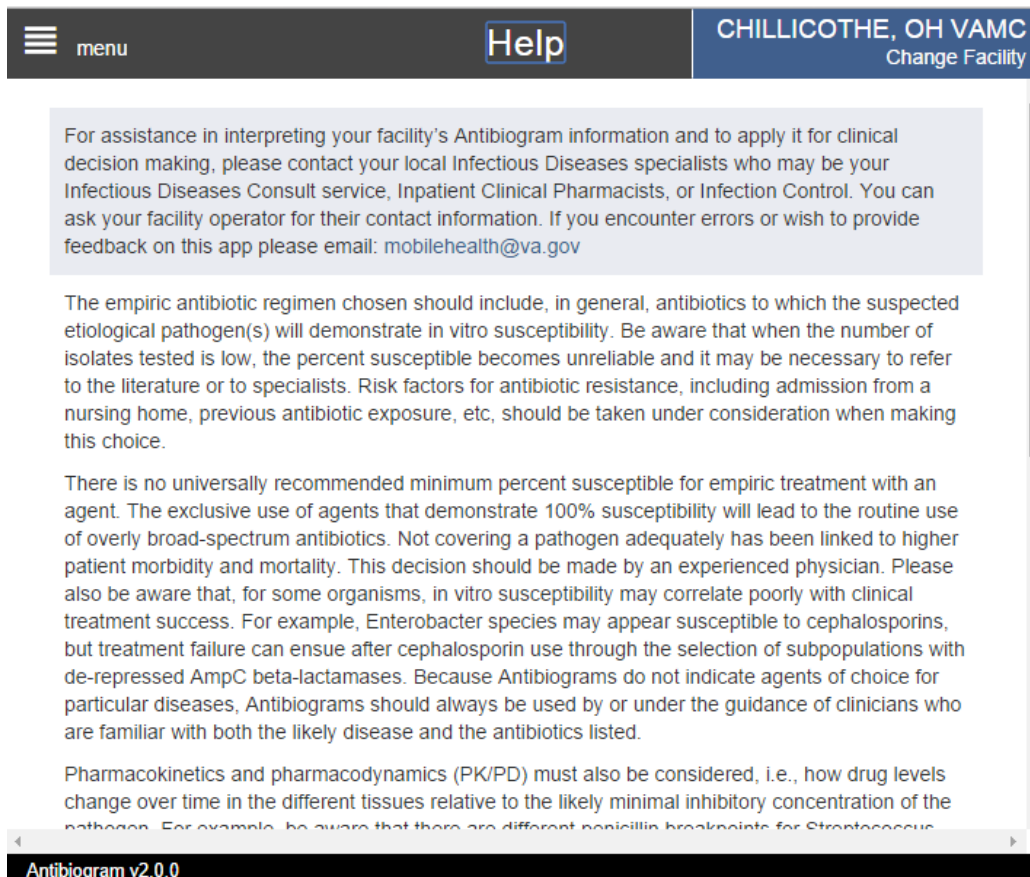
Menu Navigation

From the Menu, the user can navigate to the About page to read an overview of the application and the intended features. The About page also contains the approved VA branding and the current version of the application.



