

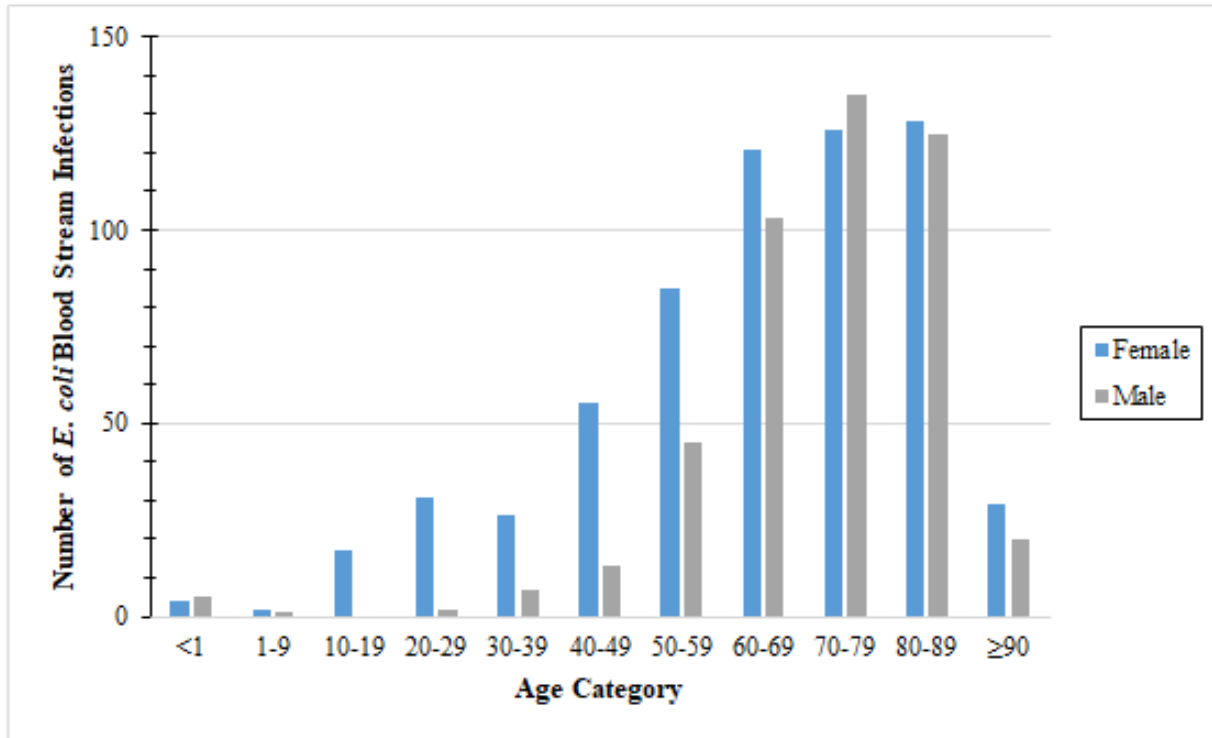
Supplementary Material

Journal – Epidemiology and Infection

Title - *Escherichia coli* bloodstream infections in the western interior of British Columbia, Canada: a population-based cohort study

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Supplementary Figure S1 – Number of *E. coli* bloodstream infections by age category and sex based on data from a population-based cohort study in the western interior area of British Columbia, Canada (April 2010 to March 2020)

Supplementary Table S1 – Details of bacterial species cultured from polymicrobial bloodstream infections based on data from a population-based cohort study in the western interior area of British Columbia, Canada (April 2010 to March 2020).

