



Public Health
England

Protecting and improving the nation's health

Laboratory confirmed cases of measles, mumps and rubella, England: July to September 2017

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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 two per 100,000 population).

In order to achieve these targets it is important to ensure 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's global Measles Nucleotide Surveillance (MeaNS) system or the Rubella Nucleotide Surveillance (RubeNS) system, respectively; these 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 third quarter of 2017 (ie July to September). Analyses are done by date of onset of rash/symptoms; 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 27-39/2017

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			
Measles	437	278 (64%)	22	10	4	–	36	0.69
Rubella	107	60 (56%)	–	–	–	–	0	0.50
Mumps	1963	1152 (59%)	218	8	20	13	259	N/A

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

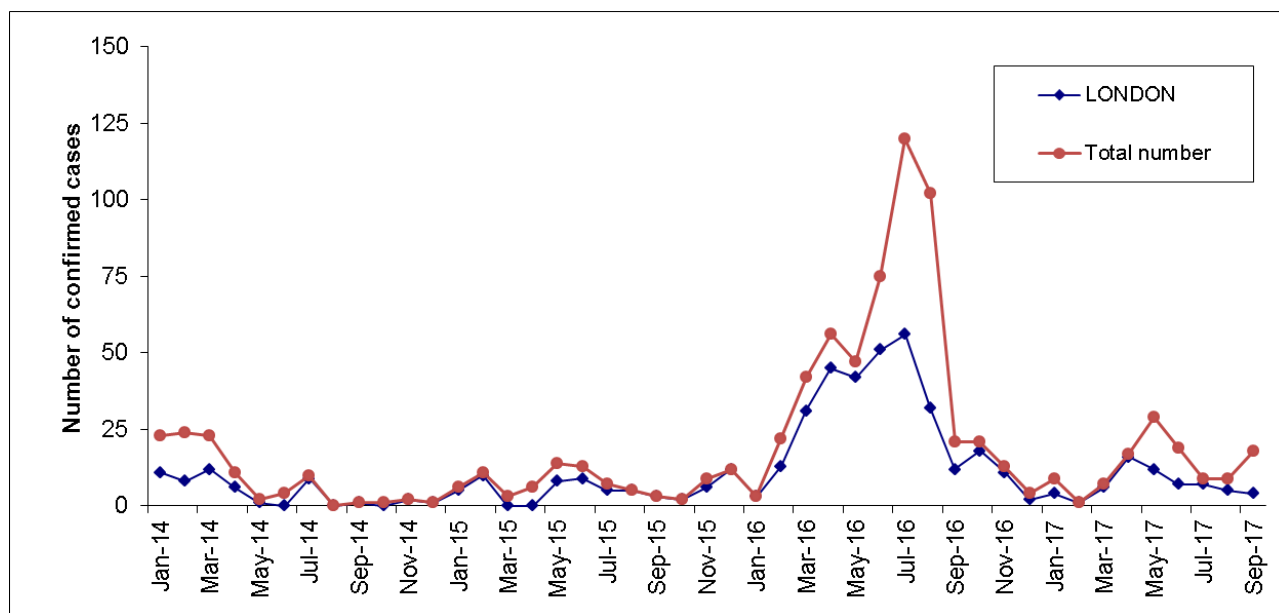
** The rate of suspected measles or rubella cases investigated and discarded as non-measles or non-rubella cases using laboratory testing in a proficient laboratory. The annual discard rate target set by WHO is 2 cases per 100,000 population. We present quarterly rates here with an equivalent target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

Measles

In England, 36 new measles infections were confirmed in the third quarter of 2017 compared to 64 in the period between April and June 2017 (figure1) [1]. London reported the largest number of cases this quarter (n=16, 44%) but these were all sporadic cases. A cluster of six cases, all with the same D8 strain was identified in the Bournemouth and Poole area in the South West region. Four of the six cases were in adults and none had any known travel links. In addition in September an outbreak (B3 genotype) was declared in the South West region linked to a Steiner school in the Stroud area (table 2) which is currently ongoing (n=9, up to end September).

In line with recent epidemiology, half (18/36, 50%) of all measles cases reported this quarter were in adults over 18 years of age with a high hospitalisation rate of 61%. Three cases reported having one dose of MMR.

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



In England, 12 (33%) infections this quarter were associated with recent travel, all but one of the infected individuals travelled to Europe: Romania (3 cases), Spain (2 cases), Italy, (2 cases), Belgium (1 case), Netherlands (1 case), Kosovo (1 case), France (1 case) and Uganda (1 case).

All the measles cases that had genotyping information available (27/36, 75%) this quarter were either B3 or D8. The previously reported measles outbreaks in Europe are ongoing. In the 12-month period between 1 September 2016 and 31 August 2017, the highest number of cases were reported by Romania (4,982) (genotype B3), Italy (4,814) (genotypes B3 and D8) and Germany (967) (genotypes B3 and D8), accounting for 39%, 38% and 8% respectively of all EU/EEA cases [3]. 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 64% of all suspected measles cases, well below the 80% WHO target (Table 1).

Scotland and Northern Ireland reported three confirmed measles cases this quarter. In May an outbreak was declared in the south-east region of Wales after an importation from Europe led to some community transmission, in part fuelled by links to schools with low MMR coverage. Seventeen confirmed cases were reported linked to this outbreak over a period of four months (May to August 2017) and a full write up was published in Eurosurveillance in October [2].

