



Public Health  
England

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# Laboratory confirmed cases of measles, rubella and mumps, England: October to December 2017

Health Protection Report

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# Laboratory confirmed cases of measles, mumps and rubella, England: October to December 2017

Measles, rubella and mumps are notifiable diseases and healthcare professionals are legally required to inform their [local Health Protection Team](#) (HPT) of all suspected cases. National enhanced surveillance including oral fluid (OF) testing of all suspected cases is provided through the Virus Reference Department (VRD) at Colindale to support and monitor progress towards WHO measles and rubella elimination targets.

The two key WHO indicators for measuring the performance of national measles and rubella surveillance systems are the rate of laboratory investigations (at least 80% of suspected cases) and the rate of discarded cases (at least 2 per 100,000 population). In order to achieve these targets our focus is on ensuring that all suspected cases are appropriately tested. IgM serology testing and oral fluid testing are the only two tests considered adequate by WHO for confirming and importantly discarding suspected measles and rubella cases. Recent infection is confirmed by measuring the presence of IgM antibodies or detecting viral RNA (by PCR) in these samples.

Samples that have been confirmed positive for measles or rubella are further sequenced and entered on the WHO global Measles Nucleotide Surveillance (MeaNS) or the Rubella Nucleotide Surveillance (RubeNS) system respectively which are hosted at the National Reference Laboratory. Genotyping and further characterisation of measles and rubella is used to support investigation of transmission pathways and sources of infection.

Data presented here are for the fourth quarter of 2017 (i.e. October to December). Analyses are done by date of onset of rash/symptoms and regional breakdown figures relate to Government Office Regions.

Historical annual and quarterly measles, rubella and mumps epidemiological data are available here from 2013 onwards:

<https://www.gov.uk/government/publications/measles-confirmed-cases>

<https://www.gov.uk/government/publications/mumps-confirmed-cases>

<https://www.gov.uk/government/publications/rubella-confirmed-cases>

Results from all samples tested at Colindale are reported on the MOLIS/LIMS system and reported back to the patient's GP and local HPT. HPTs can also access the results of samples which have been processed by the VRD in the previous 100 days through the [MrEP site](#).

**Table 1. Total suspected cases of measles, rubella and mumps reported to Health Protection Teams with breakdown of: a) proportion tested by Oral Fluid (OF); b) cases confirmed (all tests) nationally at the Virus Reference Department (VRD), Colindale, and at local NHS hospital and private laboratories; c) discard rate (all tests): weeks 40-53/2017**

Total suspected cases*		Number (%) tested by OF Target: 80%	Number of confirmed infections					Discard rate** based on negative tests per 100,000 population (all samples)
			Samples tested at VRD			Samples tested locally	Total	
			OF IgM positive samples	OF PCR positive samples	All other positive samples			
<b>Measles</b>	970	583 (60%)	93	–	47	9	<b>149</b>	0.71
<b>Rubella</b>	111	73 (68%)	1	–	2	–	<b>3</b>	0.14
<b>Mumps</b>	2103	1275 (61%)	135	–	25	–	<b>160</b>	N/A

\* This represents all cases reported to HPTs in England i.e. possible, probable, confirmed and discarded cases on HPZone.

\*\* The rate of suspected measles or rubella cases investigated and discarded as non-measles or non-rubella cases using laboratory testing in a proficient laboratory. The annual discard rate target set by WHO is 2 cases per 100,000 population. We present quarterly rates here with an equivalent target of 0.5 per 100,000 population

## Measles

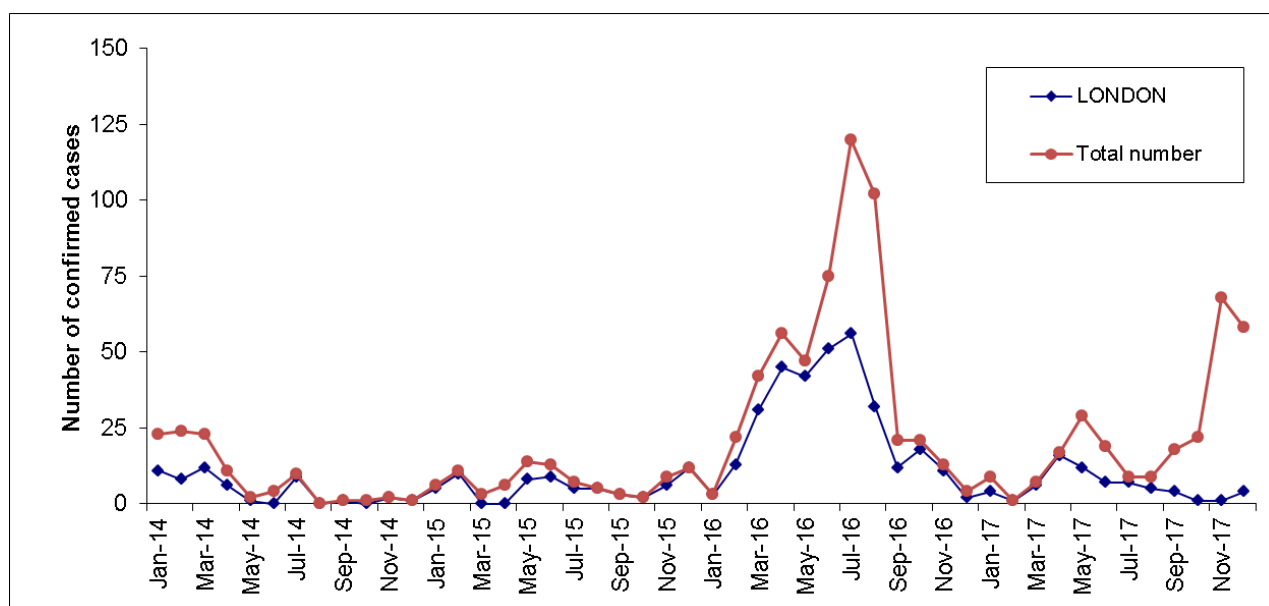
In England, 149 new measles infections were confirmed in the last quarter of 2017 compared to 37 in the period between July and September 2017 [1] (Figure1). This brings the total number of confirmed cases in 2017 in England to 267 compared to 531 in 2016.

