



Advancing High Performance Health

AMGA Foundation

Acclaim Award
Intermountain Healthcare

2020 Honoree

Narrative:
Antibiotic Stewardship



Intermountain Healthcare: Healthcare Innovations Dedicated to Helping People Live the Healthiest Lives Possible

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Narrative: Antibiotic Stewardship



In March of 2020, AMGA named Intermountain Healthcare an honoree of its 2020 Acclaim Award. The Acclaim Award, supported by AMGA Foundation, the association’s nonprofit arm, is designed to recognize and celebrate the successes that medical groups and other organized systems of care have achieved in improving the value—the quality and cost of care—of the healthcare services they provide to their communities. It honors organizations that are meeting the IOM Aims for Improvement and are taking the necessary steps to become a High-Performing Health System™ as defined by the AMGA.

As part of the Acclaim Award application process, Intermountain Healthcare was asked to highlight narratives describing the design and deployment of major components—projects, phases, or tactical plans—that were part of its plan to transform the way it delivered health care in order to more fully achieve the AMGA High-Performing Health System™ attributes, improving both the quality and cost of care. Here, we share one of its narratives.

A Need for Antibiotics

Antimicrobial resistance is a looming public health threat, in part driven by inappropriate antimicrobial use. At least 30% of both inpatient and outpatient antimicrobial prescriptions in the United States are unnecessary and contribute to adverse drug events, the development of *Clostridium difficile* colitis, and the rising cost of health care.

Antimicrobial stewardship programs in hospitals have become standards of care to improve inpatient antimicrobial prescribing, yet most of the antimicrobial use in humans occurs in the ambulatory setting. In addition, urgent care, telemedicine, retail clinics, and dental clinics have been identified as a major contributor to ambulatory antimicrobial prescribing. New Joint Commission requirements to address antimicrobial stewardship in ambulatory health care came into effect on January 1, 2020. Institutions are now required to appoint an antimicrobial stewardship leader and develop an annual antimicrobial stewardship goal with associated evidence-based practice guidelines, educational resources, and data.

The implementation of a coordinated, structured, collaborative antimicrobial stewardship program within a large healthcare network or medical group is a novel mechanism to improve antimicrobial prescribing and patient outcomes. There is currently a gap in knowledge on how to best implement these programs within healthcare networks in the inpatient, outpatient, and transitions in care settings.

Randomized controlled trials have demonstrated the benefit of various antimicrobial stewardship interventions to improve antimicrobial prescribing; however, many of these interventions were voluntary, resource intensive, and/or developed in large academic medical centers. Now, with Joint Commission and pending Centers for Medicare and Medicaid Services (CMS) Conditions of Participation regulations in both the inpatient and outpatient settings, organizations are required to invest in these programs. Intermountain Healthcare became focused on how best to implement antimicrobial stewardship in the real-world setting and address the unique challenges of the outpatient setting, including organization structure and culture, goal setting, aligning incentives, and leveraging multidisciplinary expertise.

In 2015, Intermountain Healthcare was one of 150 invited to the White House for a forum on antimicrobial stewardship. At that time, the system made commitments to pioneer antimicrobial stewardship initiatives throughout all hospitals in the health system using telemedicine and the application of antimicrobial use data to improve patient outcomes. As a follow-up in September 2018, Intermountain was invited to the United Nations side event hosted by the Centers for Disease Control and Prevention (CDC) to launch the Antimicrobial Resistance Challenge and publicly committed to improve antimicrobial prescribing in the outpatient setting.

Within Intermountain, urgent care clinics continue to expand (approximately 700,000 encounters annually) and account for over 50% of outpatient antimicrobial prescriptions. Prior to the creation of a centralized antimicrobial stewardship structure, no antimicrobial stewardship oversight existed in urgent care. To address this gap, the stewardship team applied for and was awarded a contract from the CDC to investigate how antimicrobial prescribing could be improved in the urgent care setting.

