



# Health Protection Report

weekly report

Volume 3 Number 10 Published on: 13 March 2009

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## News

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### Mumps increase in university students

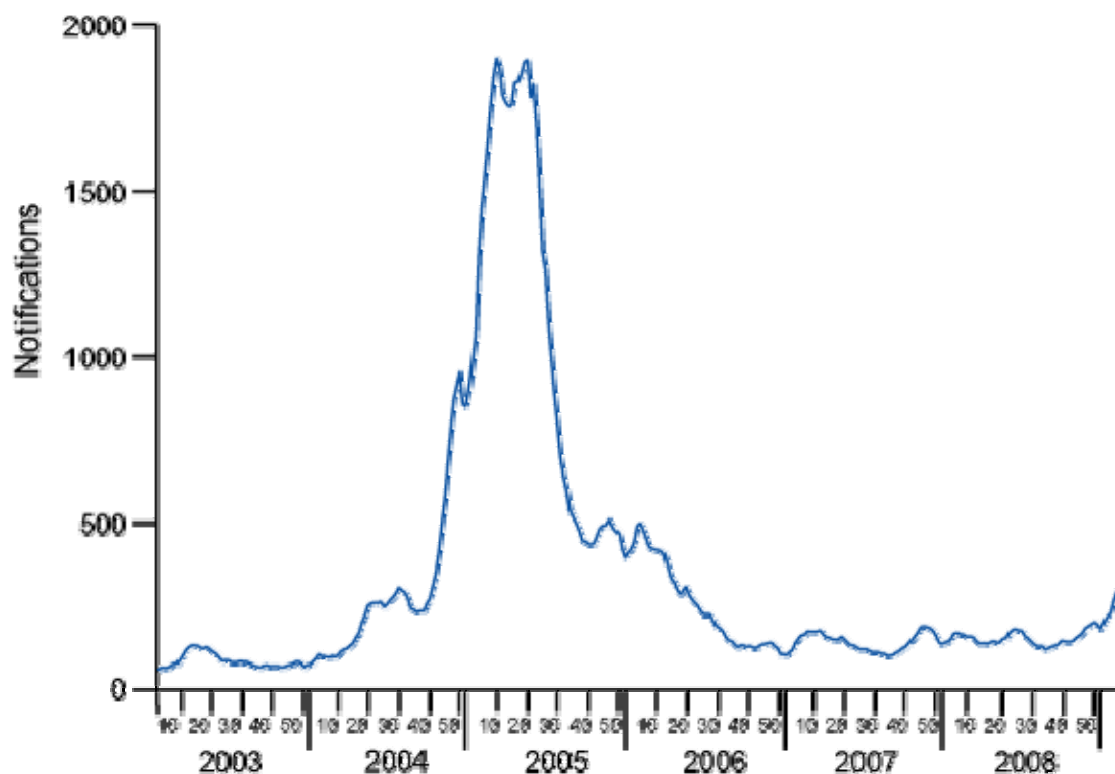
The number of mumps cases notified in England and Wales has increased in the first part of 2009 (see figure), in association with outbreaks in several universities and colleges. This is the first such increase since the large epidemic of mumps that affected university students in academic years 2004/5 and 2005/6. Subsequently, numbers were lower – in 2006/7 and 2007/8 – but now appear to have increased slightly again in 2008/9 [1-4].

The provisional total of confirmed mumps cases in 2008 was 2440, higher than 2007 (1476) but much lower than the total for 2005 (43,378). Cases were reported from all English regions and Wales with the highest totals from the South East (670), the North West (395) and London (393). In line with the high number of notified cases, there was a provisional total of 265 laboratory confirmed cases of mumps in England and Wales with onset in January 2009.

The previous epidemic was attributed to a cohort of young adults, born between 1981 and 1990, who were at increased risk of mumps. These individuals were born before the implementation of the two-dose MMR programme and had therefore either received no MMR vaccine, or only one dose. As control of mumps was excellent after 1990, this group remained susceptible and once in the university or college setting, transmission of mumps was facilitated.

During 2008, 1542 (63%) of confirmed cases were in those born between 1981 and 1990, suggesting that the reason for the current increase is similar to those in the previous period. Only 309 (12%) of cases were in individuals born after 1990, suggesting that the current two dose schedule is effective in controlling mumps.

