

## SPECIAL EDITION OF *THE STEWARD*

The Healthcare-Associated Infection Prevention & Antimicrobial Stewardship (HAIP/AS) program hopes you enjoy this Special Edition of *The Steward*, which is focused on practical tools and strategies to assist health care facilities and providers with promoting antimicrobial stewardship. This publication has been created in recognition of U.S. Antibiotic Awareness Week (USAAW), which is November 18-24, 2019. USAAW is an annual observance that highlights the steps everyone can take to improve antibiotic prescribing and use. We hope you will get involved and join our program in helping us share the *Be Antibiotics Aware* message with your partners, colleagues and friends.

### How to participate:

- Share social media messages, images, and animated graphics on your organization's social media channels. Remember to use #USAAW19 and #BeAntibioticsAware in every post!
- Include information about *Be Antibiotics Aware* and U.S. Antibiotic Awareness Week in your organization's print and e-newsletters.
- Print and share handouts and posters with patients and health care providers. Select items are now available in Spanish, French, Portuguese, Vietnamese, Chinese and Korean.
- Play videos (available in English and Spanish) on tablets, monitors and TV screens in your medical office, pharmacy, waiting room, or lobby.



**BE  
ANTIBIOTICS  
AWARE**  
SMART USE, BEST CARE

**U.S. ANTIBIOTIC  
AWARENESS WEEK**  
November 18-24, 2019  
[www.cdc.gov/antibiotic-use](http://www.cdc.gov/antibiotic-use)

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## Tis' the Season: Reducing Antibiotic Prescribing with Respiratory Virus Care Kits

By: Julie Paoline, MA, CPHA, CIC Jane M. Gould, MD, FAAP

It's that time of year again when respiratory illnesses begin to increase in the community. When patients are sick enough to visit their primary care doctor or an urgent health care center, they want to leave the visit knowing that the health care provider evaluated their concerns and intervened in an effective manner to make them feel better. Patient perception is important, especially when the health care visit required time off from work or time away from family or other priorities, not to mention the associated co-pay for the visit. More frequently, patients want to leave with something tangible and often request antibiotics with the expectation of curing their ailment, even if their provider concludes that they have a viral illness which must run its course.



The above picture highlights an example of a respiratory virus care kit.

**Photo Credit:** BlueCross/BlueShield of Tennessee

**Respiratory virus care kits are a powerful educational tool that providers can give out during the Cold and Flu season.** An effective approach for a viral illness is to alleviate the symptoms: make yourself comfortable; get some rest; use a cool mist humidifier or saline nasal spray; and drink plenty of fluids. However, some providers have sought to do more for their patients. One strategy is to disseminate respiratory virus care kits, which can be customized to include the facility or provider name and logo, and call-line information or practice hours. The contents of a kit may include:

- Tissues
- Hand wipes or a comparable hand hygiene product
- Medicated lip balm

## Training from the Hospital and Healthsystem Association of Pennsylvania (HAP)

Project Managers from HAP have developed three eLearning modules that can be used to train or update nursing staff on Antimicrobial Stewardship. The modules cover information on microbiology, pharmacy, and antimicrobial stewardship. The goal of the modules is to help nurses gain a better understanding of key elements that go into improving antimicrobial stewardship activities. The use of these modules is FREE. Nurses must complete the survey at the end of the third module to receive 1.5 contact hours that can be used toward their PA RN license. Below is a list of the modules:

[Click here](#) for a link to AS for Nursing Part 1: Overview

[Click here](#) for a link to AS for Nursing Part 2: Microbiology Topics

[Click here](#) for a link to AS for Nursing Part 3: Pharmacy Topics

- Single dose of acetaminophen and throat lozenges (adult kits only)
- Sticker and sore throat lollipop (pediatric kits only)
- Disposable thermometer
- Educational materials about viral illnesses and proper antibiotic use

**Let's get Smart!** The goals of this intervention are two-fold; providers want their patients to feel relief and be educated on the smart use of antibiotics. Below are key messages for patients to be included in the kits:

- **Antibiotics are intended to treat bacterial infections, not viral infections.** Illnesses like the common cold and influenza are viral and antibiotics will not lead to a cure. Studies have shown that the primary reason for inappropriate antibiotics use is prescribing antibiotics for viral illnesses.
- **Taking antibiotics when they are not needed may lead to a bigger problem.** Any time antibiotics are used, they can cause side effects and can lead to antibiotic resistance. Antimicrobial resistance is one of the biggest public health threats of our time. The Centers for Disease Control and Prevention (CDC) reports that each year in the United States, more than 2.8 million individuals will get an antibiotic-resistant infection and 35,900 will die as a result. Antibiotics also increase the risk of *Clostridioides difficile* infection of the gut. In the United States, 223,900 cases occur and, of those 12,800 will die. (1)
- **Every day prevention measures are still our best defense.** Patients should continue to clean their hands, avoid close contact with people who are sick, and get vaccinated against influenza each year. Information on when and how to access influenza vaccine may be included.
- **Monitor the illness closely and communicate with your provider if symptoms worsen.** Patients will benefit from information on when antibiotics should be used, warning signals for more serious issues, and the symptoms of cold and flu.

By providing kits with these suggested personal care items and targeted education, providers can anticipate an overall reduction in the number of prescriptions in three antibiotic categories: standard, broad-spectrum and pediatric, which would be a huge win in the national efforts to combat antimicrobial resistance. For more information, please visit [CDC's Antibiotic Prescribing Page](#)

Additional resources are available through [CDC's US Antibiotic Awareness Week page](#)

## Simple Ways to Promote Antibiotic Awareness

Today! Print CDC infographics on standard paper from any color printer or email short CDC messages to hospital, long term care or outpatient staff. Ask your organization to download and post CDC social media messages (Facebook, Twitter, Instagram animations, LinkedIn).

[Click here](#) for a link to CDC's Partner Toolkit!

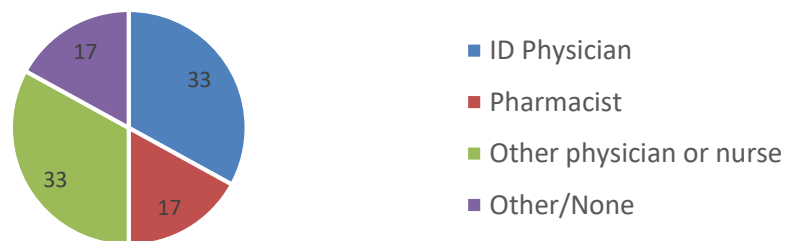
## Healthcare Associated Infection Prevention/ Antimicrobial Stewardship (HAIP/AS) Program Outpatient Antimicrobial Stewardship Commitment Poster Campaign

By: Jane M. Gould, MD, FAAP

The HAIP/AS program utilized Centers for Disease Control and Prevention (CDC) outpatient (OP) antimicrobial stewardship (AS) commitment posters, handouts and prescription pads to create a toolkit that included instructions on how to educate patients on inappropriate antibiotic prescribing. OP facilities were invited to formally commit to using antibiotics properly by displaying posters with health care provider photos and/or provider signatures and educating patients on the proper use of antibiotics. The campaign received endorsement from the Pennsylvania Secretary of Health, Dr. Rachel Levine, who signed the invitation letters sent to facilities. Letters requested that facilities designate a champion to commit on behalf of their organization and be responsible for educating staff. Thirty-three facilities committed to participate in the campaign. Following receipt of signed commitment letters, the facilities were sent a poster commitment toolkit and an invitation to attend an informational webinar. Twenty-five registrants attended the webinar. A follow-up survey was sent to the designated champion at the 33 committed OP sites to establish how they used and promoted the toolkit at their facility.

The survey received a 45 percent (N=15) response rate. Half of the respondents had an AS pharmacist as their poster champion and 21 percent had an infection preventionist. Only half of the respondents reported having an OP AS program (N=7). Six respondents answered the OP AS leader question; 33 percent have an Infectious Diseases (ID)physician as the lead of their OP AS program, 17 percent have a pharmacist, and 33 percent had either another physician type or a nurse.

