The Social Determinants of Antimicrobial Prescribing: Implications for Stewardship

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Tele-Antimicrobial Stewardship Program
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Disclosures

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

What is a sociologist doing in a division of ID?

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*

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

doi: 10.1377/hlthaff.2009.0785
HEALTH AFFAIRS 29,
NO. 1 (2010): 165–173

How do the social dynamics of healthcare work influence efforts to improve safety and quality?

Infectious Diseases: A Great Case for a Sociologist to "Think With"

- **Infection prevention**
  - Why do doctors come to work sick?[1]
  - Why is it so difficult to implement (seemingly simple) infection prevention practices?[2]
  - Why are healthcare workers reluctant to correct each other when they see a breach in technique that might lead to an infection?[3]
  - Why don't healthcare workers comply with contact precautions?[4]
- **Future of the field of infectious diseases**
  - How do you establish the value of a cognitive specialty?[5]
- **Judicious antimicrobial prescribing**
  - Can we develop more "human" approaches to antimicrobial stewardship?[6,7]

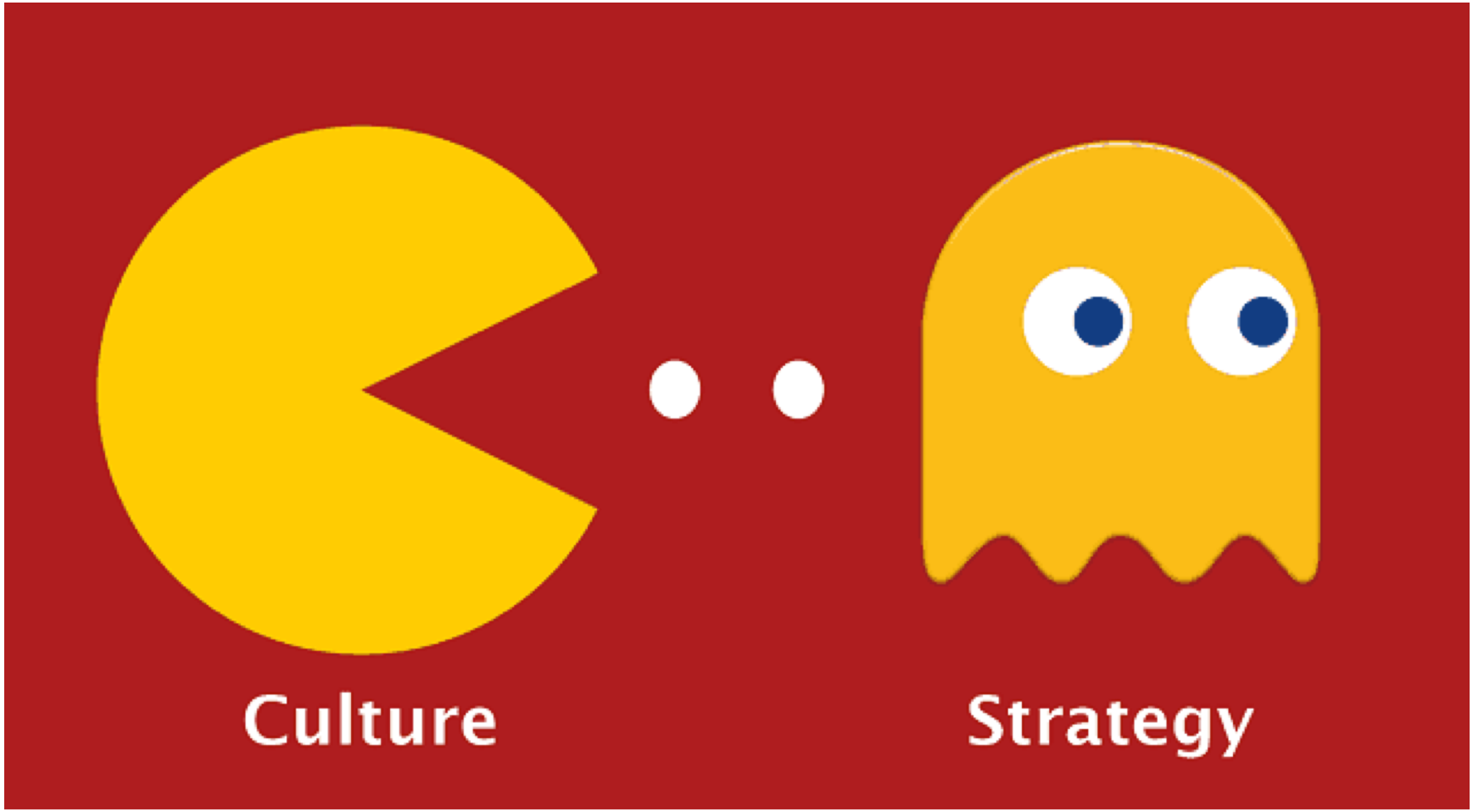
(1) Szymczak et al. *JAMA Pediatrics* 2015:169(9):815-821 (2) Szymczak *Soc Sci Medicine* 2014:120C: 252-259 (3) Szymczak *Soc Health Illness* 2016:38(2):325-329 (4) Szymczak & Coffin *Open For Infect Dis* 2014: suppl 1:S261 (5) Szymczak et al. *Hosp Pediatrics* Forthcoming (6) Szymczak & Newland *SHEA Practical Implementation of an Antimicrobial Stewardship Program* 2018 (7) Szymczak et al. *ICHE* 2014:35(S3):S69-78