Most of the cases this quarter were associated with outbreaks in the North West, West Midlands, Yorkshire and the Humber and South East regions. Four of these outbreaks resulted from importations from Romania. A national enhanced response was declared and led by PHE to coordinate and support local outbreak response. The national incident has now been de-escalated as the only ongoing outbreak is in Birmingham and Solihull.

In total this quarter there were thirteen (8%) infections associated with recent travel to Europe. Ten cases were imported from Romania, and the remainder were imported from Spain, Italy and Belgium.

In contrast to recent epidemiology the majority (118/149, 79%) of the measles cases reported this quarter were in children and young adults under 18 years of age. The hospitalisation rate remained high at 45%, likely due to the high number of cases in infants. Eleven cases (7%) reported having at least one dose of measles containing vaccine.

**Figure 1. Laboratory confirmed cases of measles by month of onset of rash/symptoms reported, London and England: Jan 2014 to Dec 2017**



All the measles cases that had genotyping information available (117/149, 79%) this quarter were B3. Earlier this week the WHO Office for Europe issued a press release on the ongoing outbreaks of measles in the Region. Most of the measles cases in Europe in 2017 were reported by Romania (5 562) (genotype B3), Italy (5 006) (genotypes B3 and D8), Ukraine (4767), Greece (967) and Germany (927) [2].

In order to monitor importations and chains of transmission it is essential that every suspected case is tested with an Oral Fluid Test (OFT); this includes cases that are confirmed locally. This quarter an oral fluid sample was taken on only 60% of all suspected measles cases, well below the 80% WHO target (Table 1).

Wales, Scotland and Northern Ireland reported no new cases this quarter.

PHE Health Protection Teams (HPTs) should be aware that the revised National Measles Guidelines [3] and the Guidelines on Post-exposure Prophylaxis for Measles [4] were published in August of last year [5]. The congregation context “Measles2018” should be used for all measles cases reported from 1 January of this year.

**Table 2. Laboratory confirmed cases of measles by age group and region, England: weeks 40-53/2017**

<b>Region</b>	<b>&lt;1yr</b>	<b>1-4 yrs</b>	<b>5-9 yrs</b>	<b>10-14 yrs</b>	<b>15-19 yrs</b>	<b>20-24 yrs</b>	<b>25-29 yrs</b>	<b>30-34 yrs</b>	<b>&gt;35 yrs</b>	<b>Total</b>
East Midlands	–	–	–	–	–	–	–	–	–	<b>0</b>
East of England	–	–	–	–	2	1	–	–	–	<b>3</b>
London	1	1	–	–	1	–	2	–	1	<b>6</b>
North East	–	–	–	–	–	–	–	–	–	<b>0</b>
North West	10	14	3	4	1	2	1	2	1	<b>38</b>
South West	–	3	8	4	2	–	–	–	–	<b>17</b>
South East	4	6	1	1	2	–	1	1	5	<b>21</b>
West Midlands	4	13	2	2	2	2	3	–	1	<b>29</b>
Yorks/Humber	14	7	7	1	1	1	1	1	2	<b>35</b>
<b>Total</b>	<b>33</b>	<b>44</b>	<b>21</b>	<b>12</b>	<b>11</b>	<b>6</b>	<b>8</b>	<b>4</b>	<b>10</b>	<b>149</b>

## Rubella

Three new rubella infections were confirmed in female adults with onset of symptoms in the last quarter of 2017 in England. Two of the infections were in pregnant women and led to foetal loss in the first trimester. One of the infections is thought to have been acquired peri-conceptually through travel to an endemic area whilst a source of infection was not identified in the other two cases. All three cases were born outside of the UK, highlighting the importance of opportunistic MMR check and offer in women of child bearing age.