Outpatient AS Program Leader Qualification (N=6)



Those respondents who had an OP AS program reported the following CDC core elements: 100 percent educate about AR/AS, 86 percent



## Listen up! Antimicrobial Stewardship Podcasts

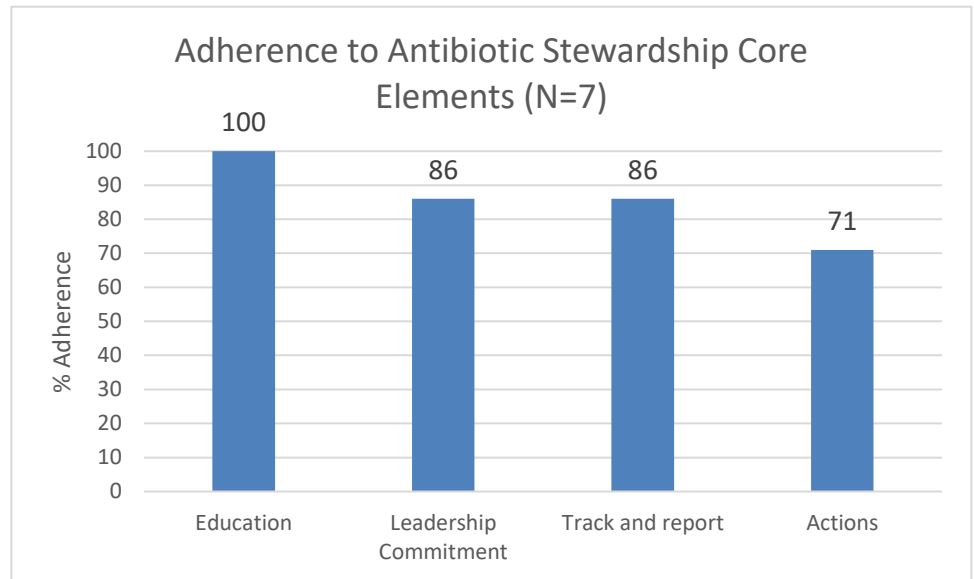
If you are new to podcasting, you should know that digital audio files are available to download to a computer or mobile device. It's like getting your favorite blog or article sent to you as a file you can listen to (usually an MP3). The best part is that you can listen anywhere – in the car, at the gym, or at your desk. In recognition of US Antibiotics Awareness Week, we are providing some options to learn more about antimicrobial stewardship.

**1. CIDRAP** – Center for Infectious Disease Research and Policy at University of Minnesota

<http://www.cidrap.umn.edu/asp/meet-the-experts>

**Description:** This content series involves 30+ webinars and 20+ audio podcasts provided by their world-renowned ASP Advisory Committee members and other topic experts. Each focus on a specific area of interest within the topics of antimicrobial resistance and antimicrobial stewardship. The live webinars provide an interactive opportunity to viewers, and the recorded audio podcasts include

have leadership commitment, 86 percent track and report antibiotic use data and 71 percent have actions pertaining to AS.



Thirty-nine percent of survey respondents reported having an on-site hospital laboratory that performs outpatient microbiology testing, 31 percent use an off-site commercial laboratory only and 31 percent use a combination of both representing a potential barrier to good communication between laboratories and prescribers. Seventy-seven percent of respondents reported routinely using rapid diagnostic tests (antigen detection tests, PCR or film array) to distinguish viral etiologies in outpatient respiratory illnesses which is vital to reducing antibiotic use during winter respiratory viral season.

Most respondents elected to use the group photo poster compared to a single provider photo poster. Most displayed their posters in reception areas as well as patient examination rooms. The mean number of posters displayed per facility was 35 (range 2-100 posters). Most of the posters were displayed in family medicine, internal medicine and pediatric practices. Only three respondents displayed posters in an emergency department, and none displayed posters in surgical practices representing missed opportunities to educate these provider types and their patients. Seventy-three percent of respondents used additional toolkit materials (handouts, prescription pads, tri-fold brochures) to educate patients. Only two respondents used toolkit materials in languages other than English.

