The Social Determinants of Antimicrobial Prescribing: Implications for Stewardship

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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 patient safety and quality improvement

- To state what we know 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

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

- 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]

(1) Becker et al. 1961 *Boys in White*, (2) Bosk 1979 *Forgive and Remember*, (3) Freidson 1970 *The Profession of Medicine*, (4) Heimer & Staffen 1998 *For the Sake of the Children*

Still Crossing The Quality Chasm—Or Suspended Over It?

BY SUSAN DENTZER

By Robert M. Wachter

Patient Safety At Ten: Unmistakable Progress, Troubling Gaps

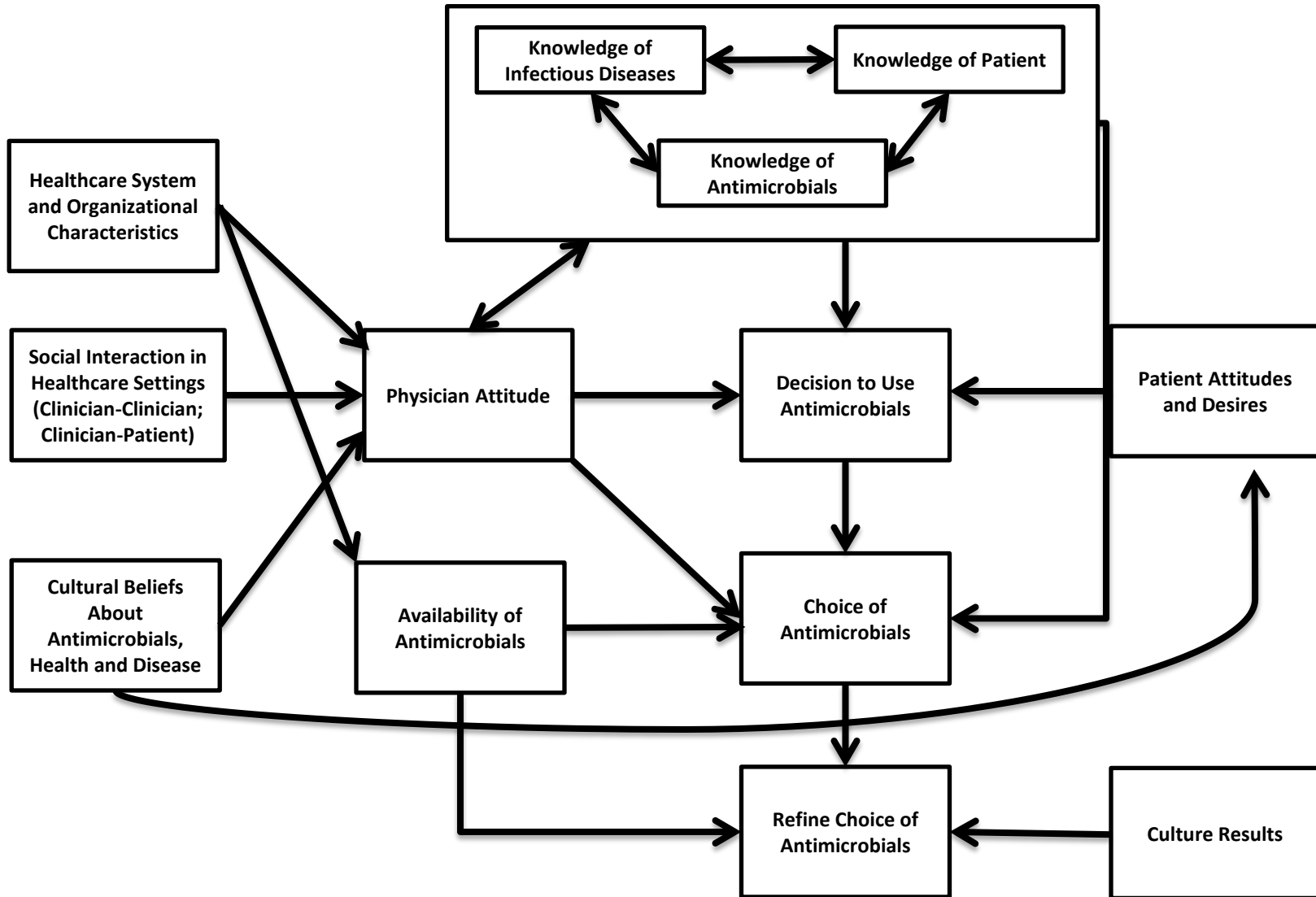# Why study antibiotic use as a <u>sociological phenomenon</u>?