**Figure: Five-week moving average of mumps notifications in England and Wales, 2008-2009**



## References

1. Savage E, Ramsay M, White J, Beard S, Lawson H, Hunjan R, et al. Mumps outbreaks across England and Wales in 2004: observational study. *BMJ* 2005; **330**(7500):1119-20.
  2. HPA. Changes in laboratory testing as the increase in mumps cases in England and Wales continues. *Commun Dis Rep CDR Wkly* [serial online] 2005 [cited 13 March 2009]; 15 (5): news. Available at: <http://www.hpa.org.uk/cdr/archives/archive05/News/news0505.htm#mumps>.
  3. HPA. Decrease in mumps notifications in England and Wales. *Commun Dis Rep CDR Wkly* [serial online] 2006 [cited 13 March 2009]; 16 (51): news. Available at: <http://www.hpa.org.uk/cdr/archives/archive06/News/news0806.htm>.
  4. Centers for Disease Control and Prevention. Mumps epidemic – United Kingdom, 2004-2005. *MMWR Morb Mortal Wkly Rep* [serial online]2006; **55**(7):173-5.
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## Investigation at Fat Duck Restaurant

The Health Protection Agency is leading the investigation into an outbreak of diarrhoea and vomiting associated with the Fat Duck restaurant in Berkshire. The Agency's Thames Valley Health Protection Unit (HPU) is working with the Royal Borough of Windsor and Maidenhead Environmental Health Department.

The aim is to establish the source of the illness and make recommendations to ensure any further risk is reduced as much as possible. The investigation has two elements:

- Examining samples of foodstuffs from the restaurant; samples taken from people who reported being ill after eating there; samples from all members of staff; and a risk assessment of all food storage, preparation and cooking processes. Experts from the HPA Centre for Infections are assisting by offering sensitive laboratory tests to look at possible contamination of foodstuffs by germs – either bacterial or viral – which could have occurred at any time from before supply to the restaurant to reaching the plate; and
- Investigating the characteristics of all the individuals affected: their symptoms and the food they ate. The Agency also plans to do further studies among all those who ate at the restaurant during this time, whether they reported being ill or not.

The restaurant's management is co-operating fully with the investigation and closed voluntarily after a number of people reported being ill soon after eating at the restaurant in Bray. The number of possible cases reported to the restaurant has risen since media coverage of the outbreak, to around 400 going back to late January and mostly through February.

The Agency advised managers of the restaurant that they could reopen on 12 March as they agreed to comply with recommendations made after a full risk assessment was carried out by Thames Valley HPU and environmental health officers.

Preliminary findings from the investigation have informed the advice given so far, although the investigation is ongoing. So far no one source has been identified. Results of some tests are still awaited and the detailed questioning of people who reported illness is likely to continue for some weeks in order to build a more complete picture.

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### General outbreaks of foodborne illness in humans, England and Wales: weeks 05-08/2009

Preliminary information has been received about the following outbreaks.

Health Protection Unit	Organism	Location of food prepared or served	Month of outbreak	Number ill	Cases positive	Suspect vehicle	Evidence
East Midlands	<i>Salmonella</i> Agbeni	Restaurant	February	4	4	–	–
HPU Surrey	<i>Salmonella</i> Enteritidis PT 14B	Residential institution	February	8	8	–	–

## Salmonella infections (faecal specimens), England and Wales: reports to the HPA (Salmonella data set), January 2009

Details of 412 serotypes of salmonella infections recorded in January 2009 are given in the table below. In February 2009, 218 salmonella infections were recorded and preliminary information was received about two outbreaks (see table above).

Organism	Cases January 2009
S. Enteritidis PT4	26
S. Enteritidis (other PTs)	84
S. Typhimurium	114
S. Virchow	19
Others (typed)	169
Total Salmonella (provisional data)	412

## Common gastrointestinal infections, England and Wales: laboratory reports: weeks 05-08/09

Laboratory reports	Number of reports received				Total reports 05-08/09	Cumulative total	
	05/09	06/09	07/09	08/09		01-08/09	01-08/08
<i>Campylobacter</i>	759	747	730	655	2891	5360	4767
<i>Escherichia coli</i> O157 *	1	5	5	14	25	n/a	31
<i>Salmonella</i> †	90	58	73	67	288	664	935
<i>Shigella sonnei</i>	26	19	6	10	61	124	57
Rotavirus	442	516	669	785	2412	3255	2152
Norovirus	313	291	278	211	1093	2630	1691
Cryptosporidium	20	29	34	28	111	271	228
Giardia	44	49	53	41	187	377	395

\*Vero cytotoxin-producing isolates (data from Health Protection Agency's Laboratory of Gastrointestinal Pathogens - LGP).

† Data from Laboratory of Gastrointestinal Pathogens.

