



Health Protection Report

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Third case of infant botulism associated with consumption of honey within a year

There has been a recent confirmed case of botulism in a 15 week old infant with a history of honey consumption. This is the third case of infant botulism associated with honey consumption reported to the HPA since August 2009 and raises concerns that health warnings advising against feeding honey to infants less than one year of age are not being followed.

Infant botulism is a rare disease in the UK, only eight cases having been reported up until the end of 2008. This illness occurs when infants, less than one year old, ingest spores of *C. botulinum* which, due to the immaturity of the infant gut flora, are able to germinate and produce toxin in the intestinal tract. Botulinum neurotoxin is absorbed through the intestine into the circulation and binds at its target site, the neuromuscular junction, blocking release of the neurotransmitter acetylcholine leading to flaccid paralysis. Typically the first clinical sign of illness in infants is constipation, defined as three or more days without a bowel movement, followed by lethargy, difficulties in feeding, generalised muscle weakness and weak cry.

Treatment for infant botulism includes human derived botulism immunoglobulin (babyBIG®, which is available from the Infant Botulism Treatment and Prevention Programme in California, USA), together with respiratory and nutritional supportive care. Administration of babyBIG® should be prompt and not delayed for laboratory confirmation of diagnosis as it neutralises free toxin preventing it binding to the neuromuscular junction. Early treatment with babyBIG® has been shown to reduce length of time in paediatric intensive care as well as overall length of hospital stay: it has been used to treat two previous cases of infant botulism in the UK

In 2009 two cases of infant botulism were reported in the UK – occurring in August and September, in England and Scotland respectively [1]. In both cases infants had a history of being fed honey. In the second case, the same type of *C. botulinum* was detected in honey consumed by the infant as was isolated from faecal specimens. In mid-May this year, a third confirmed case of infant botulism with a history of honey consumption was reported. A 15 week old male infant was admitted to a regional hospital on 12 May with lethargy, irritability, poor feeding and a history of constipation. The diagnosis of infant botulism was confirmed by PCR detection of *C. botulinum* Type E neurotoxin (BoNT E) genes in faecal specimens incubated in cooked meat broth medium. Botulinum Type E neurotoxin is a rare cause of infant botulism being reported in only seven cases throughout the world. Interestingly, BoNT E can be produced not only by *C. botulinum* but also by *Clostridium butyricum* and six of the seven reported cases have been caused by *C. butyricum* expressing a BoNT type E gene. Full identification of the Clostridial species from the most recent UK infant botulism case is currently under way*.

Infant botulism is a rare disease in the UK and three reported cases in less than one year is highly unusual. The increase in cases may be due to improved recognition of symptoms by clinicians although in all cases infants were symptomatic for several days before infant botulism was considered as a possible diagnosis. Although *C. botulinum* spores are widely distributed in soil and dust, all three cases had a history of honey consumption which is the main dietary risk factor for infant botulism. To lower the risk of infant botulism in the UK it is important that advice against feeding any honey to infants less than one year of age is provided and followed by those with responsibility for infants of this age group.

Further information on infant botulism and specimen and sample testing can be obtained from Dr Kathie Grant at the Laboratory of Gastrointestinal Pathogens, Centre for Infection on 020 8327 6505. Information on the supply of babyBIG® is available from the Infant Botulism Treatment and Prevention Programme, California (<http://www.infantbotulism.org/>).

Reference

1. Anon (2009). Two cases of infant botulism associated with the consumption of honey. *Health Protection Report* 2009; 3(46), <http://www.hpa.org.uk/hpr/archives/2009/news4609.htm#honey>.

* This paragraph was amended, 1 June 2010

Confirmed measles cases in England and Wales in 2010 – update to end-April

There Twenty-nine cases of measles with onset dates up to the end of April have been confirmed in England and Wales in 2010, half of which occurred during April. Only one of these cases reported having received a measles-containing vaccine.

