Evidence Update

Health Systems Series

What is the best way to improve health worker prescribing of antibiotics?

There is insufficient research to recommend a single approach but multifaceted interventions, and those targeting patients, show promise.

Inclusion criteria

Studies:

Randomized and quasi-randomized controlled trials, controlled before-and-after studies, and interrupted time series.

Intervention:

Interventions aiming to improve the selection, dose and treatment duration of antibiotics prescribing for outpatients compared with another intervention or with no intervention.

Outcomes:

Appropriate antibiotic prescribing; bacterial resistance; adverse events.

Results

- Thirty-nine studies were included (25 RCTs, 1 quasi-RCT, 11 controlled before-and-after studies, and 2 interrupted time series). Allocation concealment was adequate in five RCTs.
- Educational outreach (8 studies), reminders to physicians (3 studies), health system changes (2 studies), and audit and feedback (4 studies) had mixed effects on prescribing practices.
- Educational meetings (10 studies), including 4 studies in developing countries, improved antibiotic prescribing, but effects were variable and generally modest.
- Printed educational materials (4 studies) had little overall effect on prescribing behaviour.
- Patient-based interventions (5 studies), including education or information (2 studies) and delayed prescriptions (post-dated prescriptions that patients can use after a few days if symptoms do not clear by themselves) (3 studies), consistently decreased patient antibiotic use.
- Multifaceted interventions (7 studies), which combined physician and patient education with public information about antibiotic prescribing, consistently decreased antibiotic prescribing for inappropriate conditions, although effects were variable in size.

Adapted from Arnold SR, Straus SE. Interventions to improve antibiotic prescribing practices in ambulatory care. *Cochrane Database of Systematic Reviews* 2005, Issue 4. Art. No.: CD003539. DOI: 10.1002/14651858. CD003539.pub2. *Evidence Update* published in July 2007.

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Authors' conclusions

Implications for practice:

The interventions and prescribing behaviours evaluated by the included studies were varied. There is insufficient evidence to recommend a single approach for improving antibiotic prescribing in all settings. Multifaceted interventions addressing local prescribing cultures, barriers to change, and targeting patients show the most potential for improving prescribing behaviour.

Implications for research:

Well-designed, long-term studies are needed to identify effective interventions or components of interventions that improve antibiotic prescribing.