The survey revealed that facilities promoted posters and AS materials to staff through several creative ways: email and in-person notifications, physician liaisons, presentations at AS and medical staff meetings, promotion via a local network TV station, included in advertisements for influenza vaccination clinics posted in community businesses, use of media boards in common areas and one facility paired their toolkit posters with hand hygiene promotion messaging. Most did not use their patient portal or patient emails to educate

short question-and-answer sessions.

## 2. CDC – Centers for Disease Control and Prevention

<https://www.cdc.gov/antibiotic-use/community/materials-references/video-audio.html>

**Description:** CDC encourages hospitals and outpatient clinics to use their short signature podcasts and videos to educate patients and clinicians about antibiotics and preventing antibiotic resistance. These can be added to existing video health content that is oftentimes shown in patient waiting rooms.

patients who had not been in the office recently and only three respondents used social media to promote their poster campaign.

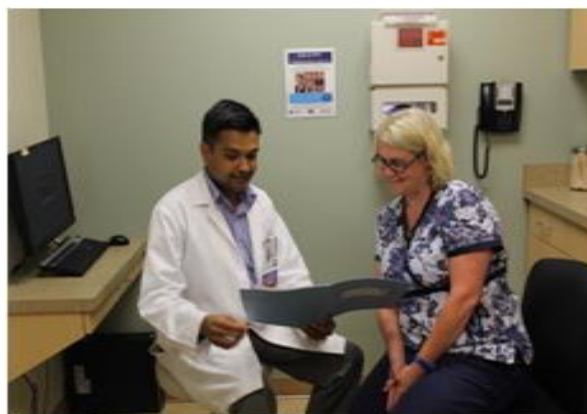
The HAIP/AS program would like to thank facilities that participated in the OP AS campaign by hanging posters indicating their commitment to using antibiotics properly and shared the unique ways in which they promoted the AS message. The campaign initially targeted facilities that traditionally lack robust AS programs, but the materials are available to all facilities on TRAIN PA “PA-DOH Antibiotic Stewardship Poster Commitment Campaign Toolkit” course ID# 1085865. The program represents an inexpensive, evidence based and impactful way to educate patients and staff about the proper use of antibiotics in OP settings.

## Keystone Health’s Outpatient Antimicrobial Stewardship Poster Commitment Efforts

By: Dr. Raghavendra Tirupathi, MD FACP

As healthcare providers, we understand that part of our duty is to ensure judicious antibiotic prescribing and usage. The ramifications of antibiotic overuse can already be felt with the development of new and dangerous antibiotic resistance patterns. Prescribing the correct antibiotic at the correct dose and timeframe for the correct infection are essential tenets of antibiotic stewardship. Provider commitment is a crucial part of improving antibiotic prescribing. Displaying public commitment posters in support of antibiotic stewardship is one effective and inexpensive way to demonstrate commitment.

Keystone Health is a Federally Qualified Health Center located in Chambersburg in rural, south central PA. Keystone is a multi-specialty practice with Family Medicine, Pediatrics, Internal Medicine, Urgent care, OBGYN, Dental, Behavioral Health and specialty



Dr. Raghavendra Tirupathi and a staff member

practices serving about 50,000 patients annually. We are dedicated to the safe use of antibiotics and our CEO Joanne Cochran and CMO Dr. Michael Colli have made it one of our strategic goals for 2019-2020. Keystone Health has therefore pledged to join forces with the Pennsylvania Department of Health in a multi outpatient facility

