Collaborative Antimicrobial Stewardship

Working with Hospital and Health System Administration

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KEYWORDS

• Antimicrobial stewardship • Antibiotic stewardship • Administration • Management • C-suite

KEY POINTS

- Before interacting with hospital and health system administration, research local pressures, decision-making processes, key terminology, and regulatory requirements.
- When pitching resource requests, consider the regulatory, quality, and safety impacts of antimicrobial stewardship and think creatively for potential areas for improvement.
- When designing or redesigning the structure of an antimicrobial stewardship program within a hospital or health system, strongly consider aligning the reporting structure within the quality-of-care reporting lines.
- Foster ongoing relationships by being proactive in the goal-setting process, consistent in follow-through, and systematic and routine in communication.

INTRODUCTION

Successful antimicrobial stewardship programs (ASPs) rely on engagement by hospital administrators.[1,2] References to hospital administration traditionally describe the C-suite, including the chief executive officer, chief medical officer, and chief nursing officer. There are many additional positions that may compose the C-suite, such as chief quality officers and chief pharmacy officers. Structures differ across hospitals and health systems, and the relevant power and influence of each role also varies.

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In addition, the clinical background of the administrator and institution size also affect how the antimicrobial stewardship program interacts with administration. Understanding the unique dynamics of each individual setting, including who is responsible for decisions and how these decisions are made, can help antimicrobial stewardship to be successful. Although outside the scope of this review, it is valuable to consider other key stakeholders in leadership positions who can be advocates and collaborators when working with administration, including finance, communications, media, legal, compliance, internal process control, supply chain, continuous improvement experts, and medical directors for quality, patient safety, patient experience, and other areas.

GETTING STARTED

The first step in collaborating with hospital and health system administration is to understand unique pressures and demands, local decision-making processes, and C-suite terminology. If you are new to the organization, consider asking open-ended questions about past performance and history of change, present vision and current processes, as well as future challenges and opportunities.[3] It is also helpful to be well prepared for questions you will receive, such as the regulatory requirements related to your request.

Pressures and Demands

Hospital administrators face numerous financial, reputational, and regulatory pressures. To make a case for antimicrobial stewardship, leaders of the ASP should understand how the program fits into these pressures. For many administrators, financial pressures may be most pressing, so explaining return on investment for an ASP technological or staff investment is vital. Health care faces many challenges related to shifts in outpatient services, patient acuity, and patient payer mix; physician supply and compensation; competition for patients and managed care contracts; and servicing aging equipment, leading to a constant flux of expenses, within which ASP is only a piece. Hospital administrators are also focused on reputation and national ranking provided by such organizations as the US News and the Leapfrog Group, which are influenced by metrics, including mortalities and patient safety scores. The Leapfrog Group now scores hospitals on their commitment to antibiotic stewardship. Some rankings can be affected by health care–associated infections (HAIs) and the hospital epidemiology and infection prevention team are frequently in touch with hospital administration regarding HAI metrics that affect these scores. *Clostridioides difficile* infection (CDI) is a publicly reported metric and a well-developed ASP can help prevent this HAI.[4] Prevention of CDI is an opportunity to work with the infection prevention team and make a case to the administration for the importance of a strong ASP.[5] In addition, meeting regulatory and accreditation requirements is vital to keeping the doors open, and with The Joint Commission's antimicrobial stewardship standard in place since 2017, most health care administrators have increased familiarity with stewardship in this post-accreditation era.[6]

Decision-Making Processes

Before addressing a stewardship-related issue or request with hospital and health system administration, ask strategic questions to understand how the administrative process works. For example, who has formal and informal decision-making rights within the organization? Who are the key opinion leaders in the organization? Are there different approaches for administrative and clinical decisions? What is the usual time

line for resource decisions? What is the usual time line for high-level goal-setting decisions? Are decisions typically made in the board room or based on 1-on-1 conversations outside of the boardroom? Frequently, important decisions involve both types of settings. Each hospital or health system has a unique structure and decision-making culture. As much as possible, work within the bounds of the organization's standard structure and culture to be successful.

