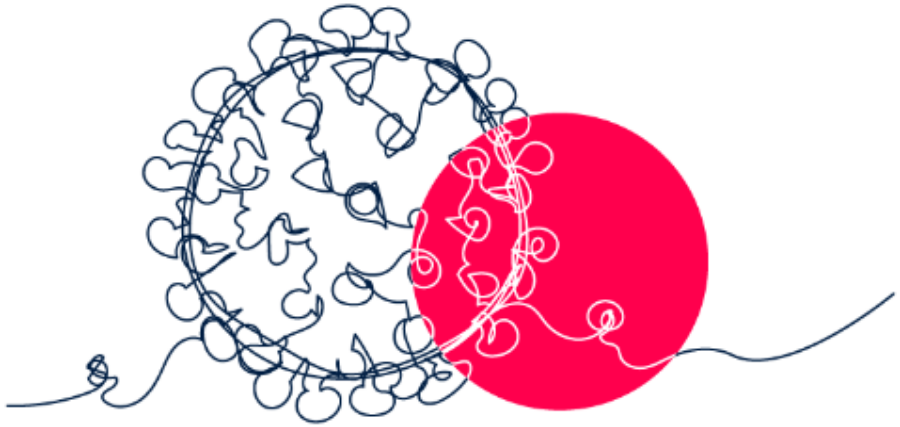
Antimicrobial Resistance: Best Clinical Practices to Minimize This Threat



May 30, 2023 | 1830–2000 PT

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THE UNIVERSITY OF BRITISH COLUMBIA
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Ask your questions: slido.com | #AMR

DISCLOSURES

Planning Team

- **Dr. Simon Moore (Moderator):** Dr. Simon Moore has received payments, grants, and honorariums from organizations (including gifts or other considerations or 'in-kind compensation) listed here: https://www.drmoore.ca/coi. Regarding for-profit or not-for-profit organizations that fund educational programs, Dr. Moore is a Co-Founder and Speaker for The Review Course in Family Medicine.
- **Dr. Bob Bluman (UBC CPD):** No conflicts of interest
- **Stephanie Ameyaw (UBC CPD):** No conflicts of interest
- **Nicole Esligar (UBC CPD):** No conflicts of interest
- **Naeema Al-Mridha (UBC CPD):** No conflicts of interest

DISCLOSURES

Panelists

- **Dr. David Patrick –** No conflicts of interests or disclosures to share
- **Dr. Edith Blondel-Hill –** Dr. Blondel-Hill receives a small yearly stipend from Alberta Health Services to update Bugs and Drugs app.
- **Dr. Tracy Monk -** No conflicts of interests or disclosures to share

