Funding: None

Disclosures: Scott Fridkin reports that his spouse receives consulting fees from the vaccine industry.

Doi: 10.1017/ice.2020.1188

Presentation Type: Poster Presentation

Variability in Antimicrobial Use Among Hospitals Participating in the Canadian Nosocomial Infection Surveillance Program

Wallis Rudnick, Public Health Agency of Canada; Linda Pelude, Public Health Agency of Canada; Michelle Science, The Hospital for Sick Children; Daniel J.G. Thirion, Université de Montréal and McGill University Health Centre; Jeannette Comeau, Dalhousie University; Bruce Dalton, Alberta Health Services; Johan Delport, London Health Sciences Centre; Rita Dhani, London Health Sciences Centre and University of Waterloo; Joanne Embree, University of Manitoba and Shared Health Manitoba; Yannick Émond, Maisonneuve-Rosemont Hospital; Gerald Evans, Kingston Health Sciences Centre; Charles Frenette, McGill University Health Center; Susan Fryters, Alberta Health Services; Greg German, Health PEI; Jennifer Grant, University of British Columbia; Jennifer Happe, Alberta Health Services; Kevin Katz, North York General Hospital; Pamela Kibsey, Royal Jubilee Hospital; Justin Kosar, Saskatchewan Health Authority; Joanne Langley, IWK Health Centre and Dalhousie University; Bonita E. Lee, Stollery Children’s Hospital and University of Alberta; Marie-Astrid Lefebvre, Montreal Children’s Hospital, McGill University Health Centre; Jerome Leis, University of Toronto; Susan McKenna, Kingston Health Sciences Centre; Allison McGeer, Sinai Health System and University of Toronto; Heather Neville, Nova Scotia Health Authority; Anada Silva, Public Health Agency of Canada; Andrew Simor, Sunnybrook Health Sciences Center; Kathryn Slayter, IWK Health Centre and Dalhousie University; Kathryn Suh, The Ottawa Hospital; Alena Tse-Chang, University of Alberta; Karl Weiss, SMDJewish General Hospital; John Conly, Foothills Medical Centre and University of Calgary; CNISP PHAC, Public Health Agency of Canada

Background: The association between antimicrobial use (AMU) and emergence of antimicrobial resistance is well documented. The Canadian Nosocomial Infection Surveillance Program (CNISP) has conducted sentinel surveillance of AMU at participating Canadian hospitals since 2009 resulting in the largest pan-Canadian hospital database of dispensed antimicrobials.

Objectives: Describe interhospital variability of AMU across Canada.

Methods: Hospitals submit annual AMU data based on patient days (PD). Antimicrobials were measured in defined daily doses (DDD) for adults using the WHO Anatomical Therapeutic Chemical (ATC) system. The AMU data among pediatric patients have been available since 2017 using days of therapy (DOT). Surveillance includes systemic antibacterial agents (J01 ATC codes), oral metronidazole, and oral vancomycin. AMU was assessed using quintiles, interquartile ranges (IQR), and relative IQRs (upper- and lower-quartile values divided by the median).

Results: Between 2009 and 2018, 20–26 hospitals participated in adult surveillance each year (35 teaching hospitals and 3 nonteaching hospitals participated in ≥1 year). Over this period, overall AMU decreased by 13% at participating adult hospitals from 645 to 560 DDD per 1,000 PD. AMU varied substantially between hospitals, but this variability decreased over time (Fig. 1). In 2009, the IQRs for overall AMU spanned 309 DDD per 1,000 PD, and in 2018 it spanned only 103 DDD per 1,000 PD. This decrease in variability was due to large decreases in use among hospitals with high use in 2009–2010. Among hospitals in the highest use quintile in 2009–2010, AMU decreased, on average, 44 DDD per 1,000 PD each year. Among hospitals in the lowest use quintile in 2009–2010, AMU increased, on average, 6 DDD per 1,000 PD each year. In 2018, antibiotics with the largest absolute IQR variability were cefazolin (61–113 DDD per 1,000 PD), pipercillin-tazobactam (32–64 DDD per 1,000 PD), and vancomycin (24–49 DDD per 1,000 PD). Among antibiotics with ≥1 DDD per 1,000 PD, antibiotics with the largest relative IQR variability were tobramycin (0.3–6 DDD per 1,000 PD), cefadroxil (0.08–9 DDD per 1,000 PD), and linezolid (0.2–3 DDD per 1,000 PD). In 2018, the IQR for overall pediatric AMU (n = 7 teaching hospitals) was 426–581 DOT per 1,000 PD. Antibiotics with the largest IQRs were vancomycin (0.6–58 DOT per 1,000 PD), cefazolin (33–88 DOT per 1,000 PD), and tobramycin (3–57 DOT per 1,000 PD). Among antibiotics with ≥1 DOT per 1,000 PD in 2018, antibiotics with the largest relative IQRs were tobramycin (3–57 DOT per 1,000 PD), cefoxime (1–6 DOT per 1,000 PD), and amoxicillin (8–42 DOT per 1,000 PD). Conclusions: There is wide variation in overall antibiotic use across hospitals. Variation between AMU at adult hospitals has decreased between 2009 and 2018; in 2018, antibiotics with the largest IQRs were cefazolin and piperacillin-tazobactam. Benchmarking AMU is crucial for informing antimicrobial stewardship efforts.

Funding: CNISP is funded by the Public Health Agency of Canada.

Disclosures: Allison McGeer reports funds to her institution from Pfizer and Merck for projects for which she is the principal investigator. She also reports consulting fees from Sanofi-Pasteur, GSK, Pfizer, and Cidara.

Doi: 10.1017/ice.2020.1189