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# AMS Literature Update

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# Agenda

- 1) DUH: things you already know/taught me
  - Nonprescription abx
  - Bias in outpatient coding
  - Excess abx for PNA
- 2) RCT in IPC
- 3) New problems for antibiotics



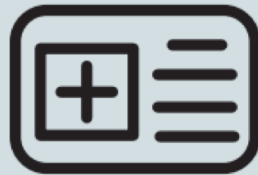
# Use of Abx without a Script

- Literature Review, 31 articles included
- High heterogeneity: nonprescription antibiotic use ranged from 1 – 66%
- Sources:
  - Previous prescriptions
  - Local markets
  - Domestic/foreign online markets
  - Family/friends
- “Nonprescription abx use is a seemingly prevalent and understudied public health problem....”





Relatives or friends  
provide antibiotics



Lack of insurance or  
health care access



Costs of physician visit  
or antibiotics



Long waiting periods  
in the clinic



Embarrassment about  
seeking care for STI



Previous response to  
antibiotic treatment



Maintaining job or  
not missing pay



Lack of transportation  
to/from medical care



Availability in ethnic  
stores or on the street



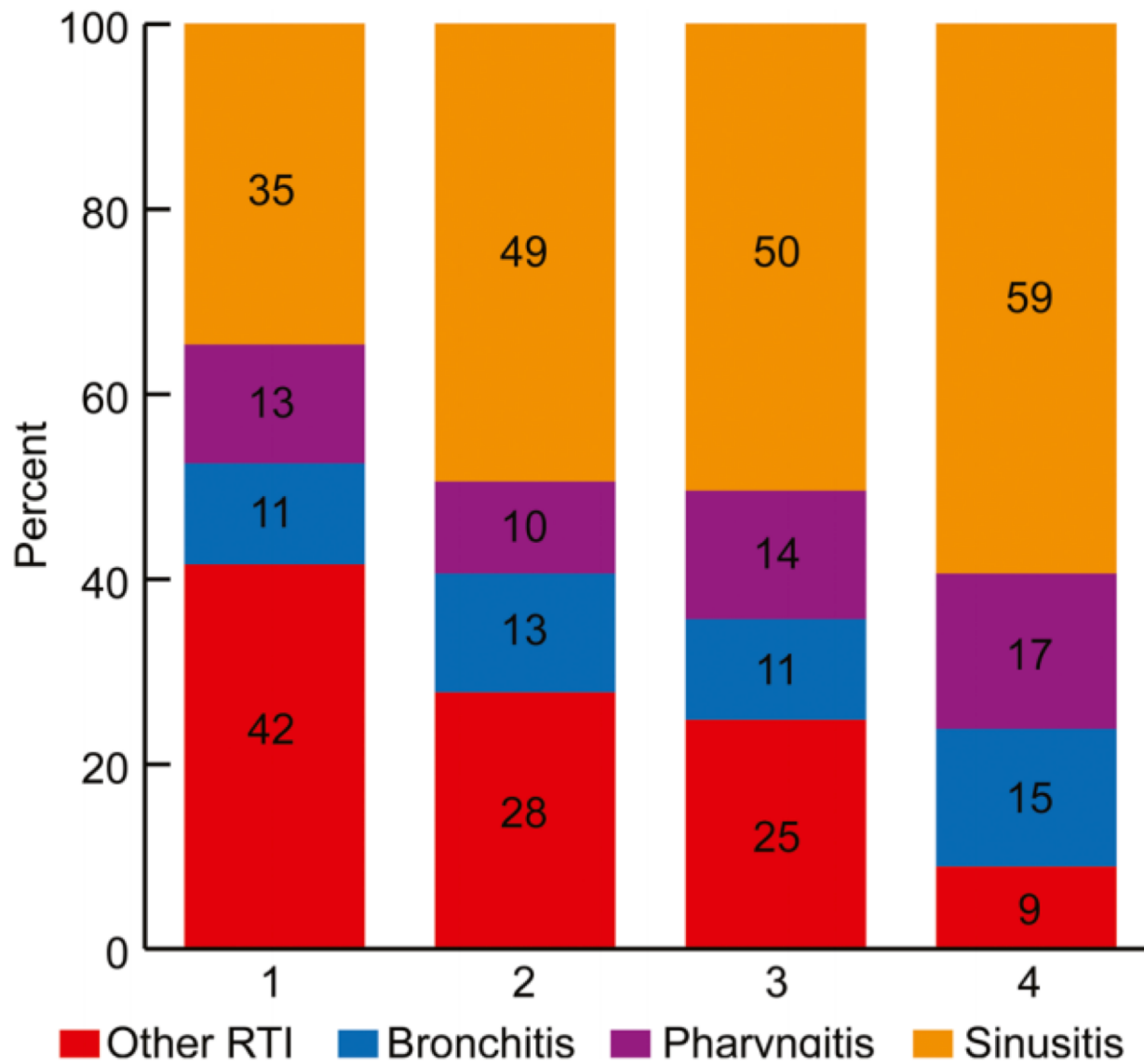
Drug users' concerns  
about being mistreated



