

1135. The 2018 Global Point Prevalence Survey of Antimicrobial Consumption and Resistance: Pediatric Results from 26 Canadian Hospitals

Marie-Astrid Lefebvre, MD, MSc, FRCPC, FAAP¹; Ann Versporten, MPH, MEHS²; Marie Carrier, B.Pharm, MSc³; Sandra Chang, BSc (Pharm), ACPR, PharmD⁴; Jeannette L. Comeau, MD, MSc⁵; Yannick Emond, MD, FRCPC, DTM&H⁶; Charles Frenette, MD⁷; Sarah Khan, MD, MSc, FRCPC⁸; Daniel L. Landry, BSc Pharmacy⁹; Timothy D. MacLaggan, BScPharm, PharmD, ACPR, BCPS¹⁰; Trong Tien Nguyen, MD, FRCPC¹¹; Tuyen Nguyen, MD¹²; Louis Valiquette, MD, MSc¹³; Dominik Mertz, MD, MSc¹⁴; Ines Pauwels, Master of Pharmaceutical Sciences²; Herman Goossens, PhD²; ¹Montreal Children's Hospital, McGill University Health Centre, Montreal, Quebec, Canada, ²University of Antwerp, Antwerp, Belgium; ³CIUSSS de la Mauricie et du Centre-du-Québec, Trois-Rivières, Quebec, Canada, ⁴Richmond Hospital, VCH, Richmond, British Columbia, Canada, ⁵IWK Health Centre, Halifax, Nova Scotia, Canada; ⁶Hôpital Maisonneuve-Rosemont, Université de Montréal, Montreal, Quebec, Canada, ⁷McGill University Health Centre, Montreal, Quebec, Canada, ⁸McMaster University, Hamilton, Ontario, Canada, ⁹Dr. Georges-L.-Dumont University Hospital Centre, Vitalité Health Network, Moncton, New Brunswick, Canada, ¹⁰Horizon Health Network, Moncton, New Brunswick, Canada, ¹¹McGill University, Montreal, Quebec, Canada, ¹²CIUSSS de Laval, Laval, Quebec, Canada, ¹³Université de Sherbrooke, Sherbrooke, Quebec, Canada

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Background. Inappropriate antimicrobial use (AMU) is strongly associated with antimicrobial resistance. The Global Point Prevalence Survey (Global-PPS) is a standardized tool that is used worldwide to characterize inpatient AMU. We report pediatric results from 26 Canadian hospitals that participated in the Global-PPS in 2018.

Methods. The survey was completed by each site on the Global-PPS website for all patients aged 0–17 years hospitalized in a neonatal or pediatric ward on a chosen day between January and December 2018. Data collected included ward type, demographics, antimicrobials prescribed, diagnosis, type of indication (community-acquired [CA] vs. healthcare-associated [HA]) and type of therapy (empiric vs. targeted). Quality indicators included guideline compliance, medical record documentation of diagnosis, antimicrobial stop/review date, and surgical prophylaxis (SP) duration.

Results. Of the 26 sites, 23 were mixed and 3 were pediatric hospitals, with data on 767 inpatients. Overall, 25.8% (n = 198) of patients received at least one antimicrobial, and 21.9% (n = 168) were on at least one antibiotic. The highest AMU was found in Hematology-Oncology (84%), Pediatric Intensive Care (55.3%) and surgical (42.1%) units. Of the 330 antimicrobial prescriptions, 40.9% were for CA infections, 23% for medical prophylaxis, 20% for HA infections and 2.7% for SP. The most commonly treated infections were sepsis (16%) and lower respiratory tract infection (12.1%). The top five prescribed antibiotics were aminopenicillins (20.4%), aminoglycosides (16.1%), third-generation cephalosporins (15.4%), piperacillin-tazobactam (7.5%) and trimethoprim-sulfamethoxazole (7.5%). Diagnosis and stop/review date were documented for 88.1% and 65.1% of prescriptions, respectively. Compliance to local guidelines was found in 91.5% of therapies. SP exceeded 24 hours in 88.9% of courses.

Conclusion. The Global-PPS generated Canada-wide data on inpatient pediatric AMU, which will allow hospitals to benchmark and develop local quality improvement interventions to enhance appropriate AMU. Targets for improvement include suboptimal antimicrobial stop/review date documentation and prolonged SP.

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1136. Antifungal Prescribing Patterns among Hospitalized Children in the United States: Are There Opportunities for Antifungal Stewardship?

Lourdes Eguiguren, MD¹; Laura Bio, PharmD, BCPS²; Brian R. Lee, MPH, PhD³; Jason Newland, MD, MED, FPIDS⁴; Adam Hersh, MD, PhD⁵; Jeffrey Gerber, MD, PhD⁶; Matthew Kronman, MD MSCE⁷; Grace Lee, MD MPH⁸; Hayden Schwenk, MD, MPH¹; ¹Stanford University, Los Altos, California; ²Stanford Children's Health, Palo Alto, California; ³Children's Mercy Kansas City, Kansas City, Missouri; ⁴Washington University School of Medicine, St. Louis, Missouri; ⁵University of Utah, Salt Lake City, Utah; ⁶Children's Hospital of Philadelphia, Philadelphia, Pennsylvania; ⁷Seattle Children's Hospital, Seattle, Washington; ⁸Lee, Palo Alto, California

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Background. Antifungal stewardship may help reduce the toxicity, cost, and emergence of resistance related to inappropriate antifungal use. A better understanding of antifungal prescribing patterns, particularly in high-risk, high-utilization populations, is needed to guide appropriate stewardship interventions. We analyzed antifungal prescribing characteristics, including the indications for use and differences between oncology/bone marrow transplant (Onc/BMT) and non-Onc/BMT patients, using a multi-center national cohort of hospitalized children.

