TABLE A30. (Continued)

Year	Beach	Indicator Density Per 100 ml					
		C. perfringens		*V. parahaemolyticus*		*Staphylococci*	
		Mean	Range	Mean	Range	Mean	Range
1973	Rockaways	ND	ND	ND	ND	ND	ND
	Coney Island	ND	ND	ND	ND	ND	ND
1974	Rockaways	12.5	2-351	32.8	5-249	178	32-558
	Coney Island	18.3	50-66	54.5	14-368	243	98-926
1975[1]	Coney Island(C)	17.5	7.1-32	16.1	3.0-100	209	32-955
	Coney Island(B)	21.6	10-91	34.2	1.5-463	378	96-4370
	Coney Island(A)	22.6	12-33	41.5	3.3-438	128	5.5-219
	Coney Island(D)	ND	ND	ND	ND	ND	ND

[1] Coney Island Beaches: (C) 2nd-4th Streets, Brighton; (B) 8th-10th Streets; (A) 18th-24th Streets; (D) 34th-38th Streets.

TABLE A31. GASTROINTESTINAL (GI) AND HIGHLY CREDIBLE GASTROINTESTINAL (HCGI) SYMPTOM RATES BY BEACH AND YEAR FOR NEW YORK CITY TRIALS

Year	Beach	N		Rate of GI Symptoms Per 1000 Persons			Rate of HCGI Symptoms Per 1000 Persons		
		Swim[1]	Nonswim[2]	Swim	Nonswim	▲[3]	Swim	Nonswim	▲
1973	Rockaway	484	197	81	46	35	30	15	15
	Coney Is.	474	167	72	24	48*	46	18	28
1974	Rockaway	2767	2156	39	35	4	12	12	0
	Coney Is.	1961	1185	42	26	16*	16	9.3	6.7
1975	Coney Is. (C)	1534	590	70	54	16	21.2	12.6	8.6
	Coney Is. (B)	1744	623	57	42	15	21.8	22.5	-0.7
	Coney Is. (A)	1131	475	50	44	6	13.7	8.5	4.2
	Coney Is. (D)	298	96	60	31	29	23.5	10.4	13.1

[1] Swimmer.
[2] Nonswimmer.
[3] Swimming-Associated (swimmer-nonswimmer).
*$p < .05$; **$p < .01$.

TABLE A32. SYMPTOM RATES FOR TRIALS CONDUCTED AT THREE ALEXANDRIA BEACHES IN 1976

Symptom	Symptom Rates Per 1000 Individuals By Beach and Swimming Status								
	Maamoura[1]			Ibrahemia[2]			Mandara[3]		
	Swim (560)[4]	Nonswim (259)	▲	Swim (511)	Nonswim (312)	▲	Swim (766)	Nonswim (397)	▲
Fever	3.2	<3.9	3.2	7.8	3.2	4.6	5.2	2.5	2.7
Diarrhea or Vomit	16.1	11.5	4.6	15.6	3.2	12.4	31.3	17.6	13.7
Upper Respiratory Tract	24.1	7.7	16.4	45.0	3.2	41.8**	22.2	15.1	7.1
Ear	7.1	3.9	3.2	11.7	<3.2	11.7	10.4	2.5	7.9
Eye	21.4	<3.9	21.4*	23.0	3.2	19.8*	20.8	<2.5	20.8**
Skin	23.2	3.9	19.3	27.4	<3.2	27.4	18.2	7.6	10.6

[1] Moderate; [2] high; and [3] very high pollution levels according to *E. coli* and enterococcus densities and proximity to known sewage sources.
[4] Number in parenthesis ( ) are numbers of usable responses (N).
*p<.05; **p<.01.

