Influencing Antibiotic Prescribing Behavior: Inpatient Settings

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Disclosures

• I have no financial relationships to disclose in relation to this presentation
Objectives

• To explain what it means to take a sociological approach to studying antibiotic prescribing and stewardship.

• To state what we know about the social determinants of antibiotic prescribing in inpatient settings and how this knowledge can be used to inform stewardship.

• To identify gaps in knowledge that should be addressed in future research.
Why think of antibiotic stewardship as a *sociological* endeavor?
“Our hospital leaders are always looking for an IT fix, you know, let’s have a pop-up box or let’s make it so the patient can’t be transferred out of the unit until there is a stop date for the antibiotic. They are looking for this foolproof technological system. And yes, that is important, but I think we need to start focusing more on how we communicate this information, which is not something we were trained to do or even know much about. I think stewardship suffers from heavy-handed mannerisms, like ‘here come the antibiotic police.’ We need to change that perception...we need to become great ambassadors. We can’t just be nagging, or clicking boxes, or forcing a pop up box. We have to empower and engage prescribers. It’s not about nagging; it’s about good news. “I’m giving you great skills. This will make your life easier. I’m empowering you.” We need guidance on how to engage and convince better to change behavior.”

-Excerpt from an interview with an ID physician at a community hospital (Szymczak, Gerber & Hamilton study in progress)
A Sociologist Sees The Hospital as a Small Society

- Behavior in healthcare organizations shaped by social dynamics of groups$^{1,2,3}$
  - Conflict
  - Status inequality
  - Face-saving and emotion management
  - Identity work
  - Hierarchies

- Medical and healthcare workplaces have distinct cultures that shape decision making and behavior$^4$

Charles Drew teaching interns and residents at Freedmen's Hospital in Washington, DC, 1947

Antibiotic Stewardship and Behavior Change

• Antibiotic Stewardship interventions use different strategies (both persuasive and restrictive) to change the prescribing behaviors of frontline clinicians\(^1\)
  – Education
  – Audit and Feedback
  – Restricted Formularies
  – Prior Approval

• Prescribing behavior is a complex, multifactorial process

(1) Davey et al. Cochrane database of systematic reviews 2017;2.
Conceptual Framework for Antibiotic Use

Social Determinants of Antibiotic Prescribing in Inpatient Settings

• Emerging literature identifies factors that drive antibiotic prescribing decisions beyond clinician knowledge of appropriate practice or medical need

• Medical sociologists and anthropologists have long-identified that prescribing a drug is a highly social as well as clinical act.¹, ²

1.) Relationships Between Clinicians

• “Prescribing etiquette”\textsuperscript{1, 2, 3}
  – Strong norm of noninterference\textsuperscript{2, 4}

• Role of hierarchy
  – Junior physicians defer to attendings\textsuperscript{5, 6}

• Opinion of senior colleagues and social networks\textsuperscript{7}
  more influential than guidelines
  – Variation in attitudes by medical specialty\textsuperscript{8}

2.) Risk, Fear, Anxiety and Emotion

- Perception that risk of under-treating > individual patient risk from receiving unnecessary antibiotics\(^1,^2\)
  - Adverse effects have limited impact on decision-making\(^3\)
  - Broad spectrum antibiotics feel “safe,” overarching goal is “preventing disaster in next 24 hours”\(^4\)

- Emotional desire to provide all immediate therapeutic options regardless of wider population consequences\(^5\)

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3.) (Mis)Perception of the Problem

- Survey research finds that clinicians perceive antibiotic overuse is a problem generally, but not locally\textsuperscript{1,2,3,4,5}
- Exceptionalism\textsuperscript{6}
  - Guidelines do not apply to my patients
  - My past experience and expertise trump guidelines\textsuperscript{7}
  - Guidelines are “academic” and are not always practical in application\textsuperscript{8}
  - Disbelief that one overprescribes\textsuperscript{3,5}

4. Contextual and Environmental Factors

• Time pressures
  – Pressure to discharge quickly discourages a “watch and wait” approach\(^1\)

• Competing priorities – patient satisfaction scores\(^2\)

• Time of day\(^3\)
  – Decision fatigue – erosion of self control over time (tired, hungry, etc.) – GPs make more inappropriate decisions later in the day

Implications for Stewardship

• Although stewardship interventions have been successful to a degree, we can do better
  
  – Direct educational approaches generally do not result in sustained improvement$^1$
  
  – Restrictive policies can be circumvented
    • “Stealth dosing”$^2$
    • Misrepresenting clinical information$^3, 4, 5$
    • Combining non-restricted antibiotics to get desired coverage beyond stewardship recommendation

Implications for Stewardship

• For sustainable change, clinicians need to internalize new social norms\(^1\)
  – Antibiotics have an image problem
  – Openness to questioning and being questioned about prescribing decisions

• Social factors need to be considered in design and implementation of stewardship
  – To date, largely overlooked\(^2\)

From: Behavioral Approach to Appropriate Antimicrobial Prescribing in Hospitals
The Dutch Unique Method for Antimicrobial Stewardship (DUMAS) Participatory Intervention Study

Figure Legend:
Intervention Approach Used in the Current Study
• Intervention draws on 3 behavioral principles
  – Respect for prescriber autonomy to avoid resistance
  – Inclination of people to value a product higher and feel more ownership if they made it themselves
  – Tendency for people to follow up on an active and public commitment
Future Research

• Need to use sociobehavioral theories and methods to move stewardship forward

  1.) **Factors that shape antibiotic prescribing**
      - novel targets for intervention
      - variation by clinical area, provider type, etc.
  
  2.) **Implementation in antibiotic stewardship**
      - communication best practices
      - design, delivery and framing of incentives based on science of human motivation and sociocultural dynamics of the medical profession
Future Research

• How do we develop interventions that produce behavior change by modifying culture to change norms?

• How do we design interventions that target the emotional dimensions of antibiotic prescribing?

• What are the sociobehavioral dynamics that characterize the optimal way of doing stewardship?