Table. 1 Resistance of the studied Enterobacteriaceae to a selected group of antibiotics in surgical and non-surgical settings

Antimicrobial category	Antibiotic agent	Resistance range by wards n=333	
		surgical n=121	non-surgical n=212
β-lactams	Ampicilin (AMP10)	35-73 (47-100%)	79-121 (91-97%)
	Ampicillin-sulbactam (SAM20)		
	Amoxicillin-clavularic acid (AMC30)		38-75 (44-60%)
	Piperacillin-tazobactam (TZP36)	10–14 (19-21%)	19-27 (22%)
Cephalosporins	Cefuroxime IV (CXM30)	16-27 (34-43%)	30-56 9 (34-45%)
	Ceftazidime (CAZ10)		
	Cefotaxime (CTX5)		
	Cefepime (FEP30)		
	Cefoperazone-sulbactam (SCF105)	2–10 (4-14%)	6–11 (7-9%)
Carbapenems	Ertapenem (ETP10)	1–2 (1-2%)	1–2 (1-2%)
	Imipenem (IPM10)		
	Meropenem (MEM10)		
Fluoroquinolones	Ciprofloxacin (CIP5)	29-39 (53-62%)	46-75 (53-60%)
Aminoglycosides	Gentamicin (CN10)	9–27 (19-40%)	12–56 (14-45%)
	Amikacin (AK30)		
	Tobramycin (TOB10)		
Others	Trimethoprim-sulfamethoxazole (SXT 25)	26–41 (55%)	43–60 (48-49%)

Table 1.

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Background: Bloodstream infections (BSIs) are one of the most frequently observed hospital-acquired infections (HAIs). **Objectives:** We aimed to describe the epidemiology and drug resistance of hospital-acquired Enterobacteriaceae BSIs and to check for any correlation with the type of hospital care. **Methods:** In 2015–2018, 333 Enterobacteriaceae isolates were collected from hospitalized internal medicine and surgical patients. The drug-resistance testing was conducted according to the EUCAST recommendations, using the disc-diffusion method to determine resistance to penicillin, cephalosporins, carbapenems, aminoglycosides, fluoroquinolones, and sulfamethoxazole with trimethoprim. Tests confirming the presence of extended-spectrum β-lactamases (ESBLs) and KPC, NDM, and OXA-48 carbapenemases were performed. We determined the minimum inhibitory concentration (MIC) values (mg/L) for selected antibiotics. To detect the resistance genes, a single PCR reaction, a multiplex PCR, and a real-time PCR were conducted. **Results:** The prevalence rate of Enterobacteriaceae bacilli in BSIs was 23.5%. Penicillin resistance remained at a very high level of almost 100%, with only the piperacillin-tazobactam resistance remaining at 19%–22%. The same was true for cephalosporins: the bacilli have only shown a high susceptibility to cefoperazone with sulbactam (4%–14% of them were resistant). Ciprofloxacin (53%–62%) and sulfamethoxazole with trimethoprim (48–55%) have proven highly resistant. Carbapenems were the only antibiotics with susceptibility at 98%–99%. No difference was found between the types of hospital care (surgical vs nonsurgical) and the levels of antimicrobial resistance in the studied Enterobacteriaceae isolates (Table 1). **Conclusions:** The high prevalence of Enterobacteriaceae bacilli in BSI is particularly worrying, as is the high rate of resistance to cephalosporins and aminoglycosides, which are often used in the empirical therapy. Unfortunately, our results indicate the need to base the empirical therapy on carbapenems.

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Presentation Type:
Poster Presentation

Healthcare-Associated Pneumonia in a Mexican Tertiary Care Center Micro to Systemic Analysis: A 2017–2019 Case Series Study

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Objectives: The aim of this study was to identify the biological, microbiological, and healthcare factors related to the occurrence of nosocomial pneumonia in our confirmed cases during 2017–2019. **Methods:** We conducted a case series study. For the selection of the cases we used the CDC criteria for hospital-acquired pneumonia, we collected cases from the data set for healthcare-associated infections from a tertiary-care hospital in Mexico City. For the quantitative analysis, we used Stata v14 software, and we obtained frequencies, proportions, accumulated incidence rate, lethality rate, central tendency, and dispersion metrics. This study was a secondary data set analysis; we obtained signed authorization for the use of the data from the Epidemiological Surveillance Unit. **Results:** During our analysis period (January 2017 to June 2019), we identified 107 cases that fulfilled the CDC criteria:

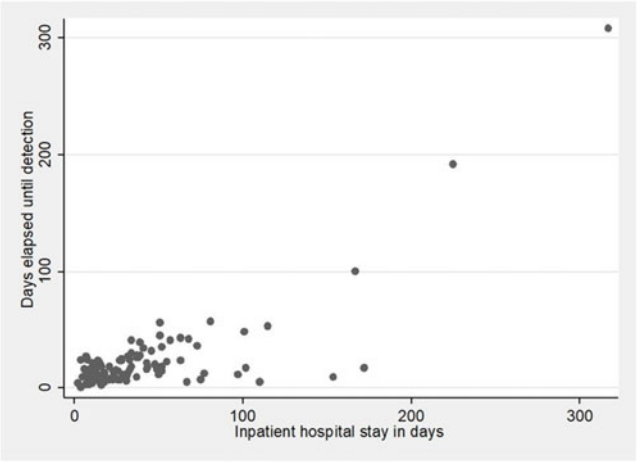

Fig. 1.

