

## Regional variations in antibiotic consumption in BC

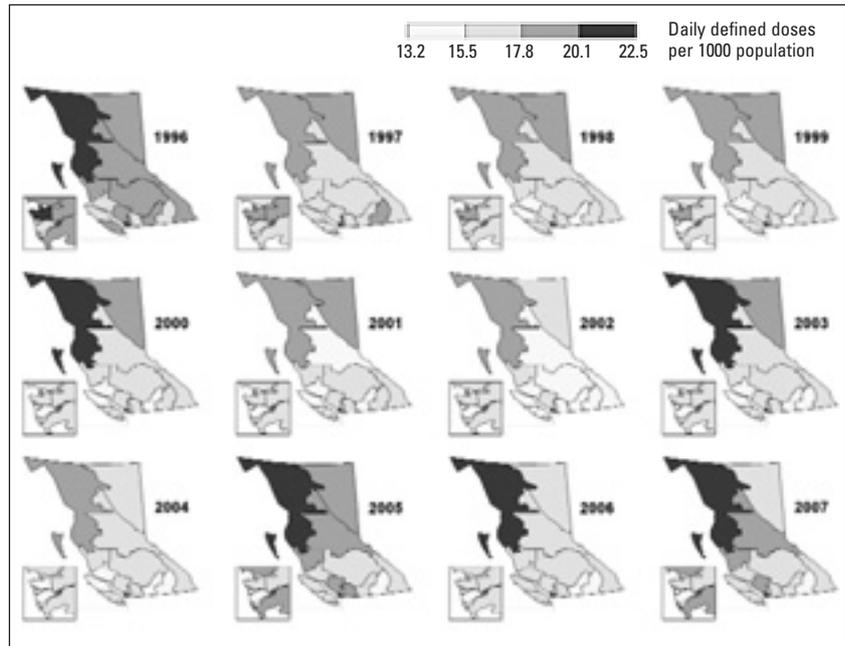
Fawziah Marra, PhD, Sunny Mak, MSc, Mei Chong, MSc, David M. Patrick, MD

**B**acterial resistance to antimicrobial agents has become a major public health threat.<sup>1</sup> Few novel antibiotics have been developed as therapeutic alternatives in the last decade. Because the rate of antibiotic use is a major contributing factor to resistance,<sup>2,3</sup> surveillance of antibiotic use is becoming an important tool in changing prescription patterns. The European Surveillance of Antimicrobial Consumption (ESAC) project has been collecting data on antibiotic use across European countries since 1997 and demonstrates varied consumption by country.<sup>4</sup> BCCDC has been working with the BC College of Pharmacists to track outpatient consumption of antibiotics.

The overall rate of antibiotic use among outpatients in British Columbia has slowly declined from 18.5 to 16.8 defined daily doses per 1000 inhabitant-days between 1996 and 2007. However, the trend has not been without bumps as use increased from 2004 to 2005 but has largely leveled off since.

In general, antibiotic consumption rates were higher in the northern and interior regions of the province, although use has declined recently in the northeast (Figure 1). An evaluation of the specific classes shows that con-

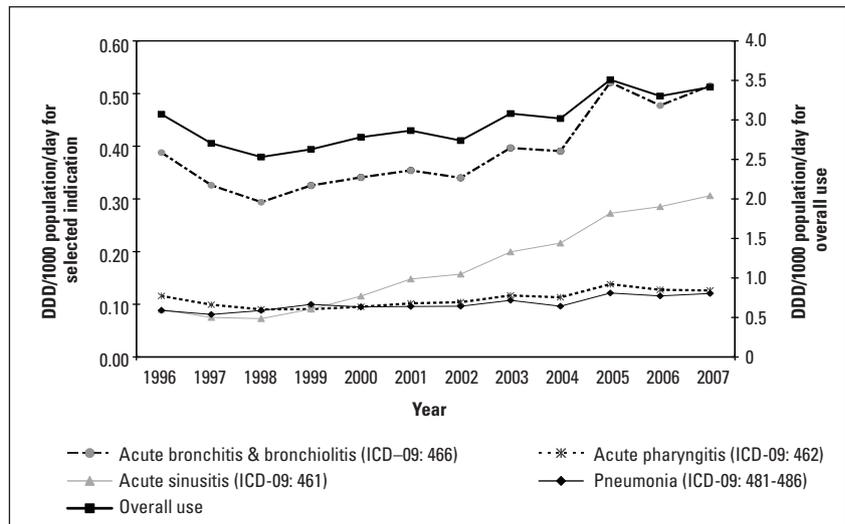
Dr Marra is an associate professor in the Faculty of Pharmaceutical Sciences at the University of British Columbia and director of Pharmacy and Vaccine Services at the BC Centre for Disease Control. Mr. Mak is the senior medical geographer at the BCCDC. Ms Chong is a biostatistician at the BCCDC. Dr Patrick is the director of Epidemiology Services at the BCCDC.



