13 Beaches Tables

Table 1: Participant Characteristics by Age Category

	All Ages			Age 0 to 4 Years			Age 5 to 10 Years			Age >10 Years		
	N	%	Median (IQR)	N	%	Median (IQR)	N	%	Median (IQR)	N	%	Median (IQR)
Number of Participants	88,083			6,990			11,446			68,428		
GI illness at enrollment	2,025	2.3		196	2.8		195	1.7		1,620	2.4	
Individuals at risk of GI illness	86,058			6,794			11,251			66,808		
Incident diarrhea within 3 days	2,616	1.9		270	2.8		384	1.9		1,934	1.8	
Incident diarrhea within 10 days	3,751	4.0		427	5.9		427	3.5		2,862	3.9	
Age in years			28 (12,43)			2 (1,3)			8 (6,9)			35 (22,46)
Female	47,204	53.6		3,413	48.8		5,655	49.4		37,566	54.9	
Race												
White	48,829	55.4		3,429	49.1		5,843	51.0		39,026	57.0	
Non-White, Hispanic	26,014	29.5		2,109	30.2		3,340	29.2		20,146	29.4	
White, Hispanic	1,262	1.4		170	2.4		238	2.1		846	1.2	
African American	2,600	3.0		204	2.9		386	3.4		1,960	2.9	
Asian	2,018	2.3		173	2.5		257	2.2		1,564	2.3	
American Indian	240	0.3		13	0.2		23	0.2		202	0.3	
Multiple Races	1,753	2.0		315	4.5		492	4.3		924	1.4	
Other	1,008	1.1		115	1.6		149	1.3		717	1.0	
Missing	4,359	4.9		462	6.6		718	6.3		3,043	4.4	
No water contact	27,460	31.2		1,711	24.5		1,104	9.6		24,325	35.5	
Any water contact	60,623	68.8		5,279	75.5		10,342	90.4		44,103	64.5	
Body immersion	48,573	55.1		4,044	57.9		9,147	79.9		34,656	50.6	
Head immersion	37,999	43.1		2,901	41.5		7,988	69.8		26,515	38.7	
Swallowed water	11,208	12.7		1,679	24.0		3,166	27.7		6,209	9.1	
Hours spent in the water			1.0 (0.2,3.0)			1.0 (0.3,2.5)			2.0 (1.0,4.0)			1.0 (0.2,2.5)
Hours spent in the water (cat)												
0 – 1	17,715	29.2		1,708	32.4		2,168	21.0		13,691	31.0	
1.1 – 2	9,677	16.0		744	14.1		1,678	16.2		7,142	16.2	
2.1 – 3	3,966	6.5		281	5.3		955	9.2		2,705	6.1	
3.1 – 4	4,553	7.5		342	6.5		904	8.7		3,250	7.4	
4.1 – 5	1,249	2.1		101	1.9		337	3.3		801	1.8	
>5	5,128	8.5		335	6.3		1,078	10.4		3,616	8.2	
Missing	18,335	30.2		1,768	33.5		3,222	31.2		12,898	29.2	

Table 2: Population Attributable Risk Among Beachgoers Due to Body Immersion Swimming.

	N Events	N At Risk	Predicted Incidence[1] per 1000 Observed Exposure	Predicted Incidence[1] per 1000 No Swim Exposure	Population Attributable Risk[2] (95% CI)		Population Attributable Fraction[3] (95% CI)	
Diarrhea, episodes								
All Ages	3,409	86,058	40	31	8.3	(6.3, 10.2)	21%	(16%, 26%)
Age Stratified								
Ages 0 to 4	398	6,794	59	45	13.5	(3.1, 22.8)	23%	(5%, 39%)
Ages 5 to 10	393	11,251	35	19	15.8	(6.7, 24.0)	45%	(20%, 67%)
Ages >10	2,585	66,808	39	32	6.6	(4.7, 8.5)	17%	(12%, 22%)
Gastrointestinal illness[4], episodes								
All Ages	5,024	86,058	58	50	8.8	(6.4, 11.3)	15%	(11%, 19%)
Age Stratified								
Ages 0 to 4	562	6,794	83	62	20.8	(9.2, 31.9)	25%	(11%, 39%)
Ages 5 to 10	697	11,251	62	51	10.7	(-2.8, 23.4)	17%	(-5%, 37%)
Ages >10	3,716	66,808	56	48	7.6	(5.4, 9.8)	14%	(10%, 18%)
Missed Daily Activities[5], days								
All Ages	4,551	86,058	53	48	4.7	(0.1, 8.9)	9%	(0%, 17%)
Age Stratified								
Ages 0 to 4	445	6,794	68	42	26.7	(8.8, 42.7)	40%	(14%, 63%)
Ages 5 to 10	691	11,251	61	54	7.9	(-17.1, 28.5)	13%	(-27%, 47%)
Ages >10	3,377	66,808	51	46	4.1	(0.3, 8.2)	8%	(1%, 17%)
Missed Paid Work[6], days								
All Ages[8]	1,051	86,058	12	13	-0.7	(-2.5, 1.2)	na	
Medical Visits[7], events								
All Ages[8]	915	86,058	11	10	0.4	(-1.2, 1.9)	4%	(-11%, 18%)

