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A comparison of extended-spectrum beta-lactamase (ESBL)–producing *Escherichia coli* and *Klebsiella pneumoniae* bloodstream infections in Alberta using a provincial surveillance system

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To the Editor—The recent study by Scheuerman *et al*[1] investigating risk factors associated with extended-spectrum β-lactamase (ESBL)–producing *Escherichia coli* and ESBL-producing *Klebsiella pneumoniae* bloodstream infections was of interest to our group and spurred further investigation into local infection prevention and control surveillance data. Data were collected prospectively from acute care facilities within Alberta. The data were retrospectively analyzed for factors comparable to Scheuerman *et al*[1] including gender, age, case classification, time from admission to positive culture, and source of secondary infection. The data reflect all ESBL bloodstream infection cases in Alberta from April 2013 to March 2018, and our results are similar to the findings of Scheuerman *et al.*[1] (Table 1) Of 593 ESBL isolates, 551 (93%) were *E. coli*. Of the cases that were extracted from our database, a statistically significant higher proportion of ESBL-producing *K. pneumoniae* bloodstream infections were classified as hospital acquired or healthcare associated with a longer average time from admission to culture than bloodstream infections with ESBL-producing *E. coli*. Conversely, a statistically significant higher proportion of ESBL *E. coli* bloodstream infection cases were noted to be community-acquired; only 19% of *Klebsiella* isolates were considered community-acquired.

The results obtained within Alberta are similar to the findings of Scheuerman *et al.*[1] Going forward, future investigations may provide additional clarity on the differences between ESBL-producing isolates based on further study of clinical and nonclinical parameters, including the proportion of nonurine ESBL-producing *E. coli* isolates compared to ESBL-producing *K. pneumoniae* isolates, the appropriateness of initial antimicrobial therapy, and the travel history of patients with ESBL infections.

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Table 1. Comparison of ESBL-EC and ESBL-KP BSI Case Characteristics, 2013–2018

Covariate	ESBL-EC (n = 551), No. (%)	ESBL-KP (n = 42), No. (%)	P Value[a]
Male	309 (56)	28 (67)	NS
Median age (IQR)	72 (22)	67 (12)	<.05
BSI Classification			
Hospital-acquired	149 (27)	22 (52)	<.05
Healthcare-associated	197 (36)	12 (29)	NS
Community-acquired	203 (37)	8 (19)	<.05
Epidemiological Parameter			
Urinary tract	312 (76)	17 (61)	NS
Other	99 (24)	11 (39)	
Time from admission to culture, average d	9	19	<.05

Note. ESBL, extended-spectrum β-lactamase; EC, *Escherichia coli;* KP, *Klebsiella pneumoniae;* BSI, bloodstream infection; NS, not significant ($P > .05$).
[a]The Mann-Whitney U test was used to calculate *P* values for continuous variables. A test of proportions or the χ^2 test was used for categorical variables.

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