

Epidemiology and Infection: Use of gender distribution in routine surveillance data to detect potential transmission of gastrointestinal infections among men who have sex with men in England

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Supplementary material

S 1. Cases aged 16 to 65 years diagnosed with *Shigella* spp. infection with no reported travel history, by sex, male-to-female ratio and percentage male for age groups and high and low-risk locations, England, 2003–2013

Age group or location	Sex, m:f ratio & percent-age male	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	Total	p value†
<16 years	Female	107	114	124	105	123	133	122	145	132	125	99	1329	0.388
	Male	99	134	125	120	124	150	130	159	158	130	118	1447	
	Ratio	0.9	1.2	1.0	1.1	1.0	1.1	1.1	1.1	1.2	1.0	1.2	1.1	
	Percentage (95% CI)	48.1 (41.1-55.1)	54 (47.6-60.4)	50.2 (43.8-56.6)	53.3 (46.6-60.0)	50.2 (43.8-56.6)	53.0 (47.0-58.9)	51.6 (45.2-57.9)	52.3 (46.5-58)	54.5 (48.6-60.3)	51.0 (44.7-57.3)	54.4 (47.5-61.1)	52.1 (50.2-54)	
16-24 years	Female	50	90	88	78	108	80	137	117	74	42	53	917	<0.001
	Male	44	43	52	29	71	71	54	63	63	69	76	635.0	
	Ratio	0.9	0.5	0.6	0.4	0.7	0.9	0.4	0.5	0.9	1.6	1.4	0.7	
	Percentage (95% CI)	46.8 (36.4-57.4)	32.3 (24.5-41)	37.1 (29.1-45.7)	27.1 (19.0-36.6)	39.7 (32.4-47.2)	47.0 (38.9-55.3)	28.3 (22.0-35.2)	35.0 (28.1-42.4)	46.0 (37.4-54.7)	62.2 (52.5-71.2)	58.9 (49.9-67.5)	40.9 (38.5-43.4)	
25-49 years	Female	224	236	310	278	366	317	349	335	256	199	186	3056	<0.001
	Male	186	265	269	208	280	270	324	454	393	475	541	3665	
	Ratio	0.8	1.1	0.9	0.7	0.8	0.9	0.9	1.4	1.5	2.4	2.9	1.2	
	Percentage (95% CI)	45.4 (40.5-50.3)	52.9 (48.4-57.3)	46.5 (42.3-50.6)	42.8 (38.4-47.3)	43.3 (39.5-47.3)	46.0 (41.9-50.1)	48.1 (44.3-52.0)	57.5 (54.0-61.0)	60.6 (56.7-64.3)	70.5 (66.9-73.9)	74.4 (71.1-77.6)	54.5 (53.3-55.7)	
50-65 years	Female	68	84	112	91	134	130	126	159	104	73	63	1144	<0.001
	Male	43	105	79	82	99	116	87	132	126	96	124	1089	
	Ratio	0.6	1.3	0.7	0.9	0.7	0.9	0.7	0.8	1.2	1.3	2.0*	1.0	
	Percentage (95% CI)	38.7 (29.6-48.5)	55.6 (48.2-62.8)	41.4 (34.3-48.7)	47.4 (39.8-55.1)	42.5 (36.1-49.1)	47.2 (40.8-53.6)	40.8 (34.2-47.8)	45.4 (39.5-51.3)	54.8 (48.1-61.3)	56.8 (49.0-64.4)	66.3 (59.1-73.0)	48.8 (46.7-50.9)	
Brighton, London or Manchester	Female	92	116	136	112	147	147	166	136	149	124	117	1442	<0.001
	Male	107	174	125	111	155	161	194	277	270	359	470	2403	
	Ratio	1.2	1.5	0.9	1.0	1.1	1.1	1.2	2.0	1.8	2.9	4.0	1.7	
	Percentage (95% CI)	53.8 (46.6-60.8)	60 (54.1-65.7)	47.9 (41.7-54.1)	49.8 (43.0-56.5)	51.3 (45.5-57.1)	52.3 (46.5-58.0)	53.9 (48.6-59.1)	67.1 (62.3-71.6)	64.4 (59.6-69.0)	74.3 (70.2-78.2)	80.1 (76.6-83.2)	62.5 (60.9-64)	
Other location	Female	250	294	374	335	461	380	446	475	285	190	185	3675	<0.001
	Male	166	239	275	208	295	296	271	372	312	281	271	2986	
	Ratio	0.7	0.8	0.7	0.6	0.6	0.8	0.6	0.8	1.1	1.5	1.5	0.8	
	Percentage (95% CI)	39.9 (35.2-44.8)	44.8 (40.6-49.2)	42.4 (38.5-46.3)	38.3 (34.2-42.5)	39.0 (35.5-42.6)	43.8 (40.0-47.6)	37.8 (34.2-41.5)	43.9 (40.5-47.3)	52.3 (48.2-56.3)	59.7 (55.1-64.1)	59.4 (54.8-64.0)	44.8 (43.6-46)	