# Coding Bias in Outpt Prescribing

- Retrospective
- 40 months of telemedicine visits
- 105 physicians, 13,000 patients with UR issues
- Inclusion diagnoses: sinusitis, pharyngitis, bronchitis, influenza, unspecified RTI
- Physicians grouped into quartiles by mean prescribing rate (using mixed effects regression)
  - Rates of specific illnesses should be evenly distributed





**Figure 1 Distribution of RTI diagnoses by physician antibiotic quartiles.**



# CAP Overprescribing

- Retrospective cohort study, 2017 - 2018
- 6500 patients with CAP/HCAP, 43 hospitals
- Measured rate of excess antibiotic treatment duration
- 30 day outcomes: death, readmission, ED visit, Abx associated AE, patient reported AE



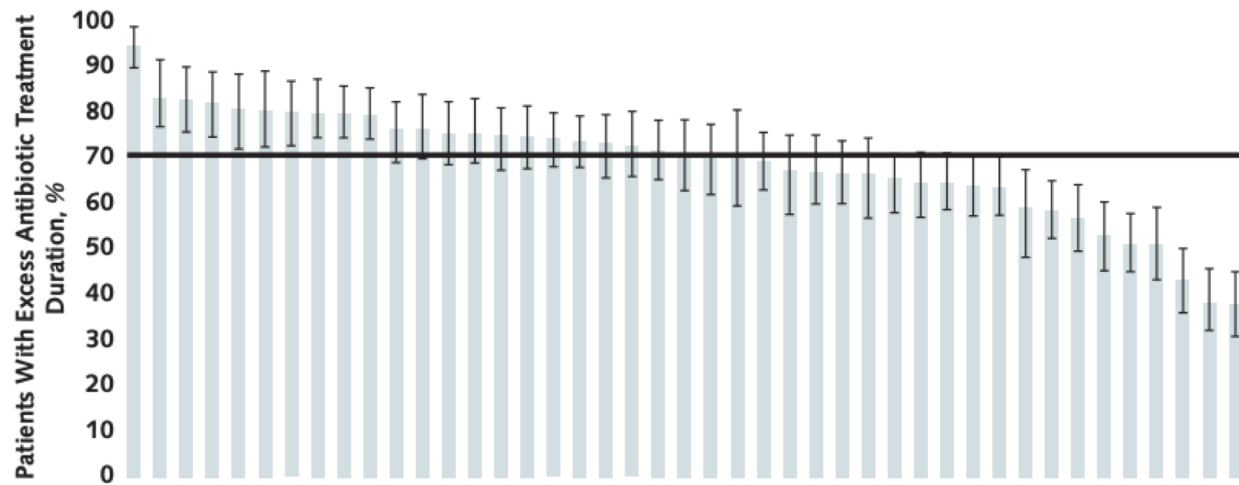
# CAP Overprescribing

- Findings:
  - 2/3 of patients received longer course of abx than guideline
  - Median excess duration: 2 days
  - 93% of excess days were prescribed at discharge!
  - Most common duration at discharge: 5 days
  - Excess duration associated with patient reported diarrhea





**Figure 2.** Proportion of patients with excess antibiotic treatment duration, by hospital ( $n = 43$ ).



Each bar represents 1 hospital. Error bars represent 95% CIs. The horizontal line represents the mean proportion of patients (70.8%) with an excess treatment duration.