TABLE A33. SYMPTOM RATES FOR ALEXANDRIA RESIDENTS AND CAIRO VISITORS AT THE ALEXANDRIA BEACHES IN 1977

Symptom	Study Pop.	Symptom Rates, per 1000 Individuals by Beach and Swimming Status								
		Maamoura[1]			Ibrahemia[2]			Sporting[3]		
		Swim	Nonswim	▲	Swim	Nonswim	▲	Swim	Nonswim	▲
Fever	Visit.[4]	12.9[a]	9.4[c]	3.5	10.4[e]	2.6[g]	7.8	16.7[i]	5.0[k]	11.7
	Resid.	3.3[b]	<1.7[d]	>1.6	6.5[f]	4.0[h]	2.5	13.0[j]	3.14[l]	9.9
Diarrhea or Vomit	Visit.	21.5	22.6	−1.1	25.9	13.0	12.9	51.2	12.4	38.8**
	Resid.	12.2	8.5	3.7	16.2	2.0	14.2	29.6	5.2	24.4**
Upper Resp. Tract	Visit.	18.9	9.4	9.5	23.3	10.4	12.9	33.3	17.4	15.9
	Resid.	19.9	12.6	6.3	14.5	6.0	8.5	13.3	3.4	9.9
Ear	Visit.	3.4	<1.9	>1.5	2.6	<2.6	>0.0	4.8	<2.5	>1.3
	Resid.	2.2	<1.7	>0.5	8.1	<2.0	>6.1	10.4	1.7	8.7
Eye	Visit.	2.6	1.9	0.7	5.2	<2.6	>2.6	4.8	<2.5	>2.3
	Resid.	8.8	<1.8	>7.0	14.5	2.0	12.5	5.9	<1.7	>4.7
Skin	Visit.	17.2	7.5	9.7	25.9	7.8	18.1	25.5	7.4	17.6
	Resid.	19.9	5.1	14.8	24.2	6.0	18.2*	32.6	5.2	27.4

[1] Moderate; [2] high and [3] very high pollution levels according to *E. coli* and enterococcus densities and proximity to known sewage sources.
[4] Rates given are for first weekly follow-up interview; subsequent follow-ups not used because of lower nonswimmer rates, possibly because most nonswimmers may have returned home to Cairo.
N = [a]1165, [b]905, [c]531, [d]587, [e]773, [f]619, [g]386, [h]498, [i]840, [j]675, [k]403, [l]582.

*p<.05; **p<.01.

TABLE A34. SYMPTOM RATES FOR ALEXANDRIA RESIDENTS AND CAIRO VISITORS AT THE ALEXANDRIA BEACHES IN 1978

Symptom	Study Pop.	Symptom Rates, per 1000 Individuals by Beach and Swimming Status								
		Maamoura[1]			Ibrahemia[2]			Sporting[3]		
		Swim	Nonswim	▲	Swim	Nonswim	▲	Swim	Nonswim	▲
Fever	Visit.[4]	4.4[a]	2.7[c]	1.7	17.2[e]	0.7[g]	16.5**	18.9[i]	2.4[k]	15.9**
	Resid.	6.0[b]	<1.6[d]	>4.4	10.9[f]	5.2[h]	5.7	12.0[j]	3.9[l]	8.1
Diarrhea or Vomit	Visit.	17.5	18.1	−0.6	48.3	7.5	40.8**	44.8	7.2	37.6**
	Resid.	10.3	6.5	3.8	21.1	13.0	8.1	19.2	7.8	11.4**
Upper Resp Tract	Visit.	43.0	14.3	34.7**	20.7	6.2	14.5*	28.5	11.5	17.0**
	Resid.	14.5	6.5	8.0	22.7	9.1	13.6*	16.0	13.0	3.0
Ear	Visit.	<2.2	0.5	<1.7	3.4	1.4	2.0	2.2	1.0	1.0
	Resid.	1.7	<1.6	1.7	2.3	2.6	−0.3	3.2	<1.3	3.2
Eye	Visit.	4.4	0.5	3.9	10.3	1.4	8.9	4.2	1.4	1.7
	Resid.	4.3	3.2	1.1	4.7	1.3	3.4	8.0	1.3	6.7
Skin	Visit.	30.6	1.6	29.0**	20.7	3.4	17.3**	36.7	7.7	29.0**
	Resid.	12.8	3.2	9.6	13.3	6.5	6.8*	12.8	6.5	6.3

[1] Moderate; [2] high and [3] very high pollution levels according to *E. coli* and enterococcus densities.

