

Presentation Type:

Poster Presentation

Outbreaks of Healthcare-Associated Infections in Sao Paulo State, Brazil: Results From a Statewide Monitoring System

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Background: Outbreaks of healthcare-associated infections (HAI) are relevant causes of morbidity and mortality. Healthcare-authorities should monitor them to allow prompt interventions, identify tendencies along the time, and develop large scale strategies to avoid new cases and clusters. According to the Brazilian legislation, any outbreak should be reported to health authorities. Sao Paulo State Health Department (Brazil) has a system in place since 2011 to monitor HAI outbreaks. This study aims at describing the 3.5 last year's results of surveillance system for monitoring HAI outbreaks. **Methods:** *Study design:* Quantitative descriptive study. *Source of information:* Database from HAI outbreak reports, Division of Hospital Infection at Sao Paulo State Health Department. Reports were filled out online by professionals from healthcare settings or regional health authorities according to predefined criteria. Interventions were put in place by the health authorities based on the analysis of each situation in a timely manner. *Variables analyzed:* Number of reports, local, infection site, type of care unit, causative microorganisms, number of cases, and number of deaths. **Results:** The number of reports have been stable for 3 years: 2016 (n = 34, 34.7%), 2017 (n = 28, 28.6%), 2018 (n = 25, 25.5%) and the first semester of 2019 (n = 11, 11.2%). These reports encompassed 712 confirmed cases and 123 deaths. The reports were mainly about infection outbreaks; 6 reports were about colonization of multidrug-resistant microorganisms. The bloodstream was the most frequent infection site in the HAI outbreak reports (n = 37, 37.7%), followed by respiratory tract (n = 25, 25.5%), urinary tract (n = 10, 10.2%), and surgical wound (n = 9, 9.2%). HAI outbreaks happened more frequently in intensive care units, including neonatal, pediatric, and adult ICUs (n = 38, 38.8%), followed by clinical and general wards (n = 20, 20.4%), hemodialysis (n = 6, 6.1%), and surgical wards (n = 5, 5.1%). Among reported outbreaks, 62.2% occurred in the capital and the metropolitan region of São Paulo. Microorganisms causing the HAI outbreaks reports were mainly carbapenem resistant, both *Klebsiella pneumoniae* (n = 28, 28.5%) and *Acinetobacter baumannii* (n = 12, 12.2%), but carbapenem-susceptible *Pseudomonas aeruginosa* (n = 7, 7.1%) was also reported. **Conclusions:** HAI outbreaks reported to health authorities in Sao Paulo may represent only a minute percentage of the total outbreaks, most of which are still not being reported, despite the normative. However, the available data emphasize the importance of developing strategies for intensive care units and hemodialysis units that focus on reducing bloodstream infections caused by multidrug-resistant gram-negative organisms.

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Outcomes for Community-Acquired Extended-Spectrum Beta-Lactamase (ESBL) *Escherichia coli* Urinary Tract Infections (UTIs) in Children Treated With Empiric Noncarbapenem Antibiotic Therapy

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Background: Empiric therapy with a cephalosporin antibiotic is the current standard of care for children with urinary tract infections (UTIs). However, as the rate of UTI due to extended-spectrum β -lactamase (ESBL)-producing organisms rises, there is concern that treatment failures may increase. Carbapenems are the most reliable antimicrobials for treating ESBL organisms, but empiric coverage with carbapenems necessitates hospitalization for intravenous therapy. **Objective:** We evaluated whether empiric noncarbapenem therapy in patients with ESBL *Escherichia coli* UTI is associated with poorer outcomes. **Methods:** We conducted a case-control study of patients with UTIs treated with empiric penicillin- or cephalosporin-based antibiotics from January 1, 2017, to December 31, 2018. We compared outcomes in cases with ESBL *E. coli* UTI with age-matched controls with a cephalosporin-susceptible *E. coli* UTI. Logistic regression was used to compare the odds of clinical failure (persistent symptoms and/or fever) at 48–72 hours. We further evaluated the odds of hospitalization and UTI recurrence between groups. **Results:** Of the 228 enrolled patients, 51 were cases and 177 controls. Cases were more likely to have underlying medical conditions (45% vs 21%). The odd ratio of clinical failure at 48–72 hours after initiation for cases compared to controls was 4.83 (95% CI, 0.94–24.92; $P = .06$). These odds were not influenced by age, presence of an underlying medical condition, or fever. The overall adjusted odd ratio of hospitalization for cases compared to controls was 12.09 (95% CI, 0.995–4.38, $P = .052$). Most patients admitted at presentation had an underlying medical condition (30 of 64, 47%) and/or fever (54 of 64, 84%). Among 30 cases initially managed as outpatients, only 2 (7%) were later admitted due to clinical failure. There was no difference in the likelihood of UTI recurrence within 60 days for the 2 groups (adjusted OR, 1.34; 95% CI, 0.47–3.78; $P = .58$).

Outcomes for community-acquired extended-spectrum beta-lactamase (ESBL) *Escherichia coli* urinary tract infections (UTI's) in children treated with empiric non-carbapenem antibiotic therapy

Demographics/Clinical characteristics	Cases (n=51)	Controls (n=177)
Age (years), mean	5.14	4.56
<2 mo (%)	3 (6)	8 (5)
2 - <6 mo (%)	3 (6)	13 (7)
6 mo - < 5 yrs (%)	23 (45)	82 (46)
5 - 18 yrs (%)	22 (43)	74 (42)
Underlying medical condition (%)	23 (45)	37 (21)
Urogenital anomaly (%)	16 (31)	16 (9)
Fever at presentation (%)	36 (71)	107 (60)
Documented clinical improvement at f/u (%)	36/39 (92)	174 (98)
Hospitalized at presentation (%)	21 (45)	39 (23)
Hospitalized at 48-72 hours for failure of outpatient therapy (%)	2/30 (7)	2/138 (1)
Recurrence of UTI within 60 days (%)	7 (13)	14 (8)
Recurrent UTI ESBL (%)	4/7 (57)	0

Table 1. Demographic and clinical characteristics of patients.

Fig. 1.