# Cleanse pre urethral catheter?

- Multicenter stepped-wedge RCT, open-label
- Large Australian hospitals
- Inclusion: pt requiring urinary catheter
- Exclusion: <2yo, allergy to chlorhexidine, UTI
- Intervention: 0.1% chlorhex meatal cleanse prior to catheterization vs. 0.9% NS cleanse
- Outcomes: # CA-ASB and UTI per 100 catheter days



# Chlorhexidine Prior to Catheter

Patients requiring urinary catheter

## RANDOMIZATION

Chlorhexidine

945 pts (58%)

0.68 per 100

CA-ASB

0.17 per 100

CA-UTI

Normal Saline

697 pts (42%)

1 per 100

0.45 per 100

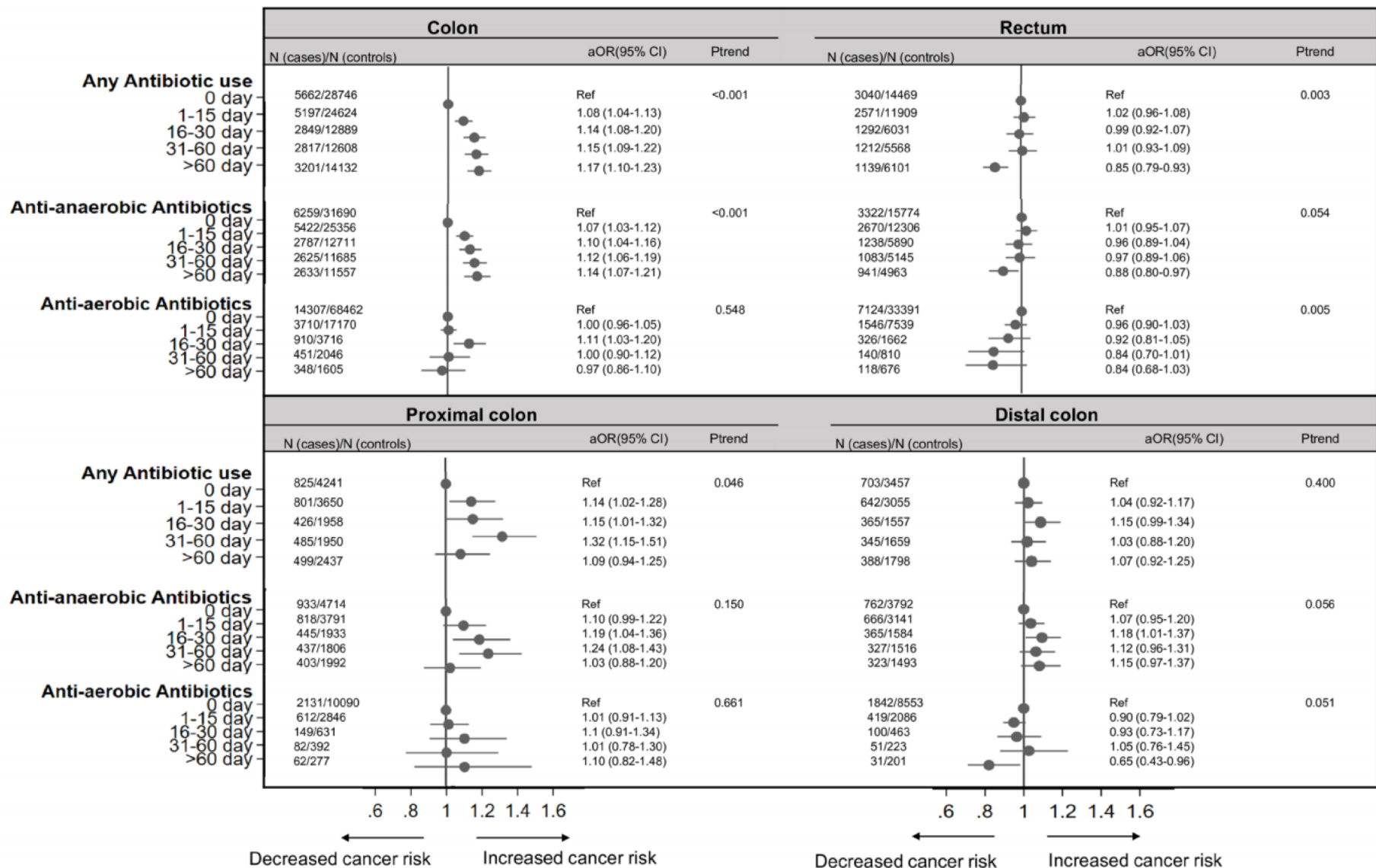
74% Decrease in CA-ASB  $p=0.026$

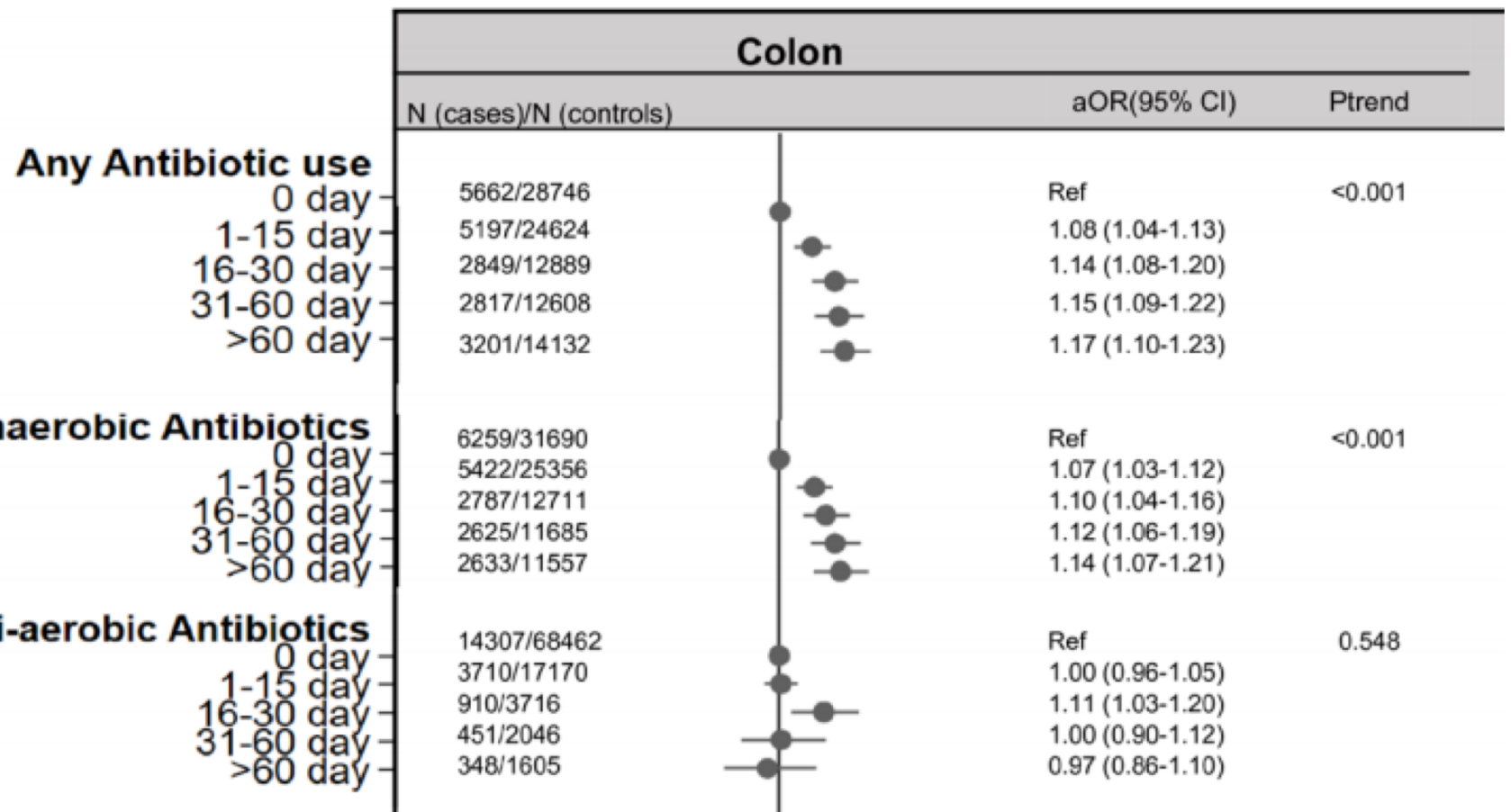
94% Decrease in CA-UTI  $p < 0.001$

# Abx and Colorectal Cancer?

- Context:
  - other obs studies have found a relationship
  - plausible – changed gut microbiome can cause local inflammation, promote carcinogenesis
- **Prospective**, case-control study
- Huge UK database
- 29,980 CRC cases and 137,077 matched controls
- 1989 – 2012, Median follow-up: 8 years







# Take Aways

- You heard it here first – nonprescription abx use is common and understudied
- Physicians prescribing lots of abx also disproportionately diagnose sinusitis - evidence of coding bias?
- Excess treatment for pneumonia is common; discharge is a high risk time
- Please cleanse prior to insertion of urinary catheter – chlorhexidine vs. povidone iodine pending
- Maybe association with abx use (particularly PNC, anti-anaerobic agents) and proximal colon cancer