Antibiotic Resistance: Best Clinical Practices To Minimize the Threat

David M. Patrick

Objectives

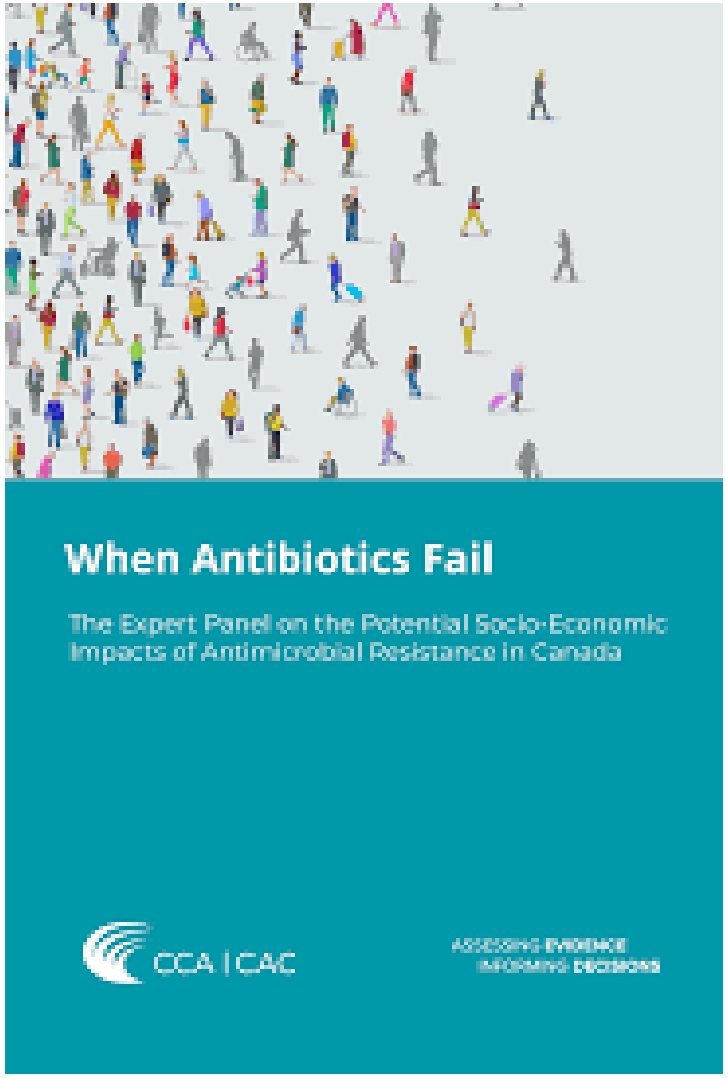
- Understand the scope and emerging threat of antimicrobial resistance
- Become aware of the important benefits of reducing antibiotic prescribing
- Be able to apply best practices in patient care to avoid unnecessary antibiotic use
- Become comfortable accessing and navigating resources to stay up to date with wise infection management and antibiotic use

Worst Case Scenario

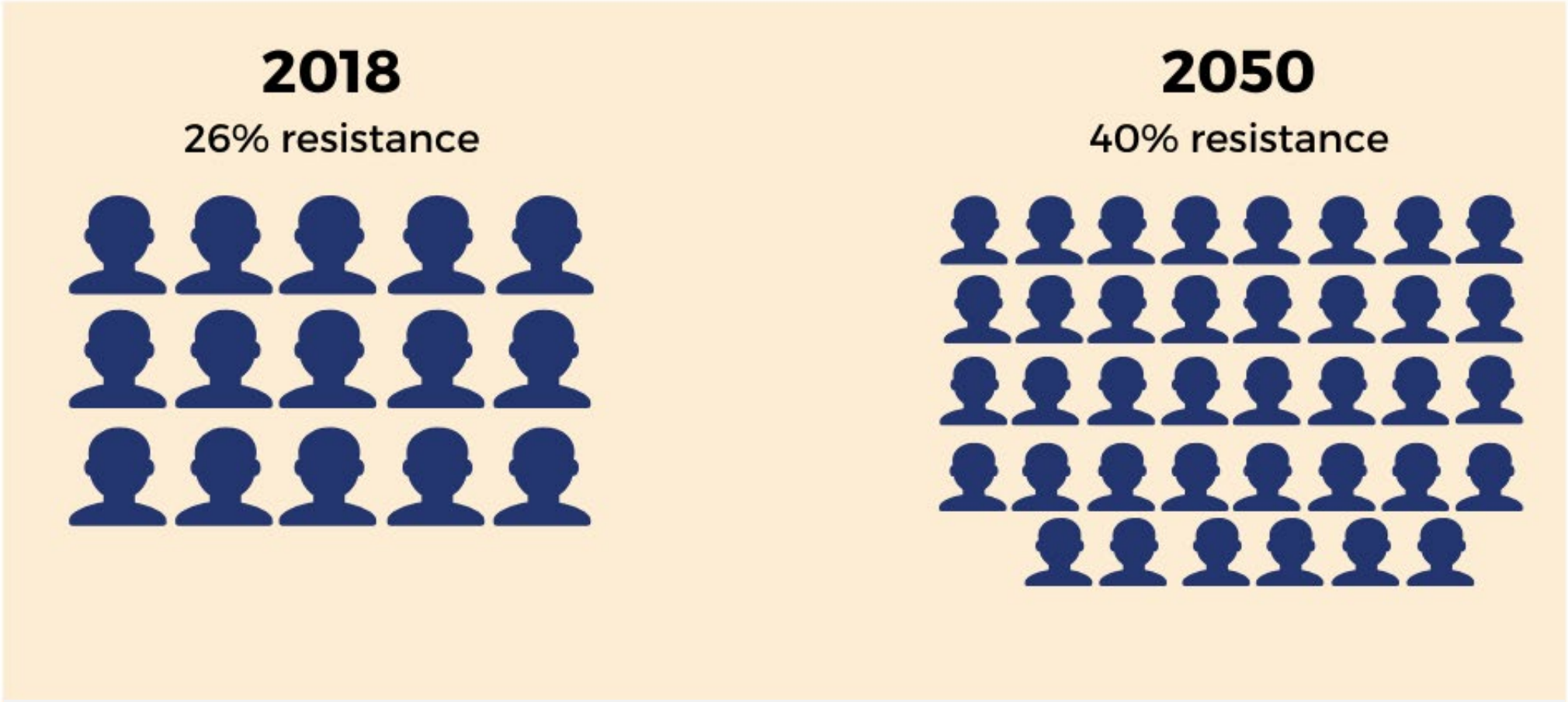
- A previously healthy UCSD Professor develops abdominal pain radiating through to the back while touring Egypt
- There is concern about pancreatitis and he is evacuated to Frankfurt, where imaging shows a pancreatic pseudocyst that when drained, grows Acinetobacter baumannii – R to <u>everything</u>
- He is transferred to hospital in San Diego where despite drainage, pressors and multiple combinations of antibiotics, he slips slowly into sepsis and coma