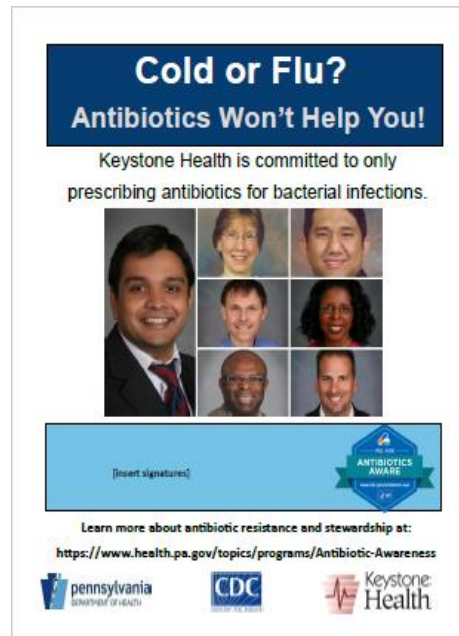
project to promote antibiotic stewardship and educate our patients on the importance of using antibiotics only when indicated. The facility champion for the project is Dr. Tirupathi who is the medical director of Keystone Infectious Diseases/HIV. As part of our project, we displayed more than 100 antibiotic stewardship commitment posters,

## Do You Have a Success Story Related to Your Work in AS/AR?

We would love to feature your facility or lab as a success story in a future edition of The Steward! Please send a brief summary related to preventing antimicrobial resistance or promoting stewardship activities to our resource mailbox at RA-DHHAI@pa.gov

which explain that we will not prescribe antibiotics unless they are absolutely necessary. The posters were displayed in outpatient waiting areas, high patient traffic areas and patient examination rooms. Our providers found the posters extremely useful in speaking with our patients about antibiotic use and served as a constant personal reminder to them to avoid unnecessary anti-microbials. Our patients were curious to learn about the harmful effects of unnecessary antibiotics, and posters served as an opportunity to initiate that discussion.

We plan to continue to have these posters in exam rooms at least until the end of flu season in April 2020. The department toolkit also



has other valuable resources, including educational patient handouts and pads which we found extremely useful in educating our patients. We also plan to use these resources in our social media campaign on Facebook and inpatient portals. Dr. Tirupathi and team are embarking on several other Antimicrobial Stewardship initiatives in partnership with DOH and other state and national agencies. Keystone Health is committed to the wellbeing of our patients and we will be utilizing all resources at our disposal to reduce antibiotic resistance in our community.

Keystone Health's Commitment Poster

## New CMS Antibiotic Stewardship Rules for Acute and Critical Access Hospitals

By: Christine L. Mulgrew, MPH, PhD

Did you know that hospital antibiotic stewardship programs (ASP) are mandated by Centers for Medicare and Medicaid Services? ASPs were first required as a "condition of participation" in Medicare and Medicaid in 2016. Criteria were updated last month to expand upon their original criteria and become effective on March 30, 2020 (Infection Prevention and Control and Antibiotic Stewardship Programs, 2019).

CMS expanded the rules to "emphasize the important role that a hospital could play in improving patient care and safety and combatting antimicrobial resistance through implementation of a robust stewardship program that follows nationally recognized

## Do You Know About TRAIN PA?

TRAIN PA is a learning management system and is the most comprehensive catalog of public health training opportunities for professionals. TRAIN is a free service for learners. TRAIN contains courses from CDC and health departments across the United States. You will find live and prerecorded trainings here as well as a searchable course catalog. There is also a built-in tracking system to track your learning on TRAIN PA. Many courses offered include continuing education credits.

### To access TRAIN PA, just go to:

<https://www.train.org/pa/>  
Click on the "Create an Account" button found on the left side of the screen.

Once you are logged in, use the search tool to locate training topics or if you have a course ID, you can enter that number.

guidelines for appropriate antibiotic use." These mandates apply to both critical access and acute care hospitals.

They require hospital ASPs to meet higher standards.

- Hospitals "must have active hospital-wide programs for ... the optimization of antibiotic use through stewardship."
- The program must demonstrate coordination, "document evidence-based use of antibiotics in all departments and services and document any improvements in proper use."
- Furthermore, "issues identified by that ASP are addressed in collaboration with hospital quality assessment and performance improvement (QAPI) leadership".
- Multi-hospital organizations cannot develop a single ASP that applies to each member hospital. Those hospitals must develop individualized ASPs that meet the unique circumstances of each hospital.

