RESEARCH HIGHLIGHTS

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The path of least resistance

This overall improvement in prescribing quality might mitigate the increase in quantity

Antimicrobial resistance is a worldwide problem. Treatment options for common infections are becoming less effective, and attempts to tackle the issue need inputs from patients, health-care providers, and policy makers. In a study published in *CMAJ*, Vellinga *et al.* report on the quantity and quality of antimicrobial prescribing for UTI compared with the available national guidelines.

The study - named SIMPle after the Supporting the Improvement and Management of Prescribing - was a three-armed complex intervention that included 30 primary-care practices, each of whom was assigned to one of the three study arms. After baseline data collection, practices began the intervention phase, during which they completed an interactive workshop: those in group A received information regarding national guidelines for antimicrobial prescribing, whereas those in group B received this information as well as additional evidence to support delaying prescription of an antimicrobial for suspected UTI. A control group (C) was also included. Antimicrobial prescribing

was audited monthly. A follow-up period was continued for 5 months after the intervention phase ended to evaluate sustainability of changes in prescribing.

Over the 9-month study period, the 30 practices involved recorded a total of 3,314 consultations for UTI. Prescribing was the same across all three groups during the baseline period, with a first-line antimicrobial prescribed to 45.4-49.8% of patients with suspected UTI. At the end of the intervention period, first-line prescribing changed to 68.2% in group A (22.8% increase), 66.5% in group B (16.7% increase) and 44.1% in the control group (1.7% decrease). However, these increases reflected higher levels of nitrofurantoin prescribing, which was was observed in both intervention arms: from 26.8% to 64.3% in group A, and from 31.1% to 63.8% in group B. Patients who received nitrofurantoin were found to be less likely to return to their doctor for a second consultation for UTI during the study period. Odds ratio calculations showed that a patient attending an intervention practice was 2.3-fold more likely to receive a firstline antimicrobial than one attending a control practice, and fivefold more likely to receive nitrofurantoin than any other antimicrobial.

Guidelines for UTI treatment discourage the use of quinolones for first-line treatment, and encourage nitrofurantoin as an alternative to trimethoprim, for which resistance is high. The outcomes of SIMPle demonstrate an increase in nitrofurantoin prescribing, but also an overall increase in antimicrobial prescriptions. The authors suggest that the overall increase in prescriptions observed mainly reflects an increase in prescriptions of nitrofurantoin, for which little evidence of acquired resistance exists. This overall improvement in prescribing quality might mitigate the increase in quantity.

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ORIGINAL ARTICLE Vellinga, A. *et al*. Intervention to improve the quality of antimicrobial prescribing for urinary tract infection: a cluster randomized trial. *CMAJ* http://dx.doi.org/10.1503/cmaj.150601

FURTHER READING Zowawi, H. M. et al. The emerging threat of multidrug-resistant Gram-negative bacteria in urology. *Nat. Rev. Urol.* 12, 570–584 (2015)