KEEP CALM
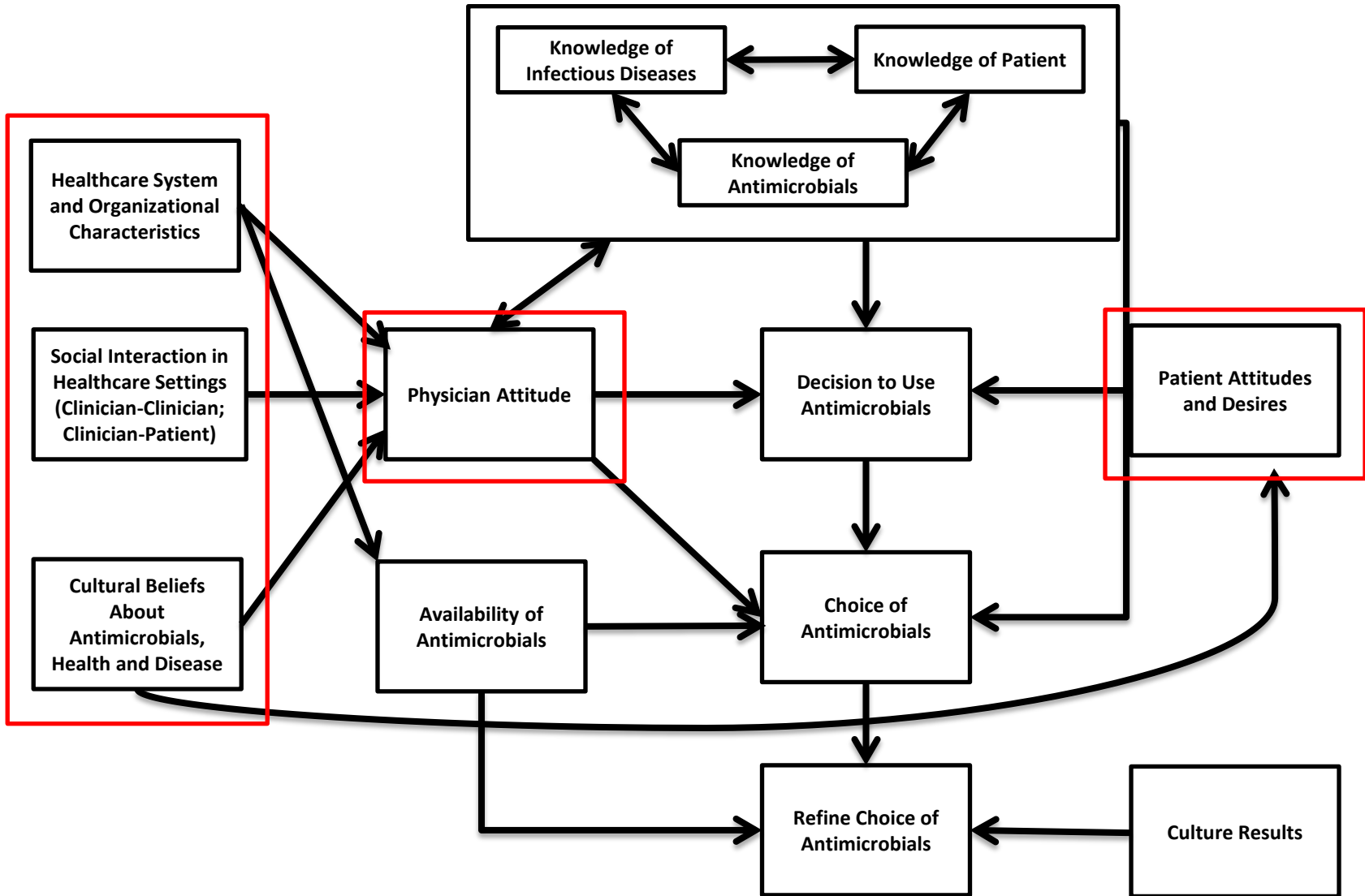## AND DO
Antimicrobial
Stewardship

