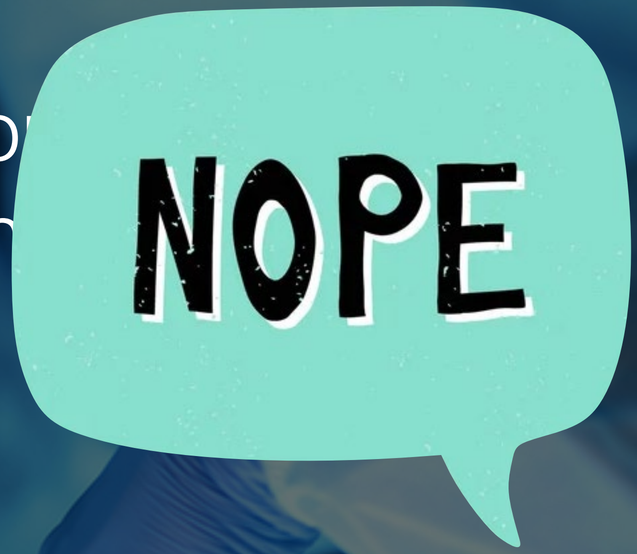
Antibiotics for Uncomplicated Diverticulitis

Seth Cohen MD, MSc
Medical Director, Infection Prevention
University of Washington Medical Cen



Take Home Points

Shorter is Better

Early PO switch is good

Hold antibiotics in select cases

JAMA Internal Medicine

Antibiotic Mantra: **Shorter is Better**

- Safer
- Equally effective
- Evidence based
- Mixed evidence: TB, otitis media, strep throat
  - Dependent on abx selection

Diagnosis	Short (d)	Long (d)	Result	#RCT
CAP	3-5	5-14	Equal	14
Atypical CAP	1	3	Equal	1
Possible PNA in ICU	3	14-21	Equal	1
VAp	8	15	Equal	2
cUTI/Pyelonephritis	5 or 7	10 or 14	Equal	9
Intra-abd Infection	4	10	Equal	2
GNB Bacteremia	7	14	Equal	3
Cellulitis/Wound/Abscess	5-6	10	Equal	4
Osteomyelitis	42	84	Equal	2
Osteo Removed Implant	28	42	Equal	1
Debrided Diabetic Osteo	10-21	42-90	Equal	29
Septic Arthritis	14	28	Equal	1
AECB & Sinusitis	<5	>7	Equal	>25
Neutropenic Fever	AFx72h/3d	ANC>500/9d	Equal	2
Post Op Prophylaxis	0-1	1-5	Equal	55
Erythema Migrans (Lyme)	7	14	Equal	1
P vivax Malaria	7	14	Equal	1
Total: 17 Conditions				**>120 RCTs**

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

Spellberg JAMA IM 2016

Oral Is the New IV. Challenging Decades of Blood and Bone Infection Dogma: A Systematic Review

Noah Wald-Dickler, MD • Paul D. Holtom, MD • Matthew C. Phillips, MD • ... Rachael. A. Lee, MD • Rachel Baden, MD • Brad Spellberg, MD • Show all authors

- Many concordant RCTs
- No difference in clinical efficacy or superiority
- Deep seated infections: endocarditis, bacteremias, osteomyelitis
- Complicated abdominal infections
- Often safer and associated with shorter hospitalizations

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

Spellberg JAMA IM 2016

Summary: **Less** is often **Better**

Diverticulitis Definitions

- **Uncomplicated**: thickening of colon wall with peri-colonic inflammation
- **Complicated**: abscess/phlegmon, peritonitis, obstruction, stricture, fistula

Do bacteria drive uncomplicated diverticulitis?

- Etiology of inflammation in uncomplicated ‘tic is unclear
- Prevailing theories:
  - Deranged colonic microenvironment (including neuropeptides)
  - Inspissated stool particles erode colonic wall causes microperforation
- Nuts, popcorn and corn consumption are inversely correlated with diverticulitis!