[4] Total rates for first two weekly follow-ups with individuals who swam 1-2 days/week; subsequent follow-ups, of lower nonswimmer rates, possibly because most of nonswimmers may have returned home to Cairo. N = [a] 458, [b] 1169, [c] 1820, [d] 617, [e] 290, [f] 1280, [g] 1461, [h] 770, [i] 491, [j] 1253, [k] 2089, [l] 772. Beach totals will not agree with those given in Table 3 because data from individuals who swam more than 2 days/week are not included in first two weekly follow-ups used.

*$p<0.05$; **$p<0.01$.

TABLE A35. SWIMMING-ASSOCIATED SYMPTOM RATES FOR ALEXANDRIA, EGYPT STUDY

Symptom	Study[1] Pop.	Year	Swimming-Assoc. Rate (Per 1000 Persons[2]) Maamoura	Ibrahemia	Mand. or Sport.
Fever	Resid.	1976	3.2	4.6	2.7
		1977	3.3	2.5	9.9
		1978	6.0	5.7	8.1
	Visit.	1977	3.5	7.8	11.7
		1978	1.7	16.5**	15.9**
	Ave.		3.5	7.4	9.7
Diarrhea or Vomit	Resid.	1976	4.6	12.4	13.7
		1977	3.7	14.2*	24.4**
		1978	3.8	8.1	11.4*
	Visit.	1977	−1.1	12.9	38.8**
		1978	−0.6	40.8**	37.6**
	Ave.		2.1	17.7	25.2
Upper Resp. Tract	Resid.	1976	16.4	41.8**	7.1
		1977	6.3	8.5	9.9
		1978	8.0	13.6**	3.0
	Visit.	1977	9.5	12.9	15.9
		1978	34.7**	14.5*	17.0**
	Ave.		15.0	18.3	10.6
Ear	Resid.	1976	3.2	11.7	7.9
		1977	2.2	8.1	8.7
		1978	1.7	−0.3	3.2
	Visit.	1977	3.4	2.6	4.8
		1978	<1.7	2.0	1.0
	Ave.		2.4	4.8	5.1
Eye	Resid.	1976	21.4*	19.8*	20.8**
		1977	8.8	12.5	5.9
		1978	1.1	3.4	6.7
	Visit.	1977	0.7	5.2	4.8
		1978	3.9	18.9	1.7
	Ave.		7.2	10.0	8.0
Skin	Resid.	1976	19.3	27.4**	10.6
		1977	14.8**	18.2*	27.4**
		1978	9.6	6.8	6.3
	Visit.	1977	9.7	18.1	17.6
		1978	29.0**	17.3**	29.0**
	Ave.		16.5	17.6	18.3

[1] Study populations: Resid.—Alexandria residents; Visit.—Cairo visitors at Alexandria Beaches.

[2] Study beaches: Maamoura (enterococcus density, 10^1-10^2/100 ml); Ibrahemia (enterococcus density, 10^2-10^3; Mandara or Sporting (enterococcus density 10^3-10^4).

*$p<.05$; **$p<.01$ for swimmer versus nonswimmer rates.

TABLE A36. COMPARISON OF NONSWIMMING SYMPTOM RATES FOR 1ST AND 2ND FOLLOW-UP INQUIRIES WITH CAIRO VISITORS DURING 1978 TRIALS

Symptom[1]	Symptom Rates/1000 Nonswimmers by Beach and Follow-up					
	Maamoura		Ibrahemia		Sporting	
	1st	2nd	1st	2nd	1st	2nd
Fever	3.4	2.1	1.6	<1.2	2.2	2.5
Diarrhea or Vomit	30.9	6.3	11.0	4.9	13.3	2.5
Upper Resp. Tract	12.6	15.8	12.0	2.4	17.8	6.7
Skin	3.4	<1.1	3.1	3.6	6.7	8.4

[1] Ear and eye symptoms not included because of small number of cases.

