

Overview of Antimicrobial Stewardship Activities in Rhode Island

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ABSTRACT

Due to the rise of antibiotic resistance, and the decrease of novel antibiotics coming to market, the Centers for Disease Control and Prevention (CDC) has formally recognized that action must take place to ensure appropriate antibiotic use, and maintain public health. The RI Department of Health (RIDOH) Director responded by initiating the RI Antimicrobial Stewardship and Environmental Cleaning Task Force (RIAMSEC), a multidisciplinary team that set in motion a set of tasks for RIDOH. As a result, a survey of antibiotic stewardship programs (ASP) at the RI acute care hospitals (ACHs) and long-term care (LTC) facilities revealed gaps in addressing HAI prevention and AMS goals for the state. RIDOH has therefore expanded statewide coordination efforts to form the RI Healthcare-Associated Infection Prevention and Antimicrobial Stewardship Coalition which is intended to effectively prevent HAI and ultimately improve the Centers for Medicare and Medicaid Services Hospital-acquired Condition (HAC) Reduction scores in Rhode Island.

KEYWORDS: antimicrobial stewardship, infection control, Rhode Island, acute care facilities, hospitals, long-term care facilities, public health

INTRODUCTION

Antibiotics are considered one of the greatest discoveries for human health in our lifetime. Preserving these important medications, through appropriate use, are critical to maintaining individual health, public health and national security. The CDC recognizes that the overuse of antibiotics has led to an increase in antibiotic-resistant organisms, *Clostridium difficile* infections (CDI), unnecessary hypersensitivity reactions, and general medication-related adverse events.¹ Consequently, efforts highlighting the importance of antimicrobial stewardship programs (ASP) emerged.

According to the CDC, antibiotic-resistant organisms cause two million illnesses and 23,000 deaths in the United States each year.² Development of antimicrobial resistance is directly related to the failure to use the right drug, at the right dose, for the right duration of time, and only when necessary (not for bacterial colonization or viral infections). As a result, antimicrobial stewardship has become a priority at

the national level and has become a priority in Rhode Island as well.

In 2014 the Centers for Medicare and Medicaid Services (CMS) reported the rates of hospital-acquired conditions in hospitals throughout America. In this report, RI was ranked 51/51 in the United States for its rate of *Clostridium difficile* infections (CDI).^{3,4} This stimulated a call to action by the Rhode Island Department of Health Director, Michael Fine, MD, to establish the Rhode Island Antimicrobial Stewardship and Environmental Cleaning Task Force (RIAMSEC TF), a coalition of stakeholders who recommend strategies and make recommendations to leverage resources to support antibiotic stewardship activities in health care settings as well as in the outpatient setting.

THE RI ANTIMICROBIAL STEWARDSHIP AND ENVIRONMENTAL CLEANING TASK FORCE

In August of 2014, the RIAMSEC TF convened with the mission to reduce antimicrobial resistance throughout the state. The membership, extending from acute care hospitals (ACHs), nursing homes, primary care practices, insurance companies, academia, and public health, is interdisciplinary, and includes infectious diseases, and infection-prevention experts in medicine, pharmacy, nursing, microbiology, and epidemiology throughout the state. From 2014 to 2016, this TF was chaired by the Consultant Medical Director for the Division of Infectious Diseases and Epidemiology at the Rhode Island Department of Health (RIDOH), Nicole Alexander-Scott, MD, MPH, an adult and pediatric and infectious disease physician, who has succeeded Michael Fine and is currently the state's Director of RIDOH.

To achieve the mission of the RIAMSEC TF, members recommended the following strategies and priorities to the RIDOH Director:

1. Assess antimicrobial stewardship and environmental cleaning practices by administering the CDC's Core Elements of Antibiotic Stewardship Programs (ASPs) survey to acute⁵ and long-term care facilities.⁶ This survey would allow RI to benchmark current practices against CDC guidelines.
2. Document the number of Full Time Equivalents (FTEs) allocated to infection control at hospitals and long-term

care facilities. Questions about the number of infection preventionists, infectious disease physicians and pharmacists at each facility should be added to the survey described above.

3. Establish guidelines for resources and staffing by using CDC guidelines and data from the surveys described above. Establish antimicrobial stewardship and environmental cleaning guidelines tailored to acute and long-term care settings.
4. Identify funding opportunities for implementation of recommended actions for multi-facility learning collaboratives and to support staff and resources for facilities.
5. Communicate antimicrobial stewardship and environmental infection control standards by sending a letter to facility executive leadership, explaining the rationale and importance of supporting stewardship and emphasizing expectations for action.

HOSPITAL SURVEY RESULTS

In November 2014, RIDOH surveyed all ACHs and long-term care (LTC) facilities in the state to assess current ASP practices. A 31-question electronic survey, adapted from the CDC's Checklist for Core Elements of Hospital ASPs, was sent (via online software program, SurveyMonkey⁷) to the executive hospital administrators at each ACH in RI. To maximize accuracy of responses, we asked respondents to answer questions in a multidisciplinary approach with antimicrobial stewardship (AMS) team members at their respective facilities.