Details of Polymicrobial Bloodstream Infections (BSI)	Number of Incident BSI
BSI with two bacterial species	
<i>E. coli</i> & <i>Kebsiella</i> spp.	19
<i>E. coli</i> & <i>Enterococcus</i> spp.	12
<i>E. coli</i> & <i>Pseudomonas</i> spp.	10
<i>E. coli</i> & <i>Staphylococcus</i> spp.	7
<i>E. coli</i> & <i>Streptococcus</i> spp.	7
<i>E. coli</i> & <i>Bacteroides</i> spp.	5
<i>E. coli</i> & <i>Clostridium</i> spp.	3
<i>E. coli</i> & <i>Enterobacter</i> spp.	2
<i>E. coli</i> & <i>Proteus mirabilis</i>	2
<i>E. coli</i> & <i>Gamella haemolysans</i>	1
<i>E. coli</i> & <i>Peptoniphilus asaccharolytics</i>	1
<i>E. coli</i> & <i>Desulfovibrio desulfuricans</i>	1
<i>E. coli</i> & <i>Morganella morganii</i>	1
BSI with three bacterial species	
<i>E. coli</i> , <i>Klebsiella</i> spp., & <i>Enterococcus</i> spp.	3
<i>E. coli</i> , <i>Klebsiella pneumoniae</i> , & <i>Citrobacter</i> spp.	2
<i>E. coli</i> , <i>Pseudomonas aeruginosa</i> , & <i>Klebsiella oxytoca</i>	1
<i>E. coli</i> , <i>Pseudomonas aeruginosa</i> , & anaerobic gram negative bacilli	1
<i>E. coli</i> , <i>Klebsiella pneumoniae</i> , & <i>Klebsiella oxytoca</i>	1
<i>E. coli</i> , <i>Morganella morganii</i> , & <i>Klebsiella oxytoca</i>	1
<i>E. coli</i> , <i>Enterococcus faecalis</i> , & <i>Proteus mirabilis</i>	1
<i>E. coli</i> , <i>Bacteroides fragilis</i> , & anaerobic gram positive bacilli	1
<i>E. coli</i> , <i>Eggerthella lenta</i> , & <i>Parvimonas micra</i>	1
BSI with four bacterial species	
<i>E. coli</i> , <i>Klebsiella oxytoca</i> , <i>Citrobacter amalonaticus</i> & <i>Aeromonas</i> spp.	1

Supplementary Table S2 - The odds ratios for the univariable logistic regression models estimating the associations between the explanatory variables and 30-day mortality in *E. coli* bloodstream infections based on data from a population-based cohort study in the western interior area of British Columbia, Canada (April 2010 to March 2020)¹

Variable	OR	95% CI	p-value
<i>Age category</i>			
<65-years-old	1	Referent	
≥65-years-old	2.54	1.60-4.03	<0.001
<i>Sex</i>			
Female	1	Referent	
Male	1.48	1.01-2.15	0.042
<i>Polymicrobial</i>			
Monomicrobial	1	Referent	
Polymicrobial	3.10	1.83-5.27	<0.001
<i>Antimicrobial resistance</i>			
Non-ESBL	1	Referent	
ESBL	1.18	0.62-2.24	0.615
Ciprofloxacin-susceptible	1	Referent	
Ciprofloxacin-resistant	0.97	0.62-1.50	0.880
Non-MDR	1	Referent	
MDR	0.81	0.50-1.29	0.372
<i>Location of onset</i>			
Community-acquired	1	Referent	<0.001 ²
Healthcare-associated	2.67	1.65-4.32	<0.001
Nosocomial	7.07	3.93-12.70	<0.001
<i>Pre-infection LOS</i>			
Not hospitalized	1	Referent	<0.001 ²
Pre-infection LOS < 2 days	4.47	1.63-12.28	0.004
Pre-infection LOS ≥ 2 days	14.93	5.14-43.35	<0.001
<i>Focus of infection</i>			
Urogenital	1	Referent	
Non-urogenital	5.11	3.28-7.98	<0.001
<i>Charlson comorbidity index</i>			
<3	1	Referent	
≥3	3.57	2.43-5.25	<0.001
<i>Season</i>			
Spring	1	Referent	0.273 ²
Summer	0.77	0.44-1.35	0.363
Fall	1.27	0.76-2.14	0.358
Winter	1.17	0.69-2.00	0.558
<i>Study Year</i>			
1 (04/01/2010-03/31/2011)	1	Referent	0.614 ²
2 (04/01/2011-03/31/2012)	1.27	0.37-4.32	0.706
3 (04/01/2012-03/31/2013)	1.87	0.60-5.88	0.281
4 (04/01/2013-03/31/2014)	1.94	0.63-5.92	0.246
5 (04/01/2014-03/31/2015)	1.63	0.55-4.80	0.378
6 (04/01/2015-03/31/2016)	3.00	1.07-8.40	0.036