The increase in reports in April was mainly from London (six cases), the North West (five cases) and Wales (three cases) (see table). Only one case had a history of travel, although secondary cases potentially associated with this case are ongoing in London. In contrast, most reported cases up to the end of March 2010 were associated with foreign travel (see [quarterly report](#) in this issue).

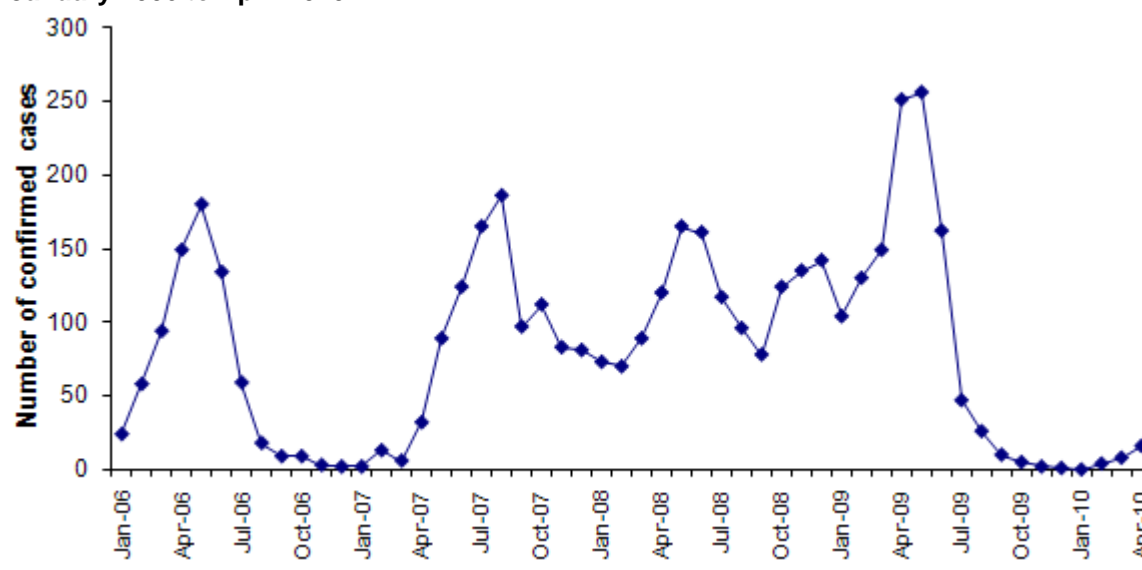
Most measles cases in 2010 have been reported in children under 18 years of age (20 cases), however, almost a third of all cases are in adults.

An age breakdown of cases for 2010 to the end of April by region is available on the HPA website [1].

Confirmed cases of measles by region and month of onset, England and Wales: January 2010 to April 2010

Month/year	Lond'n	East Mids.	Eastern	North East	North West	South East	South West	West Mids	Wales	York & Hum	Total
Total 2009	198	47	74	122	79	276	43	95	159	51	1144
Jan-10	–	–	–	–	–	–	–	–	–	–	–
Feb-10	–	–	2	–	–	3	–	–	–	–	5
Mar-10	1	–	2	–	–	3	2	–	–	–	8
Apr-10	6	–	–	–	5	1	1	–	3	–	16
Total 2010	7	–	4	–	5	7	3	–	3	–	29

Number of laboratory confirmed cases in England and Wales by month of onset: January 2006 to April 2010



Reference

1. Home › Topics › Infectious Diseases › Infections A-Z › Measles › Epidemiological Data › [Number of laboratory confirmed measles cases in England and Wales.](#)

New HPA National Measles Guidelines available on website

The HPA Vaccine Preventable Diseases Programme Board recently produced new measles guidelines that are now available on the HPA website [1]. These guidelines have been developed to assist health protection staff to consistently assess and manage all suspected measles cases to ensure the appropriate and timely public health action is undertaken.

