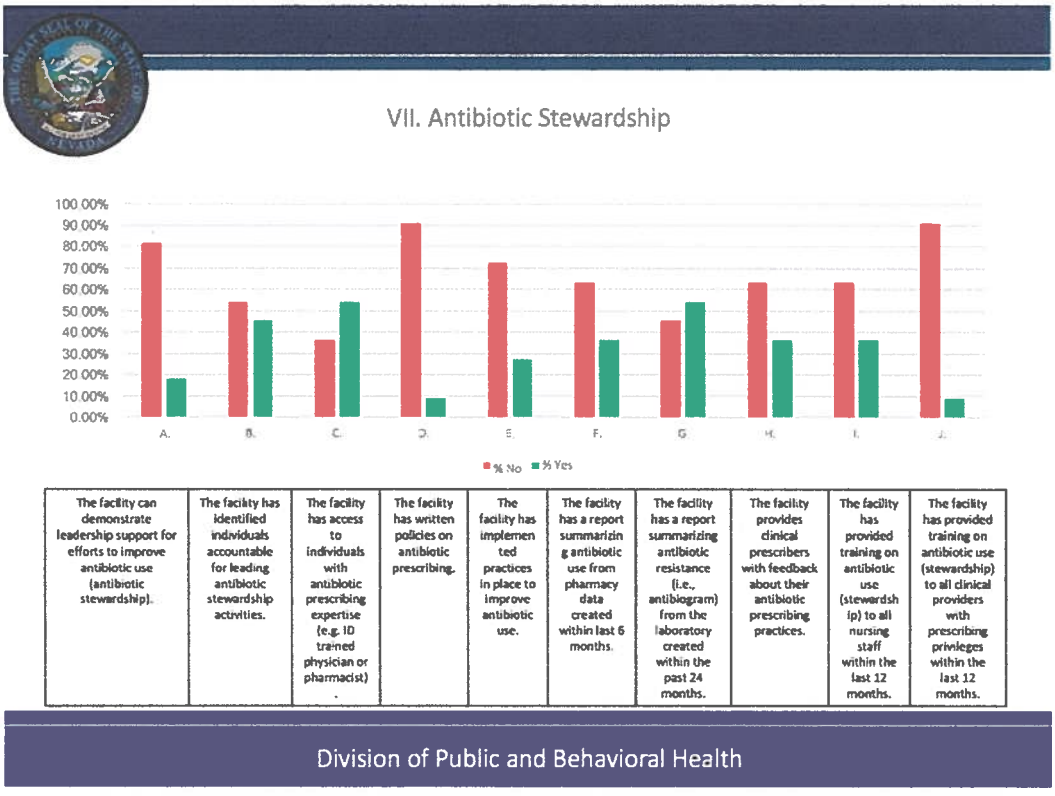
Nevada State Antimicrobial Stewardship Toolkit

Background. The state of Nevada currently faces uncontrolled progression of drug resistance, where the first US fatality due to pan-resistant bacterial infection was reported in August 2016 followed by recognition of persistent endemic pan-resistant bacterial infections six months later. Antimicrobial resistance is currently considered an emergency that requires urgent intervention.

> ***Antimicrobial stewardship*** *is a coordinated program that promotes the appropriate use of antimicrobials (including antibiotics), improves patient outcomes, reduces microbial resistance, and decreases the spread of infections caused by multidrug-resistant organisms.*
>
> *Misuse and overuse of antimicrobials is one of the world's most pressing public health problems. Infectious organisms adapt to the antimicrobials designed to kill them, making the drugs ineffective. People infected with antimicrobial-resistant organisms are more likely to have longer, more expensive hospital stays, and may be more likely to die as a result of an infection.*
>
> *- Association for Professionals in Infection Control & Epidemiology*[1]

Inappropriate use of antibiotics has been shown in the peer-reviewed literature to be associated with increase in drug resistant bacteria. Both multi- and pan-resistant bacterial infections, with fatalities, have been documented in the state of Nevada. Multi- and pan-resistant bacteria are associated with dramatically higher morbidity, mortality, and cost of care.

