Changing Hearts and Minds: Integrating Social Dynamics into Antibiotic Stewardship Implementation

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Social Sciences in Healthcare Epidemiology and Antimicrobial Resistance

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Disclosures

- I have no financial relationships to disclose in relation to this presentation.

Learning Objectives

- Describe the ways in which quality improvement initiatives involve social change
- Identify the social determinants of antibiotic prescribing and determine the value of incorporating them into the design and implementation of antibiotic stewardship interventions
- Incorporate approaches antibiotic stewards and their teams can use to communicate with prescribers to increase engagement while decreasing conflict

Quality improvement involves social change.

I went into this line of work because I was interested in infectious disease epidemiology and hospital outbreak investigation. I love statistics and the use of epidemiologic methods in infection control.

When we see an uptick in MRSA in our ICU I like to be a disease detective within my own hospital — to figure out the source. And while all the tools I learned in public health school prepared me for that aspect of infection prevention, I didn't realize how much of it would be people management.

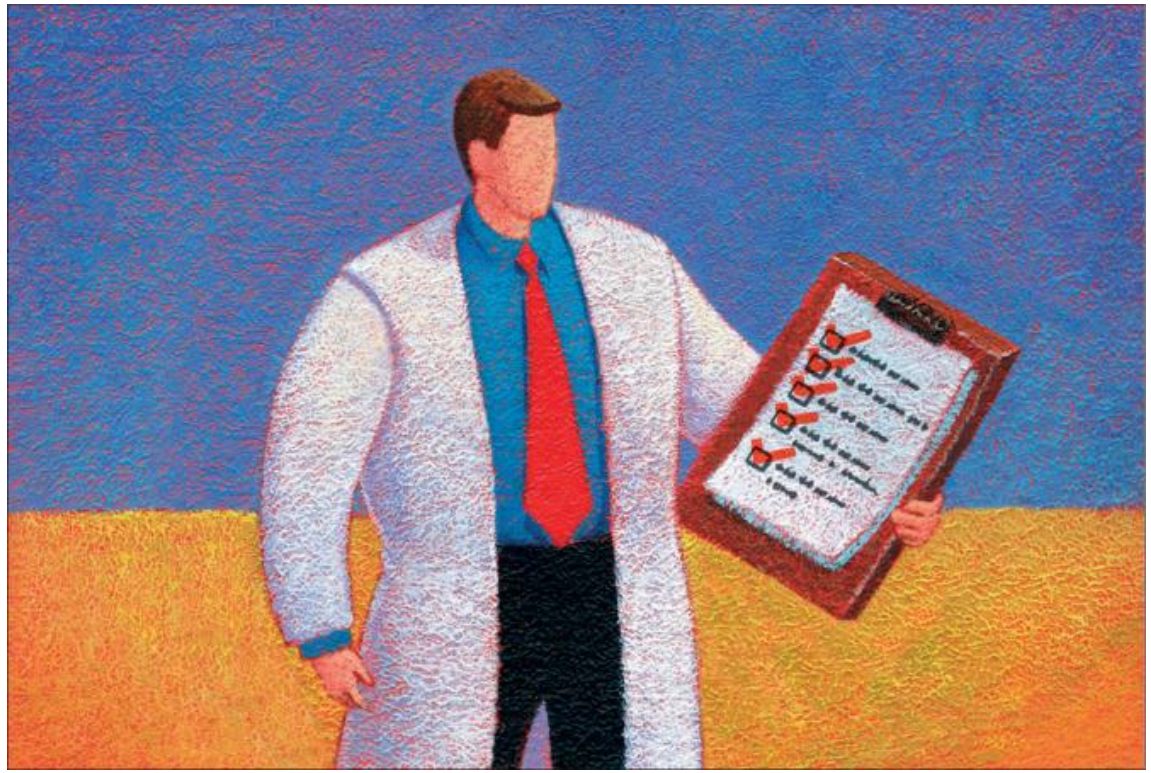
So, yes, our work is about microbiology, epidemiology, infectious disease and applying the best scientific evidence to control the spread of infection. But it is also about managing, cajoling and sometimes, nagging people to do the right thing every day when they come to work. My MPH coursework did not prepare me for a lot of that. So much of my job is trying to change hearts and minds — and I find that to be the most difficult thing.

Infection Preventionist

Szymczak (2013) *The Complexity of Simple Things: An Ethnographic Study of Efforts to Prevent Healthcare Associated Infection*.

Don’t confuse an adaptive problem with a technical one.

Pronovost PJ. Navigating adaptive challenges in quality improvement. *BMJ Qual Saf*. 2011 Jul;20(7):560-3.



Central Lines, Checklists, Context, and Collective Social Action

Charles L Bosk, Mary Dixon-Woods, Christine A Goeschel, Peter J Pronovost, Reality check for checklists, *The Lancet*, Volume 374, Issue 9688, 2009, Pages 444-445.

