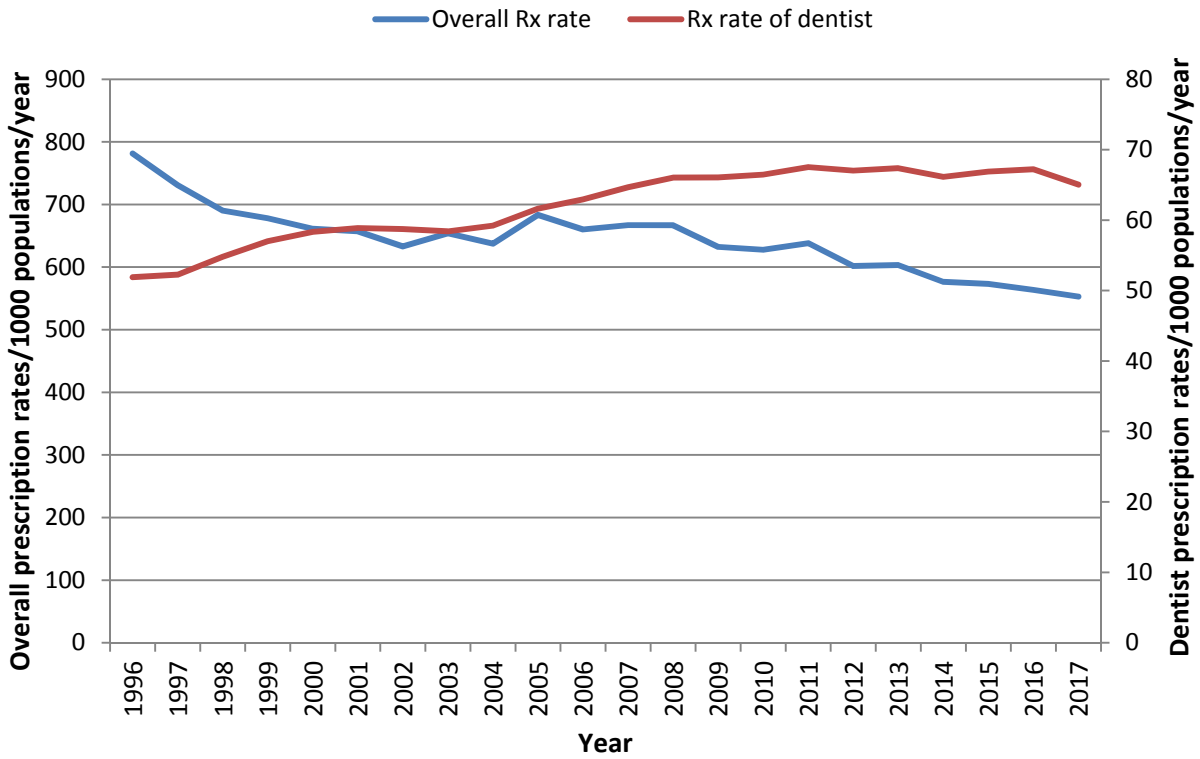
Antimicrobial utilization (AMU) and Antimicrobial resistance (AMR)

As part of the Community Antimicrobial Stewardship (formerly Do Bugs Need Drugs?) program evaluation, trends in antimicrobial utilization and antimicrobial resistance are routinely analyzed using anonymized PharmaNet BC Ministry of Health database and isolate-level antimicrobial susceptibility testing data from LifeLabs (and formerly BC Biomedical Laboratories), respectively. These surveillance findings are available in a web-based interactive data visualization platform: "BCCDC Antimicrobial Surveillance Tools" (http://www.bccdc.ca/health-professionals/data-reports). Data visualization platform is not yet updated incorporating data from 2017.

Antimicrobial Use highlights in 2017 –

- Overall, antimicrobial utilization continued to decrease in 2017 with a 19% decrease in prescription rates since 2005.
- Dentist prescription rates were previously increasing but decreased 3.2% from 2016 to 2017.
- Prescription rates of ciprofloxacin continued to decrease and of nitrofurantoin (preferred treatment of choice for UTI) continued to increase in 2017.
- Overall, clindamycin prescription rate is in decreasing trend.