†Chi-squared test for linear trend; CI, Confidence Interval; *Met threshold on rounding up.

Ratios above a threshold of two or where the percentage male has a lower confidence interval above 50% are shaded.

S 2. Cases aged 16 to 65 years diagnosed with *Entamoeba histolytica* infection with no reported travel history, by sex, male-to-female ratio and percentage male for age groups and high and low-risk locations, England, 2003–2013

Age group or location	Sex, m:f ratio & percentage male	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	Total	p value†
<16 years	Female	9	3	2	3	6	2	4	3	4	7	4	47	0.325
	Male	6	3	5	5	4	12	5	7	9	8	2	66	
	Ratio	0.7	1.0	2.5	1.7	0.7	6.0	1.3	2.3	2.3	1.1	0.5	1.4	
	Percentage (95% CI)	40.0 (16.3-67.7)	50.0 (11.8-88.2)	71.4 (29.0-96.3)	62.5 (24.5-91.5)	40.0 (12.2-73.8)	85.7 (57.2-98.2)	55.6 (21.2-86.3)	70.0 (34.8-93.3)	69.2 (38.6-90.9)	53.3 (26.6-78.7)	33.3 (4.3-77.7)	58.4 (48.8-67.6)	
16-24 years	Female	13	13	11	4	5	9	3	8	6	11	3	86	0.86
	Male	12	12	13	8	6	7	7	6	10	14	7	102.0	
	Ratio	0.9	0.9	1.2	2.0	1.2	0.8	2.3	0.8	1.7	1.3	2.3	1.2	
	Percentage (95% CI)	48.0 (27.8-68.7)	48.0 (27.8-68.7)	54.2 (32.8-74.4)	66.7 (34.9-90.1)	54.5 (23.4-83.3)	43.8 (19.8-70.1)	70.0 (34.8-93.3)	42.9 (17.7-71.1)	62.5 (35.4-84.8)	56.0 (34.9-75.6)	70.0 (34.8-93.3)	54.3 (46.8-61.5)	
25-49 years	Female	35	44	38	30	18	38	20	19	21	35	20	318	0.313
	Male	102	114	93	87	55	57	49	37	68	70	37	769	
	Ratio	2.9	2.6	2.4	2.9	3.1	1.5	2.5	1.9	3.2	2.0	1.9	2.4	
	Percentage (95% CI)	74.5 (66.3-81.5)	72.2 (64.5-79)	71.0 (62.4-78.6)	74.4 (65.5-82)	75.3 (63.9-84.7)	60.0 (49.4-69.9)	71.0 (58.8-81.3)	66.1 (52.2-78.2)	76.4 (66.2-84.8)	66.7 (56.8-75.6)	64.9 (51.1-77.1)	70.7 (67.9-73.4)	
50-65 years	Female	8	14	12	14	10	4	6	3	7	10	9	97	0.574
	Male	20	24	29	15	16	12	14	10	30	20	19	209	
	Ratio	2.5	1.7	2.4	1.1	1.6	3.0	2.3	3.3	4.3	2.0	2.1	2.2	
	Percentage (95% CI)	71.4 (51.3-86.8)	63.2 (46.0-78.2)	70.7 (54.5-83.9)	51.7 (32.5-70.6)	61.5 (40.6-79.8)	75.0 (47.6-92.7)	70.0 (45.7-88.1)	76.9 (46.2-95)	81.1 (64.8-92)	66.7 (47.2-82.7)	67.9 (47.6-84.1)	68.3 (62.8-73.5)	
Brighton, London or Manchester	Female	27	30	40	10	4	8	7	12	12	19	10	179	0.132
	Male	76	88	88	70	22	24	25	20	41	43	22	519	
	Ratio	2.8	2.9	2.2	7.0	5.5	3.0	3.6	1.7	3.4	2.3	2.2	2.9	
	Percentage (95% CI)	73.8 (64.2-82.0)	74.6 (65.7-82.1)	68.8 (60.0-76.6)	87.5 (78.2-93.8)	84.6 (65.1-95.6)	75.0 (56.6-88.5)	78.1 (60.0-90.7)	62.5 (43.7-78.9)	77.4 (63.8-87.7)	69.4 (56.3-80.4)	68.8 (50.0-83.9)	74.4 (70.9-77.6)	
Other location	Female	29	41	21	38	29	43	22	18	22	37	22	322	0.100
	Male	58	62	47	40	55	52	45	33	67	61	41	561	
	Ratio	2.0	1.5	2.2	1.1	1.9	1.2	2.0	1.8	3.0	1.6	1.9	1.7	
	Percentage (95% CI)	66.7 (55.7-76.4)	60.2 (50.1-69.7)	69.1 (56.7-79.8)	51.3 (39.7-62.8)	65.5 (54.3-75.5)	54.7 (44.2-65.0)	67.2 (54.6-78.2)	64.7 (50.1-77.6)	75.3 (65.0-83.8)	62.2 (51.9-71.8)	65.1 (52.0-76.7)	63.5 (60.3-66.7)	