Where Might This Go?

- Not just difficult-to-treat infections
- Jeopardizes the safety of surgery, transplants, cancer therapy, immunosuppressive strategies
- Increases burden of infectious disease and costs; hurts economies



AMR Will Likely Increase by 2050



15 deaths a day in Canada

38 deaths a day in Canada

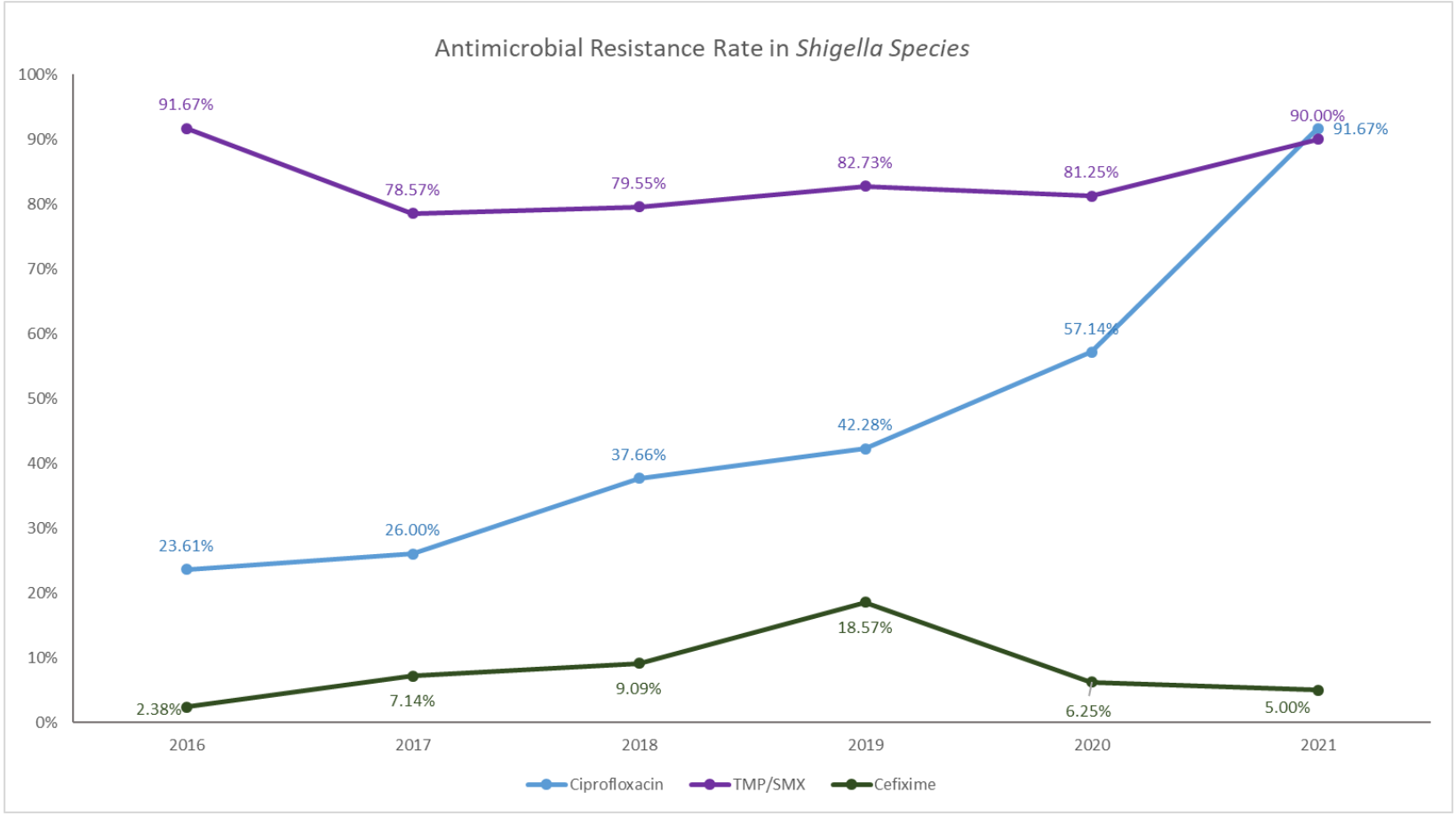
Burden of Illness for Canada?