Young-Fadok NEJM 2018
Morris JAMA 2014
Strate JAMA 2008

Treatment of Uncomplicated Acute Diverticulitis Without Antibiotics: A Systematic Review and Meta-analysis

Au, Stephanie M.B.B.S., M.A. (Oxon.), M.Sc., M.R.C.S.[1]; Aly, Emad H. M.B.B.Ch, M.D., F.R.C.S., F.A.C.S., F.A.S.C.R.S., M.Ed.[2]

- Meta-analysis of 9 studies including 2 RCTs of uncomplicated acute diverticulitis (variable quality studies)
- 1663 patients were NOT antibiosed, 842 received abx
- 2 small studies included patients with moderate disease including inpatients
- No difference in requiring additional intervention, readmission, deferred readmission, recurrence or complications.

Au Dis Colon and Rectum 2019

CURRENT STATUS REVIEWS

Treatment of Uncomplicated Acute Diverticulitis Without Antibiotics: A Systematic Review and Meta-analysis

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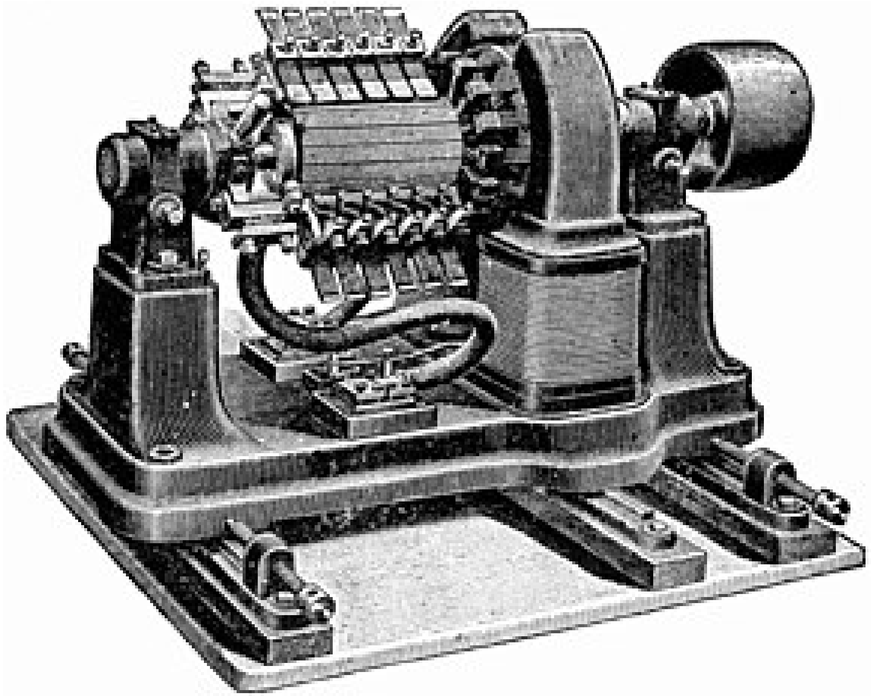
Author Information

Diseases of the Colon & Rectum: December 2019 - Volume 62 - Issue 12 - p 1533-1547
doi: 10.1097/DCR.0000000000001330

- 7 studies (including same 2 RCTs)
- Similar conclusions
- No antibiotics associated with shorter hospital stay

DINAMO Trial

- 480 patient multi center, open-label non-inferiority Spanish RCT
- **Symptoms must have been controlled in ED or as outpatient**
- Randomized to amox-clav or no antibiotics (both got NSAIDS and acetaminophen)
- Primary endpoint: Hospitalization (6% with abx, 3% without)
- Similar rates of unscheduled return appointments (6.7 vs 7%)