Resource limitations significantly affect the decision-making process at most hospitals and health systems. Typically, funding antimicrobial stewardship results in not funding another program, initiative, or other personnel,[7] which adds pressure to the antimicrobial stewardship team to show their impact on key metrics, such as length of stay, patient morbidity, and cost. In addition, if it is clear which positions were not funded in favor of ASP funding, strategize ways to assist with the increased burden caused by the unfunded position. For example, if a decision was made to hire an antimicrobial stewardship pharmacist rather than a medicine floor pharmacist, determine ways the antimicrobial stewardship pharmacist can assist with or reduce the medicine floor's workload.

Terminology

It is critical to learn and comprehend common terminology of hospital administration for successful engagement and communication. Partnering with someone in administration or the finance department to better understand these terms and their importance in the organization can be valuable. A few key terms are defined with examples in **Table 1**.

Regulatory Requirements

In 2013, Accreditation Canada expanded the list of Required Organizational Practices to include development and implementation of a program to optimize antimicrobial use and provide good stewardship.[8] In the United States, the Centers for Medicare & Medicaid Services (CMS) required long-term care facilities to develop an infection prevention and control program that includes an antibiotic stewardship program by the end of November 2016.[9] In addition, The Joint Commission implemented a new medication management standard for antibiotic stewardship in 2017 requiring active antibiotic stewardship programs at all accredited hospitals.[10] Critical access hospitals will need to be compliant with the Centers for Disease Control and Prevention (CDC) Core Elements by 2021 to receive flexibility grant funding from the Federal Office of Rural Health Policy via the Medicare Beneficiary Quality Improvement Project (MBQIP).[11,12] In addition, the CMS has approved a new proposal to require hospitals to have ASPs as a condition of participation.

In addition to national standards and accrediting bodies, many organizations publish metrics related to infectious diseases. There are a variety of places to find these metrics, including the Agency for Healthcare Research and Quality (AHRQ), American Medical Association Physician Consortium for Performance Improvement (AMA-PCPI), the CDC, the CMS, Health Resources and Services Administration (HRSA), National Committee for Quality Assurance, The Joint Commission, and the Leapfrog Group. These metrics have been summarized previously.[13] In addition, some states, such as California, Missouri, and Tennessee, have regulatory requirements regarding antimicrobial stewardship. Also, for facilities that are a part of a health system or hospital network, consider the recommendations of governing bodies or task forces for these organizations when determining required elements. For example, the Veterans Health Administration now requires reporting of antimicrobial use data to the National

Table 1
Administrative and financial terminology

Term	Definition
Fiscal year	Instead of a calendar year, companies may use a fiscal year for tax purposes: 12 consecutive months ending on the last day of any month except December. For example, the US federal government fiscal year ends on September 30
Capital expenditure	Those funds disbursed for facilities, equipment, or another physical asset, particularly those related to the delivery of health care. Given the high expense, the cost of these expenditures is often spread over multiple years
Fixed cost[38]	An expense or cost that does not change with an increase or decrease in the number of goods or services produced or sold (eg, salaried employees, hardware, software)
Variable cost[38]	An expense or cost that changes in proportion to production output (eg, medications, medical supplies, sharps disposal containers)
Semivariable cost[38]	An expense or cost that is a mixture of fixed and variable costs. Even if no production occurs, a fixed cost is often still incurred (eg, rapid diagnostic tests, overtime pay)
ROI[39,40]	Reported as a percentage, it is a performance measure to evaluate the efficiency of an investment. The formula is: (Current value of investment – Cost of investment)/Cost of investment
DRG[41]	Classification system for hospital discharges to adjust payments based on appropriate weighting factors. Payment is determined by a hospital's payment rate per case multiplied by the weight of the DRG. Each DRG weight represents the average resources required to care for cases in that DRG compared with all DRGs, and these are adjusted at least annually. The most common coding system is MS-DRG
Case mix index[14]	The sum of the total cost weights of all inpatients per a defined time period divided by the number of admissions. The cost weight of a DRG is defined by dividing the average cost per case of DRG by the mean cost per case on a nationwide level
Value-based purchasing[42]	A CMS payment system that rewards acute care hospitals with incentive payments for quality of care. It is paid for by reducing MS-DRG payments by 2% and distributing this money based on total performance scores. The quality domains are updated each year
HAC reduction program[42]	A Medicare pay-for-performance program in which hospitals are ranked on the following measures: • CMS Recalibrated Patient Safety Indicator • CLABSI • CAUTI • SSI: colon and hysterectomy • MRSA bacteremia • CDI Hospitals with a total HAC score greater than the 75th percentile (ie, the worst-performing quartile) are subject to a 1% payment reduction, applicable to all Medicare discharges (eg, fiscal year 2019 is October 1, 2018, to September 30, 2019)
Stewardship[43]	Stewardship may be used any time a limited resource needs to be used, thus it may be used to signal cost reductions, because money is a limited resource. Consider emphasizing the distinctive nature of antimicrobial stewardship to have a societal impact on antimicrobial resistance that other types of stewardship do not have

