



# Health Protection Report

weekly report

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## News

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

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

Only 14 cases of measles with onset in November were confirmed in England and Wales bringing the total to 363 cases for 2010 so far, compared to 1144 cases in 2009 (see table). Six of November onset cases were in London and associated with previously reported clusters [1] and five were part of a small cluster in the East of England. Single cases were identified in the North West, South West and South East regions (table).

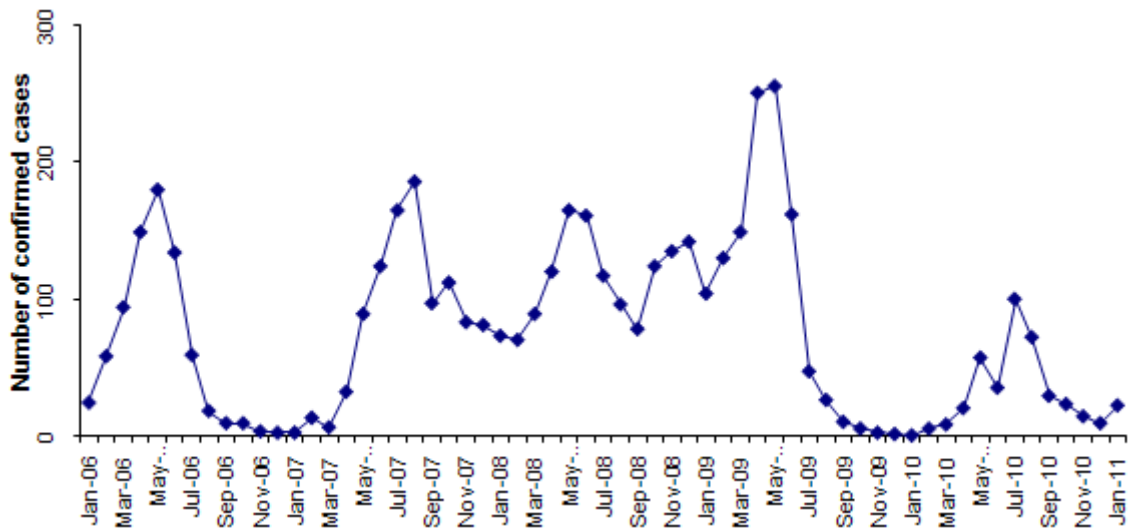
Cases continue to occur predominantly in unvaccinated children under 18 years of age (67%). A detailed age breakdown of cases for 2010 to the end of November by region is available at [http://www.hpa.org.uk/web/HPAweb&HPAwebStandard/HPAweb\\_C/1223019390211](http://www.hpa.org.uk/web/HPAweb&HPAwebStandard/HPAweb_C/1223019390211).

#### Number of confirmed cases of measles by region and month of onset, England and Wales: January to November 2010

Month/Year	London	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	–	2	–	5	3	1	–	3	–	20
May-10	22	2	13	1	5	10	1	–	2	1	57
Jun-10	2	–	13	1	10	5	1	–	–	3	35
Jul-10	13	4	10	–	11	43	–	9	–	10	100
Aug-10	8	1	6	5	7	27	–	4	3	10	72*
Sep-10	4	–	3	3	5	6	–	–	–	8	29
Oct-10	16	–	4	–	–	2	–	–	–	1	23
Nov-10	6	–	5	–	1	1	1	–	–	–	14
Total 2010	78	7	60	10	44	103	6	13	8	33	363*

\* Includes one case with region not known.

**Number of confirmed measles cases by month of onset, England and Wales: January 2006 to November 2010**



**Reference**

1. HPA. Confirmed measles cases in England and Wales in 2010: update to end-October, *Health Protection Report HPR* [serial online] 2010 [cited 5 November 2010]; 4(49): news. Available at <http://www.hpa.org.uk/hpr/archives/2010/news4910.htm#msls>.

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## Infection reports

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## Immunisation

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- ▶ **Laboratory reports of *Haemophilus influenzae* by age group and serotype, England and Wales, October to December 2010**
- ▶ **Laboratory confirmed cases of measles, mumps and rubella, England and Wales: October to December 2010**