7 (04/01/2016-03/31/2017)	1.96	0.66-5.82	0.224
8 (04/01/2017-03/31/2018)	2.49	0.87-7.07	0.087
9 (04/01/2018-03/31/2019)	2.02	0.73-5.61	0.178
10 (04/01/2019-03/31/2020)	2.07	0.73-5.89	0.173
<i>Individual Comorbidities</i>			
<i>Diabetes mellitus (DM)</i>			
Absent	1	Referent	
Present	0.59	0.36-0.98	0.042
<i>Cancer</i>			
Absent	1	Referent	
Present	2.26	1.51-3.38	<0.001
<i>Chronic pulmonary disease</i>			
Absent	1	Referent	
Present	1.70	1.06-2.71	0.026
<i>Congestive heart failure</i>			
Absent	1	Referent	
Present	3.25	1.99-5.30	<0.001
<i>Renal disease</i>			
Absent	1	Referent	
Present	1.41	0.78-2.53	0.257
<i>Myocardial infarction</i>			
Absent	1	Referent	
Present	1.95	1.10-3.45	0.021
<i>Dementia</i>			
Absent	1	Referent	
Present	2.14	1.21-3.76	0.009
<i>Mild liver disease</i>			
Absent	1	Referent	
Present	3.62	2.14-6.13	<0.001
<i>Cerebrovascular disease</i>			
Absent	1	Referent	
Present	2.21	1.19-4.14	0.013
<i>DM with end organ damage</i>			
Absent	1	Referent	
Present	1.03	0.45-2.34	0.948
<i>Rheumatologic disease</i>			
Absent	1	Referent	
Present	1.30	0.60-2.81	0.506

OR – Odds ratio; CI – Confidence interval;

ESBL – Extended-spectrum β -lactamase; MDR – Multidrug-resistant;

LOS – Length of hospital stay; BSI – Bloodstream infection

¹ Logistic regression model fitted with generalized estimating equation using exchangeable correlation structure to account for lack of independence from some patients having more than one incident BSI

² Overall p-value for variable estimated using a Wald test

Supplementary Table S3 – Median post-infection length of stay in patients with incident *E. coli* bloodstream infections that survived to discharge stratified by demographic and bloodstream infection characteristics based on data from a population-based cohort study in the western interior area of British Columbia, Canada (April 2010 to March 2020)

Characteristic	Post-infection LOS median (IQR)
<i>Age category</i>	
< 65-years-old	6 (3-10)
≥ 65-years-old	7 (4-12)
<i>Sex</i>	
Female	6 (4-11)
Male	6 (4-11)
<i>Polymicrobial</i>	
Monomicrobial	6 (4-11)
Polymicrobial	8 (4-17)
<i>Antimicrobial resistance</i>	
Non-ESBL	6 (4-11)
ESBL	8 (5-15)
Ciprofloxacin-susceptible	6 (4-10)
Ciprofloxacin-resistant	7 (4-13)
Non-MDR	6 (4-11)
MDR	7 (4-12)
<i>Location of onset</i>	
Community-acquired	5 (3-9)
Healthcare-associated	7 (4-11)
Nosocomial	18 (7-32)
<i>Pre-infection LOS</i>	
< 2 days	6 (3-10)
≥ 2 days	10 (4-26)
<i>Focus of infection</i>	
Urogenital	6 (4-10)
Non-urogenital	7 (4-14)
<i>Charlson comorbidity index</i>	
<3	6 (4-9)
≥3	8 (5-16)

IQR – Interquartile range; LOS – Length of hospital stay;
ESBL – Extended-spectrum β -lactamase; MDR – Multidrug-resistant

Supplementary Table S4 - The odds ratios for the univariable logistic regression models estimating the associations between the explanatory variables and long post-infection length of hospital stay in patients with *E. coli* bloodstream infections that survived to discharge based on data from a population-based cohort study in the western interior area of British Columbia, Canada (April 2010 to March 2020)¹