The NEW ENGLAND JOURNAL of MEDICINE

ESTABLISHED IN 1812 DECEMBER 28, 2006 VOL. 355 NO. 26

An Intervention to Decrease Catheter-Related Bloodstream Infections in the ICU

Peter Pronovost, M.D., Ph.D., Dale Needham, M.D., Ph.D., Sean Berenholtz, M.D., David Sinopoli, M.P.H., M.B.A., Haitao Chu, M.D., Ph.D., Sara Cosgrove, M.D., Bryan Sexton, Ph.D., Robert Hyzy, M.D., Robert Welsh, M.D., Gary Roth, M.D., Joseph Bander, M.D., John Kepros, M.D., and Christine Goeschel, R.N., M.P.A.

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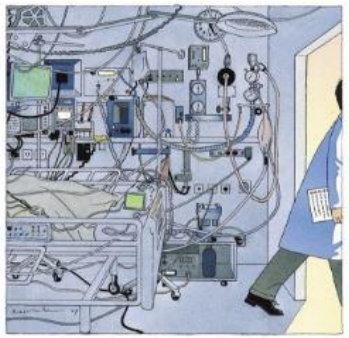
THE CHECKLIST

If something so simple can transform intensive care, what else can it do?

By Atul Gawande

The damage that the human body can survive these days is as awesome as it is horrible: crushing, burning, bombing, a burst blood vessel in the brain, a ruptured colon, a massive heart attack, rampaging infection. These conditions had once been uniformly fatal. Now survival is commonplace, and a large part of the credit goes to the irreplaceable component of medicine known as intensive care.

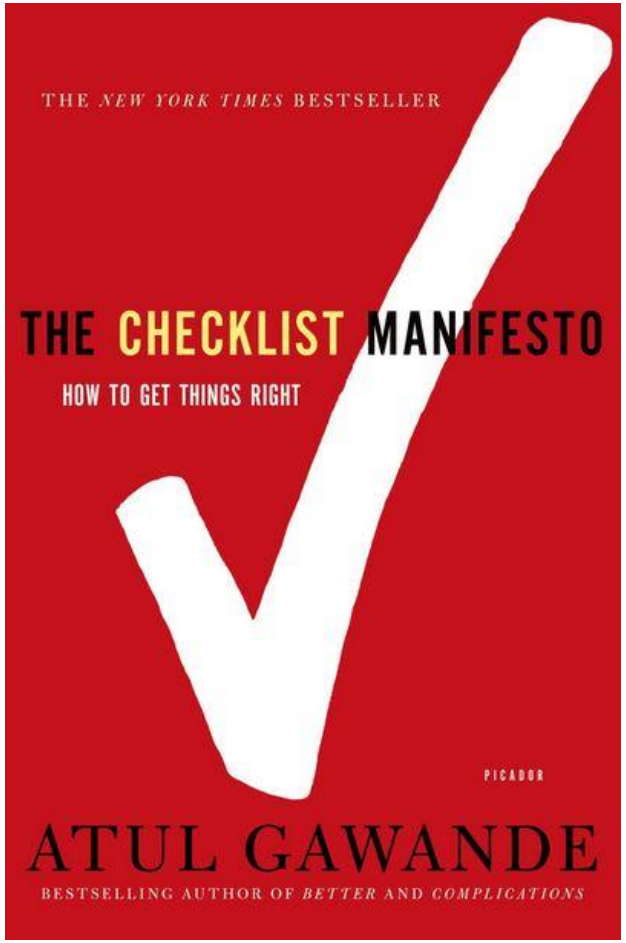
It's an opaque term. Specialists in the field prefer to call what they do "critical care," but



If a new drug were as effective at saving lives as Peter Pronovost's checklist, there would be a nationwide marketing campaign urging doctors to use it.

Illustration by Yan Nascimbene

2007



2009

Beware the "Simple Checklist" Story

- This narrative obscures social mechanisms that led to change
  - Engaged leadership
  - Social network of ICUs across the state encouraged institutional isomorphism
  - Leveraging infection data to promote accountability
  - Reframing CLABSI from "cost of doing business" to unacceptable
  - Bolstering climate where nurses felt empowered to speak up when they observed a breach in practice
- Just implementing the checklist without attention to these factors leads to failed replication of effects in other sites

Bion et al. *BMJ Qual Saf*. 2013 Feb;22(2):110-23.

Dixon-Woods et al. *Milbank Q*. 2011 Jun;89(2):167-205.

Reames et al. *JAMA Surg*. 2015 Mar 1;150(3):208-15.