†Chi-squared test for linear trend; CI, Confidence Interval. Ratios above a threshold of two or where the percentage male has a lower confidence interval above 50% are shaded.

S3. Cases aged 16 to 65 years diagnosed with Hepatitis A infection with no reported travel history, by sex, male-to-female ratio and percentage male for age groups and high and low-risk locations, England, 2003–2013

Age group or location	Sex, m:f ratio & percentage male	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	Total	p value†
<16 years	Female	82	49	28	50	26	37	19	33	26	28	33	411	0.635
	Male	79	53	37	39	27	36	40	44	30	31	25	441	
	Ratio	1.0	1.1	1.3	0.8	1.0	1.0	2.1	1.3	1.2	1.1	0.8	1.1	
	Percentage (95% CI)	49.1 (41.1-57.1)	52.0 (41.8-62.0)	56.9 (44.0-69.2)	43.8 (33.3-54.7)	50.9 (36.8-64.9)	49.3 (37.4-61.3)	67.8 (54.4-79.4)	57.1 (45.4-68.4)	53.6 (39.7-67.0)	52.5 (39.1-65.7)	43.1 (30.2-56.8)	51.8 (48.3-55.2)	
16-24 years	Female	93	37	22	21	26	49	31	21	12	12	22	346	<0.001
	Male	205	52	43	46	27	52	38	33	17	25	11	549.0	
	Ratio	2.2	1.4	2.0*	2.2	1.0	1.1	1.2	1.6	1.4	2.1	0.5	1.6	
	Percentage (95% CI)	68.8 (63.2-74.0)	58.4 (47.5-68.8)	66.2 (53.4-77.4)	68.7 (56.2-79.4)	50.9 (36.8-64.9)	51.5 (41.3-61.6)	55.1 (42.6-67.1)	61.1 (46.9-74.1)	58.6 (38.9-76.5)	67.6 (50.2-82.0)	33.3 (18.0-51.8)	61.3 (58.1-64.5)	
25-49 years	Female	119	67	45	40	98	165	73	27	27	37	40	738	<0.001
	Male	289	188	141	79	105	182	83	80	46	43	42	1278	
	Ratio	2.4	2.8	3.1	2.0*	1.1	1.1	1.1	3.0	1.7	1.2	1.1	1.7	
	Percentage (95% CI)	70.8 (66.2-75.2)	73.7 (67.9-79.0)	75.8 (69-81.8)	66.4 (57.2-74.8)	51.7 (44.6-58.8)	52.4 (47.0-57.8)	53.2 (45.1-61.2)	74.8 (65.4-82.7)	63.0 (50.9-74.0)	53.8 (42.2-65.0)	51.2 (39.9-62.4)	63.4 (61.2-65.5)	