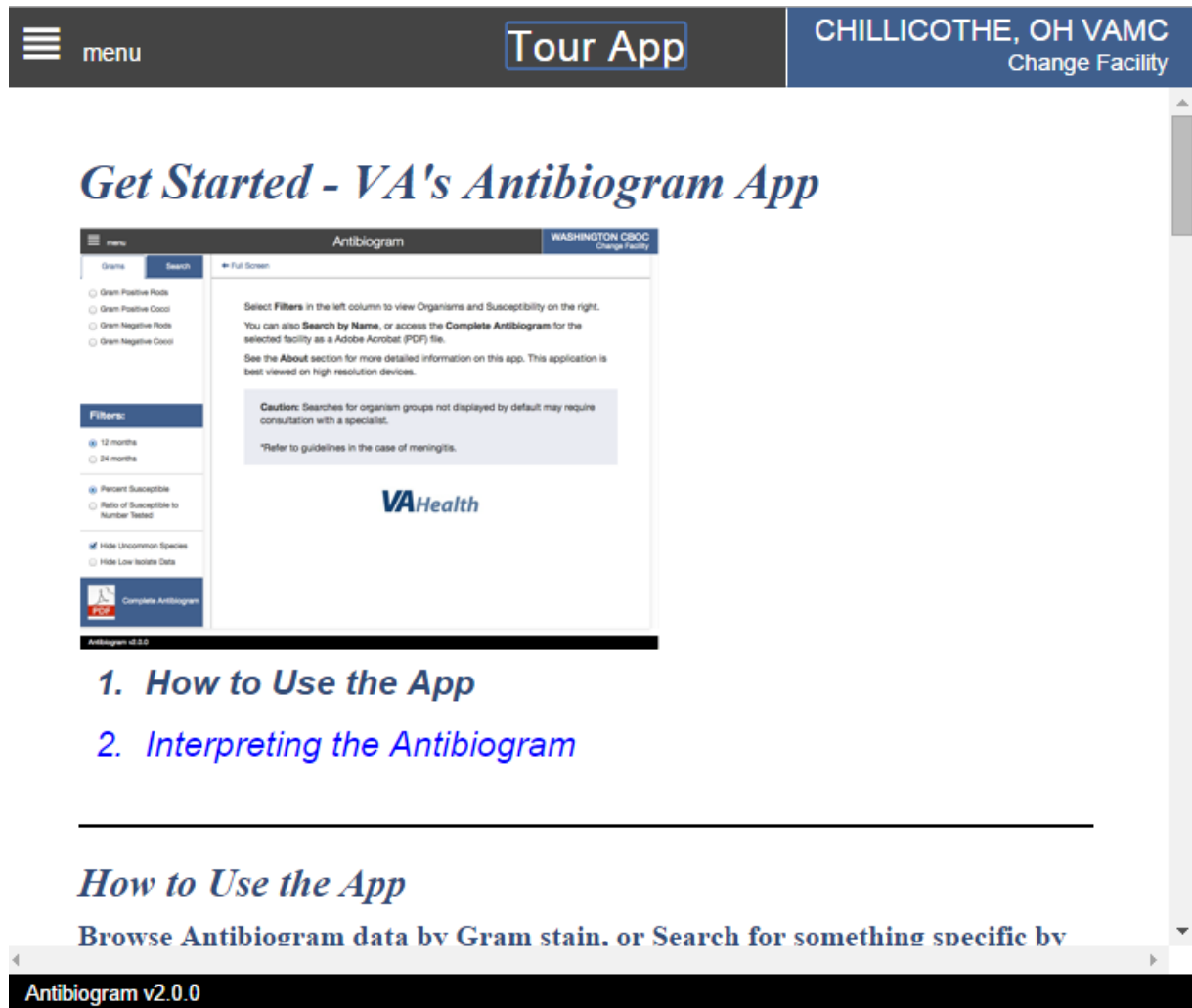
About Page Content

From the Menu, the user can navigate to the Help page where they can read advisory content provided from subject matter experts. This module also contains contact information for reporting errors or feedback.



Help Page Content

The user can review the same information that was presented upon entering the application from within the Menu icon by selecting Tour App. This is an overview of the intended functionality of the filters and navigational tools for the users who aren't familiar with the application.



Tour of the App Content

The user can return to the LaunchPad by selecting the respective navigational tool from within the Menu dropdown.