Antibiotic Stewardship and Behavior Change

- 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

Adapted from Fishman, N. 2006. "Antimicrobial Stewardship" American Journal of Infection Control. 34(5)S1: S55-63.

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Social Determinants of Antibiotic Prescribing

- 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]

[1]van der Geest et al. Ann Rev Anthropology 1996 (25): 153-178.

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"[1, 2, 3]
  - Strong **norm of noninterference**[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[4]
    - Ok sometimes, but only in "appropriate" forum (handoffs)
    - Lack of opportunity to give face-to-face feedback

(1) Charani et al. CID 2013:57, (2) Lewis et al. J R Soc Med 2009:102, (3) Armstrong et al. Soc Health Ill 2006:28, (4) Livorsi et al. ICHE 2015:36

1.) Relationships Between Clinicians

- Role of hierarchy
  - Junior physicians defer to senior colleagues[1, 2]

- Opinion of senior colleagues and social networks[3] more influential than guidelines
  - Variation in attitudes by medical specialty[4]

(1) DeSouza et al. J Antimicrob Chemother 2006:58, (2) Charani et al. CID 2013:57, (3) Grant et al. Imp Sci 2013:8, (4) Cortoos et al. J Antimicrob Chemother 2008:62

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

(1) Bauchner et al. Pediatrics 1999:103, (2) Brookes-Howell et al. BMJ Open 2012:2, (3) Vazquez-Lago et al. Fam Pract 2012:29, (4) Szymczak et al. ICHE 2014:35(S3): S69-78

2.) Patient Demand

- Why capitulate to patient pressure?[1,2]

    – Want to please patient
        - Don't want patients to go home "empty-handed"
        - Competing performance measures – fear of leadership sanctions following poor patient satisfaction scores[3]

    – Explaining why antibiotics are not necessary is too time-consuming and unrewarding

    – Fear medicolegal sanctions

(1) Butler et al. BMJ 1998:317, (2) Shapiro Clin Ther 2002:24, (3) May et al. ICHE 2014 35(9): 114-1125

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]

(1) Mangione-Smith et al. Pediatrics 1999:103, (2) Stivers et al. J Fam Pract 2003:52, (3) Finkelstein et al. Clin Pediatr (Phila) 2014:53, (4) Szymczak et al. JPIDS 2017, (5) Mangione-Smith et al. Arch Pediatr Adolesc Med 2006:160, (6) Ong et al. Ann Emerg Med 2007:50

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]

- Resident 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"

(1) May et al. ICHE 2014:35, (2) Bjorkman et al. Qual Saf Health Care 2010:19, (3) Livorsi et al. ICHE 2015: 36, (4) Laake et al. IDWeek 2013

3.) Risk, Fear, Anxiety and Emotion

- Emotional desire to provide all immediate therapeutic options regardless of wider population consequences[1]

    – 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

(1) Broom et al. Soc Sci Med 2014:110

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]

(1) Giblin et al. Arch Intern Med 2004:164, (2) Wood et al. J Antimicrob Chemother 2013:68, (3) Abbo et al. ICHE 2011 32(7): 714-718, (4) Stach et al. JPIDS 2012 1(3):190-7

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]

- 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

(1) Giblin et al. Arch Intern Med 2004:164, (2) Wood et al. J Antimicrob Chemother 2013:68, (3) Abbo et al. ICHE 2011 32(7): 714-718, (4) Stach et al. JPIDS 2012 1(3):190-7, (5) Szymczak et al. ICHE 2014:35

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

(1) Bjorkman et al. Qual Saf Health Care 2010:19, (2) Broom et al. Soc Sci Med 2014:110

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

(1) Avorn et al. Ann Intern Med 2000:133, (2) May et al. ICHE 2014:35,
(3) Linder et al. JAMA Internal Medicine 2014 174(12):2029-31

Why should we care about the social determinants of antibiotic prescribing?