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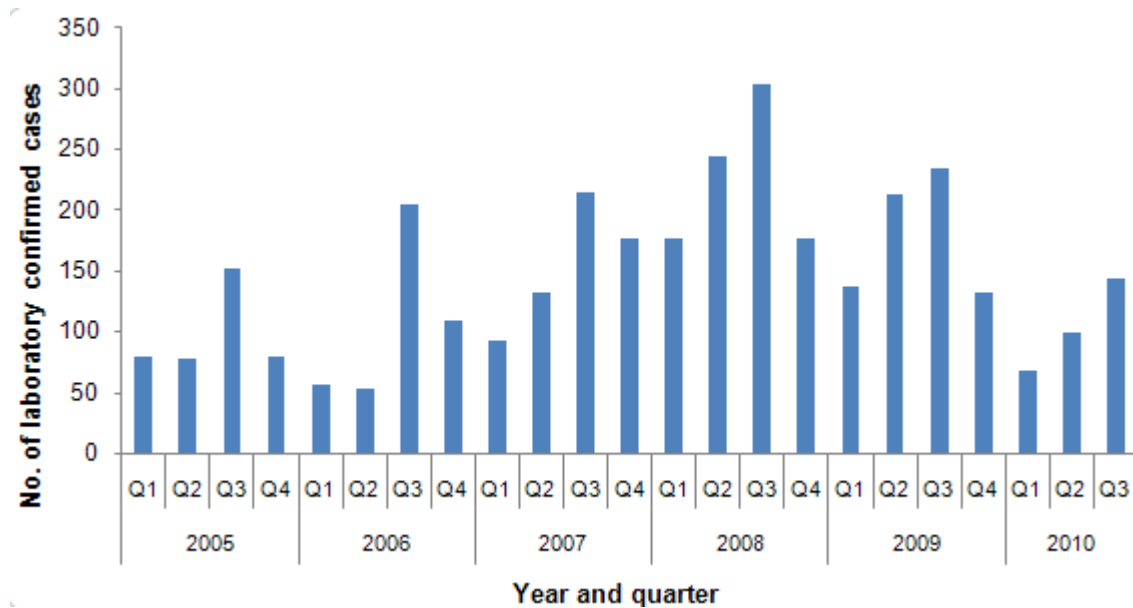
### Laboratory confirmed cases of pertussis reported to the enhanced pertussis surveillance programme during July to September 2010

There were 144 laboratory confirmed cases of pertussis (culture, PCR, serology) reported to the pertussis enhanced surveillance programme in the third quarter of 2010 (see table). This is an increase in the number of cases reported in the previous quarter (100 in April to June 2010 [1]), which is consistent with observed seasonal changes. The trend observed in the first quarter of 2010 continues with a substantial reduction in the number of cases reported compared with the same quarter last year (234 cases in July to September 2009 (see figure). This is consistent with the observed epidemiological pattern of 3-4 yearly cyclical peaks in pertussis, with the last peak occurring in 2008.

#### Age distribution and method of laboratory confirmation of pertussis in England and Wales , July to September 2010

Age group	Culture only	PCR only	Serology only
<3 months	9	7	1
3-5 months	2	–	1
6-11 months	1	–	1
1-4 years	–	–	4
5-9 years	–	–	6
10-14 years	–	–	13
15+ years	–	–	99

## Total number of laboratory-confirmed pertussis cases per evaluation quarter in England and Wales since 2005



Recent overall increases in laboratory confirmed cases are largely in older age groups and subsequent to the introduction of new laboratory methods in 2006. More detailed explanations were provided in previous HPR articles [2]. Although a greater number of notified cases are being confirmed in older age groups, rates of confirmed cases in these age groups remain relatively low [2].

*Bordetella pertussis* PCR (for hospitalised cases <1 year old) and serological investigation by estimation of anti-pertussis toxin (PT) IgG antibody levels for older children and adults are provided by the Respiratory and Systemic Infection Laboratory (RSIL) at the HPA Microbiology Services Division Colindale. The laboratory also encourages submission of all *Bordetella pertussis* isolates for confirmation and national surveillance purposes.

Further information is available on the HPA website at <http://www.hpa.org.uk/cfi/rsil/bordetella.htm>.

### References

1. HPA. Laboratory-confirmed cases of pertussis reported to the enhanced surveillance programme, England and Wales: April to June 2010. *Health Protection Report* [serial online] 2010; 4(47): immunisation. Available at: <http://www.hpa.org.uk/hpr/archives/2010/hpr4710.pdf>
2. HPA. Laboratory-confirmed cases of pertussis reported to the enhanced pertussis surveillance programme in 2009. *Health Protection Report* [serial online] 2010; 4(25): immunisation. Available at: <http://www.hpa.org.uk/hpr/archives/2010/hpr2510.pdf>.

