



Brazil



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Antimicrobial Prescribing Pattern in Healthcare-Associated Infections in 27 Brazilian Hospitals: 2017 and 2018 Point Prevalence Surveys

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INTRODUCTION AND PURPOSE

Healthcare-associated infections (HAI) are a common indication for the prescription of antimicrobials and the inappropriate use of antibiotics is a key driver of antimicrobial (ATM) resistance. Although ATM stewardship is recommended by the Brazilian government, there is a lack of data about ATM consumption in Brazilian hospitals.

The aim of this study was to evaluate the ATM prescribing pattern for HAI in 27 Brazilian hospitals using the Global Point Prevalence Survey of Antimicrobial Consumption and Resistance (Global PPS) 2017 and 2018 data (www.global-pps.com).

METHODS

18 Brazilian hospitals conducted the PPS in 2017 and 17 in 2018 (8 hospitals participated in both years). The 27 hospitals are located in 9 states from 3 Brazilian regions (Northeast, South and Southeast) (figure 1). The study included inpatients on antimicrobials on the day of the PPS. Data collection included details on the ATM prescriptions, reasons and indications for treatment as well as a set of quality indicators. A web-based program developed by the University of Antwerp was used for data-entry, validation and reporting to participating hospitals.

RESULTS



Figure 1: Location of 27 participating hospitals

1801 patients were evaluated in 2017 and 2433 in 2018, of which 941 (52.2%) and 1168 (48%) were on ATM.

HAI prevalence was 16.6% and 16.7% in 2017 and 2018 respectively.

HAI was the indication for ATM use in 328 (34.8%) and 377 (32.3%) treated patients with at least one ATM in 2017 and 2018, respectively.

Both in 2017 and 2018, the most frequently prescribed ATM were meropenem (2017-22.1%; 2018-21.9%), vancomycin (2017-16.6%; 2018-14.8%) and piperacillin-tazobactam (2017-11.2%; 2018-11.7%) (figure 4).

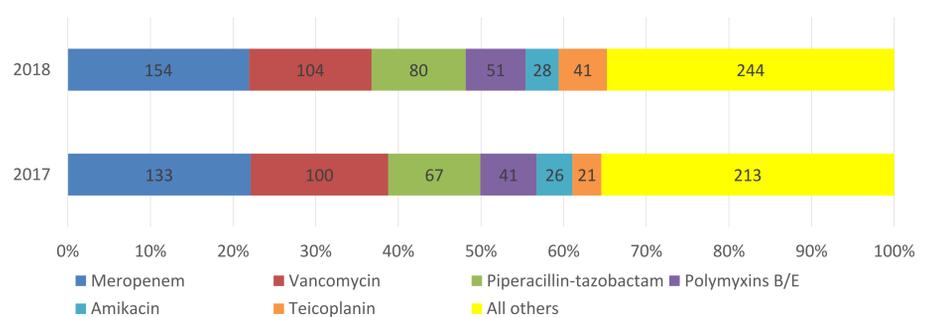


Figure 4: Most frequently prescribed antimicrobials for HAI, by year, incl. number of prescriptions

Surgical site infection and device-related infection together accounted for 50.6% of the prescriptions in 2017 and 44.6% in 2018 (figure 2).

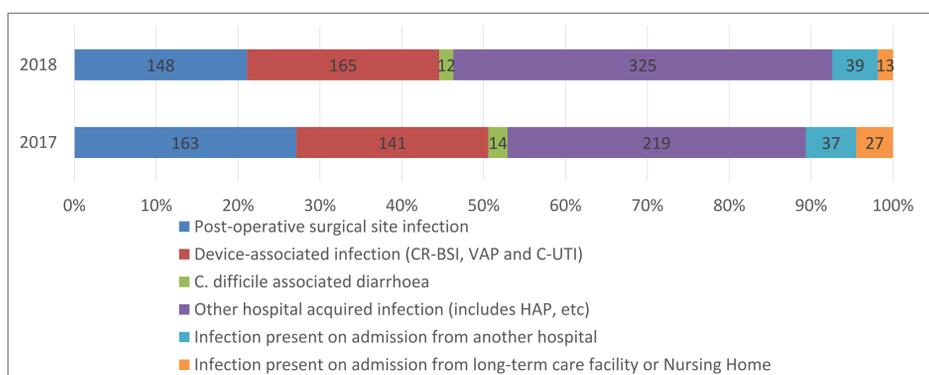


Figure 2: Type of indication for antimicrobial use for HAI, by year, incl. number of prescriptions. CR-BSI: Catheter-related bloodstream infection; VAP: Ventilator-associated pneumonia; C-UTI: Catheter-related urinary tract infection; HAP: Hospital-acquired pneumonia