- Mortality –3,000-5,000; will grow
- Morbidity – hundreds of thousands of community illness episodes

http://www.cdc.gov/drugresistance/threat-report-2013/
http://ec.europa.eu/health/antimicrobial_resistance/policy/index_en.htm

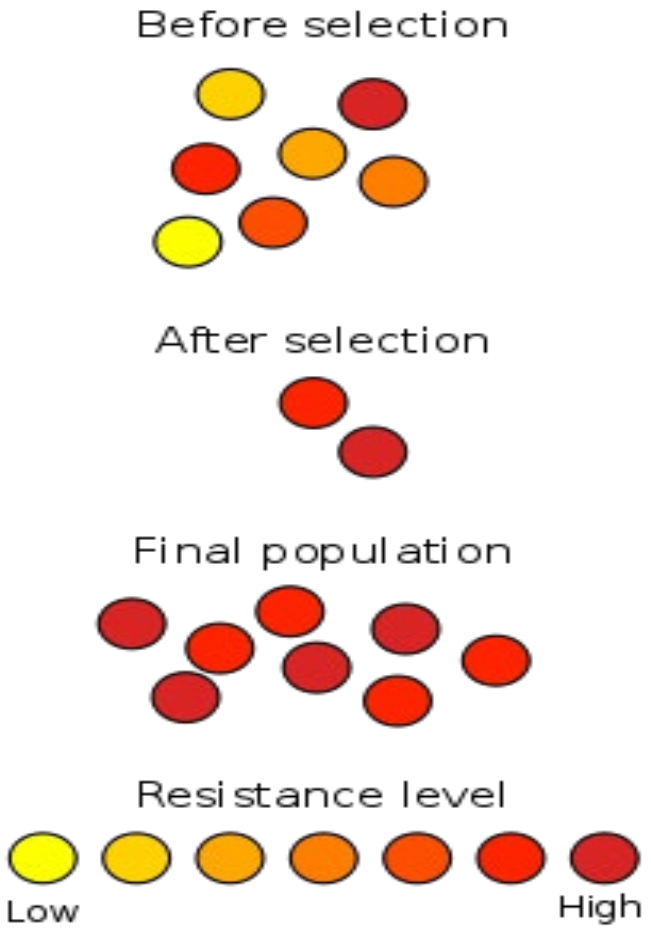
New Problems Emerge Frequently

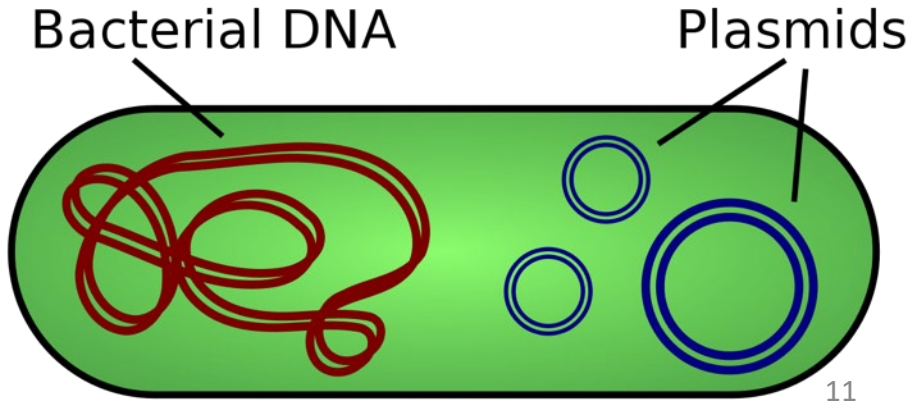
Fluoroquinolones will no longer do the job against Shigella



Lifelabs Data

What Drives Emergence?





http://en.wikipedia.org/wiki/File:Antibiotic_resistance.svg

Rachel McKay; Silverman et al. Annals of Int Med 2017

Key Actions in AMR Response

