The Social Determinants of Antimicrobial Prescribing: Towards a More “Human” Stewardship

Julia E. Szymczak, PhD
Assistant Professor
Department of Biostatistics, Epidemiology and Informatics
Division of Infectious Diseases
@julieszymczak

Three Rivers Antimicrobial Stewardship Symposium
Duquesne University
Pittsburgh, PA
March 9, 2019
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 patient safety and quality improvement

• To state what is known about the social determinants of antibiotic prescribing and how this knowledge can be used to inform the development of stewardship interventions and inform future research

• Describe practical strategies to uncover and overcome social barriers to implementing antibiotic stewardship
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\(^4\)

FROM THE EDITOR-IN-CHIEF

DOI: 10.1377/hlthaff.2011.0287

Still Crossing The Quality Chasm—Or Suspended Over It?

BY SUSAN DENTZER

DATAWATCH

By Robert M. Wachter

Patient Safety At Ten: Unmistakable Progress, Troubling Gaps
How does culture and the social context influence efforts to improve the safety and quality of care?
Why study antibiotic use as a sociological phenomenon?
“If I see a patient a week after surgery, and there’s still a little redness, and Mom’s nervous I am inclined to just put the kid on the antibiotic. It just makes everyone comfortable, and then a week later, the redness is gone. Did I treat an infection or was there just some redness? Some inflammatory post-operative discharge? I don’t know. I’m more careful about how I give antibiotics than I used to be in the past. You don’t want to be part of the societal issue of creating superbugs, but it is surprisingly difficult to look Mom in the face when she is convinced it’s infected and you’re trying to say ‘look, it’s not infected,’ when you don’t even know for sure yourself and a week later it could pus out and Mom’s like ‘see? Should have put her on antibiotics. I can’t believe you did this to my kid!’ That is what you imagine the scenario being if you don’t do something. It’s so much easier to say ‘look, we’ll put her on a little antibiotic.’”

-Interview, Pediatric General Surgeon

KEEP CALM AND DO Antimicrobial Stewardship
Antibiotic Stewardship (AS) interventions use different strategies (both persuasive and restrictive) to change the prescribing behaviors of frontline clinicians

- Education
- Audit and Feedback
- Restricted Formularies
- Prior Approval

Prescribing behavior is a complex, multifactorial process
Conceptual Framework for Antibiotic Use

Szymczak and Newland (2018) SHEA Practical Implementation of an Antimicrobial Stewardship Program
Conceptual Framework for Antibiotic Use

- Healthcare System and Organizational Characteristics
- Social Interaction in Healthcare Settings (Clinician-Clinician; Clinician-Patient)
- Cultural Beliefs About Antimicrobials, Health and Disease
- Knowledge of Infectious Diseases
- Knowledge of Patient
- Knowledge of Antimicrobials
- Physician Attitude
- Decision to Use Antimicrobials
- Choice of Antimicrobials
- Refine Choice of Antimicrobials
- Culture Results
- Patient Attitudes and Desires

Szymczak and Newland (2018) SHEA Practical Implementation of an Antimicrobial Stewardship Program
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.

Social Determinants of Antibiotic Prescribing

1.) Relationships between clinicians

2.) Relationships between clinicians and patients

3.) Risk, fear, anxiety and emotion

4.) (Mis)perception of the problem

5.) Contextual and environmental factors
1.) Relationships Between Clinicians

- “Prescribing etiquette”\textsuperscript{1, 2, 3}
  - Strong **norm of noninterference**\textsuperscript{2}
    - Avoid altering other prescribers’ decisions
    - Ok to intervene on prescribing decisions that are **immediately harmful** but not for those that are **apparently inappropriate**

- Reluctance to provide critique/feedback/advice\textsuperscript{4}
  - Ok sometimes, but only in “appropriate” forum (handoffs)
  - Lack of opportunity to give face-to-face feedback

1.) Relationships Between Clinicians

• Role of hierarchy
  – Junior physicians defer to senior colleagues\textsuperscript{1, 2}

• Opinion of senior colleagues and social networks\textsuperscript{3} more influential than guidelines
  – Variation in attitudes by medical specialty\textsuperscript{4,5}

The Differences in Antibiotic Decision-making Between Acute Surgical and Acute Medical Teams: An Ethnographic Study of Culture and Team Dynamics

E. Charani, R. Ahmad, T. M. Rawson, E. Castro-Sánchez, C. Tarrant, and A. H. Holmes

1Health Protection Research Unit in Healthcare-Associated Infections and Antimicrobial Resistance, National Institute for Health Research, Imperial College London, and 2Department of Health Sciences, University of Leicester, United Kingdom

Are Surgeons Different? The Case for Bespoke Antimicrobial Stewardship

Julia E. Szymczak

1Department of Biostatistics, Epidemiology and Informatics, Perelman School of Medicine, University of Pennsylvania, and 2Division of Infectious Diseases, Hospital of the University of Pennsylvania, Philadelphia
2.) Patient Demand

- Clinicians identify patient pressure for antibiotics as major barrier to more judicious prescribing\(^1, 2, 3, 4\)
  - Especially in ambulatory settings and pediatrics

2.) Patient Demand

- Why capitulate to patient pressure?\(^1,2\)
  - Want to please patient
    - Competing performance measures – fear of leadership sanctions following poor patient satisfaction scores\(^3\)
    - Wanting to provide value to patients so they don’t go home empty handed\(^4\)
  
- Explaining why antibiotics are not necessary is too time-consuming and unrewarding

- Fear medicolegal sanctions

2.) Patient Demand

- Evidence to suggest that clinicians over-estimate patient demand for antibiotics\(^1,2\)