"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

Quote Excerpt from Szymczak (2013) *The Complexity of Simple Things: An Ethnographic Study of the Challenges of Preventing Hospital-Acquired Infections*

What is the value of a sociobehavioral approach to antimicrobial stewardship?



BECAUSE “CULTURE EATS STRATEGY FOR BREAKFAST” (AND LUNCH AND DINNER!)

Stewardship Interventions Informed by Sociobehavioral Theory are Needed

1.) Antibiotic prescribing is **strongly shaped by sociobehavioral factors** that go beyond clinician knowledge

2.) **Ignoring these sociobehavioral factors** will lead to **incomplete uptake** and **limited sustainability** of stewardship interventions

3.) **Sociobehavioral interventions** for stewardship are **effective**

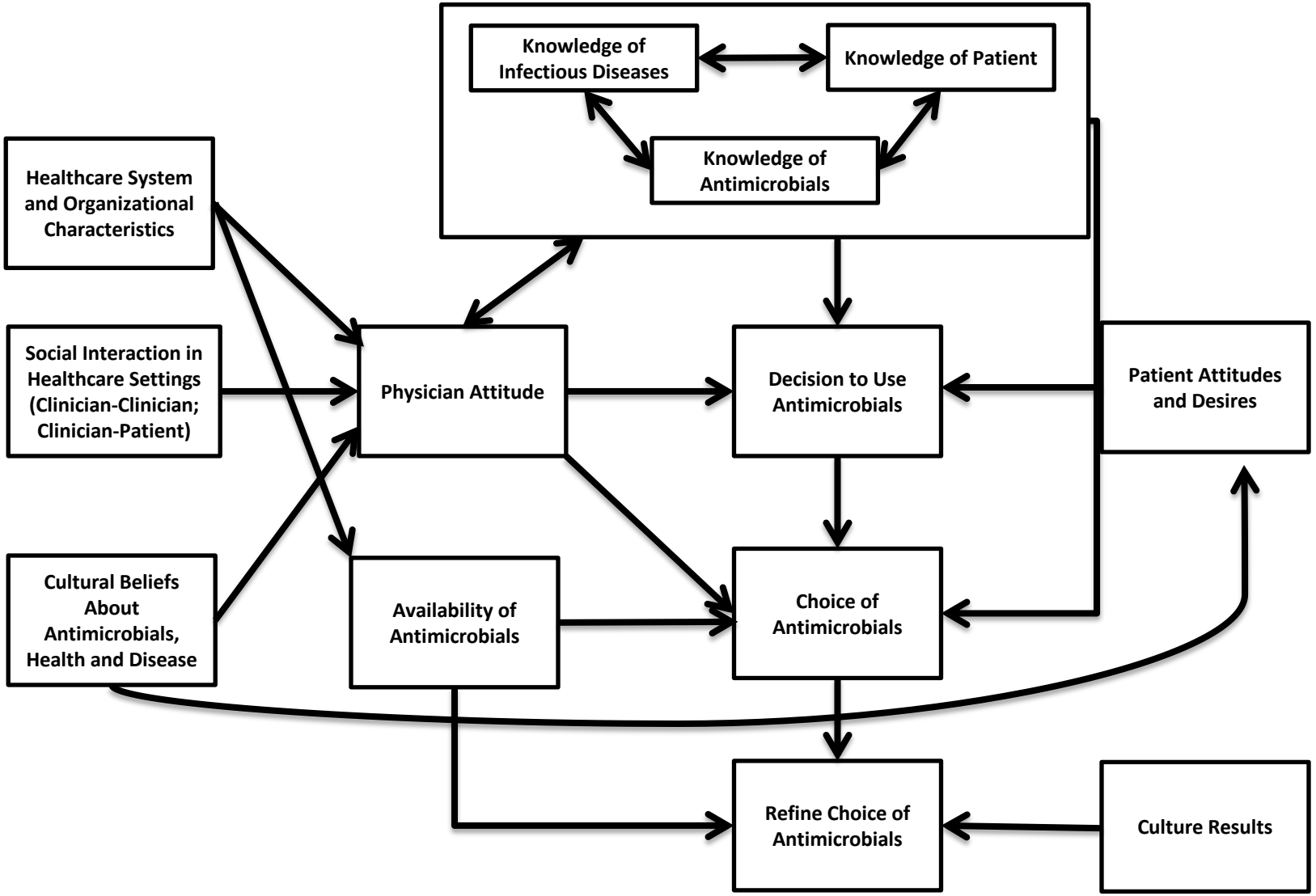
POINT 1: SUBOPTIMAL ANTIMICROBIAL PRESCRIBING IS MORE THAN AN INFORMATION DEFICIT

- 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]

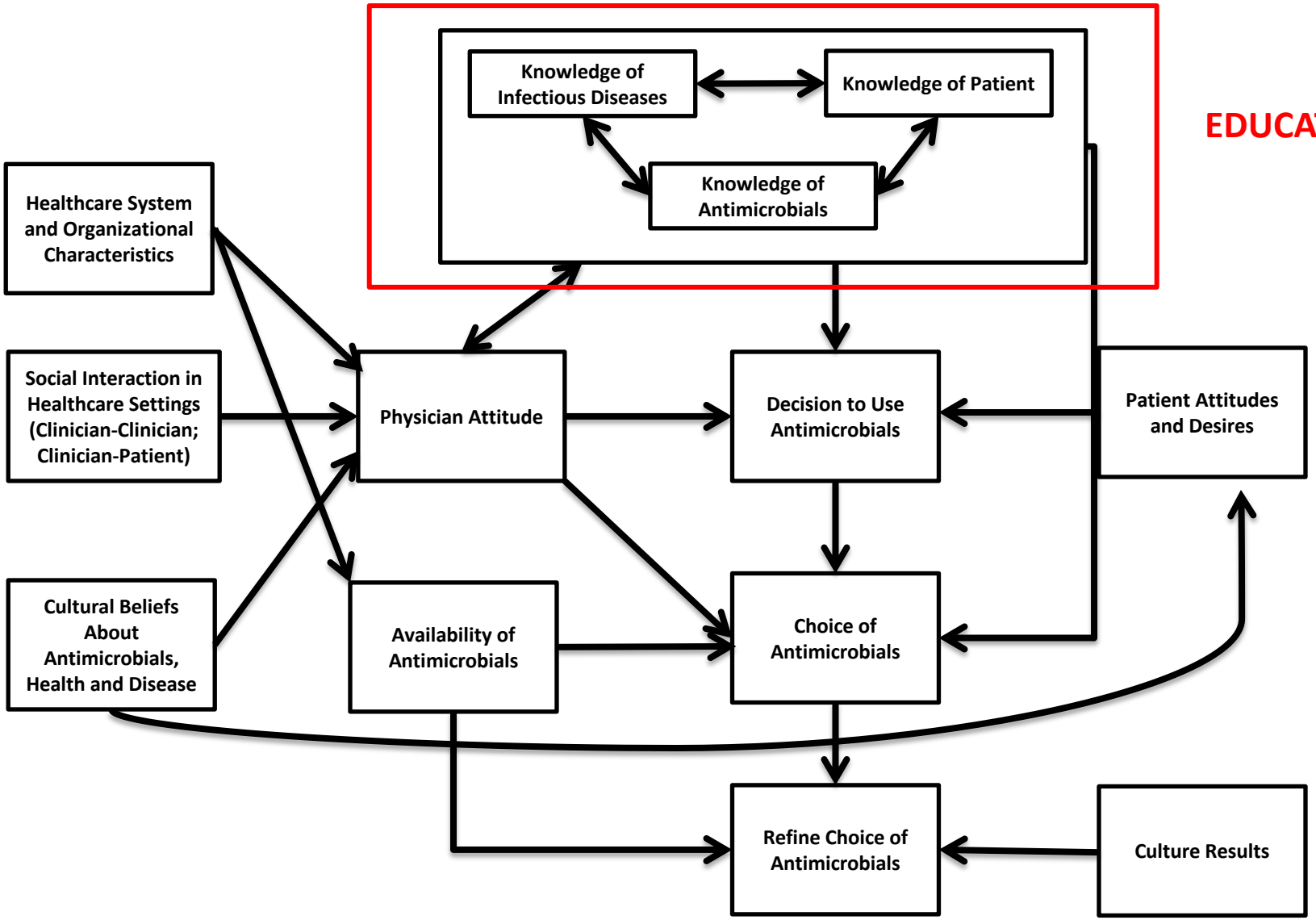
[1]van der Geest et al. Ann Rev Anthropology 1996 (25): 153-178.