- Surveillance of AMR/AMU (Role for the EMR?)
- Infection prevention & control (including vaccines)
- Antimicrobial stewardship
- Innovation (drugs, diagnostics, vaccines)
  - Primary care research / evaluation

Harms Minimized by Avoiding Unnecessary Use

- Selection of AMR Pathogens
- Immediate Adverse Effects (Allergic and Non-Allergic)
- Medium Term Adverse Effects (e.g. C. difficile colitis)
- Longer Term Adverse Effects from Disrupted Microbiota
- Unnecessary Costs

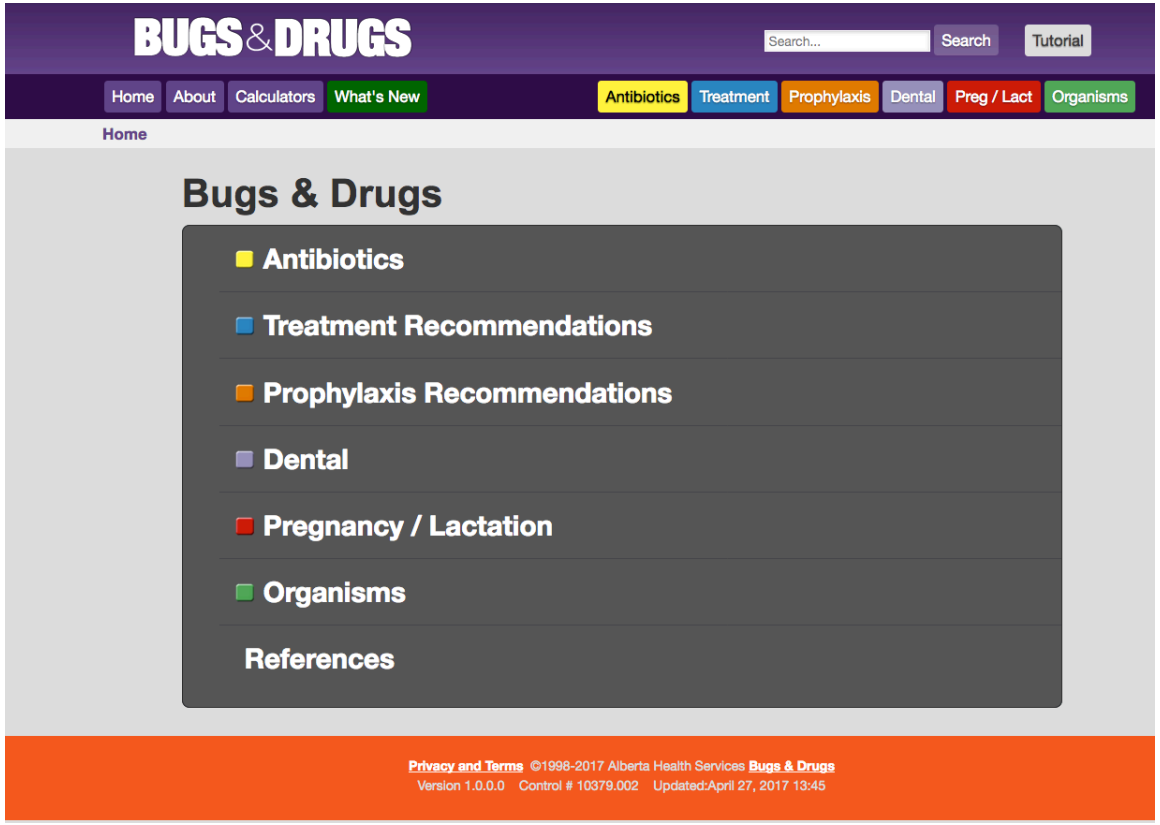
- Ergo, we aim to use antibiotics only with a high probability of clinical benefit – supported by evidence.