Implications for Stewardship

- 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]
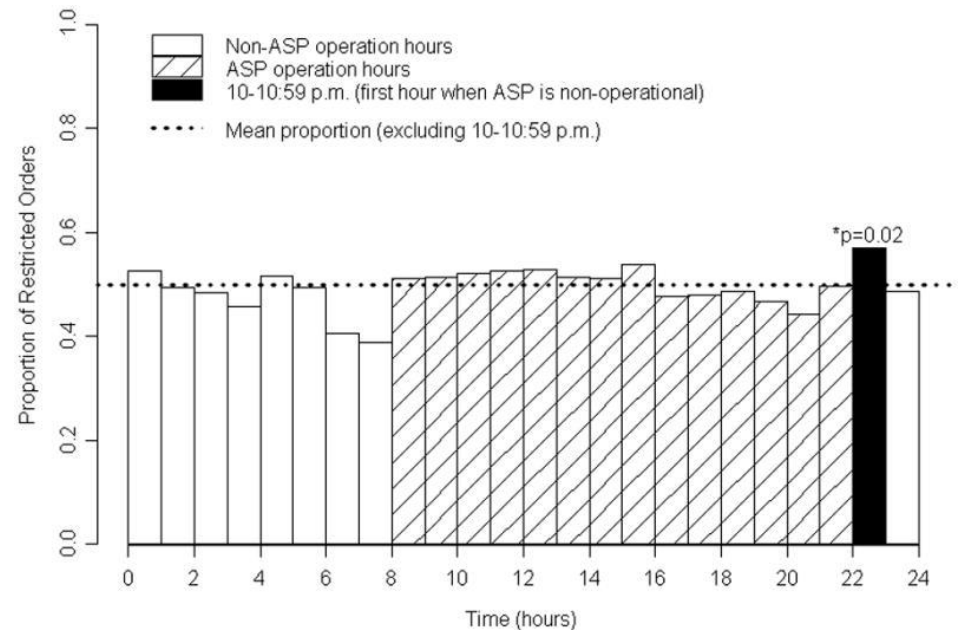
Linkin et al. ICHE 2007:28

(1) Arnold et al. Cochrane Database of Systematic Reviews 2005:4, (2) LaRosa et al. ICHE 2007:28, (3) Calfee et al. Jour Hosp Infec 2003:55, (4) Linkin et al. ICHE 2007:28, (5) Seemungal et al. ICHE 2012 33(4): 429-431 (6) Szymczak et al. ICHE 2014:35

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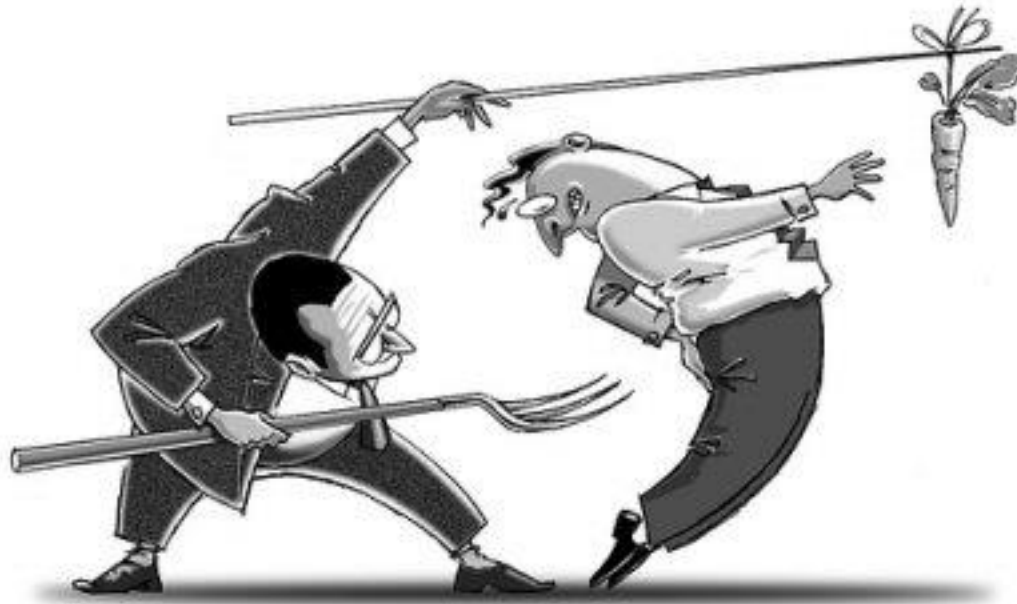
Implications for Stewardship