Mora-Lopez Ann Surg 2021

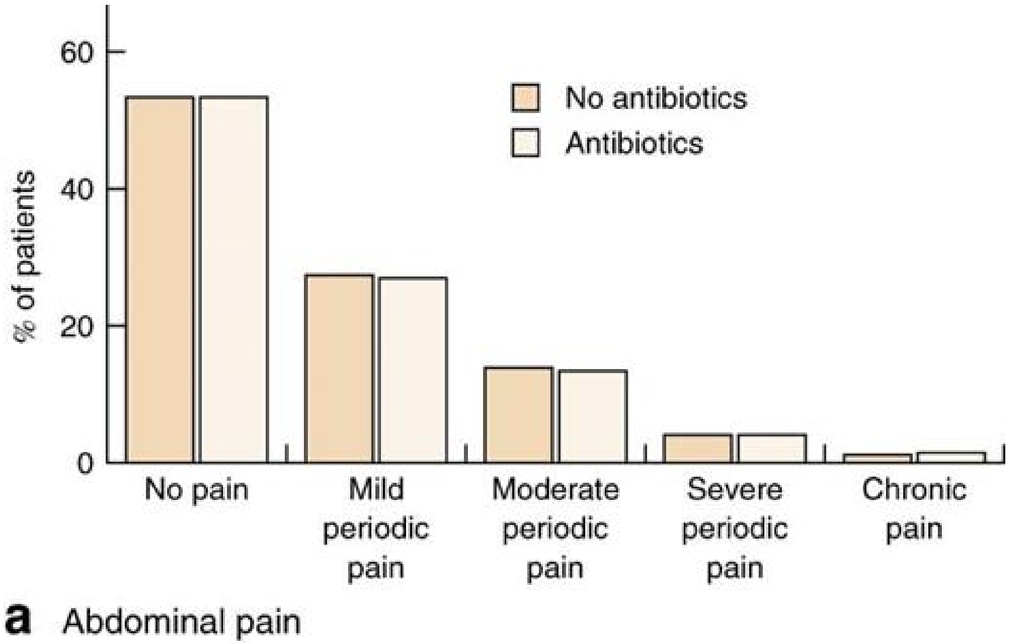
DINAMO Trial: Exclusions

- <18 years or > 80 years
- Episode in the last 3 months
- Inflammatory bowel disease
- Significant comorbidities
- Immunosuppression
- Dementia
- Poor symptom control at the ED
- SIRS
- How many of these apply to your patients?

Mora-Lopez Ann Surg 2021

RCTs with Inpatients: AVOD

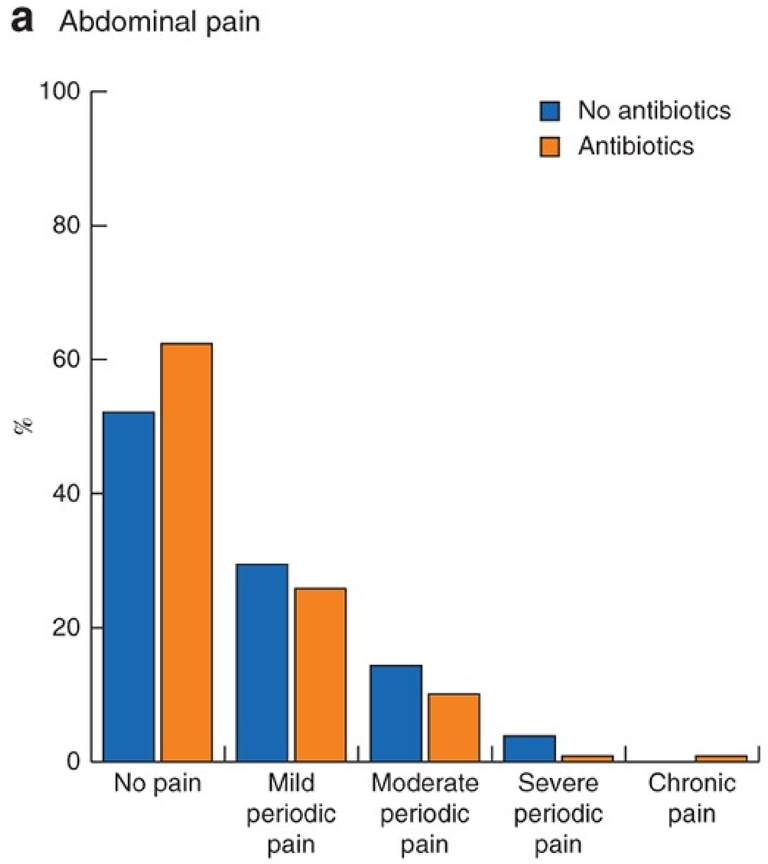
- 623 patients in Sweden and Iceland randomized to fluids vs fluids + antibiotics
- CT evidence of diverticulitis, elevated WBC, CRP and fever
- No difference in complications and emergency surgery (may be underpowered)