Variable	OR	95% CI	p-value
<i>Age category</i>			
<65-years-old	1	Referent	
≥65-years-old	1.33	0.95-1.87	0.100
<i>Sex</i>			
Female	1	Referent	
Male	0.93	0.67-1.29	0.662
<i>Polymicrobial</i>			
Monomicrobial	1	Referent	
Polymicrobial	1.61	0.92-2.84	0.097
<i>Antimicrobial resistance</i>			
Non-ESBL	1	Referent	
ESBL	2.08	1.24-3.48	0.005
Ciprofloxacin-susceptible	1	Referent	
Ciprofloxacin-resistant	1.45	1.02-2.06	0.036
Non-MDR	1	Referent	
MDR	1.35	0.94-1.95	0.109
<i>Location of onset</i>			<0.001 ²
Community-acquired	1	Referent	
Healthcare-associated	1.73	1.20-2.51	0.004
Nosocomial	8.39	4.87-14.47	<0.001
<i>Pre-infection LOS</i>			
< 2 days	1	Referent	
≥ 2 days	5.46	3.40-8.77	<0.001
<i>Focus of infection</i>			
Urogenital	1	Referent	
Non-urogenital	1.50	1.08-2.09	0.017
<i>Charlson comorbidity index</i>			
<3	1	Referent	
≥3	2.41	1.73-3.35	<0.001
<i>Season</i>			0.171 ²
Spring	1	Referent	
Summer	0.67	0.43-1.03	0.069
Fall	0.64	0.40-1.00	0.049
Winter	0.80	0.51-1.25	0.325
<i>Study Year</i>			0.309 ²
1 (04/01/2010-03/31/2011)	1	Referent	
2 (04/01/2011-03/31/2012)	1.80	0.76-4.26	0.178
3 (04/01/2012-03/31/2013)	1.08	0.43-2.71	0.876
4 (04/01/2013-03/31/2014)	1.40	0.60-3.30	0.438
5 (04/01/2014-03/31/2015)	2.67	1.23-5.80	0.013
6 (04/01/2015-03/31/2016)	1.66	0.73-3.76	0.228
7 (04/01/2016-03/31/2017)	1.58	0.69-3.61	0.278

8 (04/01/2017-03/31/2018)	1.49	0.65-3.39	0.344
9 (04/01/2018-03/31/2019)	1.35	0.62-2.94	0.445
10 (04/01/2019-03/31/2020)	1.38	0.62-3.08	0.427
<i>Individual Comorbidities</i>			
<i>Diabetes mellitus (DM)</i>			
Absent	1	Referent	
Present	1.65	1.16-2.35	0.005
<i>Cancer</i>			
Absent	1	Referent	
Present	0.91	0.61-1.35	0.630
<i>Chronic pulmonary disease</i>			
Absent	1	Referent	
Present	1.56	1.02-2.36	0.038
<i>Congestive heart failure</i>			
Absent	1	Referent	
Present	3.78	2.32-6.14	<0.001
<i>Renal disease</i>			
Absent	1	Referent	
Present	2.12	1.30-3.49	0.003
<i>Myocardial infarction</i>			
Absent	1	Referent	
Present	1.42	0.82-2.46	0.211
<i>Dementia</i>			
Absent	1	Referent	
Present	2.12	1.27-3.54	0.004
<i>Mild liver disease</i>			
Absent	1	Referent	
Present	1.78	0.99-3.20	0.055
<i>Cerebrovascular disease</i>			
Absent	1	Referent	
Present	2.18	1.17-4.06	0.014
<i>DM with end organ damage</i>			
Absent	1	Referent	
Present	2.28	1.27-4.09	0.006
<i>Rheumatologic disease</i>			
Absent	1	Referent	
Present	1.56	0.81-3.01	0.188

OR – Odds ratio; CI – Confidence interval; BSI – Bloodstream infection
ESBL – Extended-spectrum β -lactamase; MDR – Multidrug-resistant;
LOS – Length of hospital stay

¹ Logistic regression model fitted with generalized estimating equation using exchangeable correlation structure to account for lack of independence from some patients having more than one incident BSI

² Overall p-value for variable estimated using a Wald test