Adaptive vs. Technical Problems

Technical

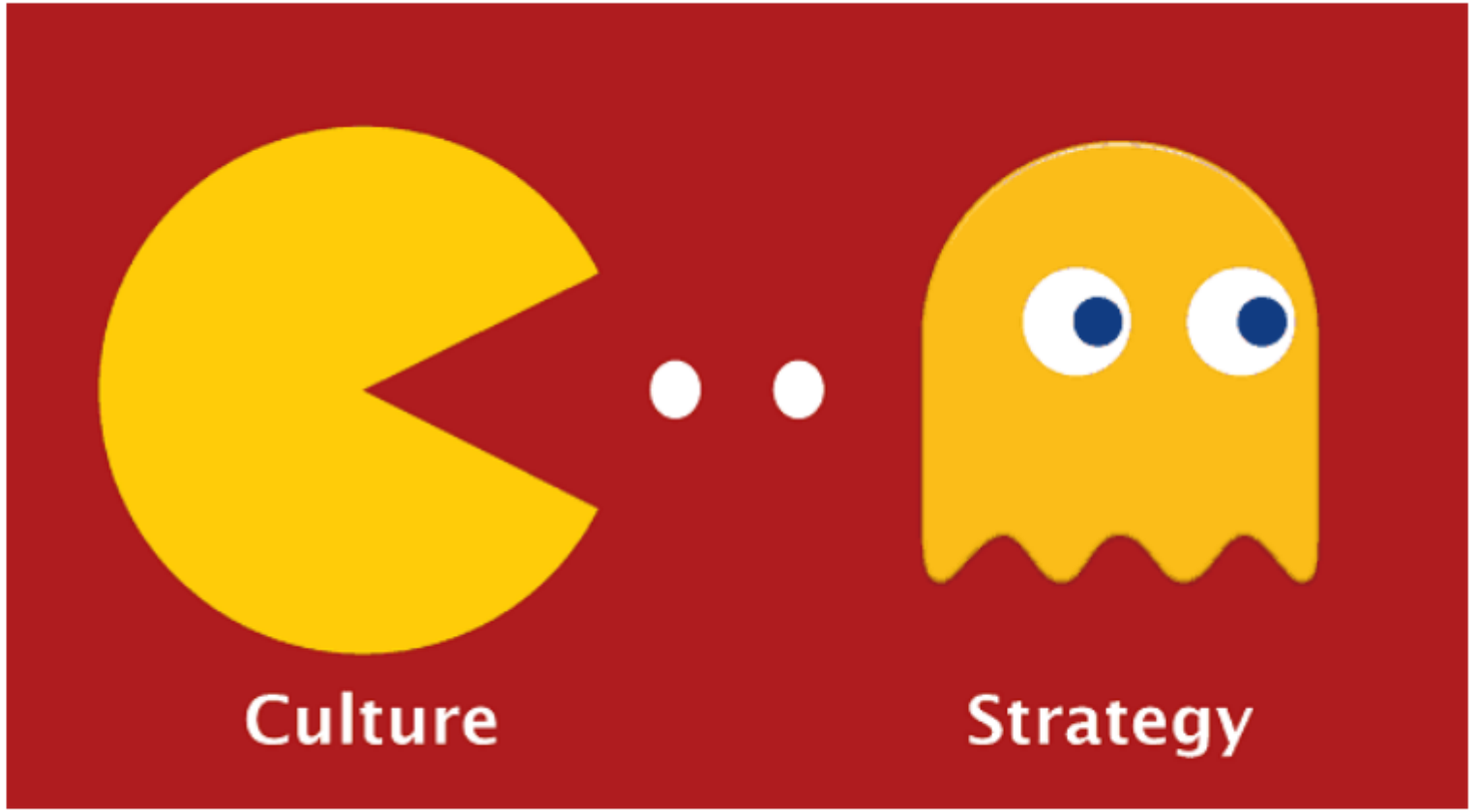
- Equipment, tools, supplies
- Valid measures
- Guidelines and protocols
- Technology

Adaptive

- Local context and culture
- Emotions and psychology
- Social and political dynamics
- History
- People's priorities, beliefs, habits and loyalties

Pronovost PJ. *BMJ Qual Saf*. 2011 Jul;20(7):560-3.

Because “Culture eats strategy for breakfast” (and lunch and dinner….)



Hospital as Small Society

- **Clinical work**
  - People working together *on* sick people
- **Behavior in healthcare organizations shaped by social dynamics of groups**
  - Conflict
  - Status inequality and hierarchy
  - Face-saving and emotion management
  - Identity work
  - Management of uncertainty and risk
- **Medical and healthcare workplaces have distinct cultures that shape decision making to achieve *social* goals (vs. biomedical ones)**

The social determinants of antibiotic prescribing.