Key foci of highest drug resistance are associated with nursing homes. These care environments are important sources of acute care facility introduction, colonization, and hospital-acquired infection. Nevada has 60 licensed Skilled Nursing Facilities (SNFs) and 15 Long Term Acute Care (LTAC) facilities. These are sites associated with multi- and pan-resistant bacterial infections among patients who are often transferred to acute care facilities, placing those care environments at risk. Figure 1 displays the current status of antimicrobial stewardship implementation in the nursing home setting here in Nevada:



[1] https://apic.org/Professional-Practice/Practice-Resources/Antimicrobial-Stewardship

The majority of nursing homes in the state do not have the infrastructure to support:

- Reporting of drug resistance data (to include the creation of facility antibiograms);
- Staffing with appropriate education, training, and credentialing in infection prevention and control, infectious disease pharmacy, or infectious disease clinical support;
- A system of measuring progress in antimicrobial stewardship that supports current and future federal and state regulations.
- A standardized system of risk assessment that takes into account the degree of risk a given nursing home represents to the community based on its comprehensive drug resistance profile and relative degree of stewardship engagement.
- Access to credentialed experts in infectious disease pharmacy and medicine to support prescriber guidance in the nursing home setting.

Getting Started with Antimicrobial Stewardship in the Nursing Home Setting.
~~The first step is to~~ **Step One:** Review your current infrastructure to support effective antimicrobial stewardship with the following questions:

1. Does your facility have an Antimicrobial or Antibiotic Stewardship policy and procedure in the P+P manual? If No, are you in the process of initiating the program?
2. Does your facility have regular access to a pharmacist or infectious disease physician?
3. If Yes, have either your pharmacist or infectious disease physician been certified in stewardship?
4. Do the contracts and job descriptions for these specialists include a leadership role in antimicrobial stewardship in your facility?
5. If either your pharmacist or infectious disease physician are contracted are there regular processes set up for the Antimicrobial or Antibiotic Stewardship team to meet; weekly, monthly quarterly?
6. Is the CEO and Governing Board of your facility financially supporting this process?

Not all pharmacists have the same training, and it is important to recognize that pharmacists are able to become certified in infectious disease management and stewardship as two separate certifications. Infectious disease pharmacists with a stewardship certification represent the pinnacle of certification. Likewise, it is important to keep in mind many infectious disease physicians are focused primarily on bedside patient care and may not have experience focusing on facility-level strategic planning as stewardship requires. If your facility has regular access to these specialties, it is important to encourage them to take a strong leadership role and provide them the support they may need to gain further training, education, and certification to support stewardship.

Many of Nevada's nursing homes have appointed a nurse to serve multiple roles such as management of a given ward, plus infection control AND antimicrobial stewardship duties. This practice is not recommended and indeed sets the involved nurse up for failure. Stewardship requires either pharmacy or physician leadership given difficult decisions may be required to encourage prescriber compliance with stewardship. Pharmacy or physician leadership require the full support by the CEO of the facility because they will occasionally be forced to have challenging conversations with some providers who are non-compliant about their prescribing behavior (see below).

~~The Second~~ **Step Two:** Review current policies and procedures regarding the use of antibiotics, Antibiotic Stewardship or policy regarding the use of any order sets that have **stop use** time frames:

- Is there a policy that encourages providers to give patients antibiotics to support improvements in patient satisfaction?
- Is there a policy that calls for regular creation and maintenance of antibiograms?
- Is there a policy to review antibiotic prescribing and use patterns to determine a baseline?
- Is there any policy or PEER review data that relates to antimicrobial use prescribing practices?

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Here in the state of Nevada, some healthcare administrations have encouraged liberal use of antibiotics as a means to improve patient satisfaction scores. (Is this an issue that exists in the SNF and LTAC arena? Or is this more prevalent in the Out Patient arena. Our Patient Satisfaction Surveys have no questions regarding the delivery of ABX, and really address only the delivery of medications and the information that was provided by Medical and clinical staff to the patient.) While this policy may improve satisfaction scores, it nevertheless contributes significantly to antibiotic overuse and therefore, rapid development of drug resistant bacteria in our community. Such policies are NOT recommended for effective antimicrobial stewardship.

Policies that call for regular antibiogram reporting, as well as antibiotic prescribing and use patterns, of course assumes your facility has regular access to either pharmacists or infectious disease physicians. This is often not the case for many nursing homes in Nevada, however this is a critical requirement for effective stewardship (see Step One). (Project ECHO has allowed for training once a month and is offering review monthly by their ID physicians to Facilities that are without this access)

Antibiograms are typically created and maintained by clinical microbiology or pharmacy in acute care facilities. Some LTACs have pharmacists who maintain this function, however, most nursing homes do not have access to this in-house expertise. In this case, your clinical laboratory service is often able to provide you with your facility antibiogram upon request.

Understanding the data in your antibiograms is a critical component for effective stewardship. It enables you to understand whether drug resistance patterns are improving, are stable, or are worsening over time.