1. Predicted incidence per 1000 among all beachgoers under the empirical distribution of swim exposure (observed) and under a counterfactual scenario where nobody entered the water. Marginal estimates are from a multivariable regression model adjusted for a range of potential confounders and beach level fixed-effects (see text for details).
2. Population Attributable Risk is the number of events per 1000 beachgoers that would be prevented if swimming exposure were removed from the population. The proportion exposed to body immersion swimming was: all ages (55%), ages 0-4 (58%), ages 5-10 (80%), ages >10 (51%). Table 1 includes additional details.
3. Population Attributable Fraction is the percentage of events among beachgoers attributable to body immersion swimming.
4. Gastrointestinal illness was defined as (i) diarrhea or (ii) vomiting or (iii) stomach cramps and missed daily activities or (iv) nausea and missed daily activities.
5. Includes days of school, work, or vacation missed because of gastrointestinal illness.
6. Includes work days missed because of gastrointestinal illness.
7. Includes phone consultations, outpatient visits, and emergency room visits due to gastrointestinal illness.
8. Outcome incidence was too rare to calculate age-stratified estimates.

Table 3: Population Attributable Risk Among Body Immersion Swimmers Due to Swimming in Water That Exceeds the USEPA Guideline of ***Enterococcus*** >35 CFU/100ml.

	N Events	N At Risk	Predicted Incidence[1] per 1000 Observed Exposure	Predicted Incidence[1] per 1000 All ≤35 CFU/100ml	Population Attributable Risk[2] (95% CI)		Population Attributable Fraction[3] (95% CI)	
Diarrhea, episodes								
All Ages	2,041	47,240	43	42	1.3	(0.2, 2.4)	3%	(1%, 6%)
Age Stratified								
Ages 0 to 4	266	3,915	68	65	3.1	(-2.2, 7.8)	5%	(-3%, 11%)
Ages 5 to 10	335	8,875	38	35	2.4	(-0.3, 5.3)	6%	(-1%, 14%)
Ages >10	1,415	33,733	42	41	0.9	(-0.2, 2.1)	2%	(-1%, 5%)
Gastrointestinal illness[4], episodes								
All Ages	2,942	47,240	62	61	1.0	(-0.3, 2.3)	2%	(-0%, 4%)
Age Stratified								
Ages 0 to 4	379	3,915	97	93	3.6	(-2.2, 9.1)	4%	(-2%, 9%)
Ages 5 to 10	575	8,875	65	63	1.6	(-1.8, 5.2)	2%	(-3%, 8%)
Ages >10	1,950	33,733	58	57	0.6	(-0.7, 2.1)	1%	(-1%, 4%)
Missed Daily Activities[5], days								
All Ages	2,677	47,240	57	56	0.6	(-1.5, 2.6)	1%	(-3%, 5%)
Age Stratified								
Ages 0 to 4	328	3,915	86	80	6.1	(-3.7, 15.9)	7%	(-5%, 18%)
Ages 5 to 10	557	8,875	62	63	-0.3	(-5.5, 5.2)	na	
Ages >10	1,770	33,733	52	52	0.3	(-1.6, 2.4)	1%	(-3%, 4%)
Missed Paid Work[6], days								
All Ages[8]	596	47,240	13	13	-0.2	(-1.0, 0.6)	na	
Medical Visits[7], events								
All Ages[8]	583	47,240	12	12	0.0	(-0.5, 0.6)	0%	(-4%, 5%)

1. Predicted incidence per 1000 among body immersion swimmers under the empirical distribution of ***Enterococcus*** exposure (observed) and under a counterfactual scenario where nobody entered the water in conditions >35 CFU/100ml. Estimates are from a multivariable regression model adjusted for a range of potential confounders and beach level fixed-effects (see text for details).
2. Population Attributable Risk is the number of events per 1000 swimmers that would be prevented if the exposure of swimming in water with ***Enterococcus*** ≥35 CFU/100ml were removed from the population. The proportion of swimmers exposed to water with ***Enterococcus*** EPA 1600 >35 CFU/100ml was: all ages (16%), ages 0-4 (20%), ages 5-10 (21%), ages >10 (14%).
3. Population Attributable Fraction is the percentage of events among swimmers attributable to swimming in water with ***Enterococcus*** ≥35 CFU/100ml.
4. Gastrointestinal illness was defined as (i) diarrhea or (ii) vomiting or (iii) stomach cramps and missed daily activities or (iv) nausea and missed daily activities.
5. Includes days of school, work, or vacation missed because of gastrointestinal illness.
6. Includes work days missed because of gastrointestinal illness.
7. Includes phone consultations, outpatient visits, and emergency room visits due to gastrointestinal illness.
8. Outcome incidence was too rare to calculate age-stratified estimates.