- Patients becoming more aware (and wary) of antibiotic overuse\(^3,4\)
  - Primary concern is gaining clarity about symptoms

- Clinicians prescribe on the basis of perceived rather than actual patient expectations\(^5,6\)

3.) Risk, Fear, Anxiety and Emotion

- Perception that risk of under-treating > individual patient risk from receiving unnecessary antibiotics\(^1,2\)
  - Potential adverse effects of antibiotics have limited impact on decision-making\(^3\)

- Risk perceptions re: broad spectrum abx\(^4\)
  - Overly dire consequences for initiating coverage that is too narrow
  - Broad spectrum drugs feel “safe,” more “comfortable”
  - Overarching goal is “prevention of disaster in next 24 hrs”

3.) Risk, Fear, Anxiety and Emotion

- Emotional desire to provide all immediate therapeutic options regardless of wider population consequences\(^1,2\)
  
  – Shaped by face to face interactions with patients and their families
  
  – The “pull” of social relationships stronger than the “push” of guidelines or restrictive policies

4.) (Mis)Perception of the Problem

- Numerous survey studies find that clinicians perceive antibiotic overuse is a problem generally, but not locally\[^{1,2,3,4}\]

Numerous survey studies find that clinicians perceive antibiotic overuse is a problem generally, but not locally.\(^1,2,3,4\)

Other medical specialties responsible for overuse\(^5\)

"Antibiotic overuse is a big problem, but pediatricians are probably the least offenders. Family practitioners, internists, ER doctors and the staff at urgent care or minute clinics, those are the greatest offenders."

-Interview, Primary Care Pediatrician

4.) (Mis)Perception of the Problem

• Exceptionalism\(^1\)
  – Guidelines do not apply to my patients
  – My past experience and expertise trump guidelines\(^2\)
  – Guidelines are “academic” and are not always practical in application\(^3\)
  – Disbelief that one overprescribes\(^3,4\)

(1) Charani et al. CID 2013:57; (2) Grant et al. Implementation Science 2013 8(72), (3) Szymczak et al. ICHE 2014:35; (4) Abbo et al. ICHE 2011 32(7): 714-718
4.) (Mis)Perception of the Problem

- Antibiotic resistance a macro problem but of limited concern at the bedside
  - Resistance is a “theoretical”\(^1\) or “intellectual”\(^2\) concern, not a practical one
  - Emergent problems take precedence

5.) Contextual and Environmental Factors

- Time pressures
  - Pressure to discharge quickly discourages a “watch and wait” approach\(^1\)
  - Practice volume and throughput pressures discourage communication with patients\(^2\)

- Ease of accessing diagnostic testing systems and ability to act on the results

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

Why should we care about the social determinants of antibiotic prescribing?
Although AS 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 AS recommendation
- Audits can be “gamed”\(^6\)

Stewardship from the ground up instead of top-down?
Implications for Stewardship

• For lasting change, clinicians need to internalize **new social norms** surrounding antibiotic prescribing\(^1\)

  – What is considered “prudent”
  – Antibiotics have an **image problem**
    • “We’ll just put her on a little antibiotic”
    • Adverse effects underappreciated\(^2\)
  – Openness to questioning and being questioned about prescribing decisions

(1) Bosk et al. Lancet 2009:374; (2) Livorsi et al. ICHE 2015:36(9)
Implications for Stewardship

• When developing any QI intervention, need to understand
  – attitudes, motivation and intentions of those whose behavior is the target of change\(^1\)
  – local social/environmental context\(^2\)

• Despite evidence to suggest the importance of these factors, frequently overlooked in design and implementation of AS interventions\(^3\)

---

Can we work *with* culture and context to make sustainable changes in antibiotic prescribing behavior?
Participatory Action Research: The Dutch Unique Method for Antimicrobial Stewardship (DUMAS)
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
Thinking Sociologically about Stewardship

• Investigate motivations of frontline prescribers
  – Reinterpret resistance and recalcitrance
  – How do those that resist define the problem? \(^1\)
  – Try to understand what is at stake surrounding behavior that is target of change and what people want to preserve\(^2\)

Thinking Sociologically about Stewardship

• Explore social dynamics that characterize optimal way of “doing stewardship”
  – Leverage the power of face to face interaction\(^1\)
    • Trust accumulates over time based on repeated interactions\(^2\)
    • “Handshake stewardship” has shown promise without relying on restriction or preauthorization – fostering a culture of more judicious prescribing\(^3\)

Summary

• Use of antibiotics shaped by social, behavioral and contextual factors

• More attention needs to be paid to these factors
  – How they unfold in day to day work of stewardship
  – Qualitative research to identify novel sociobehavioral targets for intervention
  – Develop social tools for stewardship that address adaptive challenges, communication, conflict
  – Explicitly address and plan for social dynamics when implementing a stewardship program
The phenomenon where prescribers wait until the antimicrobial stewardship team stops mandating preapproval for restricted antimicrobials overnight to order restricted drugs is known as what?

a. Nighttime dosing  
b. Emergency dosing  
c. Pharmaceutical workaround  
d. Stealth dosing
Behavior in healthcare organizations is shaped by cultural, emotional and social dynamics that may shape how people act in ways that have nothing to do with the achievement of biomedical goals.

a. False
b. True
c. I don’t know.
d. Not applicable.
What are some sociological strategies to engage resistant clinicians in antimicrobial stewardship?

a. Publicly shame them.
b. Interview them to understand the deeper reasons behind their resistance.
c. Ignore them.
d. Engage hospital leadership to discipline them using financial penalties.
Questions?

jszymcza@pennmedicine.upenn.edu

Getting unnecessary antibiotics in Lusaka, Zambia while doing research in Summer 2016