Conceptual Framework for Antibiotic Use



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

Conceptual Framework for Antibiotic Use



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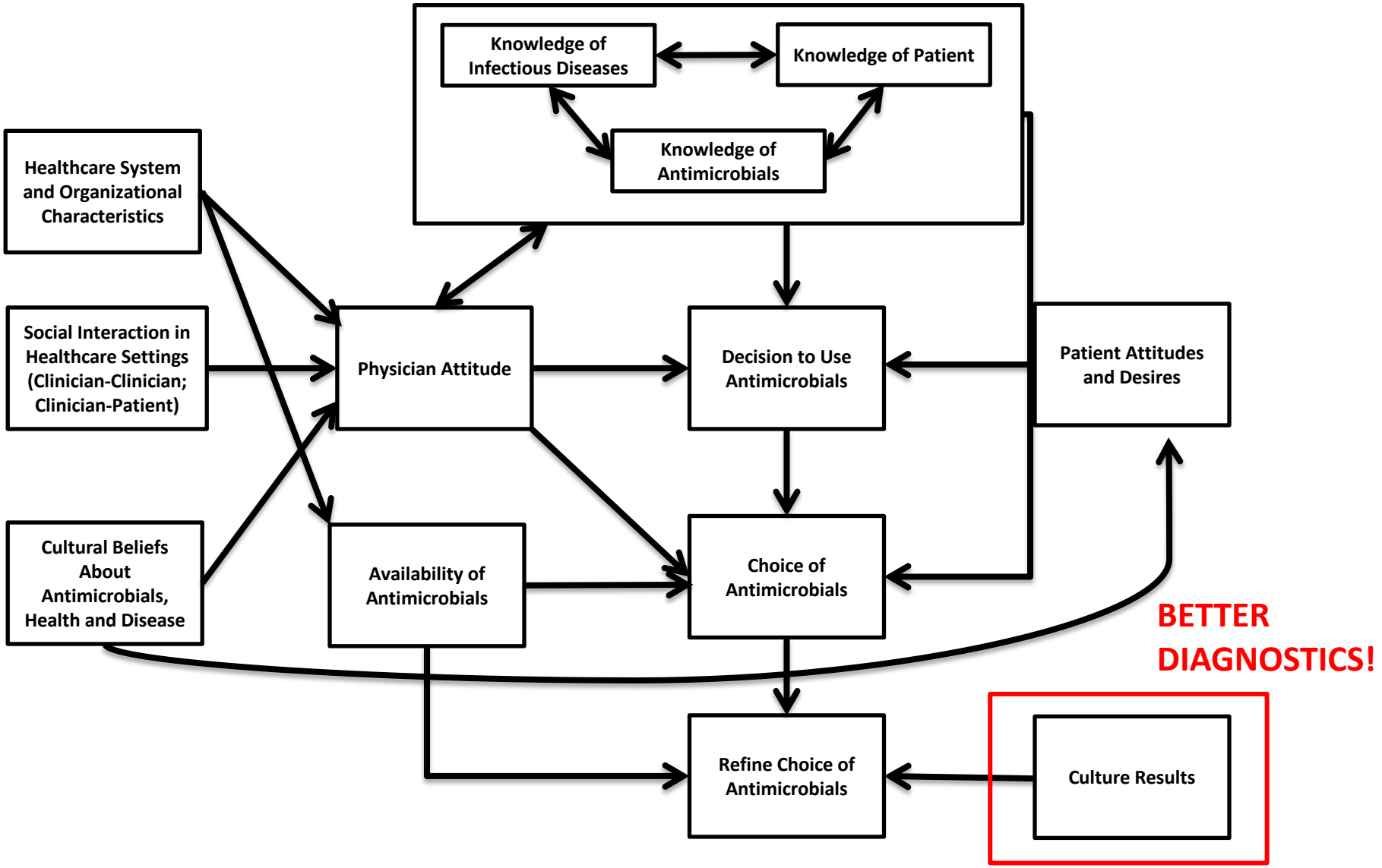

