

## How British Columbia physicians can address antibiotic resistance

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### Recent trends in resistance

British Columbia continues to see dramatic changes in the prevalence of antibiotic resistant organisms. Trends of relevance include:

- One in four *Staphylococcus aureus* isolates are now resistant to methicillin (and hence cloxacillin and cephalixin) in BC. This proportion has increased significantly since 1998, although there is evidence of stabilization between 2006 and 2008. Much of the increase is due to the introduction of community-associated strains this decade.
- Methicillin-resistant *Staphylococcus aureus* strains also show resistance to other antibiotics. According to BC Biomedical Laboratories during 2007, 38% of MRSA isolates were resistant to clindamycin, 94% to erythromycin, but only 6% and 10% resistant to cotrimoxazole and doxycycline, respectively.
- Gram-positive organisms such as *Staphylococcus aureus*, *Streptococcus pneumoniae*, and *Streptococcus pyogenes* have demonstrated increasing resistance against erythromycin and other macrolides. These trends are correlated with use of new macrolides such as azithromycin and clarithromycin. However, there has been some moderation in this trend and even a decrease in macrolide resistance among *S. pyogenes* since 2005.

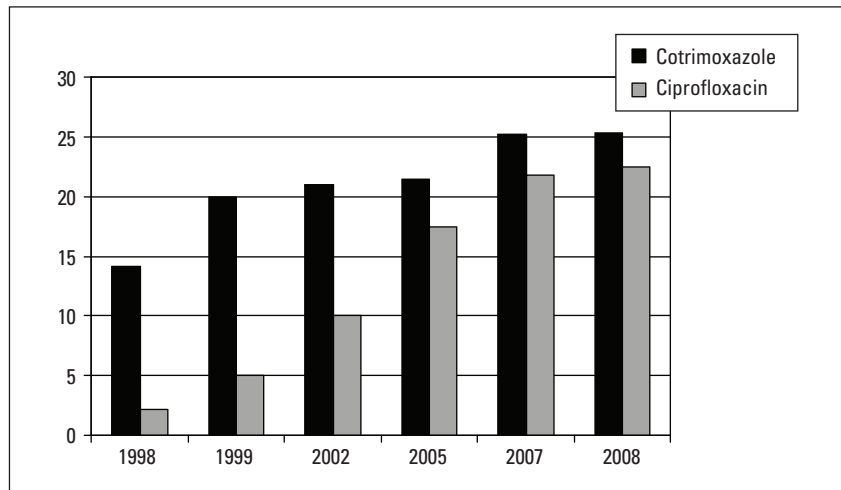


Figure. Percent of *Escherichia coli* isolates resistant to cotrimoxazole and to ciprofloxacin.

Source: BC Biomedical Laboratories

- Urinary tract pathogens such as *Escherichia coli*, *Proteus mirabilis* and *Klebsiella pneumoniae* have demonstrated increasing resistance against both ciprofloxacin and cotrimoxazole. One in five *E. coli* isolates are resistant to ciprofloxacin and one in four to cotrimoxazole (Figure). Resistance to nitrofurantoin in *E. coli* is rare.
- Overall antimicrobial use decreased between 1996 and 2007, but an upward rebound was observed from 2003 to 2005, which appears to have ended. Macrolide and fluoroquinolone utilization rates significantly increased from 1996 to 2007, while  $\beta$ -lactam, tetracycline, and cotrimoxazole utilization decreased.

### What you can do

Antibiotics are very important in many aspects of patient care, but physicians can safely reduce their “resistance footprint” by:

- Reducing or eliminating prescribing

for acute bronchitis when pneumonia is not a concern.

- Using the delayed prescription strategy or a more conservative approach to managing otitis media.

Continued on page 469

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Continued from page 443

- Avoiding the use of drugs with a greater propensity to select for resistance, such as azithromycin.
- Considering alternatives to fluoroquinolones when treating cystitis.
- Reserving respiratory fluoroquinolones for unresponsive community-acquired pneumonia or pneumonia in high-risk patients.
- Immunizing with influenza and pneumococcal vaccines when indicated to decrease respiratory infections.

### **Do Bugs Need Drugs?**

The Do Bugs Need Drugs? program continues to be an important health initiative in BC. Since its inception, 25 000 grade 2 children, 5000 children in day care, and 6000 health care professionals have received educational components of the Do Bugs Need Drugs? program, the majority of physicians' offices have received materials, and most British Columbians have come into contact with the media campaigns. The upward trend in the use of antibiotics seen from 2003 to 2005 has been arrested and encouraging declines in pediatric use are observed. BC physicians are more likely than Canadian physicians overall to prescribe no antibiotic for several common respiratory tract infections or to use first-line antibiotics if doing so. Nevertheless, due to the growing resistance of bacteria to macrolides and fluoroquinolones, decreasing their use continues to be a main objective of the program. In this issue of *BCMJ* you will find an order form for program materials. Information for physicians is also posted at [www.dobugsneeddrugs.org](http://www.dobugsneeddrugs.org).

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