Pneumonia (2017-24.3%; 2018-25.1%) was by far the most common specific diagnosis in both surveys (figure 3).

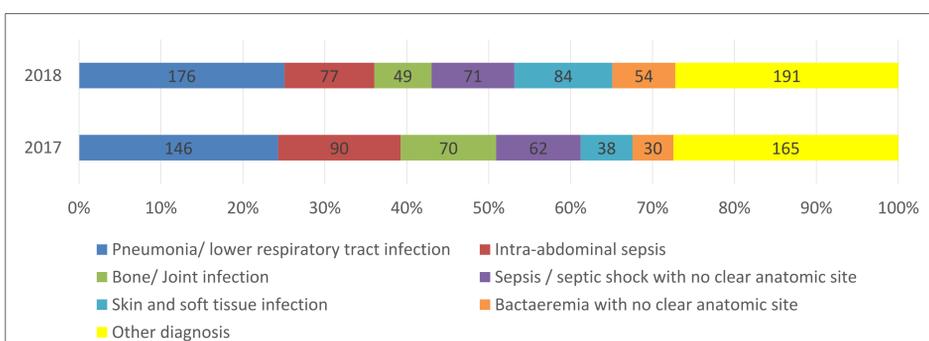


Figure 3: Top five diagnoses for antimicrobial use for HAI, by year, incl. number of prescriptions

CONCLUSION

HAI were the indication for ATM use in about one third of treated patients. Surgical site infection and device-associated infections accounted for half of all HAIs. Overall, pneumonia was the most common identified diagnosis. Antimicrobials were prescribed mainly empirically and there was a low use of biomarkers to guide ATM therapy. Three broad-spectrum ATM accounted for about half of the prescriptions for HAI showing that reinforcement of de-escalation strategy is needed in Brazilian hospitals.

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About 95% of the drugs were given parenterally. The use of biomarkers to guide therapy was observed in 33.3% of the prescriptions in 2017 and 39.9% in 2018. Empiric use accounted for 65.7% and 69.7% of all ATM prescriptions for HAI in 2017 and 2018, respectively (table 1).

Quality indicators	2017	2018
Parenteral administration	574 (95.5)	660 (94)
Treatment based on biomarker data	200 (33.3)	280 (39.9)
Empirical use	395 (65.7)	489 (69.7)
Guideline compliance	500 (83.2)	561 (79.9)
Reason in notes	561 (93.3)	636 (90.6)
Stop/review date documented	421 (70.1)	432 (61.5)

Table 1: Point prevalence of antimicrobial prescription quality indicators, by year, n (%)

Out of all the targeted therapies for HAI, most were aimed at multidrug-resistant (69.9% in 2017 and 76.1% in 2018), mainly gram-negative bacteria (table 2).

	MRSA	MRCoNS	VRE	ESBL	3th-generation cephalosporin-resistant Enterobacteriaceae	CRE	ESBL-producing non-fermenting Gram-negative bacilli	Carbapenem-resistant non-fermenting Gram-negative bacilli	Other multidrug-resistant organisms	Total
2017	12	12	9	24	10	32	0	45	16	160
2018	28	14	4	40	8	29	7	30	16	176

Table 2: Point prevalence of antimicrobial-resistant organisms in HAI patients in 27 Brazilian hospitals, by year, n
MRSA: Methicillin-resistant *Staphylococcus aureus*; MRCoNS: Methicillin-resistant coagulase negative staphylococci; VRE: Vancomycin-resistant enterococci; ESBL: Bacteria, producing extended-spectrum beta-lactamases; CRE: Carbapenem-resistant Enterobacteriaceae;