

Supporting Information

Prevalence and seasonal dynamics of *bla*_{CTX-M} antibiotic resistance genes and fecal indicator organisms in the lower Lahn River, Germany

Ilona Herrig^{1,2*}, Susanne Fleischmann^{1, #a}, Julia Regnery¹, Jessica Wesp¹, Georg Reifferscheid¹, Werner Manz²

¹ Department Biochemistry, Ecotoxicology, Federal Institute of Hydrology, Koblenz, Germany

² Department of Biology, Institute for Integrated Natural Sciences, University of Koblenz-Landau, Koblenz, Germany

^{#a} Current Address: Department of Veterinary Medicine, Institute of Food Safety and Food Hygiene, FU Berlin, Germany

* Corresponding author

E-mail: iherrig@uni-koblenz.de (IH)

S1 Table: Exposure of water sports participants in Lahn River to (antibiotic resistant) *E. coli*.

Activity	Volume of water ingested [mL/h]	Duration session [h]	Range	prevalence							ingested per hour							ingested per session							
				(1) total <i>E. coli</i> [MPN/100 mL]	(2) resistant <i>E. coli</i> [MPN/100 mL]	(3) resistant <i>E. coli</i> [MPN/100 mL]	(4) ESBL <i>E. coli</i> [MPN/100 mL]	(5) ESBL <i>E. coli</i> [MPN/100 mL]	(6) diarrheagenic ESBL <i>E. coli</i> [MPN/100 mL]	(7) diarrheagenic ESBL <i>E. coli</i> [MPN/100 mL]	(1) total <i>E. coli</i> [MPN/h]	(2) resistant <i>E. coli</i> [MPN/h]	(3) resistant <i>E. coli</i> [MPN/h]	(4) ESBL <i>E. coli</i> [MPN/h]	(5) ESBL <i>E. coli</i> [MPN/h]	(6) diarrheagenic ESBL <i>E. coli</i> [MPN/h]	(7) diarrheagenic ESBL <i>E. coli</i> [MPN/h]	(1) total <i>E. coli</i> [MPN/session]	(2) resistant <i>E. coli</i> [MPN/session]	(3) resistant <i>E. coli</i> [MPN/session]	(4) ESBL <i>E. coli</i> [MPN/session]	(5) ESBL <i>E. coli</i> [MPN/session]	(6) diarrheagenic ESBL <i>E. coli</i> [MPN/session]	(7) diarrheagenic ESBL <i>E. coli</i> [MPN/session]	
Boating	3.7 ^a	4 ^b	min	15	5	7	0	0	0	0	1	0	0	0	0	0	0	2	1	1	0	0	0	0	0
			avg	3158	1011	1516	2	54	0	5	117	37	56	0	2	0	0	467	150	224	0	8	0	1	
			max	27730	8874	13310	14	471	1	40	1026	328	492	1	17	0	1	4104	1313	1970	2	70	0	6	
Canoeing	3.9 ^a	2.6 ^b	min	15	5	7	0	0	0	0	1	0	0	0	0	0	0	2	0	1	0	0	0	0	0
			avg	3158	1011	1516	2	54	0	5	123	39	59	0	2	0	0	320	102	154	0	5	0	0	0
			max	27730	8874	13310	14	471	1	40	1081	346	519	1	18	0	2	2812	900	1350	1	48	0	4	
Fishing	3.6 ^a	4 ^b	min	15	5	7	0	0	0	0	1	0	0	0	0	0	0	2	1	1	0	0	0	0	0
			avg	3158	1011	1516	2	54	0	5	114	36	55	0	2	0	0	455	146	218	0	8	0	1	
			max	27730	8874	13310	14	471	1	40	998	319	479	0	17	0	1	3993	1278	1917	2	68	0	6	
Kayaking	3.8 ^a	-	min	15	5	7	0	0	0	0	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-
			avg	3158	1011	1516	2	54	0	5	120	38	58	0	2	0	0	-	-	-	-	-	-	-	-
			max	27730	8874	13310	14	471	1	40	1054	337	506	1	18	0	2	-	-	-	-	-	-	-	-
Rowing	3.5 ^a	-	min	15	5	7	0	0	0	0	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-
			avg	3158	1011	1516	2	54	0	5	111	35	53	0	2	0	0	-	-	-	-	-	-	-	-
			max	27730	8874	13310	14	471	1	40	971	311	466	0	16	0	1	-	-	-	-	-	-	-	-
Boating	1.9 ^b	4 ^b	min	15	5	7	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0
			avg	3158	1011	1516	2	54	0	5	60	19	29	0	1	0	0	240	77	115	0	4	0	0	0
			max	27730	8874	13310	14	471	1	40	527	169	253	0	9	0	1	2107	674	1012	1	36	0	3	
Fishing	3.79 ^b	4 ^b	min	15	5	7	0	0	0	0	1	0	0	0	0	0	0	2	1	1	0	0	0	0	0
			avg	3158	1011	1516	2	54	0	5	120	38	57	0	2	0	0	479	153	230	0	8	0	1	
			max	27730	8874	13310	14	471	1	40	1051	336	504	1	18	0	2	4204	1345	2018	2	71	0	6	
Canoeing	7.52 ^b	2.6 ^b	min	15	5	7	0	0	0	0	1	0	1	0	0	0	0	3	1	1	0	0	0	0	0
			avg	3158	1011	1516	2	54	0	5	237	76	114	0	4	0	0	617	198	296	0	10	0	1	
			max	27730	8874	13310	14	471	1	40	2085	667	1001	1	35	0	3	5422	1735	2602	3	92	0	8	
Swimming (children)	49.33 ^c	1.32 ^d	min	15	5	7	0	0	0	0	7	2	4	0	0	0	0	10	3	5	0	0	0	0	0
			avg	3158	1011	1516	2	54	0	5	1558	499	748	1	26	0	2	2057	658	987	1	35	0	3	
			max	27730	8874	13310	14	471	1	40	13679	4377	6566	7	233	1	20	18057	5778	8667	9	307	1	26	
Swimming (adults)	21.33 ^c	1.32 ^d	min	15	5	7	0	0	0	0	3	1	2	0	0	0	0	4	1	2	0	0	0	0	0
			avg	3158	1011	1516	2	54	0	5	674	216	323	0	11	0	1	889	285	427	0	15	0	1	
			max	27730	8874	13310	14	471	1	40	5915	1893	2839	3	101	0	9	7808	2498	3748	4	133	0	11	

(1) Herrig et al. 2015

(2) calculated based on (1) and Blaak et al. 2011 (32 % of *E. coli* AB-resistant *E. coli*)

(3) calculated based on (1) and Blaak et al. 2011 (48 % of *E. coli* AB-resistant)

(4) calculated based on (1) and Blaak et al. 2014 (0.05 % of *E. coli* producing ESBL)

(5) calculated based on (1) and Haberecht et al. 2019 (1.7 % of *E. coli* producing ESBL)

(6) calculated based on (4) and Franz et al. 2015 (8.5 % of ESBL producing *E. coli* diarrheagenic)

(7) calculated based on (5) and Franz et al. 2015 (8.5 % of ESBL producing *E. coli* diarrheagenic)

a) Dorevitch et al. 2011

b) Rijal et al. 2011

c) Dufour et al. 2006

d) Schets et al. 2011