## General outbreaks of foodborne illness in humans (quarterly report), England and Wales: July to September 2008

Table 1 Final information on general outbreaks of foodborne illness: July to September 2008

Health Protection Unit	Organism	Location of food prepared or served	Number ill	Cases positive	Suspect vehicle	Evidence
West Midlands	<i>Salmonella</i> Enteritidis PT4	Restaurant	32	32	Tiramisu made with raw shell egg	M,D
SW Peninsula	S. Enteritidis PT6	Residential Institution	9	9	Egg	M
Norfolk, Suffolk & Cambridshire	S. Enteritidis PT6	Residential Institution	4	4	Egg	D
West Midlands	S. Enteritidis PT12	Residential Institution	2	2	–	–
County Durham & Tees	S. Enteritidis PT14B	Restaurant	5	4	–	–
SW London	S. Typhimurium DT104	Retailer	16	16	Beef biltong	S
South Yorkshire	S. Typhimurium PT193	Restaurant	16	9	Egg mayonnaise sandwich	S

\* M (microbiological): identification of an organism of the same type from cases and in the suspect vehicle, or vehicle ingredient(s), or detection of toxin in faeces or food; D (descriptive): other evidence, usually descriptive, reported by local investigators as indicating the suspect vehicle or food; S (statistical): a significant statistical association between consumption of the suspect vehicle(s) and being a case.

## Salmonella serotypes recorded in the Health Protection Agency salmonella data set: October to December 2008 (provisional)

All serotypes recorded in the HPA salmonella data set in the fourth quarter of 2008 are listed below. There were more than 10 reports of 30 serotypes, two to 10 reports of 58 serotypes, and one report of 65 serotypes

### More than 10 reports of the following serotypes were received: October to December 2008

Serotype	No. of Reports
S. Agona	32
S. Anatum	13
S. Arizonae	11
S. Bareilly	13
S. Braenderup	12
S. Enteritidis	876
S. Hadar	26
S. Haifa	21
S. Infantis	21
S. Java	39
S. Kentucky	26
S. Kottbus	12

S. Manhattan	11
S. Mikawasima	36
S. Newport	43
S. Oranienburg	13
S. Senftenberg	17
S. Stanley	24
S. Typhimurium	410
S. Unnamed	70
S. Virchow	80

**Between two and ten reports of each of the following serotypes were received: October to December 2008**

S. Aberdeen	2
S. Adelaide	3
S. Adjame	2
S. Agama	5
S. Albany	2
S. Blockley	5
S. Bovis-Morbificans	9
S. Brandenburg	2
S. Bredeney	8
S. Cerro	3
S. Chester	5
S. Colindale	4
S. Corvallis	10
S. Cubana	2
S. Dar-Es-Salaam	2
S. Derby	2
S. Dublin	5
S. Durban	2
S. Durham	4
S. Eastbourne	3
S. Emek	6
S. Give	2
S. Havana	3
S. Heidelberg	9
S. Hvittingfoss	2
S. Javiana	2
S. Kingston	3
S. Litchfield	3
S. Livingstone	2
S. Mbandaka	9
S. Mississippi	6
S. Montevideo	6
S. Muenchen	6

S. Muenster	5
S. Nienstedten	4
S. Ohio	6
S. Oslo	7
S. Othmarschen	3
S. Overschie	2
S. Panama	2
S. Poona	5
S. Reading	4
S. Richmond	8
S. Saint-Paul	10
S. San-Diego	2
S. Saphra	4
S. Schwarzengrund	2
S. Seremban	2
S. Stanleyville	6
S. Szentes	3
S. Tel-El-Kebir	3
S. Tennessee	6
S. Thompson	9
S. Trachau	2
S. Uganda	7
S. Umbilo	4
S. Wassenaar	3
S. Weltevreden	6

**One each of the following serotypes were received: October to December 2008**

S. Aba	S. Grumpensis	S. Mbao
S. Agbeni	S. Guildford	S. Menston
S. Ago	S. Halle	S. Minneapolis
S. Agoueve	S. Hessarek	S. Monschau
S. Ajiobo	S. Hindmarsh	S. Nairobi
S. Amager	S. Hull	S. Napoli
S. Amsterdam	S. Kalina	S. New-Haw
S. Arechavaleta	S. Kapemba	S. Nottingham
S. Arkansas	S. Kiambu	S. Pomona
S. Bandia	S. Kimuenza	S. Rissen
S. Bonariensis	S. Kintambo	S. Rubislaw
S. Brunei	S. Kisarawe	S. Salford
S. Buzu	S. Kunduchi	S. Shubra
S. Coeln	S. Leeuwarden	S. Singapore
S. Coleypark	S. Legon	S. Urbana
S. Dabou	S. Limete	S. Vejle
S. Duesseldorf	S. Lindenburg	S. Vitkin