From June 2019 through March 2020, the intervention resulted in a 42% reduction in the percent of respiratory encounters that received an antibiotic (50% of encounters received an antibiotic during baseline compared to 29% at the end of March). This reduction in antibiotic prescribing accounts for approximately 29,000 antibiotic prescriptions avoided! The intervention was not associated with a decline in patient satisfaction scores, likely due to corresponding efforts to improve patient education in the absence of an antibiotic prescription.

Benefits also exist related to acute and longitudinal costs of care. Foregoing unnecessary medication saves patients money on purchases of individual prescriptions and expedites effective treatment modalities. When viewed long term, greater financial and public health benefits materialize in the form of reduced antimicrobial resistance and avoidance of possible complications associated with prescription antibiotics, including allergic reactions and *C. difficile* colitis.

The Design Processes

To address the need for better strategies to reduce antibiotic overuse, the CDC published the *Core Elements of Outpatient Antibiotic Stewardship* (Sanchez 2016). Four interacting elements—Action for Policy and Practice, Education and Expertise, Tracking and

Reporting, and Commitment—provide an evidence-based framework for the development, implementation and sustainment of antibiotic stewardship interventions in outpatient settings.

In July 2019, the system used the CDC Core Elements to deploy stewardship interventions in Urgent Care settings. Electronic medical record tools allowed using delayed prescriptions for selected respiratory conditions in place of immediate prescriptions, templated electronic notes for common respiratory conditions, and justification alerts when azithromycin was prescribed (Action). Patients receive education fact sheets and symptomatic therapy checklists (Education). Urgent Care clinicians received education on the system's updated care process models (Education/Expertise) and monthly, transparent antibiotic prescribing data (Tracking and Reporting). Prescribing data and educational material were reviewed at regional clinician meetings with Urgent Care leadership. Raising awareness and changing patient perceptions through media campaigns also include leadership commitment posters displayed visibly within clinics (Commitment). All interventions developed and deployed were created jointly with frontline urgent care clinicians and patient representatives. Engaging caregivers and patients in the design processes ensured the interventions were of value to everyone. Early implementation results suggest that clinicians are engaged as delayed prescriptions have substantially increased across the network and the respiratory antibiotic prescribing rate has started to decline.

Deployment, Staff Roles, Training, and Engagement

Baseline urgent care data from Intermountain Healthcare demonstrated that over 50% of all antimicrobial prescriptions coming from urgent care clinics were for respiratory conditions (e.g., sinusitis,

otitis media, etc.). In addition, extreme variability existed among clinicians with antimicrobial prescribing for respiratory conditions, ranging from 15% to 97% of all respiratory encounters. Due to this extreme variation in treatment of a common condition, Intermountain's stewardship team, in close collaboration with the urgent care service line (part of community-based care) developed and implemented an urgent care antimicrobial improvement initiative using the following approaches:

Leveraging Multidisciplinary Expertise

Beyond the essential requirement of locally-engaged outpatient prescribers, infectious diseases-trained physicians provide valuable expertise and assistance in the development of guidelines to improve antimicrobial use and infectious diseases-related diagnostic testing. In addition to medical expertise, other disciplines play a key role in improving antimicrobial prescribing in the outpatient setting. Pharmacist expertise in appropriate dosing regimens is valuable to ensure the best patient care and assist in successful development of unique tools such as delayed prescriptions. Patient surveys conducted in urgent cares also suggest that other personnel can either support or undermine antimicrobial stewardship—for example, something as simple as a medical assistant asking a patient to designate their preferred pharmacy to send prescriptions can lead a patient to expect a prescription from the licensed independent practitioner. Thus, engaging a variety of disciplines in the development of antimicrobial stewardship interventions is critical.

