

# Shiga Toxin–Producing *Escherichia coli* O157, England and Wales, 1983–2012

## Technical Appendix

**Technical Appendix Table.** Reported outbreaks of Shiga toxin–producing *Escherichia coli* O157, England and Wales, 1983–2012\*

Year	No. outbreaks†	Phage type (no. outbreaks where known)	No. VTEC cases	No. HUS cases‡	Implicated vehicle§ (no. outbreaks)	References
1983	1	2 (1)	Unknown	35	Unknown (1)	(1)
1984	0	–	–	–	–	
1985	1	2 (1)	49	0	Raw potatoes (1)	
1986	0	–	–	–	–	
1987	1	2 (1)	26	0	Turkey roll (1)	
1988	0	–	–	–	–	
1989	1	49 (1)	8	1	Unknown (1)	
1990	3	2 (1), 4 (1), 14 (1)	18	3	Unknown (1)	(2)
1991	4	14 (1), 31 (1), 49 (2)	56	8	Yoghurt (1), beef burger (1), person to person (1), unknown (1)	(2)
1992	6	1 (1), 2 (5)	82	5	Cooked meat (1), unknown (5)	(2–6)
1993	7	2 (3), 28 (1), 49 (3)	65	13	Beef (1), beef burger (1), raw milk (1), unknown (4)	(2–6)
1994	6	2 (1), 4 (1), 49 (2), RDNC (1), unknown (1)	37	6	Direct animal contact (2), person to person (1), unknown (3)	(2–6)
1995	11	1 (1), 2 (7), 49 (2), RDNC (1)	141	11	Salad (1), meat (3), person to person (4), unknown foodborne (1), unknown (2)	(2,4–8)
1996	17	1 (2), 2 (5), 8 (3), 12 (1), 21/28 (4), 32 (1), unknown (1)	98	2	Animal contact (1), person to person (1), milk (2), meat (4), mixed food (2), raw vegetables (1), unknown foodborne (3), unknown (3)	(2,4–6,9,10)
1997	25	2 (13), 8 (5), 49 (1), 21/28 (6)	163	9	Animal contact (6), cheese (1), milk (2), salad (1), person to person (5), water (1), unknown foodborne (4), unknown (5)	(2,5,6,11,12)
1998	20	2 (7), 4 (1), 8 (3), 14 (2), 21 (1), 32 (1), 38 (1), 21/28 (3), unknown (1)	89	0	Animal contact (2), person to person (5), meat (2), cream (1), milk (1), unknown foodborne, water (2), unknown (6)	(2,5,6,13,14)
1999	19	2 (3), 4 (2), 8 (2), 31 (1), 33 (1), 43 (1), 21/28 (9)	236	15	Animal contact (3), person to person (3), water (1), meat (3), milk (3), cheese (1), unknown foodborne (2), unknown (3)	(5,6,15–21)
2000	23	1 (1), 2(2), 8 (4), 14 (1), 32 (2), 21/28 (10), RDNC (1), unknown (2)	180	11	Animal contact (3), meat (5), milk (3), person to person (7), unknown foodborne (1), unknown (4)	(5,6,22)
2001	18	2 (3), 8 (1), 21/28 (13), unknown (1)	127	6	Animal contact (3), person to person (9), water (2), meat (2), unknown foodborne (1), unknown (1)	(23)
2002	9	2 (2), 4 (2), 34 (1), 21/28 (3), RDNC (1)	73	2	Animal contact (1), milk (1), salad (1), person to person (5), water (1)	
2003	10	2 (1), 8 (2), 50 (1), 21/28 (3), RDNC (1), unknown (1)	82	0	Animal contact (5), meat (1), person to person (3), unknown (1)	
2004	15	2 (5), 21/28 (9), unknown (1)	92	4	Animal contact (4), meat (2), person to person (3), water (3), unknown (3)	(24,25)
2005	15	2 (1), 8 (1), 33 (1), 21/28 (10), unknown (2)	233	6	Animal contact (3), meat (1), unknown foodborne (2), person to person (5), unknown (4)	(26)
2006	12	2 (1), 8 (4), 28/28 (6), 4 & 21/28 (1)	151	0	Animal contact (1), meat (1), unknown foodborne (3), person to person (5), water (2)	
2007	14	2 (5), 4 (1), 8 (2), 21/28 (4), RDNC (1), 32 & 8 (1)	117	3	Animal contact (2), meat (1), unknown foodborne (1), person to person (9), unknown (1)	(27,28)

Year	No. outbreaks†	Phage type (no. outbreaks where known)	No. VTEC cases	No. HUS cases‡	Implicated vehicle§ (no. outbreaks)	References
2008	17	2 (2), 8 (1), 33 (3), 34 (1), 21/28 (7), RDNC (1), mixed unknown (1), unknown (1)	132	4	Animal contact (4), unknown foodborne (4), person to person (6), water (1), unknown (2)	
2009	25	2 (5), 8 (4), 14 (1), 32 (2), 21/28 (9), 2 & 8 (1), 2 & 54 (1), 31 & 42 (1), 34 & 54 (1)	280	30	Animal contact (11), meat (2), unknown foodborne (6), person to person (2), laboratory acquired (1), unknown (3)	(29,30)
2010	17	1 (2), 2 (1), 4 (2), 8 (3), 14 (1), 21/28 (5), 1 & 21/28 (1), 21/28 & 31 (1), 21/28 & RDNC (1)	100	3	Animal contact (7), unknown foodborne (1), person to person (5), unknown (4)	
2011	20	2 (2), 8 (3), 34, 51, 21/28 (12), RDNC	369	7	Animal contact (1), sandwiches (2), crab (1), leeks (1), ice cream (1), unknown foodborne (4), laboratory acquired (1), person to person (6), unknown (3)	(31,32)
2012	18	2, 4 (2), 8 (4), 32, 54, 21/28 (8), 32	103	5	Animal contact (4), environmental (2), meat (2), unknown foodborne (2), person to person (7), unknown (1)	
Total	335		3,107	189		

\*HUS, hemolytic-uremic syndrome; STEC, Shiga toxin-producing *Escherichia coli*; VTEC, Vero cytotoxin-producing *E. coli*.

†In 1997, national protocols for the detection of VTEC in England were amended so that fecal specimens from all patients with symptoms of gastrointestinal infection, including mild diarrhea, were tested for VTEC. Before this time, specimens from persons with HUS or hemorrhagic colitis only were tested, which accounts for the apparent increase in outbreaks reported after 1996.

‡Data on cases of HUS as reported on 1) laboratory referral forms; 2) within published outbreak investigation reports, and 3) from the National Enhanced Surveillance System for VTEC in England (for 2009–2013). These data have not been collected systematically and will underestimate the true number of HUS cases and should be interpreted with caution.

§Implicated vehicles are those reported in the surveillance systems and/or publications described. Varying levels of evidence will have been available in different investigations. Data presented here reflect the conclusions of the outbreak investigations.

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