The other new criterion requires a program leader who is "qualified through education training, or experience in infectious diseases and/or antibiotic stewardship." The leader is required to the following tasks.

- Develop and implement "a hospital-wide ASP based on nationally recognized guidelines."
- Communicate and collaborate "with medical staff, nursing and pharmacy leadership, as well as with the hospital's infection prevention and control and QAPI programs on antibiotic use issues."
- Perform "competency-based training and education of hospital personnel and staff, including medical staff, and ... personnel providing contracted services in the hospital."

### What does this mean for you?

- Expect to be trained by your facility's ASP in new antibiotic stewardship policies which will expand the scope of the program
- Expect to demonstrate your competency in antibiotic stewardship principles
- Expect to read reports and see data about progress in attaining your facility's antibiotic stewardship goals
- Expect to collaborate with colleagues to develop and implement antibiotic stewardship policies
- Expect to provide documentation when caring for patients on antibiotics



## Contact Us

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## Lehigh Valley Health Network: Pharmacists' Clinical Pearls

By: Jarrod W. Kile RPh. BCPS

Given the rapid advances in microbiology testing, LVHN recognized the importance of educating our prescribers in the ordering and interpretation of microbiological laboratory tests. Although "lab stewardship" is a relatively new concept, our network has practiced it in some form for decades. We noticed early on that many providers (especially advanced practice clinicians) have had little formal education on the interpretation of culture results, so we created several educational opportunities and tools.

We created a straightforward tool titled "Understanding MICs and the Antibiograms". It discusses how the laboratory evaluates organisms for susceptibility, how to interpret the numbers and how to know when they are clinically relevant. (Note: Our lab releases Minimum Inhibitory Concentrations (MIC) data, antibiograms and organism specific information for both inpatient and outpatient samples.) Additionally, this tool addresses the following concepts:

- Susceptibility break points are different for specific antibiotics and organisms, so the antibiotic with the lowest MIC may not be the best choice
- Organisms are identified and susceptibilities are determined by different machines and results often become available in stages
- While education is geared to inform providers to mostly look at the S (susceptible), I (intermediate) and R (resistant) determinations of the lab report, a document has been put together so the interested provider can look up what the breakpoints are for a specific organism and antibiotic.
- The tool has organism specific "clinical pearls" and frequently asked questions
- A general antibiogram overview is included and has helped providers understand the value of an antibiogram

This tool is emailed to all providers. The antibiogram is available on the network intranet; a link to which is imbedded in the electronic medical record and in a mobile version of Lexicomp™ which is available for the outpatient providers who are unable to access the inpatient medical record. In order to further educate health care practitioners on microbiology testing, the Clinical Pharmacy Specialist in Infectious Diseases rounds twice a week with the internal medicine (IM) teaching service and interacts with nearly all the IM residents and medical students within 6 months. The clinical pharmacy specialist is also a part of the medical students' stimulation exercises and delivers didactic presentations to the IM residents every July. Members of the stewardship committee educate other service teams, like family medicine teams. The clinical pharmacy specialist for critical care educates the surgeons and surgical residents and is a member of the stewardship committee.

Years of supplying this education have led providers to incorporate antibiogram data into their daily practice and into our network's clinical pathways. Even our medical students know where to find the antibiograms on our intranet! The most valuable stewardship effort has been educating on *E. coli* sensitivities and choosing the narrowest antibiotic possible. While it took years of education, our network was ahead of the curve in adopting the empiric use of first generation cephalosporins leading to a drastic decrease in fluoroquinolone use.