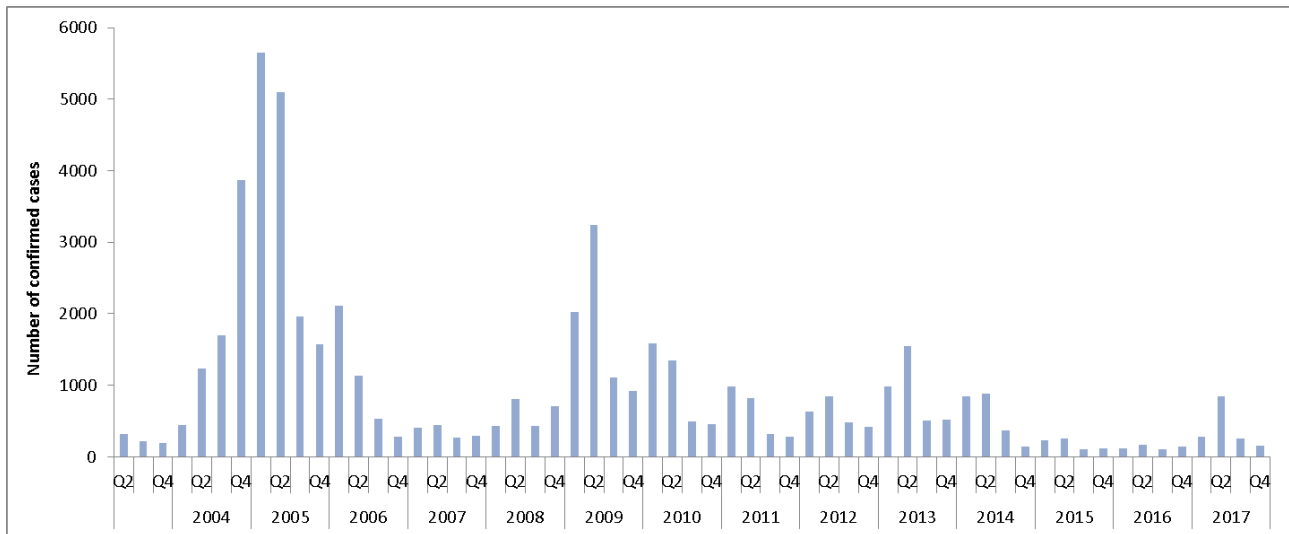
## Mumps

A decrease in mumps activity in England was observed this quarter with 160 laboratory confirmed mumps infections compared to the 259 the previous quarter, in line with usual seasonal trends [1] (Figure 2). Mumps cases were reported in all regions of England (Table 3) predominantly in young adults aged 16 to 30 years (118/160, 73%). More than a third (65/160, 41%) of the cases this quarter were unvaccinated. Although mumps in fully vaccinated individuals can occur, due to secondary vaccine failure, it is less likely to lead to complications requiring hospitalisation such as orchitis and meningitis.

**Table 3. Laboratory confirmed cases of mumps by age group and region, England: weeks 40-53/2017**

Region	<1	1-4	5-9	10-14	15-19	20-24	25+	NK	Total
North East	–	–	2	–	12	7	16	–	<b>37</b>
North West	–	–	–	2	2	7	12	–	<b>23</b>
Yorkshire & Humber	–	–	1	2	8	6	9	–	<b>26</b>
East Midlands	–	–	1	–	1	5	6	–	<b>13</b>
West Midlands	–	–	–	–	10	8	6	–	<b>24</b>
East of England	–	–	1	–	3	6	8	–	<b>18</b>
London	–	–	1	2	3	13	31	–	<b>50</b>
South East	–	1	–	–	11	15	24	–	<b>51</b>
South West	–	–	–	1	4	7	5	–	<b>17</b>
<b>Total</b>	<b>0</b>	<b>1</b>	<b>6</b>	<b>7</b>	<b>54</b>	<b>74</b>	<b>117</b>	<b>–</b>	<b>259</b>

**Figure 2. Laboratory confirmed cases of mumps by quarter, England: 2003-2017**



## References

1. PHE (2017). [Laboratory confirmed cases of measles, mumps and rubella, England: July to September 2017](#). *HPR* 11(42): immunisation.
2. ECDC (2018). [Monthly measles and rubella monitoring report \(February\)](#).
3. PHE (2017). [PHE National Measles Guidelines](#).
4. PHE (2017). [Guidance for Measles Post-exposure Prophylaxis](#).
5. PHE (2017). 1. Revised PHE National Measles Guidelines; 2. Revised PHE Guidelines on Post-Exposure Prophylaxis for measles. [Briefing Note 2017/036]

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Public Health England exists to protect and improve the nation's health and wellbeing, and reduce health inequalities. We do this through world-class science, knowledge and intelligence, advocacy, partnerships and the delivery of specialist public health services. We are an executive agency of the Department of Health and Social Care, and are a distinct delivery organisation with operational autonomy. We provide government, local government, the NHS, Parliament, industry and the public with evidence-based professional, scientific and delivery expertise and support.

## *About Health Protection Report*

*Health Protection Report* is a national public health bulletin for England and Wales, published by Public Health England. It is PHE's principal channel for the dissemination of laboratory data relating to pathogens and infections/communicable diseases of public health significance and of reports on outbreaks, incidents and ongoing investigations.

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