Methods. We analyzed antifungal prescribing data from 32 hospitals that participated in the SHARPS Antibiotic Resistance, Prescribing, and Efficacy among Children (SHARPEC) study, a point prevalence survey conducted quarterly between June 2016 and December 2017. We included inpatients <18 years of age with an active order for a systemic antifungal agent and evaluated the patient and antifungal characteristics. In the Onc/BMT group, we classified antifungal prescribing by indication and compared the proportion of antifungal prescriptions in each category based on antifungal class, route of administration, and use of combination therapy.

Results. Six percent (2,095/34,927) of patients received a total of 2,207 antifungal prescriptions. Fifty-eight percent (1,291/2,207) of antifungal prescriptions were for Onc/BMT patients. Among patients prescribed an antifungal, those with an Onc/BMT diagnosis were older, received broader-spectrum agents, and were more likely to receive combination therapy (Table 1). The majority of antifungal use in the Onc/BMT group was for prophylaxis, with significant variation in the rate and choice of prophylactic antifungal prescribing across hospitals (Figure 1). Combination antifungal use was common among Onc/BMT patients receiving targeted therapy (Table 2).

Conclusion. The majority of antifungal use among hospitalized children is for patients with an Onc/BMT diagnosis and the patterns of antifungal utilization in this population appear to differ significantly from non-Onc/BMT patients. Based on the variation observed in this nationwide cohort, potential stewardship targets include the rate and type of antifungal prophylaxis and the use of combination therapy in Onc/BMT patients.

Table 1: Patient and antifungal characteristics of Oncology/bone marrow transplant (BMT) versus non-Oncology/BMT patients.

	Oncology/BMT	Non-Oncology/BMT
Number of unique patients, N	1200	895
Age, median y (IQR)	7 (2-12)	1 (0-10)
Gender, N (%)		
Male	658 (55)	496 (55)
Hospital ward, N (%)		
Hematology/Oncology	834 (70)	90 (10)
Transplant (BMT/solid organ)	159 (13)	23 (3)
Pediatric ICU	100 (8)	161 (18)
General Pediatrics	17 (1)	129 (14)
Neonatal ICU	4 (1)	283 (32)
Cardiac ICU	5 (1)	84 (9)
Other	25 (2)	111 (12)
Unknown	56 (4)	14 (2)
Number of antifungal prescriptions, N	1291	916
Antifungal class, N (%)		
Fluconazole	415 (32)	636 (69)
Voriconazole	267 (21)	62 (7)
Posaconazole	77 (6)	15 (2)
Echinocandin	392 (30)	125 (14)
Polyene	127 (10)	57 (6)
Other	13 (1)	21 (2)
Indication, N (%)		
Prophylaxis	953 (74)	467 (51)
Empiric	197 (15)	232 (25)
Targeted	121 (9)	187 (21)
Unknown	20 (2)	30 (3)
Combination antifungal therapy, N (%)		
Yes	138 (11)	41 (5)

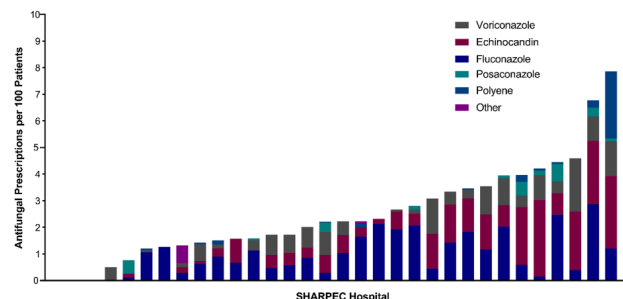
Table 2: Antifungal prescription characteristics among Oncology/BMT patients by indication.*

	Prophylaxis N= 953	Empiric N= 197	Targeted N= 121
Antifungal class, N (%)			
Fluconazole	372 (39)	26 (13)	15 (12)
Voriconazole	192 (20)	45 (23)	22 (18)
Posaconazole	42 (4)	15 (7)	20 (17)
Echinocandin	295 (31)	63 (32)	25 (21)
Polyenes	42 (5)	47 (24)	37 (31)
Other	10 (1)	1 (1)	2 (1)
Route, N (%)**			
Oral	489 (51)	48 (24)	28 (23)
Intravenous	436 (46)	149 (76)	92 (76)
Inhaled	26 (3)	0	1 (1)
Combination antifungal, N (%)			
Yes	34 (4)	40 (20)	61 (50)

*"Unknown" indication was excluded from this analysis (N=20)

**Antifungal prescriptions with missing route were excluded from this category (N=3)

Figure 1: Variation in antifungal prophylaxis among Oncology/BMT patients by hospital.



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1137. Variability of Antibiotic Use in Neonatal Intensive Care Units in the United States

Keerti Dantluri, MD¹; Hannah Griffith, MPH¹; Cary Thurm, PhD²; Ritu Banerjee, MD, PhD³; Ritu Banerjee, MD, PhD³; Leigh M. Howard, MD, MPH¹; Carlos G. Grijalva, MD, MPH¹; ¹Vanderbilt University