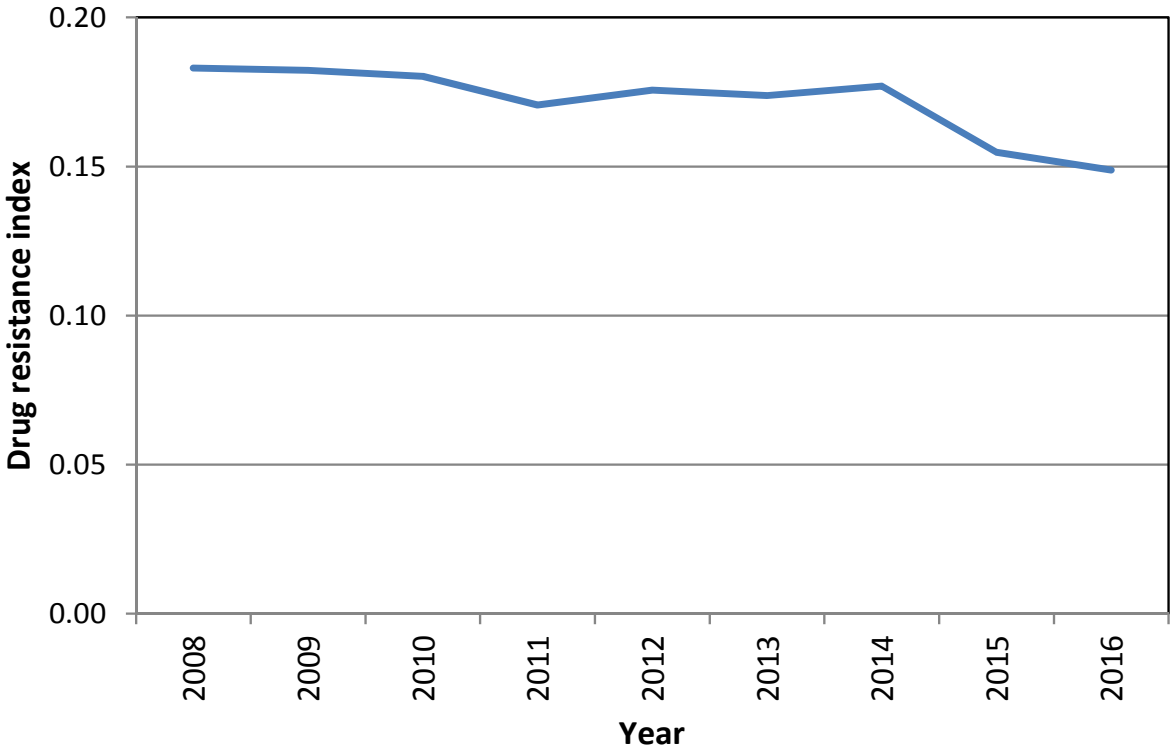
4.1 Overall and dentist prescripton in BC, 1996-2017



Antimicrobial Resistance –

Due to data analysis limitations, 2017 data was unavailable at time of creating this report. However, as part of the future strategies to make the antimicrobial resistance surveillance findings more useful and easily interpretable drug resistance indices (DRIs) are being calculated. DRI combine rates of antimicrobial resistance with prescription rates for antimicrobial drugs into a single composite measure of the effectiveness of empirical antibiotic treatment. The DRI that aggregate resistance to different drugs can be useful to assess the changes in drug resistance over time.[1]

4.2 Adaptive-use DRI for cystitis



1. Laxminarayan R, Klugman KP. Communicating trends in resistance using a drug resistance index. BMJ Open. 2011; 1:e000135. doi: 10.1136/bmjopen-2011-000135

DRI values range from 0 to 1, where 1 means that infections are untreatable with any of the antibiotics used in the given setting and 0 means all isolates included in the calculation were susceptible. Adaptive-use DRI for cystitis which accounts for the changing proportion of drug classes in each year was calculated. The graph above indicates that the adaptive-use DRI ranged from a high of 18.3% in 2008 to a low of 14.9% in 2016. This finding is encouraging, suggesting that physicians are adapting their prescribing patterns for cystitis in response to local resistance patterns and updated guidelines.

Carbapenemase producing organisms (CPOs) – The emergence of Carbapenemase producing organisms (CPOs) is a medical concern and public health threat. CPO refers to some strains of bacteria such as Klebsiella, E. coli, Acinetobacter and Pseudomonas that are resistance to most of the antibiotics including carbapenems. To know more about CPO surveillance program please visit at: https://www.picnet.ca/surveillance/cpo/
For healthcare-associated infections (e.g. MRSA, CPO, and C. difficile), please visit the Provincial Infection Control Network of British Columbia (PICNet) at: https://www.picnet.ca/surveillance/latest-surveillance-reports/