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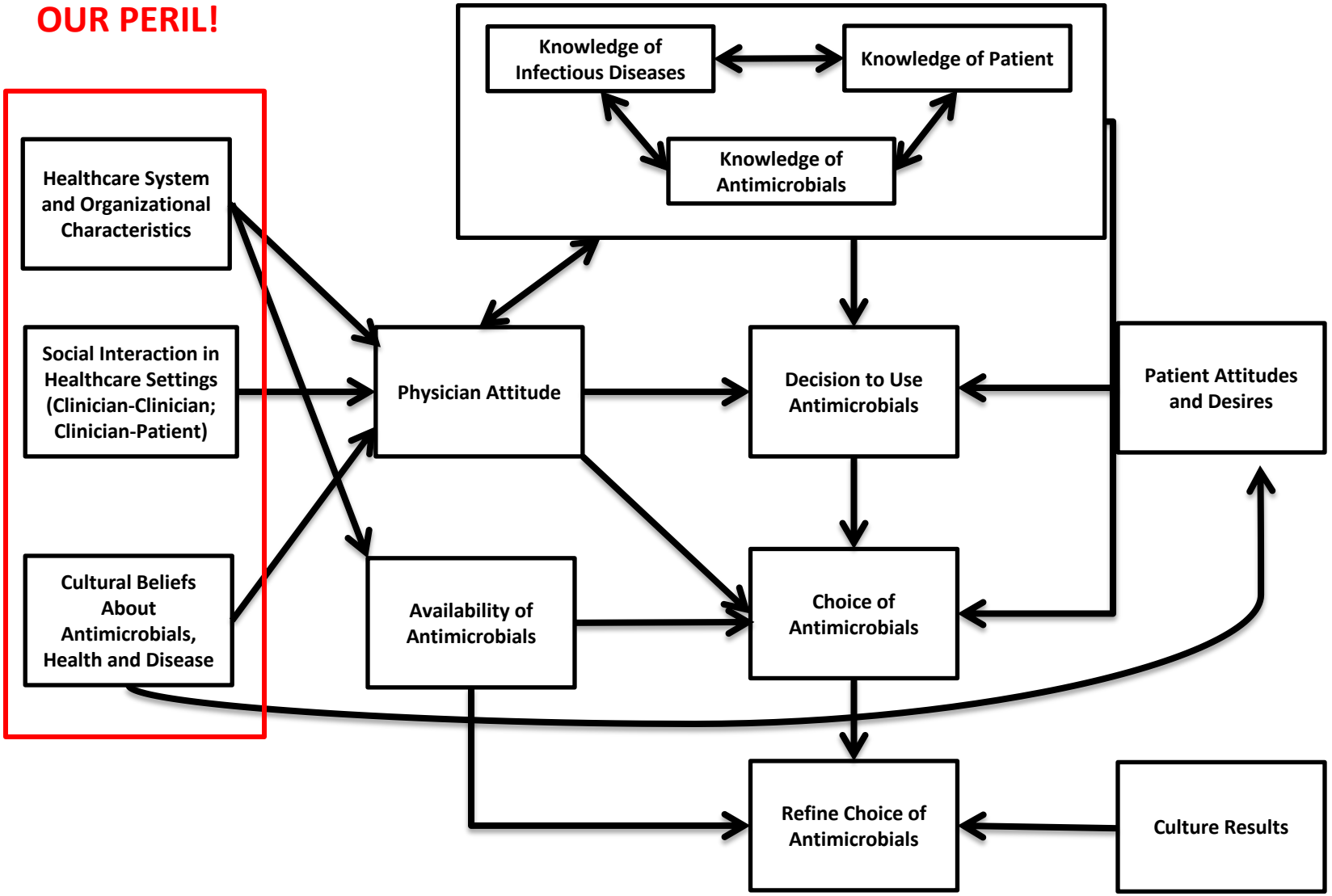
Conceptual Framework for Antibiotic Use

