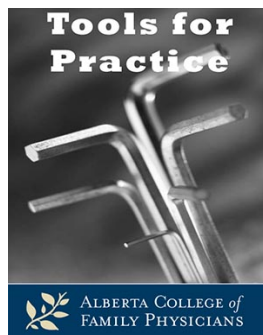


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Evidence Updated: 4 systematic reviews added, context updated
Bottom Line: Unchanged
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Daily Prophylactic Antibiotics in COPD? If so, who?

Clinical Question: Are daily prophylactic antibiotics reasonable for preventing acute exacerbations of COPD (and if so, in which patients)?

Bottom-line: In select patients with severe COPD and recurrent exacerbations, prophylactic antibiotics may reduce exacerbations for about one in 10. Balanced against possible increased resistance and adverse events, present use should be very limited.

Evidence:

- Three randomized controlled trials (RCTs):
 - 1,142 severe COPD patients (60% on O₂, 48% on all three puffers), randomized to azithromycin 250 mg daily or placebo:¹
 - At one year, azithromycin:
 - Decreased exacerbations, hazard ratio 0.73 (0.63-0.84).
 - Decreased patients ≥ 1 exacerbation: 57% versus 68%, Number Needed to Treat (NNT)=10.
 - Clinically important improved quality of life, NNT=15.
 - Harms: 5% more had decreased hearing and macrolide resistance from nasopharyngeal swabs increased (81% versus 41%).
 - 109 COPD patients, 35% had ≥ 3 exacerbations last year, randomized to erythromycin 250 mg BID or placebo:²
 - Erythromycin reduced exacerbations, rate ratio 0.65 (0.49-0.86).
 - No difference in adverse events.
 - 1,157 COPD patients with ≥ 2 exacerbations last year, randomized to moxifloxacin 400 mg daily x 5 days every 8 weeks or placebo for 48 weeks:³
 - Non-significant trend to reduced exacerbation (odds ratio 0.81, 0.65-1.01).
 - No impact on hospitalization, mortality, or quality of life.
 - Harms: More adverse events (primarily GI) from treatment, 9.3% versus 3.8%, Number Needed to Harm (NNH)=19.
 - Systematic review of seven RCTs (3170 patients):⁴
 - Decreased patients ≥ 1 exacerbation, Odds Ratio 0.64 (results inconsistent).

- Subgroup analysis of studies that used continuous antibiotics: OR 0.55, NNT=8 over 10 months.
- Rate of exacerbations, time to first exacerbation, and quality of life improved with prophylaxis.
- No effect on admissions or mortality.
- Resistance not consistently defined/reported.
- Other systematic reviews found similar,⁵⁻⁷ although one found a reduction in admissions (RR=0.79).⁵

Context:

- Recent guidelines either suggest use of prophylaxis in patients with moderate-severe COPD with ≥ 1 moderate-severe exacerbation/year despite optimal inhalers⁸ or state benefits do not outweigh risks.⁹
- The reduction in exacerbation is similar to long-acting inhaled therapies.^{10,11}
- Macrolide antibiotics are used chronically in respiratory disorders such as cystic fibrosis and diffuse panbronchiolitis.¹²
 - Effect may be anti-inflammatory more than antimicrobial.

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Tools for Practice is a biweekly article summarizing medical evidence with a focus on topical issues and practice modifying information. It is coordinated by G. Michael Allan, MD, CCFP and the content is written by practising family physicians who are joined occasionally by a health professional from another medical specialty or health discipline. Each article is peer-reviewed, ensuring it maintains a high standard of quality, accuracy, and academic integrity. If you are not a member of the ACFP and would like to receive the TFP emails, please sign up for the distribution list at <http://bit.ly/signupfortfp>. Archived articles are available on the ACFP website.

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