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.**

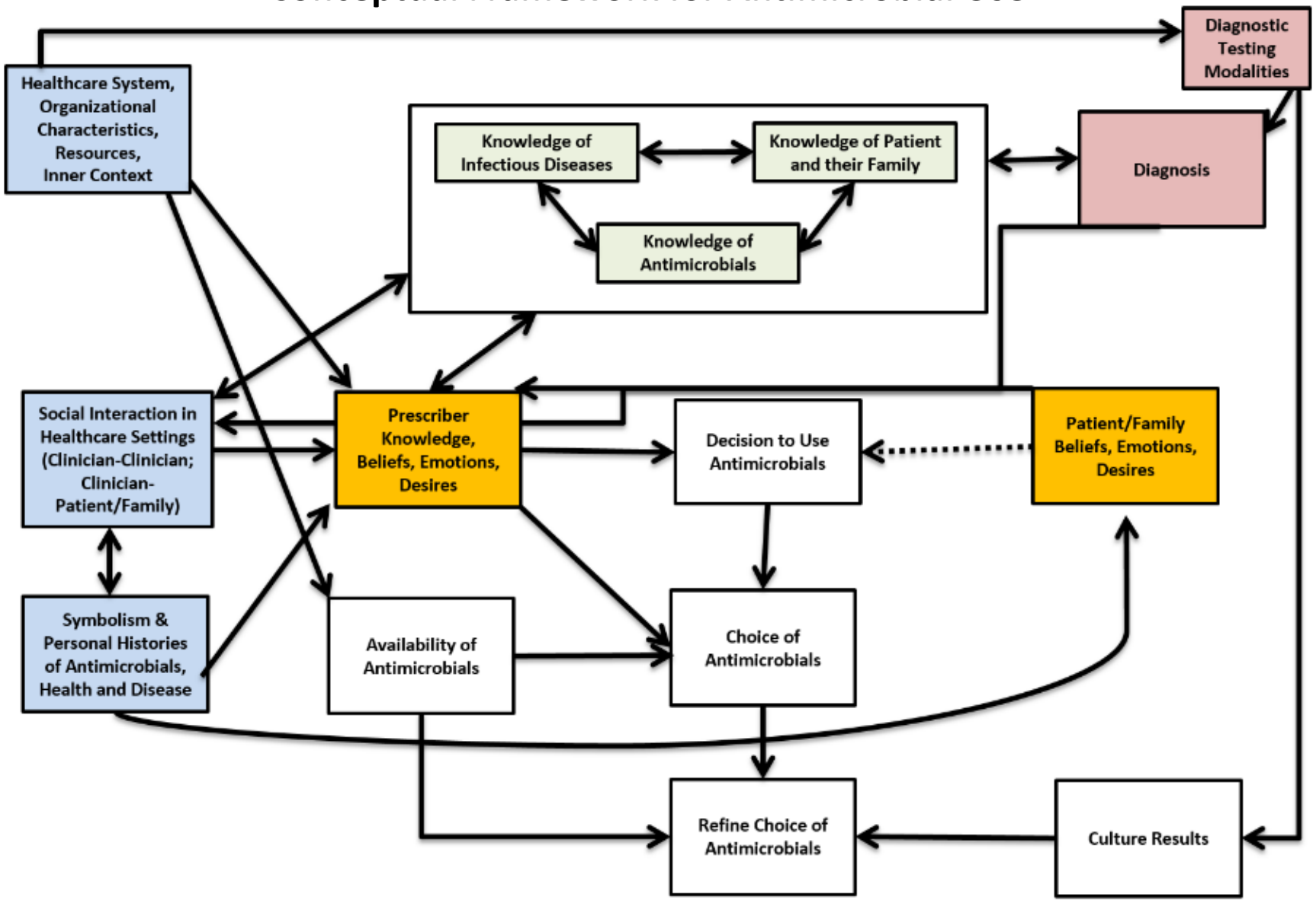
Pediatric General Surgeon

Prescribing is a Social Act

- Means of communication – demonstrates concern
- Expresses power and facilitates social control
- Produces income
- A prescription is a tool to help clinician navigate practical social challenges of care delivery
  - How to react to patient demands
  - How to project competence
  - How to manage uncertainty about cause/cure of sickness
  - How to end the clinical encounter

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

Conceptual Framework for Antimicrobial Use



Adapted from:

Szymczak, J.E. and J. Newland (2018). "The social determinants of antimicrobial prescribing: Implications for antimicrobial stewardship" in Barlam, T., Neuhauser, M., Tamma, P., & Trivedi, K. (Eds.). *Practical Implementation of an Antibiotic Stewardship Program*. Cambridge: Cambridge University Press.