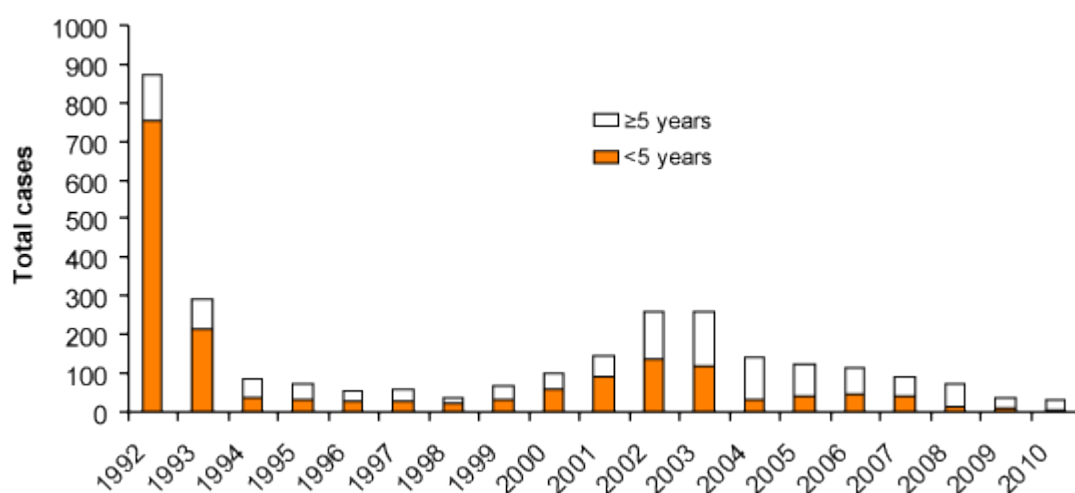
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## Laboratory reports of *Haemophilus influenzae* by age group and serotype, England and Wales, October to December 2010

Cases of Hib disease have been falling since a booster campaign instigated in 2003. In 2010, total cases in England and Wales reached the lowest recorded levels (see graph).

There was a rapid and marked reduction in *Haemophilus influenzae* type b (Hib) disease when Hib conjugate vaccine was first introduced in 1992 (graph). This impact was seen in those directly targeted by immunisation and in the wider population, through high levels of indirect protection achieved by the reduction of Hib transmission across all age groups [1].

### Total cases of Hib disease in England and Wales, by year, 1992-2010



Increases in Hib disease were seen from 1999, however, due to declining vaccine effectiveness after infant vaccination [1] and temporary use of a vaccine with reduced Hib immunogenicity [1,2]. An additional dose of Hib vaccine was therefore offered to all children aged six months to four years of age from May 2003. In September 2004, the recommended infant vaccine was changed to a combination vaccine with a satisfactory immune response to the Hib component [1]. In September 2006 combined Hib-meningococcal serogroup C vaccine was introduced as a booster dose at 12 months of age. Hib vaccine was also temporarily included in the pre-school immunisation programme to ensure all young children had been offered a fourth dose.

Fewer cases in both infants under one year and young children aged 1-4 years were recorded in 2010 than any year since Hib vaccine was introduced. There have been no reported deaths from Hib disease in a child under five years since 2007. Hib cases in those aged 15 years and over were also at their lowest levels since 1998, with 23 cases confirmed in 2010.

These figures suggest that the 2003 booster campaign and inclusion of a fourth dose of Hib vaccine in the routine schedule since September 2006 have resulted in the current high levels of Hib control in England and Wales.

Data for laboratory-confirmed cases, by age and serotype, are presented in the tables below.

**Laboratory reports of *Haemophilus influenzae* by age group and serotype, England and Wales, fourth quarter, 2010 (and 2009)**

Serotype	2010	2009	2010	2009	2010	2009	2010	2009	2010	2009
	<1y		1-4y		5-14y		15+		total	
b	2	–	1	1	1	–	7	13	11	14
nc	9	13	7	9	6	2	76	73	98	97
a,e,f	4	2	1	1	–	–	17	14	22	17
not typed	–	3	3	2	–	2	11	34	14	41
<b>Total</b>	<b>15</b>	<b>18</b>	<b>12</b>	<b>13</b>	<b>7</b>	<b>4</b>	<b>111</b>	<b>134</b>	<b>145</b>	<b>169</b>

**Laboratory reports of *Haemophilus influenzae* by age group and serotype, England and Wales, quarters 1-4 inclusive, 2010 (and 2009)**

Serotype	2010	2009	2010	2009	2010	2009	2010	2009	2010	2009	2010	2009
	<1y		1-4y		5-14y		15+		nk		total	
b	4	6	2	4	1	–	23	27	–	–	30	37
nc	30	41	16	27	11	3	243	286	–	–	300	357
a,e,f	6	4	6	5	–	2	54	46	–	–	66	57
not typed	8	15	7	10	2	9	127	169	1	1	145	204
<b>Total</b>	<b>48</b>	<b>66</b>	<b>31</b>	<b>46</b>	<b>14</b>	<b>14</b>	<b>447</b>	<b>528</b>	<b>1</b>	<b>1</b>	<b>541</b>	<b>655</b>