Health Protection Units (HPUs) are asked to note in particular the advice on oral fluid (saliva) testing for confirmation of diagnosis. All cases should have an oral fluid sample taken and sent to Virus Reference Department at the Centre for Infections (CfI), even if the diagnosis has already been confirmed at a local laboratory. The specimen should be taken as soon as possible, up to six weeks, after the onset of symptoms. Improved diagnostic techniques mean that there is now no need to wait seven days before taking the sample. Other samples (blood, urine, throat swabs, etc) from cases testing positive at a local laboratory should be forwarded to CfI for confirmation and further characterisation.

Reference

1. HPA National Measles Guidelines – Local & Regional Services. Downloadable at: Home › Topics › Infectious Diseases › Infections A-Z › Measles › [Guidelines](#) [PDF, 108 KB].

Influenza A (H1N1) 2009 and mortality in the UK

Unlike seasonal influenza, where deaths occur mainly amongst the elderly, the majority of the pandemic influenza deaths observed during the height of the 2009/2010 pandemic in the UK were, amongst the young and middle-aged adults. An epidemiological analysis of these fatal cases has quantified the risk factors associated with fatal outcome.

The analysis, by HPA Centre for Infections scientists [1], concluded that most fatal pandemic influenza cases in the UK had underlying risk factors for severe illness. Although the overall case fatality rate (CFR) was low for pandemic influenza A(H1N1) 2009, it was particularly higher amongst those with underlying chronic neurological disease, chronic respiratory disease, chronic liver disease and immunosuppression. Pandemic influenza infection during pregnancy was also a risk factor for death.

Across the UK, 440 fatal pandemic influenza cases were identified between 27 April 2009 and 12 March 2010. In England, the median age of fatal cases was 43 years, with 85% of cases under 65 years of age [2]. Seventy seven per cent of fatal cases for whom data were available (308 cases) had underlying risk factors for severe disease.

The CFR in those aged 65 years or over was nine per 1,000 clinical cases compared to 0.4 for those aged six months to 64 years. In the age group between six months and 64 years, the relative risk for fatal illness for those in a risk group was 18 compared to those not in a risk group [3].

The authors highlight the importance of early effective intervention programmes such as vaccination.

References/notes

1. Pebody RG, McLean E, Zhao H, Cleary P, Bracebridge S, et al. Pandemic influenza A(H1N1) 2009 and mortality in the United Kingdom: risk factors for death, April 2009 to March 2010. *Euro Surveill*, **15**(20) (2010). Available at: <http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19571>.

2. During the initial phase of the pandemic in England, the median age of cases that died was 37 years, according to a preliminary assessment of the impact of the “containment” measures that were in effect

between 24 April and 2 July 2009. See: "The role of the Health Protection Agency in the 'containment' phase during the first wave of pandemic influenza in England in 2009", 25 May 2010, HPA website. Downloadable at: http://www.hpa.org.uk/web/HPAwebFile/HPAweb_C/1274088320581 [578 kB PDF].

3. Nine risk groups were considered: pregnancy, obesity and the seven risk groups identified for the purposes of the Department of Health's 2008/09 seasonal vaccination programme, ie: chronic respiratory disease, including asthma treated in the last three years; chronic heart disease; chronic liver disease; chronic renal disease; chronic neurological disease; stroke/transient ischaemic attack; and immunosuppression through disease or treatment and diabetes.

Food Standards Agency annual incidents report for 2009

The UK Food Standards Agency (FSA)'s recently published *Annual report of incidents 2009* is the body's fourth annual incidents data review since its agency-wide incidents database was established in 2005 [1].

In 2009, the FSA investigated 1,208 UK incidents, taking action where appropriate to protect consumers' interests. These included 91 food alerts (of which 49 were allergy alerts) to local authorities and 334 notifications to the European Commission, through the Rapid Alert System for Food and Feed (RASFF) . One "high-level" incident – involving salmonella associated with eggs from a specific supplier in Spain [2,3] – is the subject of a case study in the report.