IGNORE AT OUR PERIL!



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

Social Determinants of Antibiotic Prescribing[1]

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]Szymczak & Newland, Forthcoming, SHEA Textbook *Practical Implementation of an Antimicrobial Stewardship Program*

*"We have **such a fear in oncology of therapy related toxicity and infectious mortality** because we are taking our patients and doing this to them. **We are making them compromised**. And for many of our patients, other than progression of their primary disease, infection is the biggest cause of death…Mostly the way that we think about it is that oncology patients are a small portion of antibiotic use and the risk to the individual is greater than the risk to society and that we need to focus on the individual patient and **making sure that this person who's sitting in front of us** who has plastic in them and who is febrile, has no immune system, **whose family is sitting there, who you've known for a long time, who you have a relationship with, whose victories you've celebrated and you just want to do everything for them. You've compromised them, you feel emotionally compelled to do something**."*

-Interview, Oncologist

Quote excerpt from Study in Progress

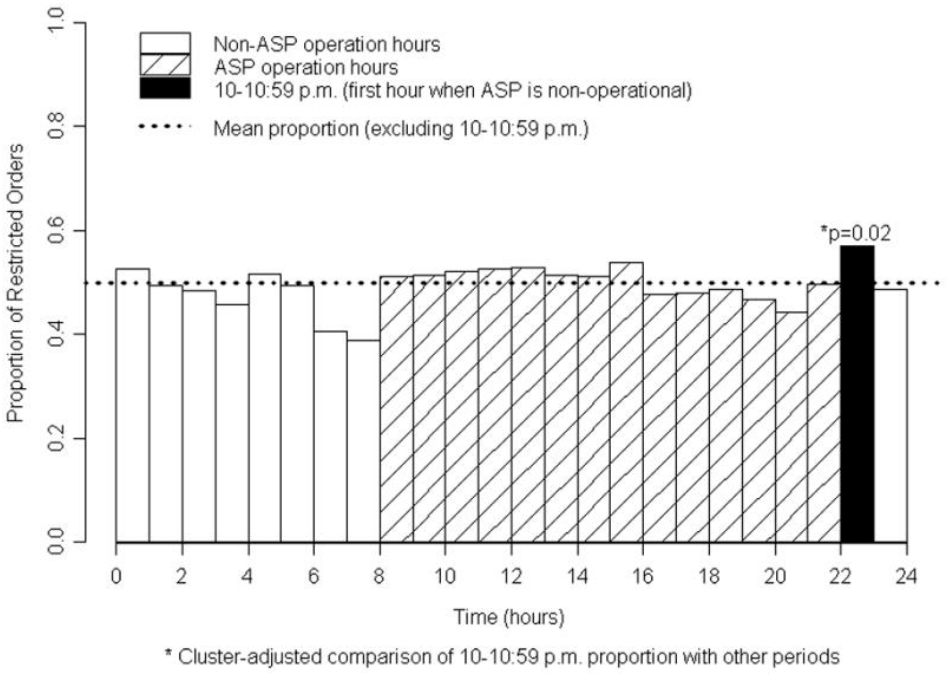
*"Sometimes **you just don't have time to argue** with a parent. You just don't. It can be a **war zone**. It is in the middle of the winter, and the kid is outside throwing up in the hall, and **the mom says 'I need an antibiotic prescription.' Most of the time you can reason with her**. You say 'look, we don't need to treat this.' And she says 'but my neighbor says this. I have an uncle who's a doctor and he said yes, I need it.' They come up with a million reasons why they need it. And you just don't have time."*