Augmenting the Electronic Health Record

In response, Intermountain has developed several electronic tools to improve appropriate antimicrobial use. One tool is an alert that triggers when azithromycin is prescribed, holding prescribers accountable by requiring written indication justification. A second tool

is delayed antimicrobial prescriptions pre-built in the electronic health record specifically for otitis media and sinusitis. A third tool within the medical record is a quick visit to make documenting for upper respiratory infections a faster process. Lastly, data gathered from the health record has been created into an elaborate tableau report, providing peer-to-peer comparison and benchmarks informing and allowing clinicians to track changes in their approach.

Goals, Measures, Matrices, and Obstacles

Goal setting is an art that balances meaningful work and measurable results and is important to clearly define institutional priorities. This approach incentivizes both physicians who are currently low prescribers, as well as those who, at baseline, are considered “high prescribers.” Working together, system antimicrobial stewardship experts and urgent care leaders developed meaningful goals for the service line that would motivate and drive improvement.

Clinicians also have many competing priorities and the traditional reimbursement system has not supported appropriate antimicrobial prescribing. Consider this—many clinicians are reimbursed based on relative value units (RVUs), which reward shorter visits and visits that result in a prescription medication being given (i.e., antimicrobials). Data suggest that prescribing an antimicrobial at a visit may reduce the time an encounter takes, further encouraging antimicrobial prescribing. Another important metric is patient satisfaction, and although data are conflicting, many physicians perceive higher patient satisfaction is associated with leaving the encounter with an antimicrobial prescription. Intermountain’s urgent care service line is addressing these issues by moving to shift-based reimbursement and incorporating a value recognition program that focuses on antimicrobial prescribing metrics.

Inner Setting (i.e., Urgent Care clinic setting)

Urgent Care clinics utilize variable staffing models based on the established seasonality of the conditions that are treated, leading to limited resource availability at times. Many clinics are open long hours and most days of the week to provide on-demand and convenient access which contribute to time constraints within encounters and make training of all staff difficult. Clinicians within the system’s network often rotate between multiple, regionally-based locations. Challenges exist in connecting Urgent Care clinicians with relevant consultative specialty services (e.g., Infectious Disease) when questions arise during the encounter. Variability in affiliation and medical training among clinicians may also contribute to suboptimal awareness and adoption of locally developed evidence-based guidelines. How a team was organized contributed to how well the team communicated and trained all members, engaged in a team learning process, and participated in clear goal setting and improvement activities.

Outer Setting (i.e., organizational and national policy factors)

As with other healthcare settings, fee-for-service Urgent Care physician compensation (e.g., RVUs) potentially creates perverse incentives to code for higher acuity illnesses, perform more diagnostic tests, and/or prescribe more medications. Direct-to-consumer Urgent Care telehealth visits are also rising—countering rising labor costs and increasing patient convenience while providing equitable care to brick-and-mortar Urgent Care clinics. Rapidly changing market forces in the Urgent Care setting may make it difficult to balance the quality and access to services while staying competitive with rising costs and diminishing reimbursement.

Learnings from the Larger Plan

Clinicians reported the presence of key barriers to optimal antibiotic prescribing: low self-efficacy to follow prescribing guidelines while routinely assuming patients expected antibiotics, lack of clarity about appropriate antibiotic prescribing goals, limited data and feedback regarding individual or group prescribing habits, and displayed conflicting beliefs that antibiotic guidelines were too academic, yet necessary to deliver value to patients. Clinic staff described how antibiotic stewardship could be incorporated into the clinic workflow (e.g., providing patient education while rooming a patient), but rarely received training according to clinical practice guidelines for antibiotic stewardship. Patients rarely

reported expectations of receiving antibiotics, but rather highly valued receiving education about symptom management during the encounter.

Healthcare settings have distinct contextual factors that need to be incorporated into the implementation design to maximize effectiveness, uptake, and sustainability of evidence-based practices. Urgent Care is an emerging healthcare delivery setting experiencing dramatic increases in patient volumes which warrants tailored interventions including those focused on antibiotic stewardship. Formal study to understand the relationship between Urgent Care barriers, evidence-based interventions, and antibiotic use will inform future intervention iterations in this setting.



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