Thirteen RI ACHs responded to the survey (response rate, 100%). Of these, 78% reported having an ASP at their facility which tracked antibiotic prescribing, use and resistance (unpublished data, RIDOH 2015). However, 44% of ACH reported not having a formal, written statement of support from leadership, and 50% did not receive any budgeted financial support for an ASP. Almost three-quarters of the hospitals (72%) reported having a physician leader responsible for ASP outcomes. Similarly, 89% of the ACHs reported having a pharmacist leader, though only 38% of them were trained in infectious diseases. Few hospitals (17%) reported having a process to review antibiotic orders after 48 hours to assess appropriateness. However, pharmacy-driven interventions were implemented in at least 50% of ACH (e.g. a physician or pharmacist needs to approve specified antibiotic agents prior to the pharmacy dispensing at the facility).

We concluded that, ASPs were present in most acute care facilities in RI. To maximize ASP practices, hospital-specific antimicrobial use recommendations should be made more readily available for use, hospital leadership should make an effort to increase the presence of an ASP leader in RI ACHs, and efforts should be made to increase review of antibiotics for appropriateness.

NURSING HOME SURVEY RESULTS

Also in 2014, the RIAMSEC TF developed a survey to assess the scope of AMS among RI LTC facilities.⁸ Questions were based on CDC's Core Elements of Antibiotic Stewardship for Nursing Homes Programs, as well as on Advancing Excellence in America's Nursing Homes⁹ campaign materials which were designed to evaluate processes to prevent and manage infections in LTC facilities.

RIDOH's public reporting contractor, Healthcentric Advisors, faxed a written notice to all RI LTC facilities (N= 88), and emailed copies of the survey to a subset of LTC staff on a statewide email distribution list. Notices recommended that each facility complete the survey within 3 weeks, using an online tool as a round-table exercise involving the director of nursing, infection control nurse, and any other staff responsible for infection prevention and/or AMS activities. No incentives were given for participation. Results suggest infection preventionists are largely responsible for ensuring appropriate antibiotic use in long-term care facilities and there is a need for increased interdisciplinary access to individuals with antimicrobial stewardship expertise.

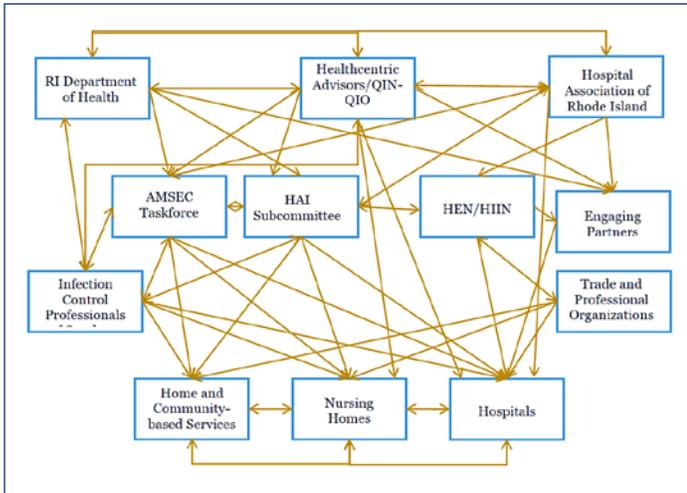
In addition to conducting the survey, the RIAMSEC TF shared the results of the survey with healthcare facilities and developed a website¹⁰ to share information and guidance. The Task force is actively seeking funding for statewide stewardship activities.

In December of 2015, RI was further jolted by CMS publishing the fiscal year 16 Healthcare-Acquired Condition (HAC) Reduction Program scores which revealed that seven of 11 RI ACHs were going to suffer reimbursement reductions.¹¹ This score is a cumulative score of quality measures, with 75% attributed to Healthcare Associated Infections. This was a further stimulus to stakeholders and RI Sen. Sheldon Whitehouse, who has long been a champion in this arena and charged the community to take action. In response to an urgent call to action, RIDOH expanded the RIAMSEC TF to include the already existing Healthcare-acquired Infections (HAI) subcommittee (which is the operational arm of a legislatively required RI Healthcare Quality Reporting Program Steering Committee) and formed a statewide Coalition with the goal of consolidating and coordinating resources and expertise. (Figures 1 and 2.)

HAI PREVENTION AND ANTIMICROBIAL STEWARDSHIP COALITION

The HAI Prevention and Antimicrobial Stewardship Coalition was developed under the leadership of the current RIDOH Director, Nicole Alexander-Scott, MD, MPH, appointed in April 2015. Consisting of partners from RIDOH, hospitals, nursing homes, physicians, pharmacists, infection preventionists, academia, community partners, and trade and professional organizations, the objectives of the Coalition are to increase collaboration and communication among

Figure 1. Prior status of the HAI prevention and antimicrobial stewardship efforts in RI.



partners, and thereby reduce the duplication of effort while strengthening the effectiveness of statewide strategies. To achieve the goal of protecting the health of Rhode Islanders and reducing costs to the healthcare system, the Coalition established two groups: the “Leadership and Policy Committee” and the “Education and Best Practices Workgroup.”