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Table 1
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Term	Definition
SWOT analysis[30]	Originally developed based on the results from a Stanford study on Fortune 500 companies to help clarify projects and maximize opportunities

Abbreviations: CAUTI, catheter-associated urinary tract infection; CLABSI, central line-associated bloodstream infection; CMS, Centers for Medicare & Medicaid Services; DRG, diagnosis-related group; HAC, hospital-acquired condition; MRSA, methicillin-resistant *Staphylococcus aureus*; MS-DRG, Medicare Severity DRG; ROI, return on investment; SSI, surgical site infection; SWOT, strengths, weaknesses, opportunities, and threats.

Healthcare Safety Network's Antimicrobial Use Option if the hospital has greater than 30 beds.[14]

PITCHING RESOURCE REQUESTS

In a recent United States survey of 244 antimicrobial stewardship program respondents from 43 states, 151 (62%) somewhat or strongly disagreed with the statement, "The financial resources for my program are adequate."[15] Administrative approval is necessary to obtain these resources. The first step is to get noticed and recognized by key decision makers, which can be achieved by networking with key contacts within the organization or directly setting up a meeting with the hospital administrator, perhaps starting with the chief medical officer. When working on an initial so-called elevator speech, one productive approach is to start with the conclusion and then work backward, or to start with a compelling patient story.[16] Determine the combination of argument types that will best convince the audience. Examples of different types include logos (data and reasoning), ethos (principles, policies, and other rules), and pathos (emotions and meaning).[3] Ask questions about current understanding of antimicrobial stewardship as well, because many administrators may already be familiar with antimicrobial stewardship conceptually but may not have worked at a facility with a formal program.[17] In order to establish productive relationships, multiple interactions are often required. Establish relationships for the long term.

After initial meetings regarding antimicrobial stewardship needs, the next steps are likely to be a formal request made to administration for resources and a business plan developed. A recent publication helps to frame the formal pitch in more detail.[7] A few other published resources and examples are available.[18–20] Sample business plans are available from the Association of Medical Microbiology and Infectious Diseases (AMMI) Canadian Working Group[21] and the Society of Healthcare Epidemiology of America Web site. However, it is also important to review local business plans to better understand the standard form and structure for the institution. Key components of any business plan include executive summary, alignment with mission, vision and values, the business need or rationale (and why the current process is inadequate), program objectives, and details of the financial request.

When considering program objectives, think big and think easy: what are the wide-sweeping problems that have broad impact and what "low-hanging fruit" are easy to change and measurable? Examples might include focusing on specific antimicrobials (high-cost medications), specific antimicrobial combinations (double anaerobic coverage), or common disease states (community-acquired pneumonia).[22] When pitching the needs of antimicrobial stewardship, emphasize the goals of the program

as relating to quality, safety, and meeting regulatory requirements. Whenever possible, align goals with issues that are viewed by administration as important or so-called burning-platform issues. Apply innovation to the request: think about so-called outside-the-box opportunities.[23] Avoid business plans that focus solely on eliminating medication costs.[24] Other end points that may be important to administrators include reducing variability in care, shortening length of stay, or providing ongoing education to providers, especially if there are on-site residency training programs. To align with these administration priorities, it is important to communicate with decision makers and key opinion leaders in advance. This preparatory work can also help mitigate the risk of stepping on other key leaders' toes by identifying and involving important collaborators from the beginning. In addition, engagement with external professional societies will also provide insight into national trends and upcoming policy decisions that can assist with the pitch.

