

13 Beaches Tables

Table 1: Participant Characteristics by Age Category

	All Ages ^a			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	84,411			6,580			10,822			65,854		
Gastrointestinal illness at enrollment	1,948	2.3		186	2.8		189	1.7		1,559	2.4	
Individuals at risk for gastrointestinal illness	82,463			6,394			10,633			64,295		
Incident diarrhea within 10 days	3,409	4.1		398	6.2		393	3.7		2,585	4.0	
Age in years			29 (13,43)			2 (1,3)			8 (6,9)			35 (22,46)
Female	45,562	54.0		3,207	48.7		5,357	49.5		36,454	55.4	
Race/ethnicity												
White/caucasian	48,829	57.8		3,429	52.1		5,843	54.0		39,026	59.3	
Hispanic	27,276	32.3		2,279	34.6		3,578	33.1		20,992	31.9	
African American	2,600	3.1		204	3.1		386	3.6		1,960	3.0	
Asian	2,018	2.4		173	2.6		257	2.4		1,564	2.4	
American Indian	240	0.3		13	0.2		23	0.2		202	0.3	
Multiple Races	1,753	2.1		315	4.8		492	4.5		924	1.4	
Other	1,008	1.2		115	1.7		149	1.4		717	1.1	
Missing	687	0.8		52	0.8		94	0.9		469	0.7	
No water contact	25,762	30.5		1,557	23.7		963	8.9		22,940	34.8	
Any water contact	58,649	69.5		5,023	76.3		9,859	91.1		42,914	65.2	
Body immersion	47,287	56.0		3,875	58.9		8,767	81.0		33,951	51.6	
Head immersion	36,832	43.6		2,753	41.8		7,646	70.7		25,869	39.3	
Swallowed water	10,860	12.9		1,626	24.7		3,055	28.2		6,031	9.2	
Hours spent in the water ^b			1.0 (0.5,2.0)			1.0 (0.5,2.0)			2.0 (1.0,3.0)			1.0 (0.5,2.0)
Hours spent in the water (cat) ^b												
0 – 1	26,287	54.9		2,235	56.2		3,424	38.4		20,264	59.1	
1.1 – 2	11,281	23.6		958	24.1		2,604	29.2		7,528	21.9	
2.1 – 3	5,565	11.6		415	10.4		1,503	16.9		3,584	10.4	
3.1 – 4	3,005	6.3		234	5.9		826	9.3		1,909	5.6	
4.1 – 5	856	1.8		60	1.5		277	3.1		499	1.5	
>5	651	1.4		39	1.0		209	2.3		385	1.1	
Missing	249	0.5		37	0.9		66	0.7		137	0.4	

^a All ages category includes 1,155 individuals with no age information.

^b Time spent in the water limited to beachgoers with body immersion, head immersion, or swallowed water exposure.

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

	N Events	N At Risk	Predicted Incidence ^a per 1000		Population Attributable Risk ^b (95% CI)		Population Attributable Fraction ^c (95% CI)	
			Observed Exposure	No Swim Exposure				
Diarrhea, episodes								
All Ages	3,409	82,463	41	33	8.6	(6.6, 10.6)	21%	(16%, 25%)
Age Stratified								
Ages 0 to 4	398	6,394	62	48	14.7	(3.8, 25.3)	23%	(6%, 40%)
Ages 5 to 10	393	10,633	37	20	16.9	(7.3, 26.1)	46%	(20%, 69%)
Ages >10	2,585	64,295	40	33	6.9	(4.8, 8.9)	17%	(12%, 22%)
Gastrointestinal illness ^d , episodes								
All Ages	5,024	82,463	61	52	9.2	(6.6, 11.8)	15%	(11%, 19%)
Age Stratified								
Ages 0 to 4	562	6,394	88	66	22.4	(9.9, 34.8)	25%	(12%, 40%)
Ages 5 to 10	697	10,633	66	54	11.8	(-2.6, 24.7)	18%	(-4%, 37%)
Ages >10	3,716	64,295	58	50	7.8	(5.4, 10.1)	14%	(9%, 17%)
Missed Daily Activities ^e , days								
All Ages	4,551	82,463	55	50	4.9	(0.4, 9.2)	9%	(1%, 17%)
Age Stratified								
Ages 0 to 4	445	6,394	70	43	27.1	(7.7, 44.5)	39%	(12%, 61%)
Ages 5 to 10	691	10,633	65	58	7.2	(-17.0, 29.6)	11%	(-26%, 45%)
Ages >10	3,377	64,295	53	48	4.3	(0.1, 8.9)	8%	(0%, 17%)
Missed Paid Work ^f , days								
All Ages ^h	1,051	82,463	13	13	-0.6	(-2.8, 1.3)	na	
Medical Visits ^g , events								
All Ages ^h	915	82,463	11	11	0.4	(-1.3, 2.1)	4%	(-12%, 18%)

a 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. Estimates are from a multivariable regression model adjusted for a range of potential confounders and beach level fixed-effects (see text for details).

b 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 (56%), ages 0-4 (59%), ages 5-10 (81%), ages >10 (52%). Supplement File 1 Appendix 2 includes additional details.

c Population Attributable Fraction is the percentage of events among beachgoers attributable to body immersion swimming.

d 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.

e Includes days of school, work, or vacation missed because of gastrointestinal illness.

f Includes work days missed because of gastrointestinal illness.

g Includes phone consultations, outpatient visits, and emergency room visits due to gastrointestinal illness.

h Outcome incidence was too rare to calculate age-stratified estimates.