The major categories of incident in 2009 were: microbiological incidents (18%); environmental contamination (17%); natural chemical contamination – mycotoxins, algal toxins and others (12%); and on-farm incidents (12%).

The report notes that cases of microbiological contamination have increased over the last four years (from 147 in 2006 to 218 in 2009), while the number of physical incidents has decreased (from 139 to 56) over the same period. In contrast, the figures for numbers of incidents involving the use of an unauthorised ingredient have remained fairly constant (from 52 in 2006 to 70 in 2009). Another category of incident that has remained relatively stable over the last four years is allergens. The largest sub-category of allergen incidents in 2009 related to declaration of sulphites, which the FSA is to examine further.

The main purposes of the FSA annual incidents report is to encourage reporting and thus construct a more accurate picture of food and environmental contamination in the UK. In 2009, 246 notifications were received were local authorities, 201 from border inspection posts, 136 from fire services and 109 from industry.

References

1. Annual report on incidents 2009. Downloadable from the FSA website at: <http://www.food.gov.uk/multimedia/pdfs/incidents09.pdf> [1MB PDF].
- 2 . National increase in Salmonella Enteritidis phage type 14b NxCpl infections in England – an update, *Health Protection Report* 3(47), <http://www.hpa.org.uk/hpr/archives/2009/news4709.htm#pt14bes>.
3. National increase in Salmonella Enteritidis Phage Type 14b infections in England, *Health Protection Report* 3(42), <http://www.hpa.org.uk/hpr/archives/2009/news4209.htm%20#pt14b>.

Infection reports

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Immunisation

Laboratory confirmed cases of measles and rubella, England and Wales: January to March 2010

Data presented here are for the first quarter of 2010 (ie January to March 2010). Cases include those confirmed by Cfl oral fluid testing (IgM antibody tests and/or PCR) and national routine laboratory reports (table 1). Analyses are by date of onset. Regional breakdown figures relate to Government Office Regions rather than regional health authorities (pre-April 2002 definitions).

Quarterly figures for cases confirmed by oral fluid antibody detection only from 1995 and annual total numbers of confirmed cases by health region and age are available from:

http://www.hpa.org.uk/web/HPAweb&HPAwebStandard/HPAweb_C/1195733778332

http://www.hpa.org.uk/web/HPAweb&HPAwebStandard/HPAweb_C/1195733841496

http://www.hpa.org.uk/web/HPAweb&HPAwebStandard/HPAweb_C/1195733752351.

Table 1. Total confirmed cases of measles, mumps and rubella, and oral fluid IgM antibody tests in notified cases: weeks 1-13/2010

	Notified cases	Confirmed cases						
		Oral fluid testing				Confirmed infections	Other samples	Total
		Number Tested	% tested	Total positive	Recently vaccinated			
Measles	543	446	82%	15	5	10	3	13
Mumps	3785	2244	59%	1120	10	1110	462	1583
Rubella	183	138	75%	–	–	–	2	2

Measles

Thirteen cases of measles were confirmed with onset dates in the first quarter of 2010, compared to eight in the last quarter of 2009 [1]. No cases were confirmed in January, five were confirmed in February and eight in March. Cases were identified in four English regions (South East 6, East of England 4, South West 2 and London 1).

Nine cases were linked to recent travel abroad; India (3), Ireland (2), France (2), Ethiopia (1) and Spain (1).

Eight cases were confirmed in children (range seven months to 15 years): two under one year; three aged 1 to 4 years; two aged 10 to 14 years; one aged 15 years. The remaining five were adults aged 20-37 years. None of the cases reported receiving a measles containing vaccine.