S. Ealing	S. Lisboa	S. Waycross
S. Elomrane	S. London	S. Welikade
S. Essen	S. Maastricht	S. Wien
S. Gatow	S. Marina	S. Yovokome
S. Glostrup	S. Mayday	

## Suspected and laboratory-confirmed reported norovirus outbreaks in hospitals, with regional breakdown: weeks 01-10/09

Since 1 January 2009, 147 outbreaks of suspected and confirmed norovirus outbreaks were reported to the system of surveillance of norovirus outbreaks in hospitals.

Since the beginning of the reporting system [1] to the end of week 09, 48 hospitals from 36 trusts had reported outbreaks of norovirus and 37 hospitals from 27 trusts since 1 January 2009. The data reported below relate to the 147 outbreaks reported to have started since 1 January and in the four weeks from 2 February to 2 March (weeks 6 – 9). Eighty two percent of outbreaks reported as starting since 1 January resulted in ward closures leading to bed days lost and 60% of reported outbreaks were laboratory confirmed as norovirus. As of 2 March, 32 outbreaks were still recorded as ongoing.

Under-reporting to this voluntary scheme is likely to be substantial; however, the HPA will seek to minimise this through active follow-up of outbreaks investigated by Regional Laboratories where no matching outbreak report exists.

### Suspected and laboratory-confirmed reported norovirus outbreaks, with regional breakdown: weeks 01-10/09\*

	Outbreaks between 06-10/09			Total outbreaks 01-10/09			Ongoing outbreaks
	Outbreaks	Ward closure	Lab-confirmed	Outbreaks	Ward closure	Lab-confirmed	
East of England	2	2	2	7	7	5	3
East Midlands	1	1	1	11	8	9	–
London	–	–	–	2	2	1	–
North East	7	5	1	22	16	10	1
North West	20	18	10	46	36	26	13
South East	6	6	3	12	11	3	2
South West	3	3	2	6	6	5	2
West Midlands	13	13	8	18	18	11	8
Yorkshire and Humberside	10	7	6	23	16	16	3
<b>Total</b>	<b>62</b>	<b>55</b>	<b>33</b>	<b>147</b>	<b>120</b>	<b>86</b>	<b>32</b>

\* ie from system launch, on 19.12.2008, to 9.02.2009.

**Note regarding laboratory reports for the 2008/09 season as a whole:** The number of positive laboratory reports for norovirus in this season to week 10 is 5708, which is a 22% increase on the total to the same week in last season, 4684.

## Reference

1. HPA. Web-based real-time surveillance for norovirus hospital outbreaks. *Health Protection Report* [serial online] 3(6): news; <http://www.hpa.org.uk/hpr/archives/2009/hpr0609.pdf>.

## Vero cytotoxin-producing *Escherichia coli* O157: 2007 and 2008

Isolates of Vero cytotoxin-producing *Escherichia coli* O157 (VTEC O157), submitted by laboratories in England and Wales and confirmed by the Laboratory of Gastrointestinal Pathogens in 2007 and 2008, are shown in table 1. Data are compared with those for 2005 and 2006.

**Table 1. VTEC O157 isolations in England and Wales: 2005 to 2008**

	2008		2007		2006		2005	
	Isolates	Rate*	Isolates	Rate	Isolates	Rate	Isolates	Rate
England and Wales	948	1.75	828	1.53	1001	1.88	950	1.78
England	893	1.75	793	1.55	944	1.86	770	1.53
Wales	55	1.85	35	1.17	57	1.92	180	6.09

\* Cases/100,000 population (2007 population used for 2008 rate calculation).

The distribution of VTEC O157 according to the sender's health region within England is shown in table 2. Comparable regional data for the years 2005 to 2006 are available [1, 2].