For the business plan's financial details, have both a short-term (1 year) and long-term perspective (3–5 years) and describe the potential return on investment (ROI). Examples of ROIs related to infection prevention in the literature are provided in **Table 2**. Consider a phased implementation, especially when enacting change on a health system level.[25] It can be helpful to provide multiple solutions with varying price tags to address the problem, which helps to emphasize the actions and outcomes tied with the financial request and provides options for administrators.

A common barrier to antimicrobial stewardship is lack of financial support for antimicrobial stewardship personnel and other resources.[26] **Table 3** highlights 4 common examples of barriers and some approaches to address these challenges. Regardless of the hurdles, it is important to foster an ongoing relationship with administration and to provide follow-up regarding progress toward goals as well as impediments. If barriers exist, additional discussion and business cases (eg, for new personnel or technology) might be necessary.

Table 2
Examples of returns on investment from infection prevention

Intervention	Health Care–Associated Infection	Reported ROI
Educational modules	CLABSI, SSI, VAP, CAUTI	For every $1 spent on training, the ROI was $236 as cost of avoidance of HAIs[44]
Building single-bed rooms in intensive care unit	HA-MRSA	$418,269 in spending would be avoided through infection reduction in this ICU if all patients hosted in bay rooms were admitted to single-bed rooms[45]
Involvement in a national surgical quality improvement program	SSI	In cumulative savings from averted SSI cases, generating a return of $2.28 (US$3.02) per dollar invested (95% CI, −0.67–7.37)[39]
Public health funding given focused on reducing CLABSI	CLABSI	ROI $1.10–$11.20 per $1 invested[46]

Abbreviations: CI, confidence interval; HA-MRSA, health care–acquired MRSA infection; ICU, intensive care unit; VAP, ventilator-associated pneumonia.

Table 3
Barriers and challenges when asking for resources from administration

Barrier and/or Challenge	Potential Approach
Administration wants to use existing personnel to develop a new antimicrobial stewardship program	Rebuttal: literature supports that infectious diseases–trained personnel achieve greater reductions in antimicrobial use and greater adherence to recommended antimicrobial therapy practices.[47,48] Emphasize the knowledge and skills required of antimicrobial stewardship leaders[49] Compromise: ask for financial support for additional antimicrobial training and/or certification
Administration wants existing dedicated antimicrobials stewardship personnel to expand current responsibilities	Rebuttal: time-in-motion studies or other data support that the current work of the antimicrobial stewardship team is at capacity and there is no bandwidth to expand services Compromise: reduce nonstewardship responsibilities for antimicrobial stewardship leaders, such as clinical weeks of consultation service or providing administrative support. Reassess current projects[50] and determine where some responsibilities can be transitioned to other hospital personnel[51]
Administration is reevaluating current resources for antimicrobial stewardship in a recessive environment	Rebuttal: when antimicrobial stewardship resources are removed, previous gains in control of antimicrobial expenses are lost[52] Compromise: reassess current projects[50] and determine where some responsibilities can be transitioned to other hospital personnel[51]
Administration is resistant to funding new technology to support antimicrobial stewardship	Rebuttal: the purchase of this application would prevent the need to hire additional personnel to accomplish the same objectives. This application would improve patient safety. Other key stakeholders may benefit from using the technology as well, such as infection prevention, pharmacy services, or research groups Compromise: determine whether there are internal informatics resources to develop the reports necessary to accomplish the goal or to adapt current applications for antimicrobial stewardship use[53]