-Interview, Primary Care Pediatrician

Quote excerpt from Szymczak et al. ICHE 2014 35(S3):S69-S78

POINT 2: IGNORING SOCIOBEHAVIORAL DETERMINANTS OF PRESCRIBING LEADS TO WORKAROUNDS, INCOMPLETE UPTAKE AND LIMITED SUSTAINABILITY OF INTERVENTIONS

- 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

POINT 3: SOCIOBEHAVIORAL STEWARDSHIP INTERVENTIONS ARE IMPACTFUL

Original Investigation

Nudging Guideline-Concordant Antibiotic Prescribing
A Randomized Clinical Trial

Daniella Meeker, PhD; Tara K. Knight, PhD; Mark W. Friedberg, MD, MPP; Jeffrey A. Linder, MD, MPH; Noah J. Goldstein, PhD; Craig R. Fox, PhD; Alan Rothfeld, MD; Guillermo Diaz, MD; Jason N. Doctor, PhD

JAMA Intern Med. 2014:174(3):425-431

- Using behavioral economic principle (public commitment) to design stewardship intervention to encourage judicious use of antibiotics for ARTIs in 5 outpatient primary care clinics

- Intervention = display of poster-sized commitment letters in exam rooms for 12 weeks

Your health is important to me.

That's why I'm signing the "Get Smart Guarantee."

Antibiotics don't work for viral infections like the common cold, most coughs, and most sore throats. Taking antibiotics when they don't work can do more harm than good by causing stomach upset, diarrhea, or allergic reactions.

I guarantee I will do my best to prescribe antibiotics only when you need them.

Antibiotics can be life-saving, but bacteria are becoming more resistant. If we're not careful about how we prescribe and use the antibiotics we've relied on for years, they might not work for us in the future.
To learn more visit: cdc.gov/getsmart.

Signature(s) _____

1156

NEW YORK STATE | Department of Health

10/16

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Table 4. Changes in Adjusted Rates[a] of Inappropriate Antibiotic Prescribing for ARIs

Characteristic	Poster Condition		Control Condition	
	Baseline	Final Measurement	Baseline	Final Measurement
Inappropriate prescribing rate, % (95% CI)	43.5 (38.5 to 49.0)	33.7 (25.1 to 43.1)	42.8 (38.1 to 48.1)	52.7 (44.2 to 61.9)
Absolute percentage change, baseline to final measurement (95% CI)	−9.8 (0.0 to −19.3)		9.9 (0.0 to 20.2)	
Difference in differences between poster condition and control (95% CI)	−19.7 (−5.8 to −33.04)[b]			

Abbreviation: ARI, acute respiratory infection.

[a] Adjusted for demographic characteristics and insurance status.

[b] P=.02 for the difference.

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

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Getting unnecessary antibiotics while conducting an ethnographic study of infection prevention in a Zambian hospital, July 2016