TABLE A37. SYMPTOM RATES PER 1000 PERSON-DAYS FOR CAIRO VISITORS BY THE NUMBER OF SWIMMING DAYS PER WEEK (1978)

Beach	Symptom	Swimming-Associated Rate per 1000 Person-Days[1]		
		1-2	3-4	5-7
Maamoura	N[2]	4.58	470	1017
	Diarrhea or Vomiting	–[3]	2.7	5.5
	Upper Respiratory	22.5	3.8	5.3
	Fever	1.1	1.0	.69
	Ear	–[3]	.45	1.38
	Skin	19.3	6.2	5.3
Ibrahemia	N	290	464	1100
	Diarrhea or Vomiting	27.2	9.6	3.8
	Upper Respiratory	9.7	4.4	3.1
	Fever	11.0	1.7	1.4
	Ear	1.4	1.5	1.7
	Skin	11.5	6.4	2.9
Sporting	N	491	622	1439
	Diarrhea or Vomiting	25.1	5.8	3.9
	Upper Respiratory	11.3	5.9	3.9
	Fever	10.6	1.6	1.8
	Ear	.72	–[3]	1.3
	Skin	19.3	5.6	2.7

[1] For individuals who swam indicated number of days per week. The person-day rates were obtained by calculating the overall rates obtained from the first two follow-up inquiries for nonswimmers and swimmers in the three use categories, subtracting the former from the latter, and dividing the resulting values (swimming-associated rates) by the average number of swimming days in each category, 1.5, 3.5, and 6.

[2] Number of responses for the two follow-ups in each category. The numbers for the nonswimmers at the three beaches were 1820, 1461, and 2089. The totals will not agree with those in Table 3 for the reasons stated in Table A34.

[3] Negative values, nonswimming rate higher than swimming rate.

TABLE A38. SYMPTOM RATES FOR VOMITING AND DIARRHEA AND MEAN INDICATOR DENSITIES FOR ALEXANDRIA, EGYPT STUDY (INPUTS TO FIGURES 4 AND 5)

		Mean Density/ 100 ml		Alexandria Residents					Cairo Visitors[1]				
				N		Symptom Rate/ 1000 Persons			N		Symptom Rate/ 1000 Persons		
Year	Beach	Entero-coccus	*E. coli*	Swim	Nonswim	Swim	Nonswim	▲	Swim	Nonswim	Swim	Nonswim	▲
1976	Maamoura	103	14.6	560	259	16.1	11.5	4.6	ND[2]		ND		
	Ibrahemia	286	184	511	312	15.6	3.2	12.4	ND		ND		
	Mandara	5760	1620	766	397	31.3	17.6	13.7	ND		ND		
1977	Maamoura	72.8	35.3	905	587	12.2	8.5	3.7	1165	531	21.5	22.6	-1.1
	Ibrahemia	211	415	619	498	16.2	2.0	14.2*	773	386	25.9	13.0	12.9
	Sporting	6780	6300	675	582	29.6	5.2	24.4**	840	403	51.2	12.4	38.8**
1978	Maamoura	214	53.1	1169	617	10.3	6.5	3.8	458	1820	17.5	18.1	-0.6
	Ibrahemia	954	668	1280	770	21.1	13.0	8.1	290	1461	48.3	7.5	40.8**
	Sporting	9160	10400	1253	772	19.2	7.8	11.4*	491	2089	44.8	7.2	37.6**

[1] Data from 1st follow-up interview, 1977; data from 1st and 2nd follow-up interviews 1978.
[2] No data.
*$p<0.05$; **$p<0.01$.