**Table 2. VTEC O157 isolations in different HPA regions of England : 2007 and 2008**

Region	Total 2007 (Rate/100,000)	Per cent of total England & Wales 2007	Total 2008 (Rate/100,000*)	Per cent of total England & Wales 2008
North East	74 (2.89)	8.9	64 (2.50)	6.8
North West	138 (2.01)	16.7	164 (2.39)	17.3
Yorkshire and the Humber	142 (2.74)	17.1	140 (2.70)	14.8
East Midlands	31 (0.7)	3.7	47 (1.07)	5.0
West Midlands	45 (0.84)	5.4	97 (1.80)	10.2
East of England	92 (1.63)	11.1	82 (1.45)	8.6
London	54 (0.71)	6.5	70 (0.93)	7.4
South East	115 (1.38)	13.9	64 (0.77)	6.8
South West	102 (1.97)	12.3	124 (2.39)	13.1

\*2007 population used for 2008 rate calculation

Approximately 65% of strains in 2007 had VT2 genes only and 34% had both VT1 and VT2; four isolates were VT1 only. In 2008, about 81% of isolates were VT2 and 18% were VT1+2; nine strains possessing VT1 genes only. The prevalence of VT1+2 genes reflects the occurrence of phage type (PT) 8 isolates, that are generally VT1+2, in the different years (table 3). The strains belonged to 19 designated PTs in 2007 and to a total of 24 types in 2008.

The three most common types were PTs 21/28, 8 and 2 (table 3) and this prevalence has been observed in each year from 2000 onwards [1 – 6]. The proportion of PT21/28 strains was similar to that found before. In previous years, PT8 strains represented about 20-25% of the total but this increased in 2007 for unknown reasons and the incidence declined again in 2008. There was an upsurge of infections with VTEC O157 PT33 in the early summer of 2008 that affected several regions and some of these cases were part of a national outbreak linked to the east coast of England.

**Table 3. Predominant phage types of VTEC O157 from human infections in England and Wales: 2007 and 2008**

2007			2008		
Phage type	Per cent of total	Rank	Phage type	Per cent of total	Rank
21/28	32.1	1	21/28	33.3	1
8	30.3	2	8	17.9	2
2	10.4	3	2	11.0	3
32	6.5	4	32	7.7	4
4	3.4	5	33	7.5	5
34	2.9	6	4	4.0	6
Other	14.4	–	Other	18.6	–

Provisionally, there were 13 general outbreaks of infection in 2007 and 12 in 2008. Of these, nine were caused by PT21/28 strains, seven by PT2 and three by PT8. The largest outbreak, of PT21/28, was associated with a butcher's premises in Yorkshire in 2007 and comprised 43 cases. A national outbreak involving 12 cases in 2007 (PT8) was caused by consumption of chicken wrap sandwiches from a supermarket retail chain [7].

Annually at least 80% of confirmed VTEC O157 isolates are from household incidents or apparent sporadic infections, rather than from general outbreaks. To gain a better understanding of the epidemiology of these cases in particular, an active national surveillance scheme for VTEC infection in England commenced on 1 January 2009 [8].

## References

1. HPA. Vero cytotoxin-producing *Escherichia coli* O157: 2005. *Commun Dis Rep CDR Wkly* 2006; **16** (38): enteric. Available at: <http://www.hpa.org.uk/cdr/archives/2006/cdr2806.pdf>.
2. HPA. Vero cytotoxin-producing *Escherichia coli* O157: 2006. *Health Protection Report* 2007; **1** (32). Available at: <http://www.hpa.org.uk/hpr/archives/2007/hpr3207.pdf>.
3. HPA. Vero cytotoxin-producing *Escherichia coli* O157: 2001. *Commun Dis Rep CDR Wkly Rep* 2002; **12** (24). Available at: <http://www.hpa.org.uk/cdr/archives/2002/cdr2402.pdf>.
4. HPA. Vero cytotoxin-producing *Escherichia coli* O157: 2002. *Commun Dis Rep CDR Wkly Rep* 2003; **13** (24). Available at: <http://www.hpa.org.uk/cdr/archives/2003/cdr2403.pdf>.
5. HPA. Vero cytotoxin-producing *Escherichia coli* O157: 2003. *Commun Dis Rep CDR Wkly Rep* 2004; **14** (24). Available at: <http://www.hpa.org.uk/cdr/archives/2004/cdr2402.pdf>.
6. HPA. Vero cytotoxin-producing *Escherichia coli* O157: 2004. *Commun Dis Rep CDR Wkly Rep* 2005; **15** (28). Available at: <http://www.hpa.org.uk/cdr/archives/2005/cdr2805.pdf>.
7. Whittaker PJ *et al.* (2009). A national outbreak of Vero cytotoxin-producing *E. coli* O157 associated with consumption of lemon-and-coriander chicken wraps from a supermarket chain. *Epidemiology and Infection* **137**; 375-382.
8. HPA. A national active surveillance system for VTEC in England. *Health Protection Report* 2008; **2** (51). Available at: <http://www.hpa.org.uk/hpr/archives/2008/news5108.htm#vtec>.