The Social Determinants of Antibiotic Prescribing

Relationships between clinicians

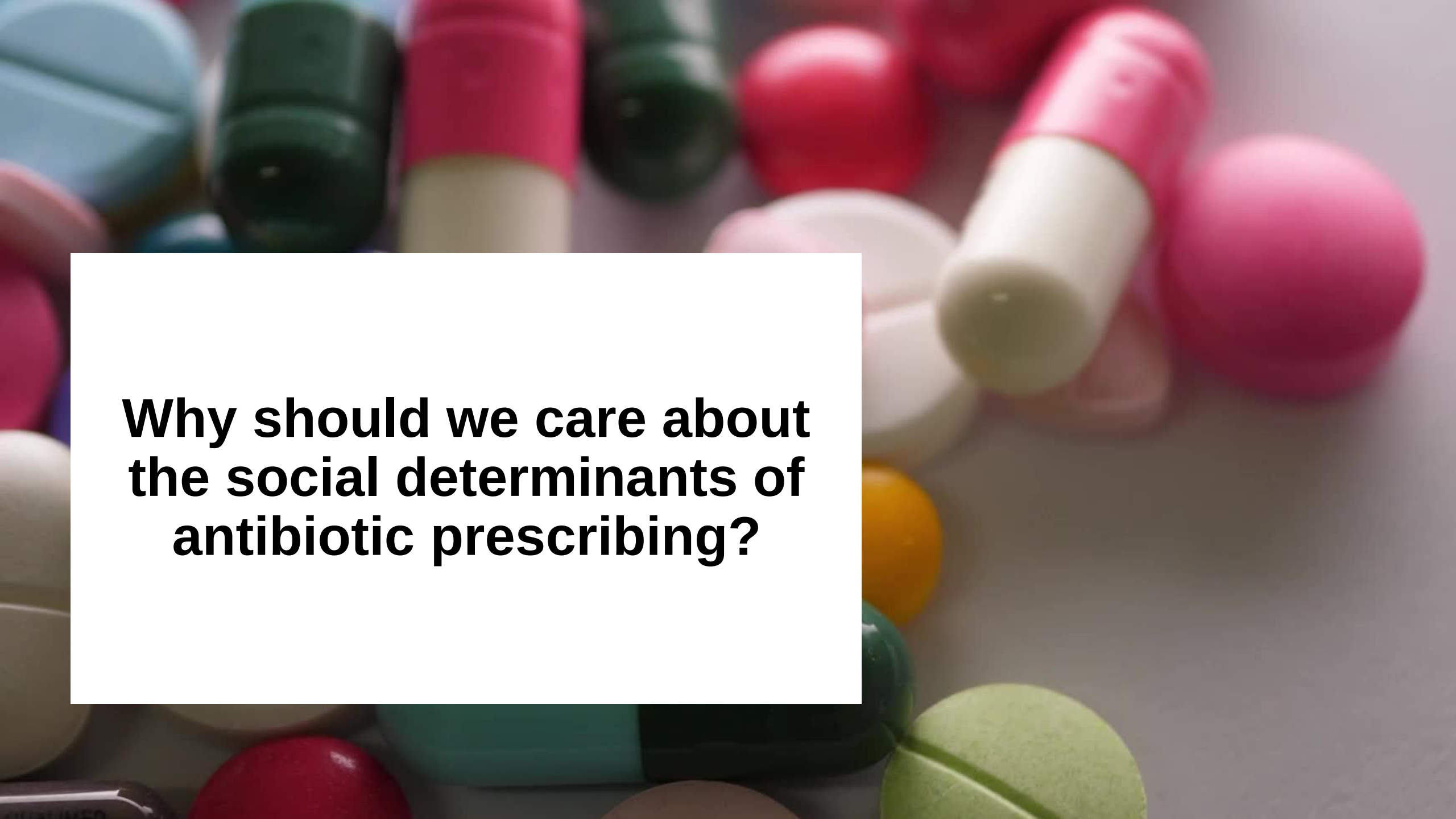
Relationships between clinicians and patients