- 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]

(1) Pronovost BMJ 2011:20, (2) Aveling et al. J Health Organ Manag 2012:26, (3) Charani et al. Clin Infect Dis 2011:53

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)
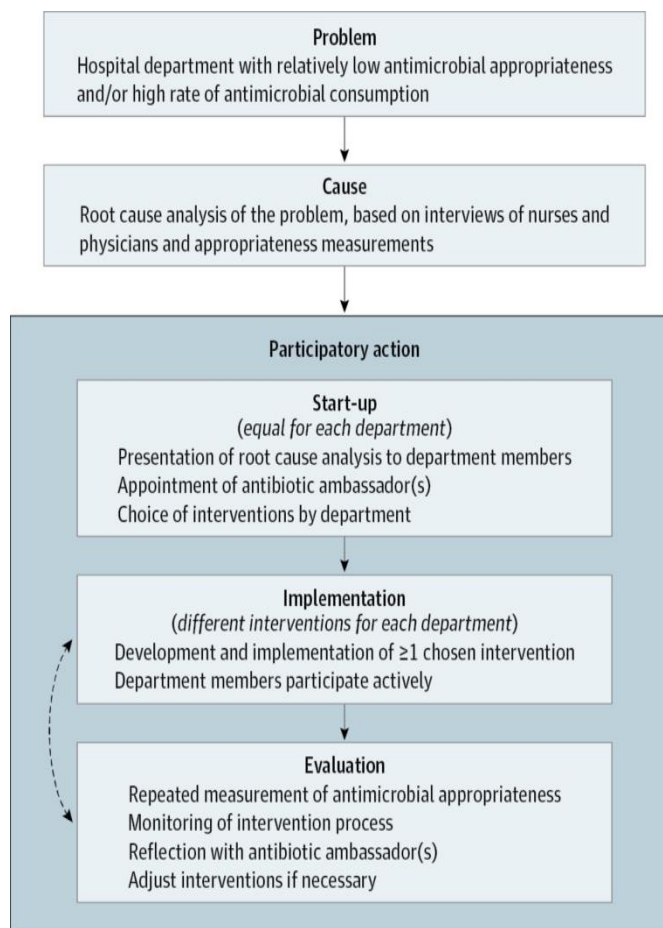
Figure Legend:

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

A Antimicrobial appropriateness

B Antimicrobial consumption
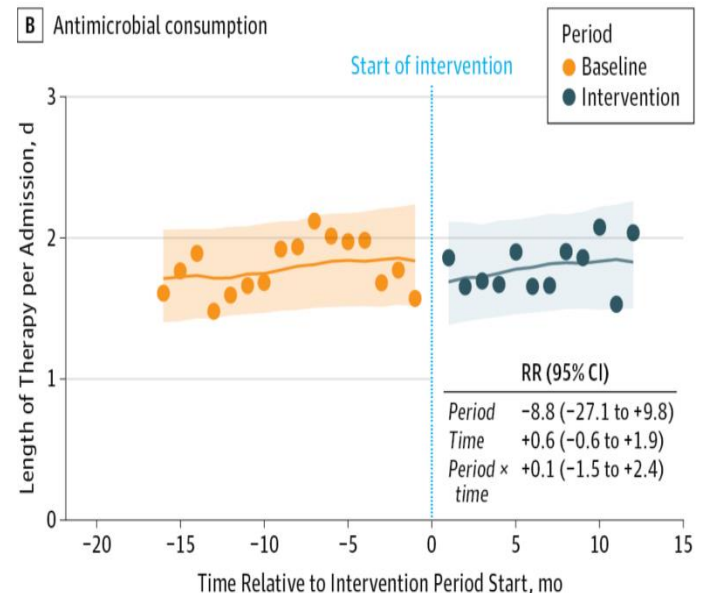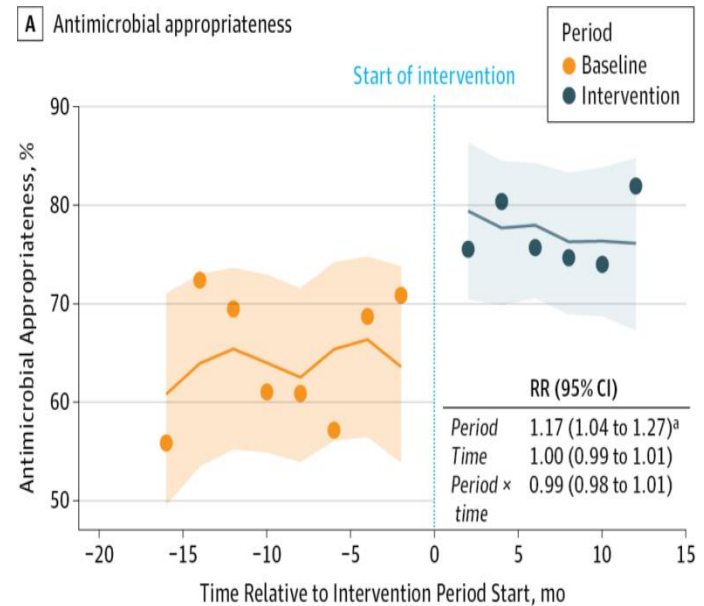
Thinking Sociologically about Stewardship

- Investigate motivations of frontline prescribers

  – Reinterpret resistance and recalcitrance

  – How do "active resisters and organizational constipators"[1] define the problem?

  – Try to understand what is at stake surrounding behavior that is target of change and what people want to preserve[2]

[1]Saint et al. Jt. Comm J Qual Patient Saf. 2009 35(5): 239-46;
[2]Pronovost BMJ Qual Saf 2011(20):560-563

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]

(1) Pakyz et al. AJIC 2014 42: S257-S263; (2) Collins 2004 *Interaction Ritual Chains* Princeton University Press; (3) Hurst et al. PIDJ 2016 35(10): 1104-1110

Thinking Sociologically about Stewardship

- Research on social dynamics surrounding implementation of stewardship suggests[1,2,3,4]
  - Communication style and content of message matters
  - Develop collegial relationships based on trust to increase engagement to create a "we" instead of a "you" and "us" mentality
  - Have a plan to deal with conflict and prescriber resistance; develop a "thick skin"
  - Gain credibility quickly

(1) Pakyz et al. AJIC 2014: 42, (2) Jeffs et al. JCPH 2015:68(5), (3) Patel et al. Interdisc Perspect on Infect Dis 2012, (4) Szymczak & Newland Forthcoming

The Importance of Relationship-Building

Messaging Matters

Finding Creative Ways to Change Perceptions

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

Knowledge Assessment Question #1

Clinicians are very accurate in their perception of whether or not patients desire an antibiotic in a primary care clinical encounter.

A) True

B) False

Knowledge Assessment Question #2

A sociological approach to patient safety emphasizes:

A)   How social work can improve safety and quality.

B) How the interactions between groups of people working together in healthcare organizations impacts clinical decision making.

C) The psychology of individual decision making.

D) How marketing can be used to improve how clinicians behave.

Knowledge Assessment Question #3

The following social techniques are useful in changing norms around antimicrobials:

A)   Building trusting relationships between stewards and prescribers.

B) Finding creative ways to change perceptions.

C) Being careful about the way the goals of stewardship are communicated.

D) All of the above.

Questions?

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