50-65 years	Female	32	31	31	23	35	46	36	17	13	17	21	302	0.143
	Male	43	43	43	34	27	51	30	28	19	20	13	351	
	Ratio	1.3	1.4	1.4	1.5	0.8	1.1	0.8	1.6	1.5	1.2	0.6	1.2	
	Percentage (95% CI)	57.3 (45.4-68.7)	58.1 (46.1-69.5)	58.1 (46.1-69.5)	59.6 (45.8-72.4)	43.5 (31.0-56.7)	52.6 (42.2-62.8)	45.5 (33.1-58.2)	62.2 (46.5-76.2)	59.4 (40.6-76.3)	54.1 (36.9-70.5)	38.2 (22.2-56.4)	53.8 (49.8-57.6)	
Brighton, London or Manchester	Female	18	18	14	14	68	197	59	12	21	21	36	478	0.001
	Male	49	37	38	25	52	191	53	36	27	24	30	562	
	Ratio	2.7	2.1	2.7	1.8	0.8	1.0	0.9	3.0	1.3	1.1	0.8	1.2	
	Percentage (95% CI)	73.1 (60.9-83.2)	67.3 (53.3-79.3)	73.1 (59-84.4)	64.1 (47.2-78.8)	43.3 (34.3-52.7)	49.2 (44.1-54.3)	47.3 (37.8-57.0)	75.0 (60.4-86.4)	56.3 (41.2-70.5)	53.3 (37.9-68.3)	45.5 (33.1-58.2)	54.0 (51.0-57.1)	
Other location	Female	226	117	84	70	91	63	81	53	31	45	47	908	<0.001
	Male	488	246	189	134	107	94	98	105	55	64	36	1616	
	Ratio	2.2	2.1	2.3	1.9	1.2	1.5	1.2	2.0*	1.8	1.4	0.8	1.8	
	Percentage (95% CI)	68.3 (64.8-71.7)	67.8 (62.7-72.6)	69.2 (63.4-74.7)	65.7 (58.7-72.2)	54.0 (46.8-61.1)	59.9 (51.8-67.6)	54.7 (47.2-62.2)	66.5 (58.5-73.8)	64.0 (52.9-74.0)	58.7 (48.9-68.1)	43.4 (32.5-54.7)	64.0 (62.1-65.9)	

†Chi-squared test for linear trend; CI, Confidence Interval; *Met threshold on rounding up.

Ratios above a threshold of two or where the percentage male has a lower confidence interval above 50% are shaded.

S 4. Cases aged 16 to 65 years diagnosed with typhoidal *Salmonella* spp. infection with no reported travel history, by sex, male-to-female ratio and percentage male for age groups and high and low-risk locations, England, 2003–2013