In September WHO confirmed that the UK achieved measles elimination and that rubella elimination continues to be sustained. This achievement is testament to the hard work done by health professionals in the NHS to ensure that children and adults are fully protected with two doses of the measles, mumps and rubella (MMR) vaccine. However, imported measles cases continue to be reported, and limited onward spread can occur in communities with low vaccine coverage and in age groups with very close mixing.

PHE Health Protection Teams (HPTs) should be aware that the revised National Measles Guidelines [5] and the Guidelines on Post-exposure Prophylaxis for Measles [6] published in August of this year [7]. (The congregation context “Measles 2017” should be used for all measles cases reported to HPZone from 1 January of this year.)

Table 2. Laboratory confirmed cases of measles by age group and region, England: weeks 27-39/2017

Region	<1yr	1-4 yrs	5-9 yrs	10-14 yrs	15-19 yrs	20-24 yrs	25-29 yrs	30-34 yrs	>35 yrs	Total
North East	–	–	–	2	–	–	–	–	–	2
North West	–	2	–	–	–	1	–	–	1	2
Yorks/Humber	–	1	–	–	–	–	–	–	–	1
East Midlands	–	–	–	–	–	–	–	–	–	0
West Mids.	–	–	–	–	–	–	–	–	–	0
East of England	–	1	–	–	–	–	–	–	1	2
London	–	–	2	3	–	3	4	2	2	16
South East	1	–	–	–	–	–	–	–	3	12
South West	–	–	4	1	3	1	–	–	3	12
Total	1	2	6	6	3	5	4	2	7	36

Rubella

No new infections have been identified in England in 2017, to date.

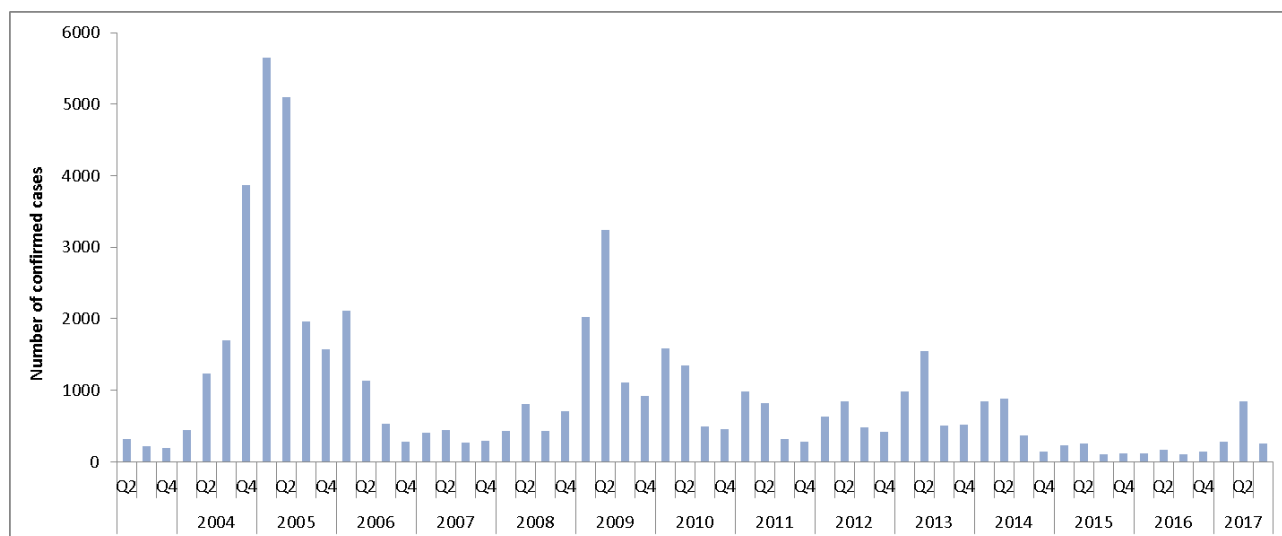
Mumps

An decrease in mumps activity in England was observed this quarter with 259 laboratory confirmed mumps infections compared to 851 in the previous quarter, in line with usual seasonal trends (figure 2) [1]. Mumps cases were reported in all regions of England this quarter (table 3) predominantly in young adults aged 16 to 30 years (169/259, 65%) and PHE is aware of several outbreaks linked to colleges and Universities. This is not unusual as transmission is usually fuelled by close contact, for example in halls of residence, events and parties. A third (89/259, 34%) of the cases this quarter were either unvaccinated or incompletely vaccinated individuals. 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 27-39/2017

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

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: April to June 2017](#). *HPR* 11(30): immunisation.
2. Public Health Wales (11 August 2017). [Back to school: MMR urged after new cases in measles outbreaks](#).
3. Public Health Agency [Northern Ireland] (July 2017). [Vaccine reminder after small number of measles cases confirmed](#).
4. NaTHNaC (26 April 2017). [Measles in Europe: a reminder for travellers to be up to date with measles vaccine](#).
5. PHE (2017). [PHE National Measles Guidelines: August 2017](#).
6. PHE (2017). [Guidance for Measles Post-exposure Prophylaxis](#).

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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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