### UNDERSTANDING MICs and the ANTIBIOGRAMS

Jarrold W. Kile RPh., BCPS  
Clinical Pharmacy Specialist-Infectious Disease  
June 2013

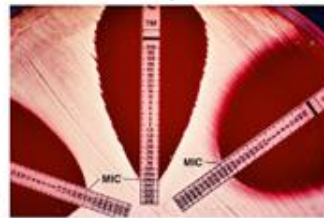
#### Minimum Inhibitory Concentration (MIC)

- Standardized amount of antibiotic and organism
- Lowest concentration of antibiotic that results in inhibition of visible growth
- The MIC can be obtained by one of the following methods by the micro lab:

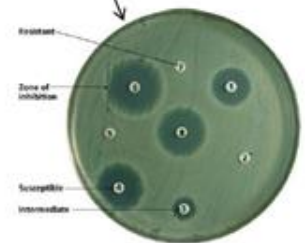
#### Automated system (Vitek)



#### E-tests



#### Kirby Bauer(KB)



- The Vitek machine and E-tests will provide numbers(the MIC) with the susceptibility(S,I,R), Kirby Bauer disks only provide the susceptibility.
- **NOTE: Each organism has its own breakpoint MIC for each drug!!**
- **NOTE: The lowest MIC is NOT indicative of the best drug to use.**
- So why do we list the MIC and not just S(susceptible), I (intermediate), or R(resistant)??
  - The MIC helps providers notice changes in resistance of an organism over time.
    - If the organism is close to the breakpoint(going from S to I) a provider should consider a more sensitive antibiotic.
    - The list of breakpoints for drugs and organisms is on the intranet under Resources→General→Antibiogram.
      - The table is found on the bottom of the page and called "2012 CLSI Breakpoint Chart"
      - Any questions send me an email or give a call.
        - 610-402-2389, [jarrod\\_w.kile@lvhn.org](mailto:jarrod_w.kile@lvhn.org)

**Photo Credit:** Jarrold W. Kile RPh. BCPS

## Understanding MICs and the Antibiograms (cont.)

In the below image, please note the difference in the numbers (the breakpoints) between the organism and the drugs on top:

CLSI BREAKPOINTS 2012

MIC value (mcg/ml) that is less than or equal to be considered sensitive.	AMIKACIN	AMOX/CLAV	AMOXICILLIN	AMPICILLIN	AMP/SULBACTAM	AZTREONAM	CEFAZOLIN	CEFEPIME	CEFOTAXIME
ACINETOBACTER SPP..	16				8			8	
BURKHOLDERIA CEPACIA									
ENTEROBACTERIACEAE Spp	16	8		8	8	4	2	8	1
ENTEROCOCCUS SPECIES		8	8	8	8				
HAEMOPHILUS INFLUENZAE and H. PARAINFLUENZA		4	1	1	2		2	2	2
NEISSERIA GONORRHOEAE								0.5	0.5
NEISSERIA MENINGITIDIS				0.12					0.12
OTHER NON-ENTEROBACTERIACEAE	16					8	8	8	8
PSEUDOMONAS AERUGINOSA	16					8		16*	
STAPHYLOCOCCI SPP(1)	16 (3)	4 (3)	0.25 (3)	0.25 (3)	8 (3)		8	8 (3)	8 (3)
STENOTROPHOMONAS MALTOPHILIA									
STREPTOCOCCUS PNEUMONIAE-meningitis								0.5	0.5

Photo Credit: Jarrod W. Kile RPh. BCPS

Antibiogram:

- Is a locally produced document that provides local sensitivities for organisms and antibiotics.
- Total Number of isolates: If box shaded in grey, it indicates less statistical validity due to low volume of isolates (<=30), Total number of isolates<10 are excluded.
- Susceptible percentage: Colored Green=90-100%, Yellow=70-89%, Red=0-69% sensitive.
- Red "R" is intrinsic resistance

**Please see the attachment titled, "MIC\_Antibiogram\_ClinicalPearl\_APC2013.pdf" for additional information**

## References

- CDC. Antibiotic Resistance Threats in the United States, 2019. Atlanta, GA: U.S. Department of Health and Human Services, CDC; 2019.  
<https://www.cdc.gov/drugresistance/pdf/threats-report/2019-ar-threats-report-508.pdf>
- Infection Prevention and Control and Antibiotic Stewardship Programs 84 Fed. Reg. 51732 (September 30, 2019) (to be codified at 42 C.F.R. pts. 482.42 and 485.640).