DEFINING STRUCTURE, PERSONNEL TASKS, AND JOB DESCRIPTIONS

It is important for hospital and health system administration to understand and appreciate the institutional value provided by the antimicrobial stewardship team and the resources needed for the team to be successful. For this to occur, consider personnel tasks and job descriptions, material needs and budgets, and the reporting structure of the antimicrobial stewardship program. The multidisciplinary nature of the ASP team is a key element that makes stewardship programs impactful and complex, and investment in protecting time of the leaders of the ASP is associated with success.[2,6] The CDC's Core Elements of Hospital Antibiotic Stewardship Programs recommend the appointment of a stewardship program leader (typically a physician)

responsible for program outcomes and a single pharmacy leader to co-lead the program.[27] Formal training in infectious diseases and/or antimicrobial stewardship is beneficial but not required. Providing financial support for these positions is a component of leadership commitment and administrative support.[2] Although there is no specific guidance on the recommended full-time equivalents (FTEs) for these positions, a summary of recent literature regarding personnel resources is provided in **Table 4**.

Often, the expected day-to-day tasks of an ASP help determine the likelihood of obtaining proposed resources. Therefore, it is important to consider the specific responsibilities of antimicrobial stewardship personnel early in the development or expansion of a program. These expectations should be compiled into clear job descriptions. Sample job descriptions and postings can be found through professional organization Web sites, such as the Society for Healthcare Epidemiology of America and the Society of Infectious Diseases Pharmacists, and networking with fellow ASP colleagues, although descriptions need to be modified to fit the needs and cultures of specific organizations. Clearly communicating essential day-to-day functions and proactively sharing patient safety stories via a written quarterly update, presentations at a quarterly meeting, or routinely scheduled brief 1-on-1 meetings with quality, medical, and pharmacy leadership are successful strategies to reemphasize core personnel and the impact of their day-to-day responsibilities. This proactive strategy may improve chances of obtaining resources and avoids only interacting with administration when resources are needed.

Information Technology and Data Management Support

In addition to standard personnel, most ASPs require additional resources to accomplish their day-to-day work, as well as their quality improvement initiatives. Day-to-day work can be supported by internal access to data and reports and augmented by add-on or integrated computer decision-support systems. Use of the electronic health record for alerts and data tracking requires prioritization of internal information technology resources. In addition, data analysis and data management expertise are additional resources necessary to show impact on a larger scale with broader initiatives. When defining structure, it is important to keep in mind not only the physician and pharmacist personnel resources that are needed but these additional resources as well.

Reporting Structure

Where antimicrobial stewardship fits within a hospital or health system varies based on the organization. Helpful questions for antimicrobial stewardship leaders to consider when determining where stewardship fits include whether reporting relationships help align effort; whether it is clear who is accountable for what; and whether the kinds of achievements that matter most are being measured and rewarded (are there the right incentives?).[3] Ideally, the reporting structure would include access to key decision makers as well as visibility and support from a multidisciplinary audience, which may need to be accomplished through more than 1 reporting avenue. For example, the medical director of antimicrobial stewardship may report to the chief medical officer or the chief quality officer and the lead antimicrobial stewardship pharmacist may report to the chief pharmacy officer; however, the 2 co-leads may also report together to the pharmacy and therapeutics committee, the infection control committee, the medication safety committee, the quality board, and other aligned groups. Because the infection prevention team has an established reporting structure either directly within the quality department or within the division of infectious diseases, it can be used as a model. One study reported that most infection prevention departments report within the department of medicine, but some also report to quality