Major Practice Points

- Strep Pharyngitis Rx can safely await culture (if needed –bid Pen V)
- Most otitis media improves in 24 hours on analgesics alone
- Don't treat acute bronchitis with antibiotics
- Don't treat sinusitis with antibiotics unless > 7 days of symptoms
- Follow guidelines for AE-COPD and Pneumonia (Very rare use of fluoroquinolones)
- Emphasize nitrofurantoin for uncomplicated cystitis
- Don't treat asymptomatic bacteriuria except in pregnancy
- Don't do a urine dip or culture unless clear signs of UTI (Dipsticks have very poor PPV in the elderly)
- Don't prescribe antibiotics after incision and drainage of uncomplicated skin abscesses unless extensive cellulitis
- Don't prescribe alternate second-line antimicrobials to patients reporting non-severe reactions to penicillin when beta-lactams are the recommended first-line therapy.
- Do support your dental colleagues trying to adapt up to date guidance around vary few remaining indications for prophylactic antibiotics with dental procedures for people with cardiac conditions (no indication for prosthetic joints and cosmetic implants)

Advice to Professionals

- All doctors and pharmacists get access
- No industry involvement
- Online Access or app
- Emphasize first line agents when treatment required and symptom relief when not
- Continuing education / Journals
- Academic detailing
- In line with Choosing Wisely



www.bugsanddrugs.org

Shorter is Better

Edith Blondel-Hill

Duration of Therapy

Duration of antibiotic therapy for common infections

Jennifer Grant MDCM FRCPC[1], Nicole Le Saux MD FRCPC[2], members of the Antimicrobial Stewardship and Resistance Committee (ASRC) of the Association of Medical Microbiology and Infectious Disease (AMMI) Canada*

Annals of Internal Medicine®

Clinical Guidelines | June 2021

Appropriate Use of Short-Course Antibiotics in Common Infections: Best Practice Advice From the American College of Physicians