THE LEADERSHIP AND POLICY COMMITTEE

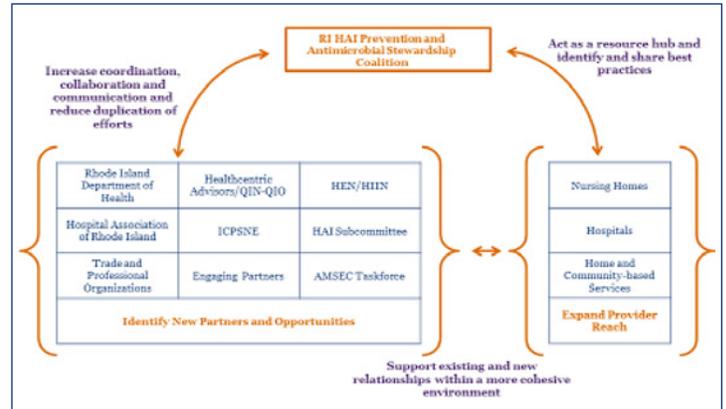
The Leadership and Policy Committee is comprised of hospital and nursing home executives who control funding and make administrative decisions at their respective facilities. It is essential to engage and educate this population about the importance of antimicrobial stewardship and the cost of antimicrobial resistance, in order to target the necessary resources to establish and support antimicrobial stewardship programs. This Committee is also tasked with developing and supporting state and national policies that align with Coalition goals.

EDUCATION AND BEST PRACTICE WORKGROUP

The Education and Best Practices Workgroup consists of HAI prevention and antimicrobial stewardship leaders, practitioners, and subject matter experts who identify gaps in state or facility programs and develop consistent best practices. The Workgroup will then share its expert information with the Leadership and Policy Committee.

The Coalition hosted a kick-off event on August 25, 2016, with approximately 300 attendees that included hospital and nursing home leadership, infection prevention specialists, quality improvement specialists, pharmacists, infectious disease physicians, laboratorians, insurers, and public health practitioners. This meeting brought all partners together to discuss how Rhode Island’s healthcare community can work together

Figure 2. Status of coordinated statewide efforts with the HAI Prevention and Antimicrobial Stewardship Coalition.



to improve antimicrobial stewardship and prevent HAIs.

The keynote speaker at the event was Captain Lauri Hicks, DO, Director of CDC’s Office of Antibiotic Stewardship. Dr. Hicks, who has been an advocate for appropriate antibiotic use for nearly a decade, shared effective and practical ideas for improving and expanding antimicrobial stewardship programs at healthcare facilities. The various speakers discussed the health impact of HAIs; the financial burden of HAIs; the public health consequences of antibiotic resistance; and the need for antimicrobial stewardship.

Charged with coordinating statewide efforts to effectively prevent HAI and ultimately improve the CMS HAC Reduction scores among healthcare facilities in RI, the kick-off shared how the Coalition will be sustained going forward. With both groups of the RI HAI Prevention and AMS Coalition attending the kick-off in the summer of 2016, the Education and Best Practice Workgroup and the Leadership and Policy Committee would continue to meet at alternating dates every 3 to 6 months, targeting the respective audience for each group. Existing meetings and groups throughout the state with a focus on HAI prevention and AMS would also be leveraged to reduce duplication and to advance coordination of strengthened efforts.

On December 7, 2016 the Coalition hosted the first meeting of the “Education and Best Practice Workgroup”. This meeting provided an opportunity for providers and stakeholders from across healthcare settings and disciplines to come together to coordinate efforts, share best practices, and drive improvement in Rhode Island. During the meeting, attendees reviewed the recommended guidelines for infection prevention and antimicrobial stewardship; discussed barriers to implementing these guidelines; learned about current research, quality improvement, and technical assistance projects; and listened to what colleagues in other facilities were doing to address the problem.

The next meeting organized by the Coalition was the “Leadership and Policy Meeting”, held on May 8, 2017. The meeting brought together executive healthcare administration and board members from various healthcare facilities, state policy leaders, and clinical academic program leaders to discuss strategies to overcome the negative impact that HAIs have on the health of Rhode Islanders and on the financial sustainability of healthcare organizations.

Overall, Rhode Island has made a tremendous effort to increase antimicrobial stewardship and reduce the negative health impact and financial burden that HAIs have on the healthcare system. This multi-disciplinary approach of the Coalition, with the strong communication and outreach efforts, has set the stage for RI to be very successful in promoting antimicrobial stewardship and combating HAIs. Preliminary results of the fiscal year ‘17 HAC Reduction Program scores reveal that the previous results of seven out of 11, has now decreased to four out of 11 acute care hospitals in RI which will be penalized with reimbursement reductions.¹¹ There is still much more work to be done, but RI has laid the groundwork to strategically reduce HAI and improve the metrics associated with AMS statewide.

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