Chabok Br J Surg 2012

Long Term Follow-up of AVOD Trial

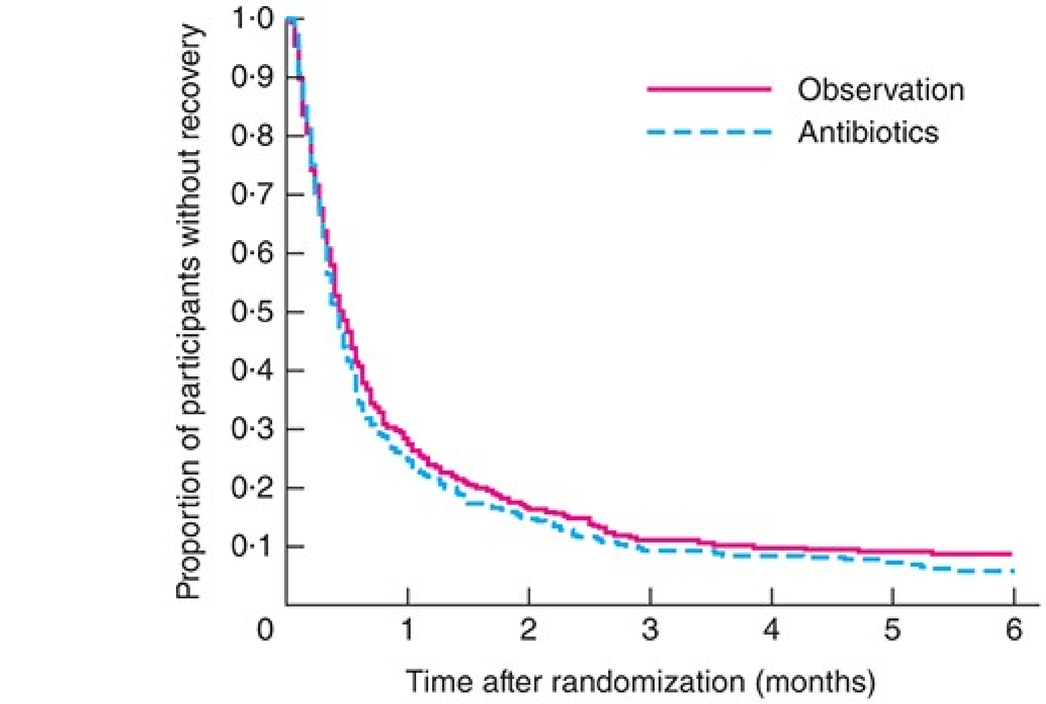
- Median 11 year follow-up
- No differences between groups in recurrence, complications, surgery
- Conclusion: Avoiding antibiotics is safe in the long term



Isacson Br J Surg 2019

RCTs with Inpatients: DIABLO

- 528 inpatients in Netherlands (DIABLO Trial)
- CT proven left sided diverticulitis
- Excluded patients needing IR or surgical intervention
- No difference in time to recovery during 6 mo follow-up or secondary endpoints
- 2 year follow-up for 90% patients



No. at risk							
Observation	262	70	41	27	24	22	19
Antibiotics	266	65	39	24	22	19	14