## References

1. Coen PG, Heath PT, Barbour ML, Garnett GP. Mathematical models of *Haemophilus influenzae* type b. *Epidemiol Infect* 1998; **120**: 281-295.
2. McVernon J, Trotter CL, Slack MP, Ramsay ME. Trends in *Haemophilus influenzae* type b infections in adults in England and Wales: surveillance study. *BMJ* 2004; **329**:655-658.
3. Vidor E, Hoffenbach A, Fletcher MA. *Haemophilus influenzae* type b vaccine: reconstitution of lyophilised PRP-T vaccine with a pertussis-containing paediatric combination vaccine, or a change in the primary series immunisation schedule, may modify the serum anti-PRP antibody responses. *Curr Med Res Opin* 2001; **17**:197-209.
4. Eskola J, Ward J, Dagan R, Goldblatt D, Zepp F, Siegrist CA. Combined vaccination of *Haemophilus influenzae* type b conjugate and diphtheria-tetanus-pertussis containing acellular pertussis. *Lancet* 1999; **354**: 2063-2068.
5. Kitchin NR, Southern J, Morris R, Hemme F, Thomas S, Watson, et al. Evaluation of a diphtheria-tetanus-acellular pertussis-inactivated poliovirus- *Haemophilus influenzae* type b vaccine given concurrently with meningococcal group C conjugate vaccine at 2, 3 and 4 months of age. *Arch Dis Child* 2007; **92**:11-16.

## Laboratory confirmed cases of measles, mumps and rubella, England and Wales: October to December 2010

Data presented here are for the fourth quarter of 2010 (ie October to December 2010). Cases include those confirmed by oral fluid testing (IgM antibody tests and/or PCR) at the Virus Reference Department, Colindale 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) .

Provisions relating to laboratory notifications in the Health Protection (Notification) Regulations 2010 (SI 2010/659) came into force on 1 October 2010, and significantly improve and extend the existing arrangements for statutory notification of infectious diseases in England. The statutory notification by diagnostic laboratories of specified causative agents of infectious disease to the HPA, which includes measles, mumps and rubella, will be reflected in future quarterly and annual summaries of confirmed cases of these infections.

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/1195733778332)

[http://www.hpa.org.uk/web/HPAweb&HPAwebStandard/HPAweb\\_C/1195733841496](http://www.hpa.org.uk/web/HPAweb&HPAwebStandard/HPAweb_C/1195733841496)

[http://www.hpa.org.uk/web/HPAweb&HPAwebStandard/HPAweb\\_C/1195733752351](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 40-52/2010**

	Notified cases	Oral fluid testing					Confirmed cases	
		Number tested	% tested	Total positive	Recently vaccinated	Confirmed infections	Other samples	Total
<b>Measles</b>	370	456*	123%	35	2	33	14	<b>47</b>
<b>Mumps</b>	1420	1295	91%	319	5	314	123	<b>436</b>
<b>Rubella</b>	91	82	90%	2	1	1	–	<b>1</b>

\*Some oral fluid specimens were submitted early from suspected cases and may not have been subsequently notified, thus the proportion tested may be artificially high for this quarter.

### Measles

Only forty-seven cases of measles were confirmed with onset dates in the fourth quarter of 2010, compared to 199 cases in the previous quarter [1]. This brings the total of laboratory confirmed cases in England and Wales for 2010 to 374, compared to 1144 in the previous year.

Majority of the cases identified this quarter were in southern regions of UK: (London 23 cases, East of England – 10 cases, South East – six cases and South West – five cases). Cases in London were associated with hospital and educational institution clusters [2]. Cases in the East of England were localised within a small community, while these in the South East and South West regions were linked to family clusters. Recent travel history was identified as the source of infection in six cases, two of whom travelled to Sri Lanka, and 1 respectively to Ethiopia, Morocco, Italy and France.

Only 21 cases (44%) were confirmed in children and adolescents (range six months to 18 years): three under one year; eight aged 1 to 4 years; two aged 5 to 9 year, four aged 10 to 14 years; four aged 15 to 18 years. The remaining 27 were aged 19 to 49 years. Five cases this quarter reported receiving one dose of measles-containing vaccine.