Table 4
Antimicrobial stewardship staffing ratios

Reference	Country	Methodology	Recommendation
Ten Oever et al,[26] 2018	The Netherlands	Semistructured interviews, an electronic survey, and face-to-face consensus meeting focusing on antimicrobial stewardship tasks and associated time requirements	Start-up investment: 100–135 h Maintenance (1 stewardship objective): • 300-bed hospital: 0.87–1.11 combined FTE • 750-bed hospital: 1.15–1.39 combined FTE • 1200-bed hospital: 1.43–1.68 combined FTE Maintenance (3 stewardship objectives): • 300-bed hospital: 1.25–1.49 combined FTE • 750-bed hospital: 2.09–2.33 combined FTE • 1200-bed hospital: 2.93–3.18 combined FTE
Doernberg et al,[15] 2018	United States	Cross-sectional survey and association between FTE and antimicrobial stewardship program results	Each 0.5 increase in combined FTE availability results in a 1.48-fold increase in the odds of showing effectiveness (95% CI, 1.06–2.07) Proposed minimum FTEs for antimicrobial stewardship: • 100-bed to 300-bed hospital: 1.4 combined FTE • 301-bed to 500-bed hospital: 1.6 combined FTE • 501-bed to 1000-bed hospital: 2.6 combined FTE • >1000-bed hospital: 4.0 combined FTE
Wong et al,[54] 2018	Canada	Survey of 15 pediatric hospitals and assessment of current FTE allotment	Hospitals ranged from 38 to 484 beds and designated combined FTE ranged from 0.0 to 1.8 (median, 0.7 FTE)
Morris et al,[21] 2018	Canada	Narrative review of the literature and expert working group consensus decision-making process	Recommended FTEs per 1000 acute care beds: • Physicians: 1.0 FTE • Pharmacists: 3.0 FTE • Administrative support: 0.5 FTE • Data analysts: 0.4 FTE
Echevarria et al,[55] 2017	United States	Time-in-motion studies for common activities at 12 validation sites and expert opinion for others	Pharmacists: median 1.1 FTE per 100 occupied beds (interquartile range, 1.0–1.47), of which approximately 70% was related to patient care and 30% to program management Note: task force recommends 0.25 physician FTE per 100 occupied beds

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Table 4
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Reference	Country	Methodology	Recommendation
Le Coz et al,[56] 2016	France	Cross-sectional nationwide survey of 65 hospitals to define optimal standards	Recommended 6.7 FTE per 1000 acute care beds: • ID specialists: 3.6 FTE per 1000 acute care beds • Pharmacists: 2.5 FTE per 1000 beds • Microbiologists: 0.6 FTE per 1000 beds

Abbreviation: ID, infectious diseases.

management or nursing.[28] It is the opinion of the authors that structuring antimicrobial stewardship within the quality department is ideal, given the aim to improve the quality and safety of care for patients who receive antibiotics and/or are managed for infections.

In addition to reporting to leadership, bidirectional communication is often effective and can be achieved by inviting hospital administration to the antimicrobial stewardship committee. One health system promotes the inclusion of the chief executive officer as an ad hoc member of the antimicrobial stewardship program, and chief medical officers are members of the team in half of its facilities.[25]

ONGOING ACTIONS AND COMMUNICATION

Once resources have been approved and a structure established, the antimicrobial stewardship team needs to deliver results. To do this successfully, the antimicrobial stewardship leaders need to hone the skills of goal setting, follow-through, and communication.

Goal Setting

New ASPs should start with initial goals that are feasible and represent low-hanging fruit. When prioritizing potential goals, a good place to start are those that assist with meeting regulatory requirements. Other factors that affect the likelihood of success should also be considered, including the narrowness of scope, estimated time and resources needed, data availability, resource availability, number of areas involved, and complexity of the project.[29] Established programs have more freedom for innovation and need to be strategic about how to take on new goals while maintaining, modifying, or retiring other responsibilities. All programs benefit from a thoughtful and strategic approach to goal setting. Alignment with organizational priorities is recommended. Thinking innovatively with an expanded scope is encouraged, such as goals that involve vaccination, methods of microbiologic sampling, value-based purchasing, and discharge counseling. If a goal involves multiple disciplines or collaboration, start early in pitching potential goals to stakeholders because departments may plan their goals 6 months or more in advance.

According to the John Whitmore model for goal setting, in addition to the traditional SMART (specific, measurable, attainable, realistic, and time phased) criteria, also consider making goals PURE (positively stated, understood, relevant, ethical) and CLEAR (challenging, legal, environmentally sound, agreed, and recorded).[30] In antimicrobial stewardship, one of the biggest challenges in creating a SMART goal is making

it measurable. Two approaches can be used: leveraging already collected metrics and developing new simplified metrics. An example of a metric that is already collected for public reporting is *C difficile* infections. An example of a simplified metric is an electronically pulled raw assessment of acute kidney injury in patients receiving vancomycin, which can be trended over time and takes fewer resources than a metric that takes into account all potential confounders.[31] Another challenge is making a goal realistic: avoid primary metrics that might be beyond the influence and control of the ASP, such as reducing antimicrobial resistance rates.