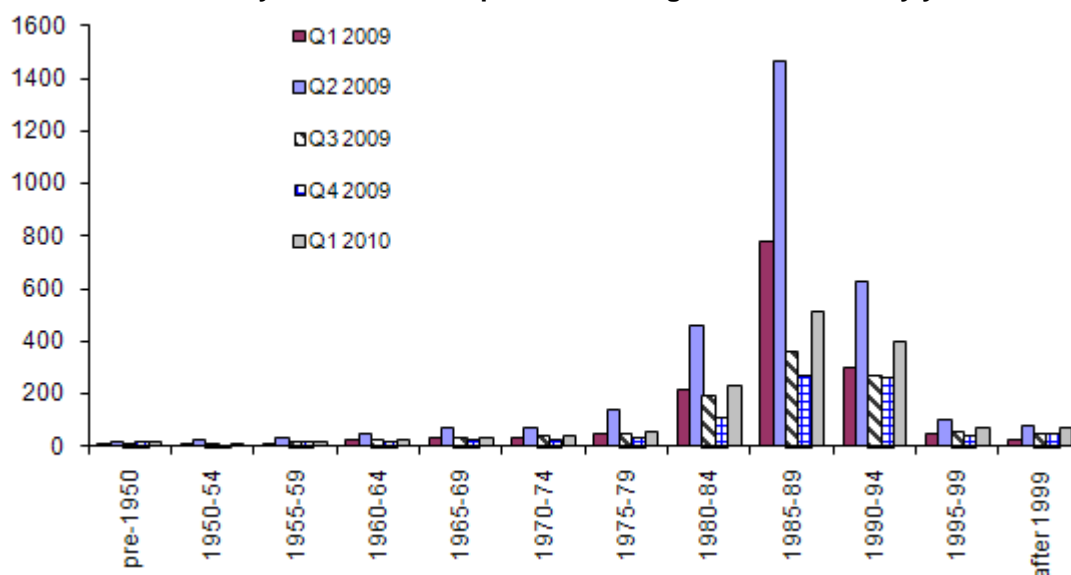
Mumps

One thousand five hundred and eighty-three confirmed mumps cases with onset dates in the first quarter of 2010 were reported compared to 964 in the previous quarter [1]. Nearly 70% of the cases were reported from four regions (North West (383), South East (273), London (242) and Yorkshire & Humber (196)). Cases continue to occur predominantly in individuals born between 1980 and 1994, many of whom either were not routinely offered MMR vaccination in childhood, or have only received one dose (table 2 and figure) [2].

Table 2. Confirmed cases of mumps by age group and region, England and Wales: weeks 01-13/2010

Region	Age group								Total
	<1	1-4	5-9	10-14	15-19	20-24	25+	NK	
North East	–	1	2	7	24	39	26	1	100
North West	–	3	6	31	112	127	104	–	383
Yorkshire & Humber	1	4	7	12	52	69	51	–	196
East Midlands	–	2	2	3	17	35	15	–	74
West Midlands	1	3	4	5	24	20	22	–	79
East of England	–	–	3	3	28	44	28	1	107
London	1	3	8	14	54	77	85	–	242
South East	–	3	12	11	74	102	70	1	273
South West	–	2	4	4	19	56	22	–	107
Wales	–	1	–	1	3	7	10	–	22
Total	3	22	48	91	407	576	433	3	1583

Number of laboratory confirmed mumps cases in England and Wales by year of birth and quarter



Rubella

Two laboratory confirmed cases of rubella were reported in the first quarter of 2010. Both infections were in males over 35 years of age, one of whom had history of recent travel to Thailand.

References

1. HPA. Laboratory confirmed cases of measles, mumps and rubella, England and Wales: October to December 2009. *Health Protection Report HPR* [serial online] 2010 [cited 26 February 2010]; 4(8): Immunisation. Available at: <http://www.hpa.org.uk/hpr/archives/2010/hpr0810.pdf>.
2. HPA. Laboratory confirmed number of mumps cases in England and Wales: update to end-November 2009. *Health Protection Report HPR* [serial online] 2010 [cited 15 January 2010]; 4(2): news. Available at: <http://www.hpa.org.uk/hpr/archives/2010/news0210.htm#mmmps>.