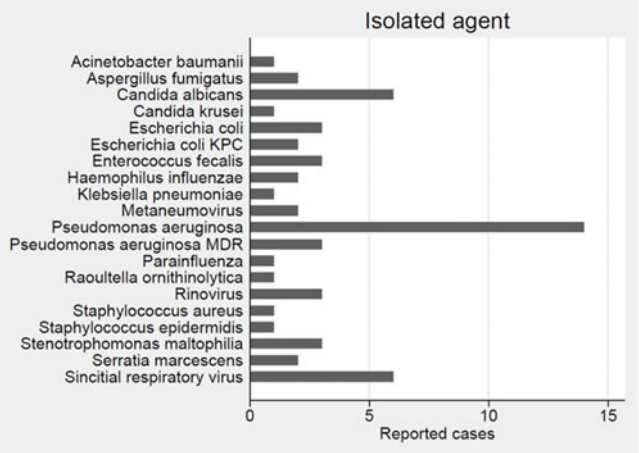

Fig. 2.

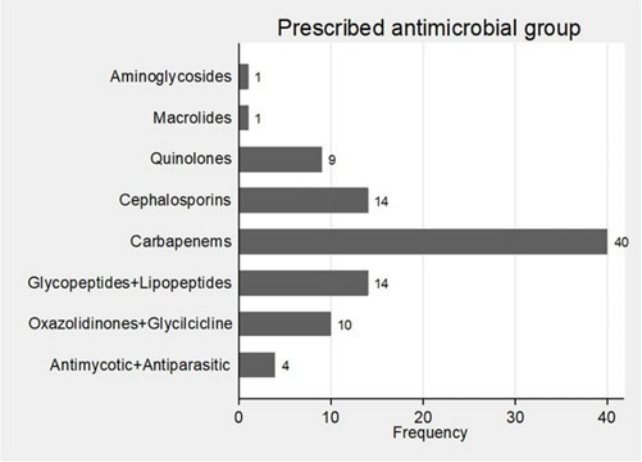

Fig. 3.

47 cases (43.93%) from 2017, 38 cases (35.51%) from 2018, and 20.56% from 2019. The month that reported the highest frequency was February, with 17 cases (15.89%). The median age was 63 years (range, 0–97 years; IQR, 36). The most affected age group was ≥65 years (48.60%), and the most affected 5-year age group was 75–79 years (13.08%). Moreover, 60 cases (56.07%) were men and 47 (43.93%) were women. Regarding the reason for discharge, 71% were discharged due to improvement, 27% died, and 2% were transferred to another healthcare facility. Also, 17 patients (15.89%) required re-admission due to respiratory illness within 72 hours of previous discharge. The most common diagnosis was a solid malignant neoplasm (20.19%), followed by heart or vascular malformation or anomaly (12.50%). The mean inpatient hospital stay was 39.95 days (±46.40; median, 27 days, range, 2–317 days; IQR 35 days). The median time elapsed until detection was 14 days. The hospitalization area with the most cases was the intensive care unit, with 24 cases (22.43%); the service with most cases was oncology with 21 cases (20.56%). The most isolated pathogen was *Pseudomonas aeruginosa* (14%). Moreover, 59% were gram-negative, 36% were gram-positive, 19.67% were viruses, and 14.75% were fungi. Our accumulated-incidence-rate was 0.58 cases per 1,000 patient days and our case-fatality-rate was 25.23%. Furthermore, 41% of cases required invasive mechanical ventilation, 52.34% required noninvasive mechanical ventilation, 5% cases had an endo-pleural tube, 9.35% had a nasogastric tube, and 41.12% had a central venous catheter. The most-prescribed antimicrobial was meropenem (33.33%), and meropenem-resistance was 61.54%. **Conclusions:** Infection prevention efforts should target oncological patients, critical-care units, and the elderly. We must reinforce our antimicrobial policy due to our overprescription of carbapenems. Early detection is needed to reduce mortality.

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Hepatitis A Virus Survival on Drug Paraphernalia

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Background: The ongoing hepatitis A outbreak in the United States has concerned public health authorities since March 2017. The outbreak has already spread throughout 30 states and includes primarily homeless individuals and persons who use drugs, including persons who inject drugs (PWIDs). Contaminated drug injection paraphernalia and sharing of these items are suspected to be one of multiple causes of hepatitis A virus (HAV) transmission in those populations. **Methods:** We used a standard plaque assay to investigate HAV infectivity. Liquid suspensions of HAV were tested to examine the effects of time and temperature on viral infectivity. We also examined HAV survival on commonly used drug paraphernalia, such as needles, syringes, cookers, tourniquets, and cotton balls/filters frequently shared among PWIDs. We investigated the effect of low pH on HAV survival using citric acid, which is frequently used by PWIDs during dose preparation. We also compared the plaque assay results with those concurrently obtained by RT-PCR to establish whether viral HAV RNA levels could be used as surrogates for plaque assay results. **Results:** We found that HAV suspended in PBS at room temperature was able to infect FRhk4 cells for >17 weeks. HAV remained viable in syringes and needles (ie, semidry conditions) for up to 10 weeks depending on the size of the needles and the syringe dead volume. HAV survival in dry conditions on cooker, tourniquet, and cotton balls/filter surfaces did not exceed 4 weeks. HAV retained its infectivity for >10 weeks at pH as low as 2. PCR results suggest that RNA is amplified from both infectious and noninfectious HAV. **Conclusions:** Our findings show that HAV can survive and remain infective in the PWID setting for 4–10 weeks depending on the type of paraphernalia examined. These findings suggest that sharing drug paraphernalia by the homeless and PWIDs can potentially facilitate the transmission of HAV within these populations. Moreover, our results confirm that the plaque assay is currently the only reliable method to determine the infectivity of HAV in vitro.

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Hepatitis C Virus Transmission at a Long-Term Care Facility (LTCF) Providing Hemodialysis Services—Georgia, United States, 2019

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