a All patients

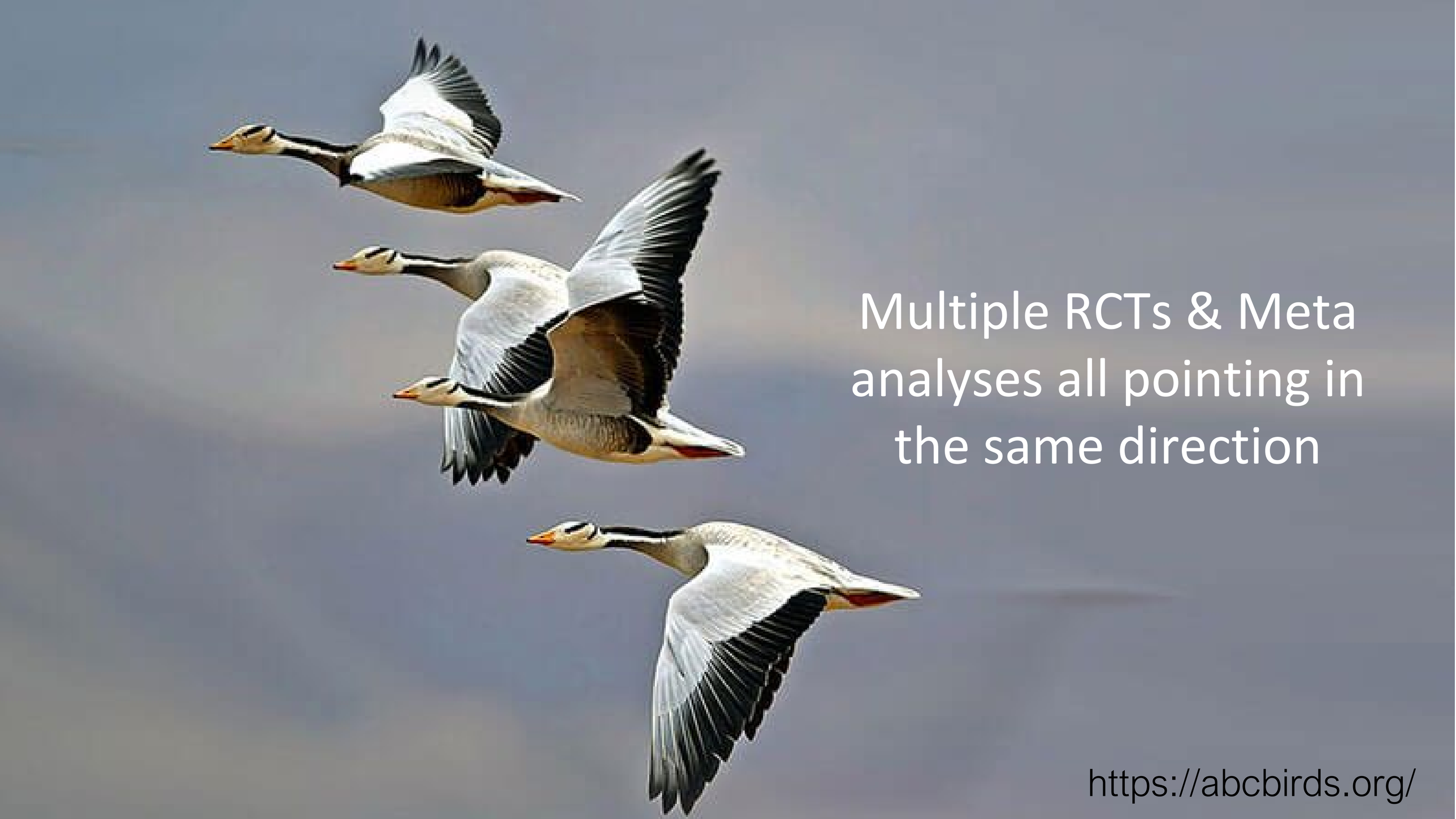
Daniels Br J Surg 2017

Antibiotics do not reduce LOS

- 180 patients in NZ and Australia
- Uncomplicated ‘tic by CT randomized to abx vs placebo x 7 days
- No difference in hospital stay (40 hrs for abx vs 46 hrs for placebo)
- No difference in adverse events or readmission
- Limited by small size (powered for difference >24 hours), shorter follow-up

New Zealand, National Geographic

Jaung Clin Gastro Hepatol 2021


Multiple RCTs & Meta analyses all pointing in the same direction
https://abcbirds.org/

What do the **guidelines** say?

Antibiotics **can be** selectively held in immunocompetent patients with mild diverticulitis

Perry Gastroenterology 2021

Select patients with acute uncomplicated left-sided diverticulitis **should** initially be treated without antibiotics

(conditional recommendation; low-certainty evidence).

ACP 2022

Consider a no antibiotic strategy for people who are systemically well (and no significant comorbidity)

NICE Guidelines (UK)

Conclusion: Time for medical dogma to **change**.

Antibiotics can be **selectively held** in acute uncomplicated diverticulitis.

Gaps & Opportunities for Future Study

- Reporting on harms of antibiotics and admission (healthcare associated infections, C diff, antibiotic resistance)
- Inpatient based studies in the US with broader patient populations
- Do antibiotics actually **improve** outcomes for diverticulitis for higher risk subgroups?
- What is the etiology of diverticular inflammation?

Take Home Points

Shorter is Better

Consider early transition to PO antibiotics

Antibiotics can be held in select cases

Thank you!

cohen2@uw.edu