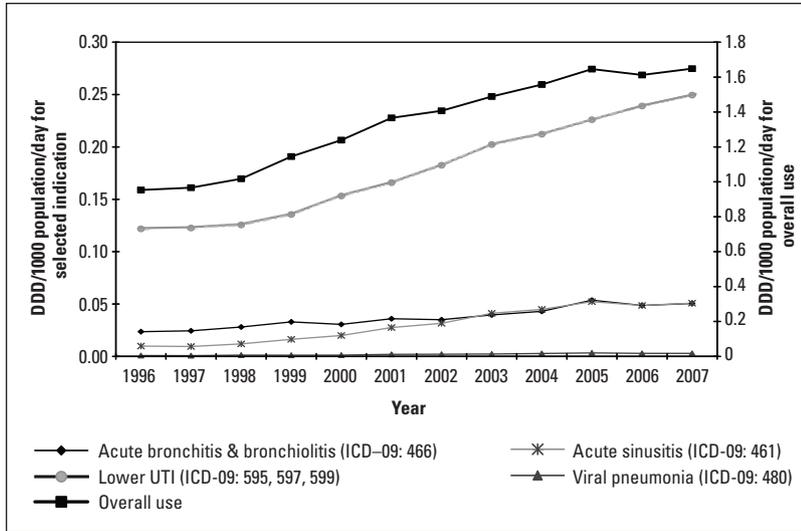
**Figure 1. Consumption of all antibiotics (J01) in British Columbia by health service delivery area, 1996–2007**

sumption of narrow spectrum agents such as penicillins has plateaued over the last 5 years; tetracyclines and trimethoprim/sulfamethoxazole use have declined significantly, while use

of the newer macrolides and fluoroquinolones has increased significantly. When indications for use are examined, macrolides are used commonly for respiratory tract infections while



**Figure 2. BC consumption of macrolides for selected indications, 1996–2007.**



**Figure 3.** BC consumption of fluoroquinolones for selected indications, 1996–2007.

fluoroquinolones are used for urinary tract infections ( **Figure 2** and **Figure 3** ).

Although we have shown that overall antimicrobial use has decreased, it is apparent that there is a substantial increase in use of broad spectrum agents, particularly the macrolides and newer fluoroquinolones (levofloxacin and moxifloxacin). As such, we need to focus our efforts to reduce inappropriate use of these agents, in particular through:

- Public education about how certain infections do not require antibiotics.
- Reinforcement of basic infection control practices in the community, such as hand washing.
- Reinforcement among physicians and pharmacists that many classes of infection do not require antibiotics to resolve and that first line

(e.g., simple beta-lactam) antibiotics are an appropriate first step in managing many community-acquired infections.

#### References

1. Wise R, Hart T, Cars O, et al. Antimicrobial resistance. *BMJ* 1998;317:609-610.
2. Bergman H, Huikko S, Pihlajamaki M, et al. Effect of macrolide consumption on erythromycin resistance in *Streptococcus pyogenes* in Finland in 1997–2001. *Clin Infect Dis* 2004;38:1251-1256.
3. Bronzwaer SL, Cars O, Buchholz U, et al. A European study on the relationship between antimicrobial use and antimicrobial resistance. *Emerg Infect Dis* 2002;8:278-282.
4. Goossens H, Ferech M, Vander Stichele R, et al. The ESAC Project Group. Out-patient antibiotic use in Europe and the association with resistance: A cross-national database study. *Lancet* 2005; 365:579-587.

#### comment *Continued from page 551*

in-law are expecting their first baby in early December—this first Christmas as a grandparent is a long-awaited milestone. So I am both thankful and grateful for all that I have. And I hope all of you find the

opportunity to reflect and realize all that you have to be thankful for. From my family to yours, I wish you all a happy and safe holiday season.

—Bill Mackie, MD  
BCMA President

*Continued from page 553*

an EMR through the PITO program receive assistance through the Implementation and Transition Support Program and one-on-one support from a local relationship manager and a local physician champion to capitalize on their experience to help make their EMR implementation successful.

Most of all, as Drs Wong and Simkus found, physicians can increase the probability for a successful EMR transition by including all of the stakeholders—MOAs, office managers, receptionists, even patients. Threats from change can be quickly turned into opportunities with a collaborative approach from the start.

—Jeremy Smith  
PITO Program Director

#### cohp *Continued from page 571*

12. Safe Kids Canada. Safe Kids Canada's Position Statement on Bike Helmet Legislation. 2005. [www.sickkids.ca/SKC/PublicPolicyAdvocacy/custom/BikeLegislationPositionStatement.pdf](http://www.sickkids.ca/SKC/PublicPolicyAdvocacy/custom/BikeLegislationPositionStatement.pdf) (accessed 6 November 2008).
13. Fewer kids died in bike accidents after law enacted. *The Canadian Press/CTV 2* September 2008. [www.ctv.ca/servlet/ArticleNews/story/CTVNews/20080902/bike\\_deaths\\_080902/20080902?hub=Health](http://www.ctv.ca/servlet/ArticleNews/story/CTVNews/20080902/bike_deaths_080902/20080902?hub=Health) (accessed 6 November 2008).

#### worksafebc *Continued from page 572*

injured workers throughout British Columbia receive consistent service from WorkSafeBC.

If you have any questions or concerns regarding opioid/narcotic prescriptions for your injured worker patient, please call your local WorkSafeBC office and speak to a medical advisor.

—Peter Rothfels, BEd, MD, ASAM  
WorkSafeBC Director of  
Clinical Services  
Chief Medical Officer