Age group or location	Sex, m:f ratio & percentage male	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	Total	p value†
<16 years	Female	19	14	16	21	21	20	43	21	22	11	4	212	0.373
	Male	23	21	24	19	42	22	22	31	18	13	10	245	
	Ratio	1.2	1.5	1.5	0.9	2.0	1.1	0.5	1.5	0.8	1.2	2.5	1.2	
	Percentage (95% CI)	54.8 (38.7-70.2)	60 (42.1-76.1)	60 (43.3-75.1)	47.5 (31.5-63.9)	66.7 (53.7-78.0)	52.4 (36.4-68.0)	33.8 (22.6-46.6)	59.6 (45.1-73.0)	45 (29.3-61.5)	54.2 (32.8-74.4)	71.4 (41.9-91.6)	53.6 (48.9-58.3)	
16-24 years	Female	11	13	12	13	17	21	19	20	17	11	13	167	0.073
	Male	23	12	17	20	26	25	24	29	20	7	8	211	
	Ratio	2.1	0.9	1.4	1.5	1.5	1.2	1.3	1.5	1.2	0.6	0.6	1.3	
	Percentage (95% CI)	67.6 (49.5-82.6)	48 (27.8-68.7)	58.6 (38.9-76.5)	60.6 (42.1-77.1)	60.5 (44.4-75.0)	54.3 (39.0-69.1)	55.8 (39.9-70.9)	59.2 (44.2-73.0)	54.1 (36.9-70.5)	38.9 (17.3-64.3)	38.1 (18.1-61.6)	55.8 (50.7-60.9)	
25-49 years	Female	21	30	37	43	45	50	39	33	43	24	25	390	0.463
	Male	38	34	51	72	46	65	54	55	47	30	31	523	
	Ratio	1.8	1.1	1.4	1.7	1	1.3	1.4	1.7	1.1	1.3	1.2	1.3	
	Percentage (95% CI)	64.4 (50.9-76.4)	53.1 (40.2-65.7)	58.0 (47.0-68.4)	62.6 (53.1-71.5)	50.5 (39.9-61.2)	56.5 (47.0-65.7)	58.1 (47.4-68.2)	62.5 (51.5-72.6)	52.2 (41.4-62.9)	55.6 (41.4-69.1)	55.4 (41.5-68.7)	57.3 (54.0-60.5)	
50-65 years	Female	4	11	5	12	11	12	13	7	12	9	8	104	0.114
	Male	8	9	8	8	12	10	9	7	7	4	6	88	
	Ratio	2	0.8	1.6	0.7	1.1	0.8	0.7	1	0.6	0.4	0.8	0.8	
	Percentage (95% CI)	66.7 (34.9-90.1)	45.0 (23.1-68.5)	61.5 (31.6-86.1)	40.0 (19.1-63.9)	52.2 (30.6-73.2)	45.5 (24.4-67.8)	40.9 (20.7-63.6)	50.0 (23.0-77.0)	36.8 (16.3-61.6)	30.8 (9.1-61.4)	42.9 (17.7-71.1)	45.8 (38.6-53.2)	
Brighton, London or Manchester	Female	20	31	19	39	40	44	31	34	38	26	21	343	0.199
	Male	41	31	39	45	41	62	36	58	47	19	24	443	
	Ratio	2.1	1	2.1	1.2	1	1.4	1.2	1.7	1.2	0.7	1.1	1.3	
	Percentage (95% CI)	67.2 (54.0-78.7)	50.0 (37.0-63.0)	67.2 (53.7-79.0)	53.6 (42.4-64.5)	50.6 (39.3-61.9)	58.5 (48.5-68.0)	53.7 (41.1-66.0)	63.0 (52.3-72.9)	55.3 (44.1-66.1)	42.2 (27.7-57.8)	53.3 (37.9-68.3)	56.4 (52.8-59.9)	
Other location	Female	16	23	35	29	33	39	40	26	34	18	25	318	0.094
	Male	28	24	37	55	43	38	51	33	27	22	21	379	
	Ratio	1.8	1	1.1	1.9	1.3	1	1.3	1.3	0.8	1.2	0.8	1.2	
	Percentage (95% CI)	63.6 (47.8-77.6)	51.1 (36.1-65.9)	51.4 (39.3-63.3)	65.5 (54.3-75.5)	56.6 (44.7-67.9)	49.4 (37.8-61.0)	56.0 (45.2-66.4)	55.9 (42.4-68.8)	44.3 (31.5-57.6)	55.0 (38.5-70.7)	45.7 (30.9-61.0)	54.4 (50.6-58.1)	

†Chi-squared test for linear trend; CI, Confidence Interval.

Ratios above a threshold of two or where the percentage male has a lower confidence interval above 50% are shaded.