It may be helpful to think about goals in terms of a primary "big-picture" mission statement and the smaller objectives and steps necessary to achieve this goal. These smaller objectives and steps can be portrayed in shorter-term aims that are often related to process measures (**Table 5** for examples). Process measures are measures of whether an activity has been accomplished, such as acknowledgment of an alert or use of a decision-support tool.[32] For larger projects or initiatives, some institutions may require that specific templates be used to help break projects down into smaller aims and processes as well as communication with leadership (eg, A3 strategy form, a tool in lean process improvement). It is recommended to use templates familiar to the organization.

Follow-Through

Once goals are set, the work of follow-through begins. In developing an implementation plan, recommendations from implementation science can be helpful. Implementation science is defined as the scientific study of methods to promote the systematic uptake of research findings and other evidence-based practice into routine practice.[33] Two ways to incorporate implementation science into daily stewardship activity are to use implementation strategies and outcomes. There are more than 73 implementation strategies to choose from; however, some of the most common ones used in antimicrobial stewardship are audit and provision of feedback, conduct ongoing training, create new clinical teams, develop educational materials, distribute educational materials, and remind clinicians about stewardship-related issues.[34] Outcomes to measure the success of implementation include acceptability, appropriateness, adoption, cost, feasibility, fidelity, penetration, and sustainability.[35] Examples of how these outcomes

Table 5
Example mission and aim statements

General Mission Statement	Aim Statement
Increase the timely and appropriate transition of highly bioavailable antimicrobials from the intravenous to the oral route, while also optimizing the alert burden for frontline pharmacists	To increase the percentage of oral days of levofloxacin from 30% to 50% in the next 6 mo by improving the average pharmacist positive action response time to intravenous to oral alert triggers to <4 h
Support our organization's mission by improving care for patients who are admitted with a diagnosis of sepsis by reducing 30-d all-cause readmissions	Decrease the volume of 30-d readmissions for medical-surgical patients admitted with a primary diagnosis of sepsis by 5% by focusing on 3 focused improvements in the discharge process
Optimize appropriate clindamycin use for surgical prophylaxis in orthopedic patients	Increase appropriate clindamycin use to 85% in the next 6 mo by improving the percentage of patients who have a complete allergy history taken from 25% to 75%

can be measured include surveys, interviews, and tracking usage data. These metrics are helpful in determining uptake and effectiveness of the intervention and adjusting iteratively when change is not realized. Scheduled, routine tracking of progress on deliverables helps to redirect the intervention if a corrective action plan is needed.

Accountability for outcomes by the antimicrobial stewardship leader is commonly based on influence rather than authority. The 3 keys to influence are (1) focusing on and measuring the right thing, (2) defining vital behaviors, and (3) engaging all 6 sources of influence.[36] The 6 sources of influence center on motivation and ability on personal, social, and structural levels. Strategies such as creating clear and compelling goals, telling moving stories, assisting others with deliberate practice, providing encouragement, as well as creating a structure to make it easy to do the right thing are effective examples of leveraging influence and improving accountability relevant to antimicrobial stewardship.

Communication

Ideally, frequent updates and feedback are integrated into current reporting structures. When significant barriers are confronted (eg, difficult prescribers, technologic hurdles, or resource limitations) it is important to seek assistance from administration. Routine communication helps to promote antimicrobial stewardship equally during both smooth and struggling phases, which can improve relationships with administration. These updates are best if concise with a clear message.[7] In addition, a written annual report to administration is recommended.[37] An annual report, with executive summary and supporting details, is beneficial both as a communication tool as well as documentation for future reference.

SUMMARY

The first step in collaborating with hospital and health system administration is to understand their structure and speak their language. Pitching resource requests requires major interactions with administration, so being prepared to present clearly and concisely and address key questions is important for success. When determining the pitch, consider resources for information technology support in addition to personnel requests. Thoughtfully consider the best reporting structure for the ASP, which should include a defined relationship with the organization's quality department. In addition, develop an ongoing relationship with administrators to highlight successes and to gain their assistance in addressing challenges.

DISCLOSURES

The authors report no relevant disclosures.

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