Risk, fear, anxiety and emotion

(Mis)perception of the problem

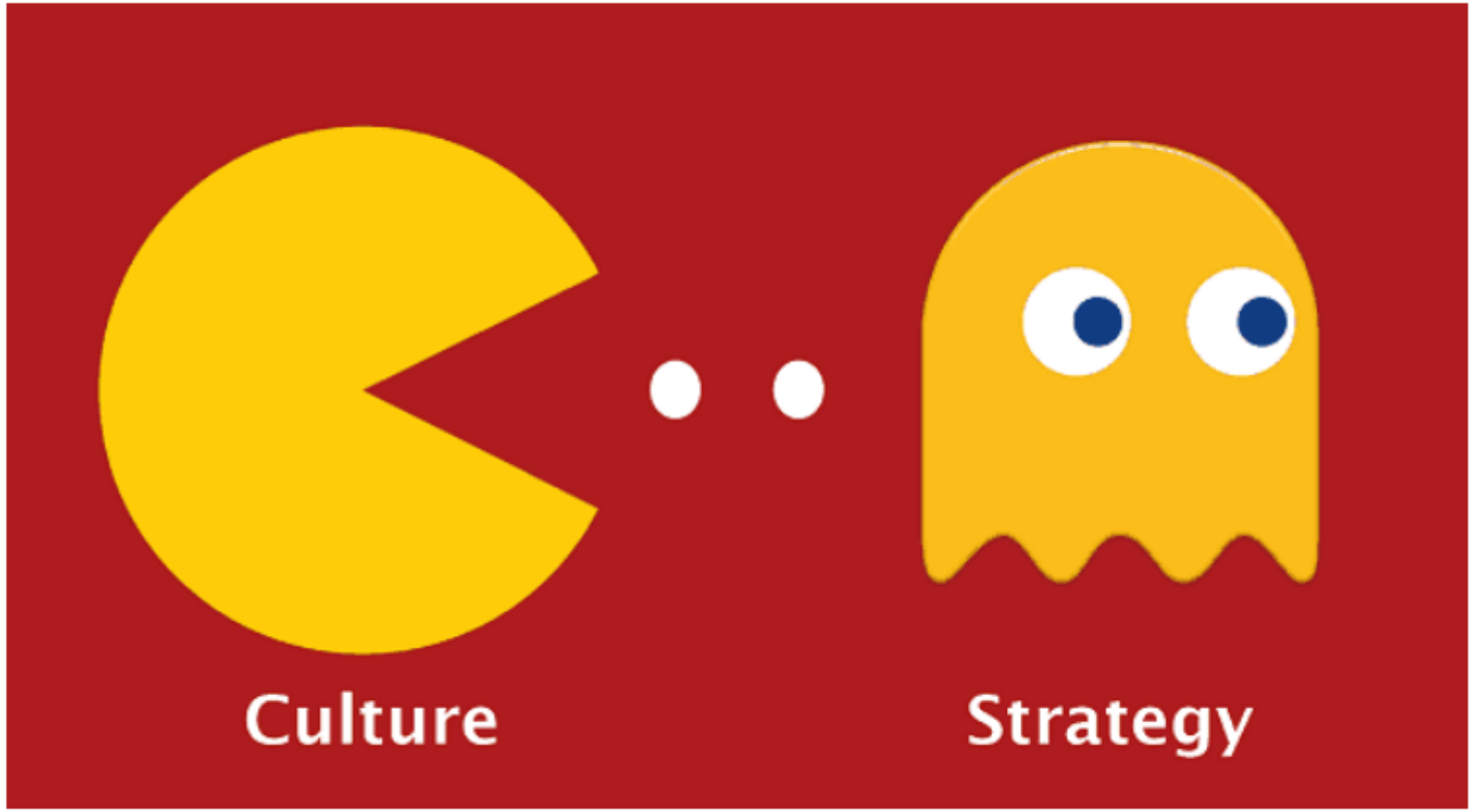
Contextual and environmental factors

Szymczak, J.E. and J. Newland (2018). "The social determinants of antimicrobial prescribing: Implications for antimicrobial stewardship" in Barlam, T., Neuhauser, M., Tamma, P., & Trivedi, K. (Eds.). *Practical Implementation of an Antibiotic Stewardship Program*. Cambridge: Cambridge University Press.

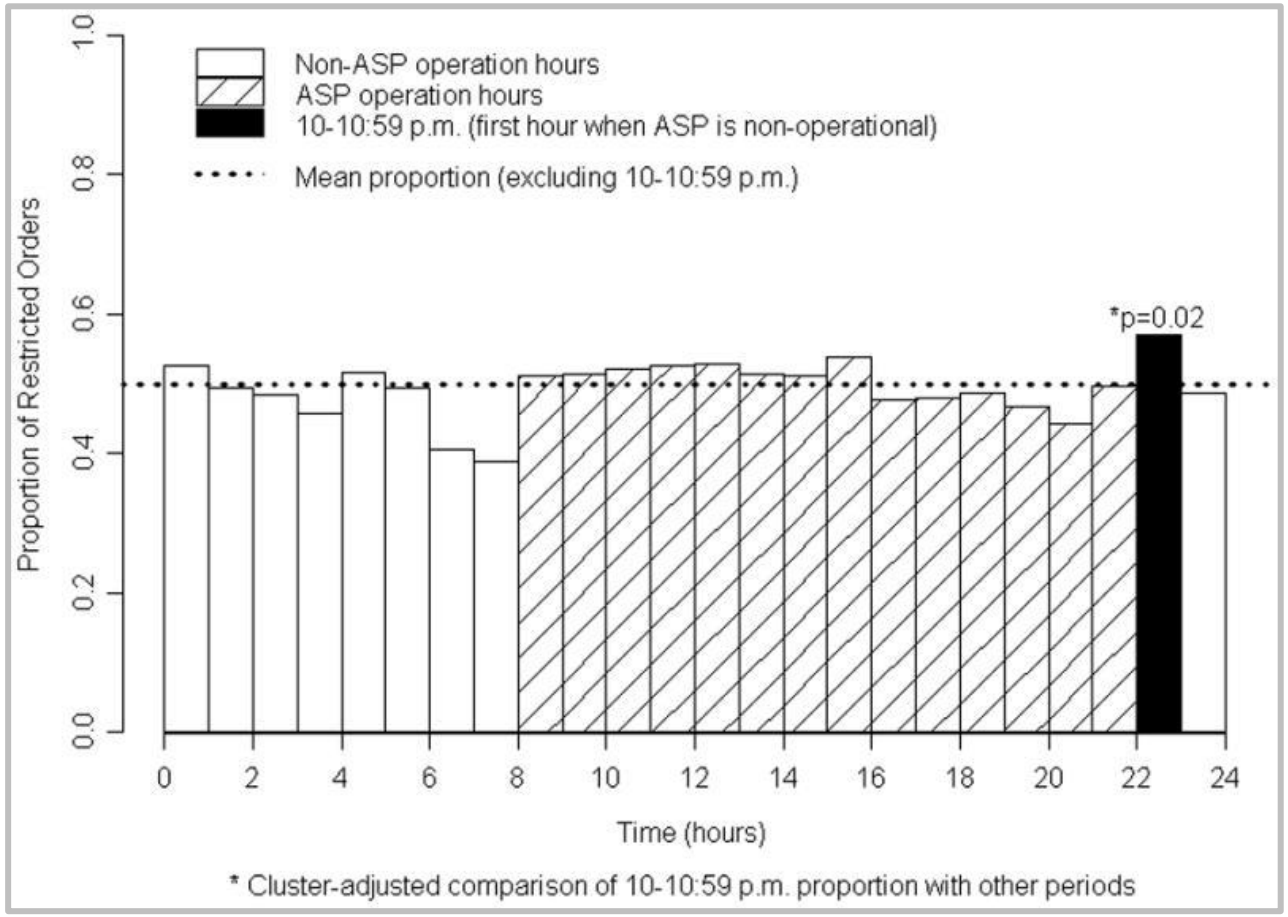


Why should we care about the social determinants of antibiotic prescribing?