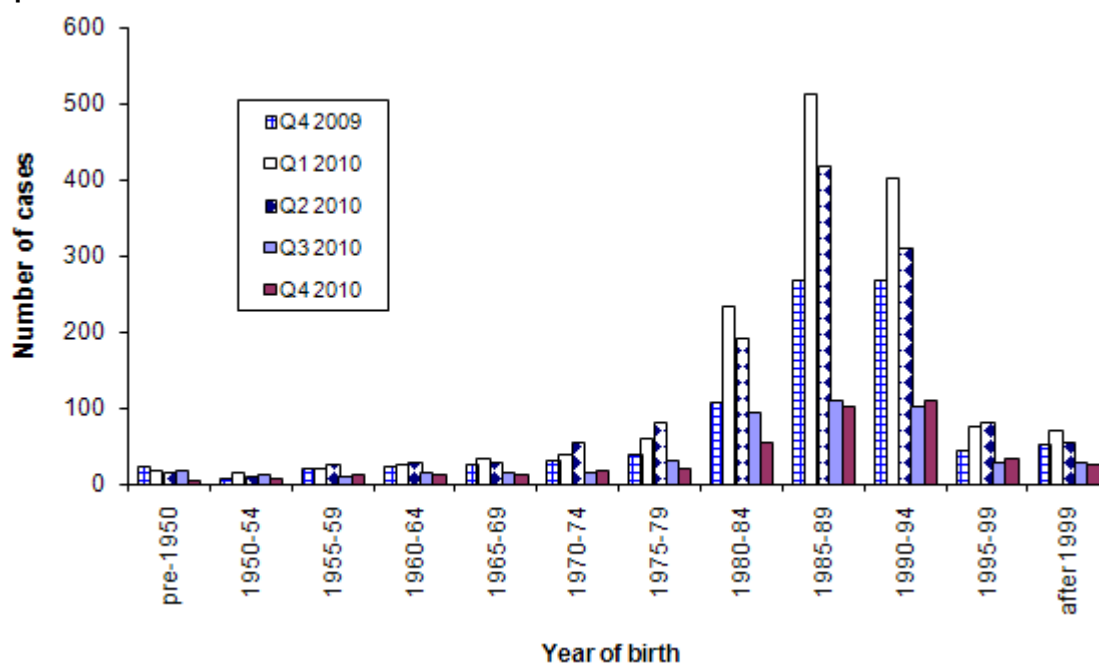
## Mumps

Four hundred and forty-three confirmed mumps cases with onset dates in the fourth quarter of 2010 were reported compared to 457 in the previous quarter [1]. This brings the total for 2010 as 3,857. Cases continue to occur predominantly in individuals born between 1980 and 1990 (figure), many of whom either were not routinely offered MMR vaccination in childhood, or have only received one dose. London, North West, East of England and the South West regions reported the majority of cases (table 2).

**Table 2. Confirmed cases of mumps by age group and region, England and Wales : weeks 40-52/2010**

Region	Age Group								Total
	<1	1-4	5-9	10-14	15-19	20-24	25+	NK	
North East	–	1	–	1	7	14	6	–	<b>29</b>
North West	–	2	1	–	10	13	20	–	<b>46</b>
Yorkshire & Humber	–	1	1	6	19	37	23	–	<b>87</b>
East Midlands	–	1	5	10	11	9	15	–	<b>51</b>
West Midlands	–	–	–	–	2	3	12	–	<b>17</b>
East of England	–	2	3	3	7	5	11	–	<b>31</b>
London	–	1	4	7	12	20	27	10	<b>81</b>
South East	–	–	2	5	14	26	25	–	<b>72</b>
South West	–	–	–	4	1	9	6	–	<b>20</b>
Wales	–	1	1	–	3	2	2	–	<b>9</b>
<b>Total</b>	–	<b>9</b>	<b>17</b>	<b>36</b>	<b>86</b>	<b>138</b>	<b>147</b>	<b>10</b>	<b>443</b>

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



## Rubella

One case of rubella was confirmed this quarter compared to one in the previous quarter [1], bringing the total number of rubella laboratory confirmed cases in England and Wales for 2010 as 12. This was a rubella infection in a male with recent history of travel to Switzerland .

## References

1. HPA. Laboratory confirmed cases of measles, mumps and rubella, England and Wales : July to September 2010. *Health Protection Report HPR* [serial online] 2010 [cited 26 November 2010]; 4(47): Immunisation . Available at <http://www.hpa.org.uk/hpr/archives/2010/hpr4710.pdf>.
  2. HPA. Confirmed measles cases in England and Wales in 2010: update to end-October *Health Protection Report HPR* [serial online] 2010 [cited 10 December 2010]; 4(49): news Available at <http://www.hpa.org.uk/hpr/archives/2010/news4910.htm#msls>.
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