TABLE A39. SYMPTOM RATES FOR SWIMMERS AND NONSWIMMERS DURING 1977 LAKE PONTCHARTRAIN TRIALS

Symptom	Symptom Rate/1000 Persons For Swim (N=2647)	Nonswim (N=1131)	▲
Gastrointestinal:			
Vomiting	22**	9	13
Diarrhea	58**	22	36
Stomachache	59**	39	20
Nausea	34	25	9
Respiratory:			
Sore throat	68	61	7
Bad cough	48	42	6
Chest cold	32	28	4
"Other"			
Fever (more than 100° F.)	30	31	–1
Headache (more than few hours)	44	39	5
Backache	16	16	0
Eye, Ear, Nose:			
Runny or stuffed nose	58	58	0
Earache or runny ears	30**	10	20
Red, itchy or watery eyes (more than 1 day), styes	21	18	3
Nonspecific:			
Skin rash, itchy skin, welts	24*	13	11
Sneezing, wheezing, tight chest, breathlessness (5 or more min.)	20	21	–1
Severity:			
Home because of symptoms	68	63	5
In bed because of symptoms	52	45	7
Sought medical help	28	26	2

*p<.05; **p<.01.

TABLE A40. SYMPTOM CATEGORY RATES FOR SWIMMERS AND NONSWIMMERS DURING 1977 LAKE PONTCHARTRAIN TRIALS

Symptom Group	Rate Per 1000 Persons For Swim	Nonswim	▲
Gastrointestinal (1 or more)	101**	59	42
Respiratory (1 or more)	99	90	9
"Other" (1 or more)	73	65	8
Eye, Ear, Nose (1 or more)	92	76	16
Non-specific (1 or more)	48	37	11
Severity (1 or more)	85	69	16
Highly credible GI[1]	40**	15	25

[1]All instances of (1) vomiting or (2) diarrhea with fever or a severe response, or (3) nausea and stomachache with fever.
**Significantly (p<.01) higher than nonswimmers.

TABLE A41. GASTROINTESTINAL SYMPTOM RATES BY AGE FOR 1977 LAKE PONTCHARTRAIN TRIALS

Symptom	Symptom Rate/1000 Persons For Individuals Under Age 10			Age 10 and Older		
	Swim	Nonswim	▲	Swim	Nonswim	▲
Stomachache	74	28	46**	52	39	13
Diarrhea	85	22	63**	49	22	27**
Nausea	34	33	−1	33	23	10
Vomiting	36	22	14	18	6	12**
Combined GI	123	50	73**	94	61	33**
Highly Credible GI	61	28	33*	33	12	21**

*$p<0.05$; **$p<0.01$.

TABLE A42. INDICATOR DENSITIES IN THE BAYOU ST. JOHN AS COMPARED TO THE ROPED-OFF AREA AT LEVEE BEACH ON LAKE PONTCHARTRAIN (1977)

Trial	Mean Indicator Density Per 100 ml: Enteroccocci Bayou	Enteroccocci Roped Area	Enteroccocci Ratio	*Escherichia coli* Bayou	*Escherichia coli* Roped Area	*Escherichia coli* Ratio	Daily Rainfall (inches)
1	446	136	3.3	764	64	11.9	.15
3	273	228	1.2	89.6	32.5	2.8	.00
4	114	314	.36	147.0	32.9	4.5	.18
5	850	632	1.3	92.3	241.0	.38	.87
6	699	169	4.1	80.0	155.0	.52	.03
7	40.3	34.2	1.2	2650.0	4336.0	.61	.44
8	39.6	17.3	2.3	518.0	597.0	.87	.43
9	311.0	11.1	28.0	4632.0	3930.0	1.2	.84
10	211.0	17.3	12.2	1173.0	858.0	1.4	.88
11	45.2	33.5	1.3	3359.0	5676.0	.59	1.21
12	56.0	63.0	.89	289.0	650.0	.44	1.10
13	9.7	9.9	1.0	3481.0	1657.0	2.1	1.08
15	76.6	10.9	7.0	2942.0	531.0	5.5	3.18
16	126.0	62.1	2.0	625.0	351.0	1.8	.8