Because “Culture eats strategy for breakfast” (and lunch and dinner….)



- Although interventions to improve antibiotic use have been successful to a degree, we can do better
  - Direct educational approaches generally do not result in sustained improvement
  - Restrictive policies can be circumvented
    - "Stealth dosing"
    - Misrepresenting clinical information
  - Audits can be "gamed"



Linkin et al. ICHE 2007:28

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

Communication for engagement to improve antibiotic prescribing.

Communication and Stewardship

- Core hospital-based antimicrobial stewardship interventions influence prescribing via communication
  - Prospective audit and feedback
  - Preauthorization
  - Handshake stewardship

- Stewards need more than proficiency in ID, microbiology, data analytics, informatics
  - Social and communicative skills to implement change in complex organizations

Hurst AL et al. *Pediatr Infect Dis J*. 2016 Oct;35(10):1

Cosgrove SE *Infection control and hospital epidemiology*. 2014;35(12):1444-1451.

Communication and Stewardship

- Stewards must navigate complex social and cultural dynamics in daily work
  - Delivering advice to people who have not requested it
  - Restricting access and gate keeping role
    - May be perceived as introducing inefficiencies to workflow
  - Contending with "prescribing etiquette" and the norm of non-interference surrounding antimicrobial use
    - "Antibiotic police"

Charani E, *Clin Infect Dis.* 2013;57(2):188-196.

Szymczak JE, Infect Control Hosp Epidemiol. 2019 May;40(5):522-527.

Communication and Stewardship

- Stewards must navigate complex social and cultural dynamics in daily work
  - Interprofessional stewardship communication can cause conflict (MD-PharmD)
    - Asymmetry in authority, accountability
    - Hierarchy
    - Professional identity and subcultures
  - Engagement of other professions (e.g. nursing), while recommended, made more difficult by lack of interprofessional cooperation
  - Gender identity

Broom A, *Qual Health Res*. 2017 Nov;27(13):1924-1935.

Szymczak JE. *Clin Infect Dis*. 2019 Jun 18;69(1):21-23.

Broom A, *BMC health services research*. 2016;16:43.

Vaughn VM et al. Infect Control Hosp Epidemiol. 2022 Jun 7:1-8.

Kirby E, *BMJ Open*. 2020 Oct

What do stewards say about communication for influence?

We asked them!

- 2 year qualitative study

- Data gathered at 10 hospitals across the US between 2018-2019
  - Mix of community hospitals, academic medical centers, pediatric hospitals

- Interviews conducted with
  - **58 antimicrobial stewards**
  - **146 prescribers**

Szymczak et al. Unpublished Data

Stewards - Communication Strategies

Language

- Purposeful moderation of language to reduce defensive reaction
- Language is way to adapt intervention to prescribing etiquette

Framing

- Communicates that ultimate goal of stewardship is to improve patient care
- Avoids discussion of finances, regulatory pressures or assessments of medical knowledge
- Acknowledge prescriber expertise and level of responsibility
- Purposefully avoids adopting a conflict orientation in their interactions

Strategy

- Thinks about communication over time, "invests" in future interactions
- Knows which battles to fight, leaves some things on the table
- Meets prescribers where they are at physically and emotionally
- Talks about things other than antibiotics

Szymczak et al. Unpublished Data

What do prescribers say about communication in stewardship?

Sentiment of Prescriber Perceptions

Szymczak et al. Unpublished Data

What Underpins Negative Perceptions?

- Stewardship symbolizes unpalatable trends in medicine more broadly
  - Encroachment of bureaucracy that puts profits over patients
  - "Cookbook" medicine
- Stewardship a threat to a prescriber's professional identity or sense of self
  - Discomfort with being wrong
  - Feeling as if expertise is not acknowledged
- Goals of stewardship and goals of prescriber appear to be at odds
  - Inefficiency of systems
  - Different motivations by clinical area (surgery, oncology, neonatology)

Szymczak et al. Unpublished Data

What Underpins Positive Perceptions?

- Stewards communicate things of value
  - Education
  - Updated evidence
  - Catches errors
- Stewardship attempts to understand where prescriber is coming from
  - Non aggressive approach
  - Acknowledges prescriber's experience clinically and with the specific patient in question
  - Thinks critically about where and when to interject
- Shared sense of mission and motivation between steward and prescriber

Szymczak et al. Unpublished Data

What we learned.