Rachael A. Lee, MD, MSF

Clinical Microbiology and Infection 29 (2023) 141–142

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CMI CLINICAL MICROBIOLOGY AND INFECTION ESCMID

Editorial

The Shorter Is Better movement: past, present, future

Shorter is better: > 125 Randomized Control Trials

Diagnosis	Short course (days)	Long course (days)	Result	Number of RCTs
CAP	3 to 5	5 to 14	Equal	14
Atypical CAP	1	3	Equal	1
Possible pneumonia in ICU	3	14 to 21	Equal	1
Ventilator-associated pneumonia	8	15	Equal	2
Complicated UTI/pyelonephritis	5 or 7	10 or 14	Equal	9
Intra-abdominal infection	4	10	Equal	2
Gram-negative bacteremia	7	14	Equal	3
Cellulitis/wound/abscess	5 to 6	10	Equal	4
Osteomyelitis	42	84	Equal	2
Osteomyelitis w/removed implant	28	42	Equal	1
Debrided diabetic osteomyelitis	10 to 21	42 to 90	Equal	2
Septic arthritis	14	28	Equal	1
Acute exacerbations of chronic bronchitis and sinusitis	5 or fewer	7 or more	Equal	>25
Neutropenic fever	Afebrile and stable for 72 hours	Plus, absolute neutrophil count greater than500 cells/μL	Equal	2
Postoperative prophylaxis	0 to 1	1 to 5	Equal	55
Erythema migrans (Lyme)	7	14	Equal	1
Plasmodium vivax malaria	7	14	Equal	1

Abbreviations: CAP, community-acquired pneumonia; RCTs, randomized controlled trials.

https://www.bradspellberg.com/shorter-is-better.

Daily Harm of Antibiotics

Review > Clin Microbiol Infect. 2022 Apr;28(4):479-490. doi: 10.1016/j.cmi.2021.10.022. Epub 2021 Nov 12.

Estimating daily antibiotic harms: an umbrella review with individual study meta-analysis

Jennifer Curran [1], Jennifer Lo [2], Valerie Leung [3], Kevin Brown [4], Kevin L Schwartz [4], Nick Daneman [5], Gary Garber [6], Julie H C Wu [7], Bradley J Langford [8]

Curran et al CMI 2022- Canadian study

35 systemic reviews / 71 RCTs

- > 23,000 patients
  - 36.5% RTIs
  - 29.4% UTIs

Each day of antibiotic associated : 4% risk

- 5days vs. 3days: ↑9% risk
- 7days vs. 3days: ↑19% risk

Comparative C. difficile risk of antibiotic durations

Duration				
7 d	1.90	Reference	1.02	Reference
vs 5 d	1.68	0.88 (.87, .90)	0.93	0.91 (.90, .93)
vs 10 d	2.19	1.15 (1.13, 1.17)	1.14	1.12 (1.09, 1.14)
vs 14 d	2.53	1.33 (1.27, 1.36)	1.29	1.27 (1.21, 1.30)

Compared to 7days of therapy:

- 5days: ↓9% risk

10days:↑12% risk

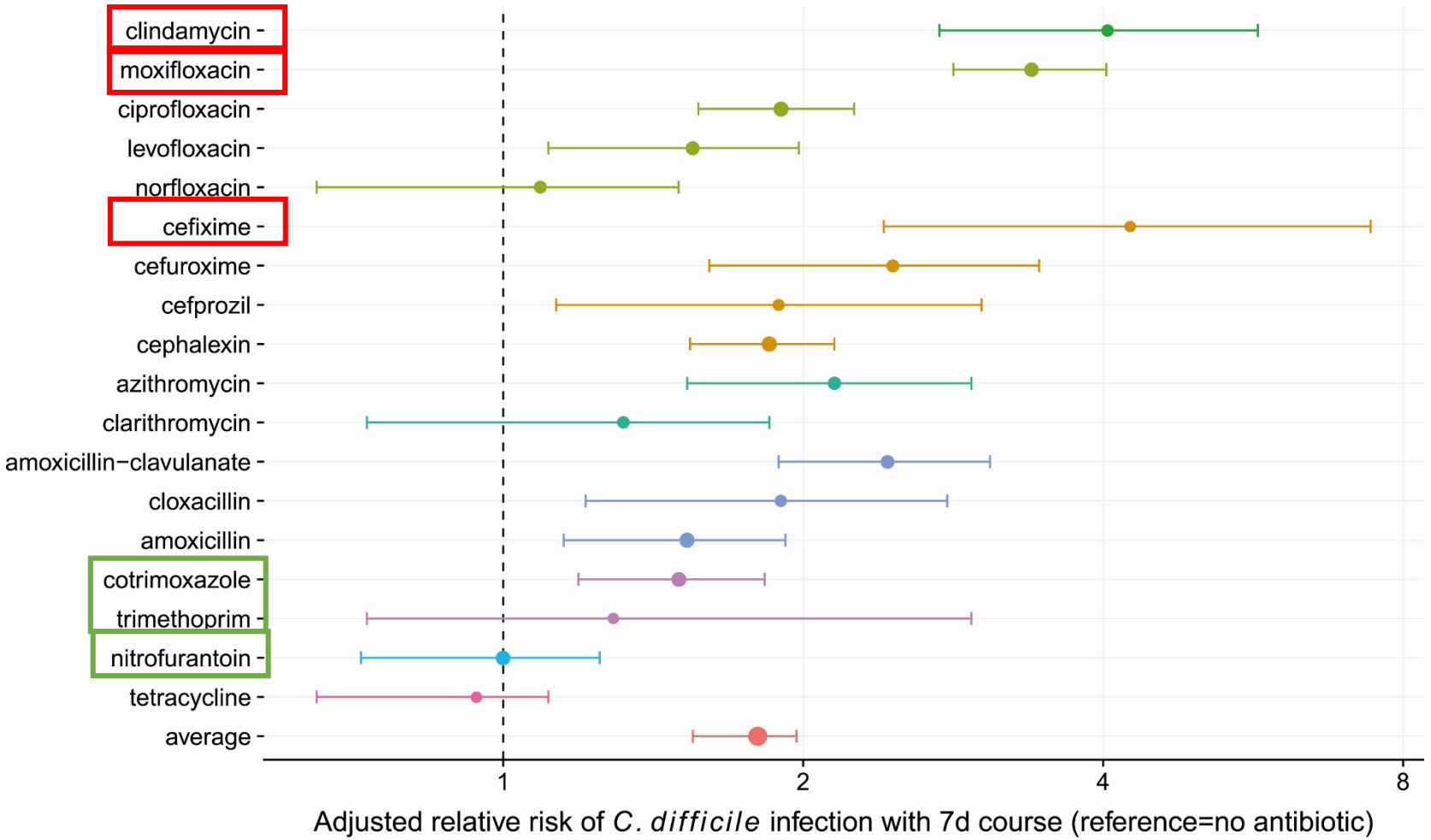
- 14days:↑27% risk

JOURNAL ARTICLE

Antibiotic Prescribing Choices and Their Comparative *C. Difficile* Infection Risks: A Longitudinal Case–Cohort Study

Kevin Antoine Brown, Bradley Langford, Kevin L Schwartz, Christina Diong, Gary Garber, Nick Daneman

Clin Infect Dis. 2021 Mar 1;72(5):836-844



Antibiotic Prescribing Choices and Their Comparative C Difficile Infection Risks: A longitudinal Case-cohort study. CID

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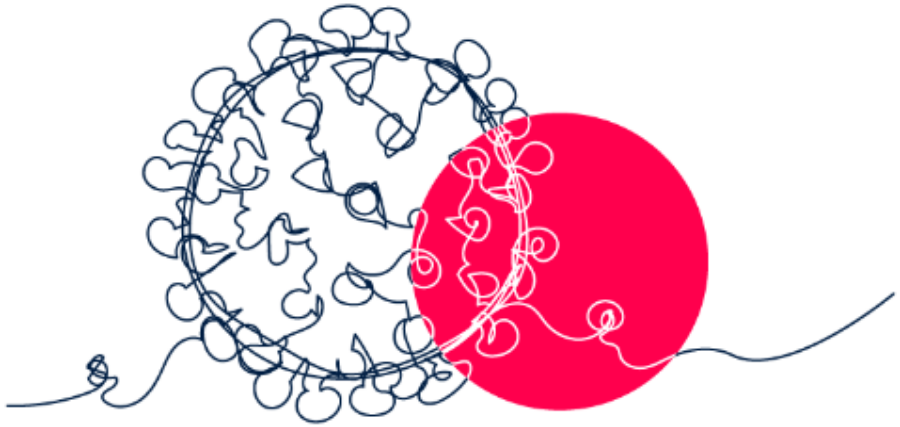

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