A policy to review antibiotic prescribing patterns is strongly recommended for proper stewardship. This is the only way to identify high risk prescribing behavior that could be associated with very high rates of Clostridium Difficile infections in your facility, for example. It is not uncommon for chart reviews to reveal inappropriate, high volume prescribing of antibiotics for medical conditions that do not require antibiotics. Treatment of asymptomatic bacteriuria in nursing homes is a key example of this. If a concerning pattern of prescribing is identified, then your facility needs to have leadership in place that is able to converse with the involved prescriber(s) to effect positive change. This is a difficult proposition if your facility does not have access to a pharmacist or infectious disease physician who is not only the lead for stewardship but is also fully supported by the CEO.

~~The Third~~ **Step Three:**

1. Create an antimicrobial stewardship team for your facility.
2. It is critical to have full support by the CEO of your facility,
3. ~~along with support from the CEO to have at least~~ At a minimum a pharmacist or infectious disease physician employed or on contract to lead stewardship in your facility.
    a. If ~~not fully~~ employed assure that with leading the stewardship team is in the job description.
    b. If on contract, assure that the contract has language spelled out that assures compliance with policy for leading the Antimicrobial Stewardship team (AST).
4. Assure that the facility AST policy lists the duties of the AST and that the policy direct the team to review the proscribing behavior that occurs within your facility for all LIPs.
5. Assure that the AST policy gives the team the authority to interact with and initiate corrective action for prescribers who are outside of the policy dictated guidelines for prescribers.
6. Assure that the AST policy calls for quarterly reports and at least annual review of antibiograms and has a report generated by the team that does analysis of the team progress.
7. The policy should be reviewed and updated yearly only by the AST and processes that are updated should be provided the LIPs and all clinical staff via mandatory education.
8. The AST should encourage policy updates ASAP that initiate order sets that outline proper prescriber behavior in the order format. Stop dates and prescriber practices that the LIP wishes to initiate that exceed stop dates or are against AST recommendations need to be AST approved AD HOC by an AST established review process.
9. ~~As mentioned above, this is absolutely critical to enable effective review of prescribing behavior and corrective action, if needed~~.
10. Staff training in the processes and the use of the order sets needs to be done on a competency based format and all staff should have the documentation in their employee file.

Step Four: Training of the nursing staff and AST membership:

1. Nursing staff are essential in stewardship, and are the primary contacts with the LIPs and will be the primary staff writing the TO's for antimicrobial use, so they must be very familiar with the AST, AST Policy and the order sets and guidelines that LIPs must follow. Their training must be mandatory and competency based and kept in the employee file. This data should be reviewed annually.
2. Director of Nursing, DON, must be trained, educated, and included as part of the AST leadership team. This ensures a measure of oversight and team-based compliance. It cannot be understated that nursing staff play a critical role, for example, in identifying patients on the floor who have been left, for several days, on intravenous antibiotics without de-escalation. The DON must initiate non-punitive interaction with staff to assure compliance with the initiated steps at antimicrobial stewardship. All LIP corrective action will be initiated and carried out by the AST designated communicator. Staff should never be involved in this process.
3. Assure that educational opportunities are made available to staff and that State sponsored initiatives like Project Over watch, The Nevada Antimicrobial Stewardship Collaborative and the Antimicrobial Stewardship Summit Series in Reno are participated in by AST membership.

In summary, stewardship begins with support from the CEO of your facility. The ideal leadership team is comprised of a pharmacist or infectious disease physician, the Director of Nursing who have been trained in stewardship and staff participation who have policies that outlines the processes that all facility members will follow.

~~The Last~~ **Step Five:** Establish a LIP training and education program at your facility.

1. Involve the Facility Medical Director(s) in the drafting and implementation of the training and education of all prescribers with privileges in your facility. Ensure that all directives have been approved at MEC and Governing board meetings.
2. The AST should be responsible for ensuring access to the latest national guidance on stewardship from reputable agencies such as the U.S. Centers for Disease Control and Prevention as well as access to stewardship CME/CE courses for all staff.
3.
4. Assure that the training and compliance is part of your LIP PEER review process.
5. Make sure that the data is available in toto on line or is mailed in toto to each LIP prescriber in your facility.
    a. Include all order sets, most current Prescriber Policies, AST Policy and any related prescriber policies and expected compliance process. Each LIP must respond with a (pre-prepared) letter that they have read and that they agree with the process and this will be kept in their PEER review files.

Appendices / Additional Sections

1. Antibiotic Resistance Monitoring: What an Antibiogram Is and How to Interpret It
2. Antibiotic Use Quality Improvement
3. Antibiotic Use Monitoring
4. Feedback to Staff