Stewards

- Communication in stewardship is purposeful and multi-modal
  - Consider language, framing, strategy
  - A way to navigate "prescribing etiquette"

- Work to establish credibility and legitimacy is paramount

- Relationship building – thinking about relationships as "chains" of interactions to set the stage for acceptance down the line (and perhaps prescribers stewarding themselves)

Szymczak et al. Unpublished Data

Prescribers

- Prescribers in our study generally felt favorably towards stewardship

- Communication viewed positively was:
  - Not dogmatic or aggressive or agenda-driven
  - Conveyed a shared sense of mission: the patient
  - Conveyed a desire to understand
  - Efficient and value-added

Szymczak et al. Unpublished Data

The 3Ps/3Ds/3Cs Framework

Table 1. The 3Ps/3Ds/3Cs Framework for Antimicrobial Stewardship

*P*lace	• What is/are the infection(s) or potential infection(s)? • From what possible places is/are infection(s) coming (eg, skin, gastrointestinal tract, oropharynx, health care environment)? • Are there tests that need to be performed to determine location?
*P*athogen	• What organism(s) could be or is/are causing the infection? • If the organism(s) is/are not known yet, which organisms tend to live in the potential locations (eg, skin = *Streptococcus* and *Staphylococcus*) • Are there tests that should be performed to identify the organism(s)?
*P*atient	• Is the patient sick or not sick? • Are there risks for resistance (eg, health care exposure, recent antibiotics)? • Does the patient have characteristics that affect antibiotic choice (eg, renal insufficiency, prolonged QTc interval, antibiotic allergies)?
*D*rug	• What antibiotic(s) is/are patient on? What do you want them to be on? • What sort of monitoring is needed for antibiotics (eg, drug levels, labs, electrocardiograms)? • Are there drug characteristics that affect antibiotic choice (eg, cost, efficacy data, drug–drug interactions, spectrum of activity)?
*D*ose	• What is the dosing frequency of the antibiotic(s)? • Does the dose need to be adjusted for renal function/liver function? • Does the antibiotic need to be dosed by weight? Which weight (ideal body weight, adjusted body weight, actual body weight)?
*D*uration	• Is there an evidence-based duration for the indication(s) being treated? • Is there an evidence-based duration for the antibiotic(s) being used? • If the duration cannot yet be determined, is there additional testing or follow-up that needs to be done to determine duration?
*C*ontext	• What professional or cultural factors may be motivating the provider or team in making antibiotic decisions? • What questions need to be asked to better determine the motivations and context of the provider or team?
*C*ommunication	• How should the recommendations be framed to the provider or team considering the context of antibiotic prescribing? • What team member should be contacted to have effective discussion (eg, intern, resident, advanced practice provider, attending, consultant)?
*C*ollaboration	• How can you work together with the provider or team to increase trust and decrease future conflict? • Is follow-up with the team needed? • Should an infectious disease or other consultation be suggested?

Wang R, et al. Open Forum Infect Dis. 2021 May 8;8(6):ofab231.

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The 3 Cs of Stewardship Communication

Communication

In what format will you communicate your antibiotic stewardship recommendation to prescribers?

What team member should be contacted to have an effective discussion? (e.g., intern, resident, advanced practice provider, attending, consultant)

How will you frame the motivation around your stewardship recommendation?

Context

What are the circumstances (physical, workload, emotional) surrounding the person you will be communicating with?

How will you take into account their challenges, perspectives and professional culture when you convey your stewardship message?

What questions need to be asked to better determine the motivation and context of the prescriber?

Collaboration

How will you approach the stewardship interaction with relationship-building in mind?

How can your communication in this moment facilitate trust-building in the future?

If conflict might occur, how might you manage it?

Is follow up with the team needed? Should other resources be suggested?

Wang R, et al. Open Forum Infect Dis. 2021 May 8;8(6):ofab231.

Common Barriers to Improvement

Convincing people there is a problem	Convincing people that the solution is the right one	Insufficient or overly burdensome data collection and measurement systems	Overambitious goals and timelines
Lack of clarity about roles and responsibilities	Disconnected leadership	Lack of incentives to stimulate change	Not thinking of sustainability at the outset

Szymczak, J. E. (2020). Quality Improvement for Healthcare Epidemiology: Creating a Culture of Excellence. pgs 97-105 *In:* Weber, D. & Talbot, T. (eds.) *Mayhall's Hospital Epidemiology and Infection Prevention.* 5 ed.: Wolters Kluwer.

Common Barriers to Improvement

ADAPTIVE CHALLENGES!

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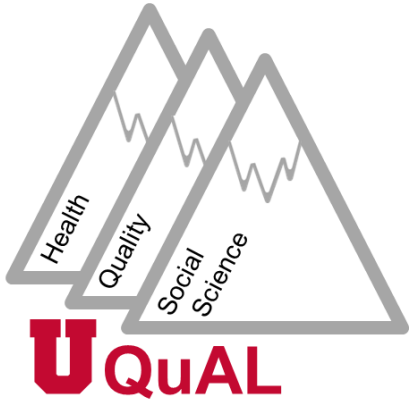
Addressing Adaptive Challenges

- Listening
- Taking the view of the other
- Understanding what is at stake
- Finding common ground
- Bolstering credibility
- Delivering things of value
- Returning to shared sense of mission



Questions?