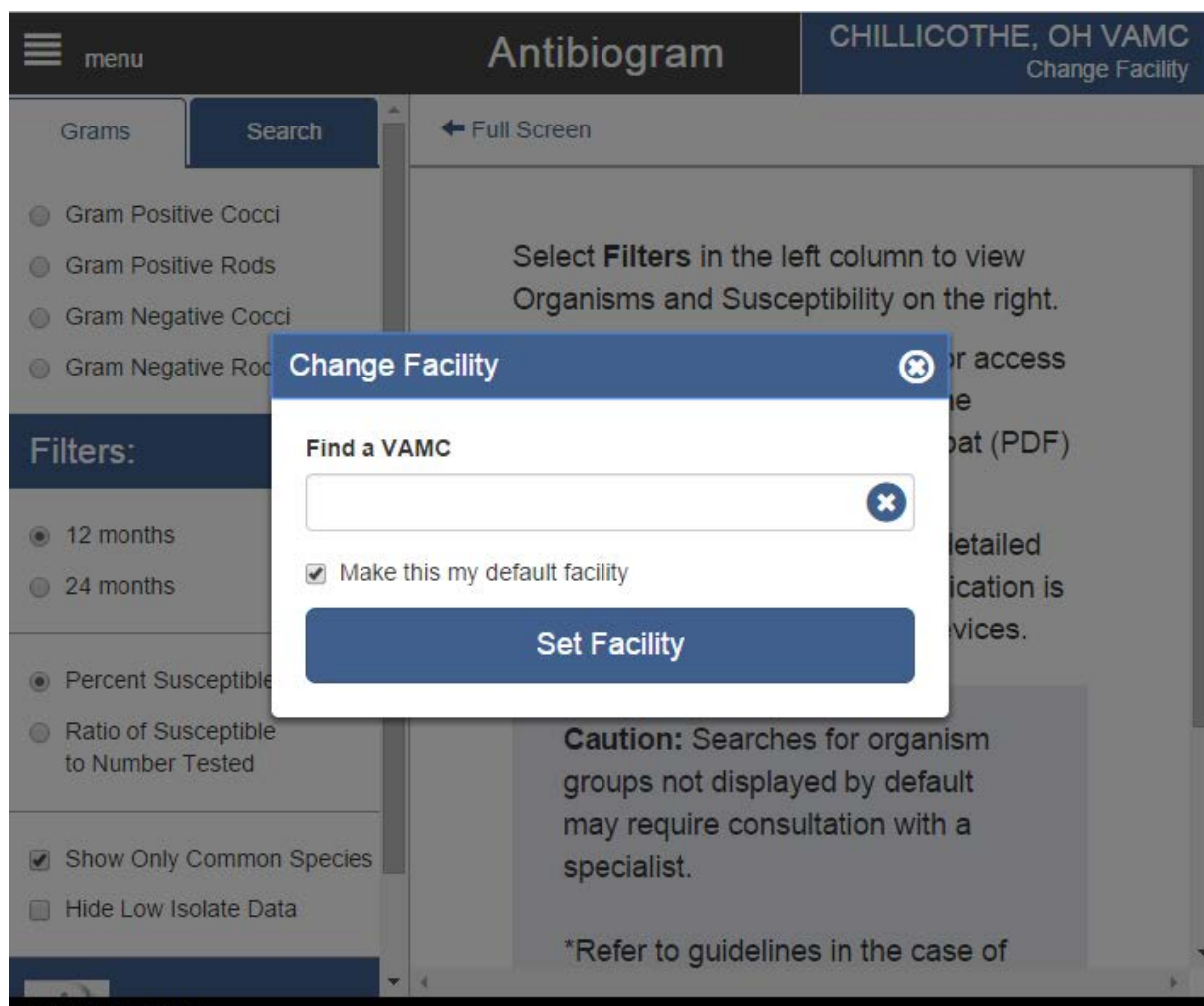


LaunchPad

3.2.7. Complete PDF Antibiogram

The user can generate a PDF of Antibiogram data for the selected facility. This will be a comprehensive display of all antibiogram data for a specific facility, and the data will be formatted as it is in the application. A legend and title will be included in the PDF.

[illegible]



Changing Facility

3.3. Special Instructions for Error Correction and Maintenance of the Tables

Any data integrity issues need to be addressed with the appropriate POC for updating and maintaining CDW data. The tables used to map organism and species data to respective SNOMED CT and LOINC codes exist outside the CDW. Any changes to the structure of the data (i.e. changes in nomenclature, addition of organism, removal of species group, etc.) need to be made to the AntibioGram table in whatever environment the table resides.

4. Project-Specific Scenario

4.1.1. Use Case

Antibiogram data is important for medical providers when deciding which antibiotics are most likely to be effective for patients. The Antibiogram shows the cumulative susceptibility of an organism to an antibiotic over a given time, usually a year. By referencing a facility's Antibiogram data, a clinician can make an informed decision about which antibiotic(s) to choose. Clinicians have the ability to view facility level Antibiogram data on a mobile device, allowing for flexibility and convenience when reviewing the data.

Below is a hypothetical use case in which the antibiogram application may be helpful to the primary user:

Box 1. Use case: Choosing empiric antimicrobial therapy

Scenario: A physician is caring for a patient who has developed hospital-acquired Pneumonia; no pathogen has been identified. The patient is at risk for infection by resistant Gram-negative bacteria, anaerobes, and *Staphylococcus aureus*. The patient has had previous episodes of *Clostridium difficile* colitis due to prolonged treatment with antimicrobials. The patient also has renal insufficiency. The physician would like to choose antimicrobials that have a high probability of active against likely pathogens, while avoiding renal toxicity to avoid further compromising the patient's kidney function. The physician has reasonable knowledge regarding the relative nephrotoxicity of different agents. However, the physician does not have specific training or expertise regarding the antimicrobial spectra of the possible choices, and is not aware that different anti-infectives are associated with different risks for *C. difficile* colitis.

Actors:

- Physician
- System

Steps:

- a.) User action: The physician launches a CABGM viewer application based on the data model, via Electronic Medical Record (EMR) application. Alternatively, the system could be configured to launch the viewer automatically if the physician starts to order an antimicrobial and there are no recent AST results.
- b.) System response: The application displays a table showing susceptibility rates for common nosocomial pathogens. The table is formatted so as to highlight antimicrobials associated with a lower risk of *C. difficile* colitis, as well as antimicrobials with higher susceptibility rates against various pathogens.
 - a. The display appears within a few seconds after launching the application.
 - b. Ideally, the view can be filtered to present results for a particular unit (e.g., the medical intensive care unit) or particular patient demographics (e.g., patients 65 years of age and older).
- c.) User action: Based on the data in the table and knowledge about the nephrotoxicity of the various agents, the physician orders empiric antimicrobial therapy that maximizes the

probability of activity against possible hospital-acquired pneumonia etiologies and minimizes the risks described above.

5. Troubleshooting

Please contact the Technical Helpdesk if experiencing issues with accessing the application. To provide feedback or report issues with data integrity, please email mobilehealth@va.gov.

Template Revision History

Date	Version	Description	Author
April 2011	1.1	Formatted to current ProPath documentation standards and edited to conform with latest Alternative Text (Section 508) guidelines	Process Management
June 2009	1.0	Initial Version	PMAS Business Office