



Public Health
England

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Laboratory-confirmed cases of measles, rubella and mumps, England: October to December 2018

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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 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 last quarter of 2018 (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 40-53/2018

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	846	536 (63%)	59	35	2	1	97	1.15
Rubella	99	92(93%)	1	–	–	–	1	0.33
Mumps	1997	1241 (62%)	162	3	5	–	170	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, 97 new measles infections were confirmed in the last quarter of 2018 compared to 143 in the period between July and September 2018 [1] (Figure1). This brings the total of laboratory confirmed cases in England to 966 compared to 259 in 2017.

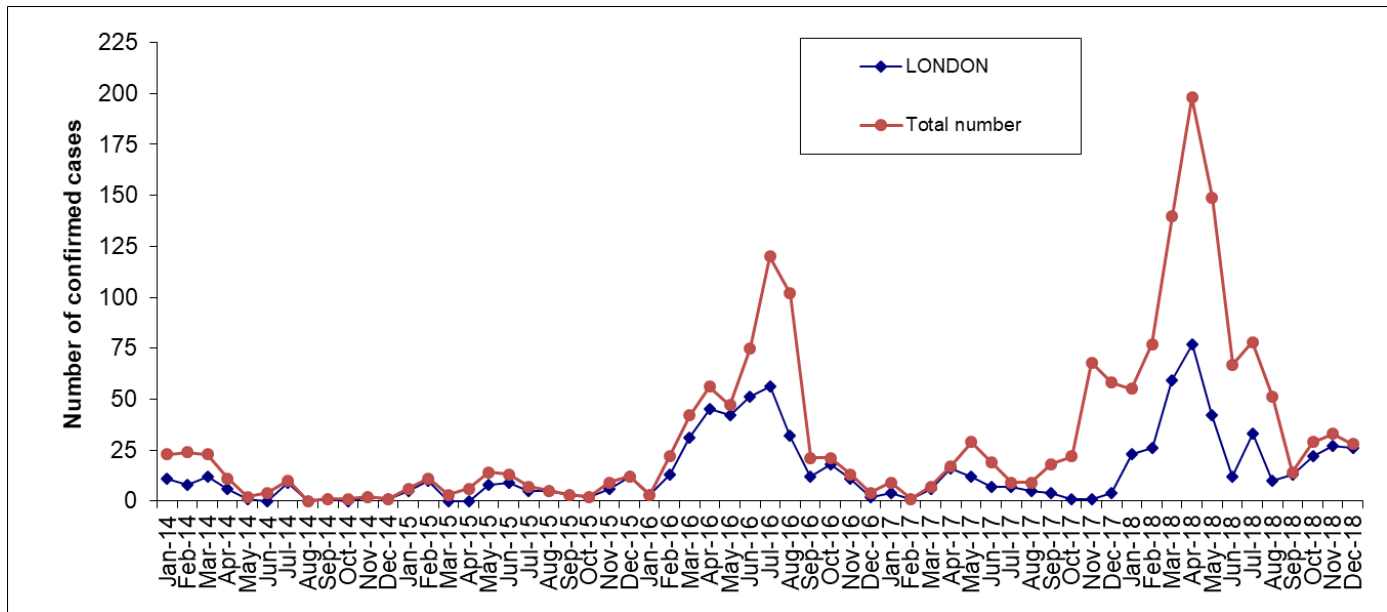
Most of the cases this quarter were associated with an outbreak in London, linked to the Orthodox Jewish community and importations from Israel. West Midlands and South West regions have reported no new cases this quarter.

In total this quarter there were nine (9%) infections associated with recent travel abroad. Five cases were imported from Israel and one each from Portugal, Ukraine, Somalia and Thailand.

Almost eighty percent of all the cases this quarter (77/97) were in children under 15 years of age. Twenty percent of cases reported between October and December 2018 were admitted to hospital because of their infection compared to 30% in previous quarter. Thirty one percent of the laboratory

confirmed cases attended A&E department this quarter compared to 37% of cases in the previous quarter. Nine cases (9%) 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 – Dec 2018



All the measles cases that had genotyping information available (75/97, 77%) this quarter were either B3 or D8. Earlier this month the European Centre for Disease Prevention and Control (ECDC) [2] published their monthly report with information to December 2018 with notable increases in cases observed in Poland, Slovakia and Lithuania in the last month of 2018.

In 2018, 12 352 cases of measles were reported across Europe with the highest number of cases reported by France (2 913, 24% of cases), Italy (2 517, 20% of cases), Greece (2 293, 19% of cases), Romania (1 087, 9% of cases), United Kingdom (953, 8% of cases)¹, Slovakia (572, 5% of cases) and Germany (542, 4% of cases)[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 63% of all suspected measles cases, well below the 80% WHO target (Table 1).

No new cases of measles were reported from Wales, Scotland or Northern Ireland this quarter.

¹ Provisional numbers provided to ECDC as part of TESSy reporting

On 9 January the UK published the new measles and rubella elimination strategy aiming to achieve future without measles, rubella and congenital rubella [3]. The strategy focuses on four core components required to achieve and maintain elimination of measles and rubella: achieving and sustaining $\geq 95\%$ coverage in the routine childhood programme; achieving $\geq 95\%$ coverage with 2 doses of MMR vaccine in older age cohorts through opportunistic and targeted catch-up; strengthening measles and rubella surveillance; ensuring easy access to high-quality, evidence-based information for health professionals and the public.

Health Protection Teams are advised to add the congregation context “Measles2019” to 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/ 2018

Region	Under 1 year	1 to 4 years	5 to 9 years	10 to 14 years	15 to 19 years	20 to 24 years	25 to 29 years	30 - 34 years	Over 35 years	Total
East Midlands	–	1	1	2	–	–	–	–	–	4
East of England	4	1	–	1	–	–	–	1	–	7
London	9	40	10	5	2	–	4	5	7	82
North East	–	–	–	–	–	–	–	–	1	1
North West	–	1	–	–	–	–	–	–	–	1
South East	–	1	–	–	–	–	–	–	–	1
South West	–	–	–	–	–	–	–	–	–	0
West Midlands	–	–	–	–	–	–	–	–	–	0
Yorkshire and The Humber	–	1	–	–	–	–	–	–	–	1
Total	13	45	11	8	2	0	4	6	8	97

Rubella

One new rubella infection was confirmed this quarter in an adult male, believed to have been acquired abroad. The number of rubella infections confirmed in England in 2018 was 2, both of which were believed to have been acquired abroad. This is compatible with 3 rubella infection confirmed in 2017.

ECDC reported that in the 12 months between January and December 2018, 579 rubella cases were reported across the EU countries with the majority reported in Poland, Germany, Italy and Spain [2].

Mumps

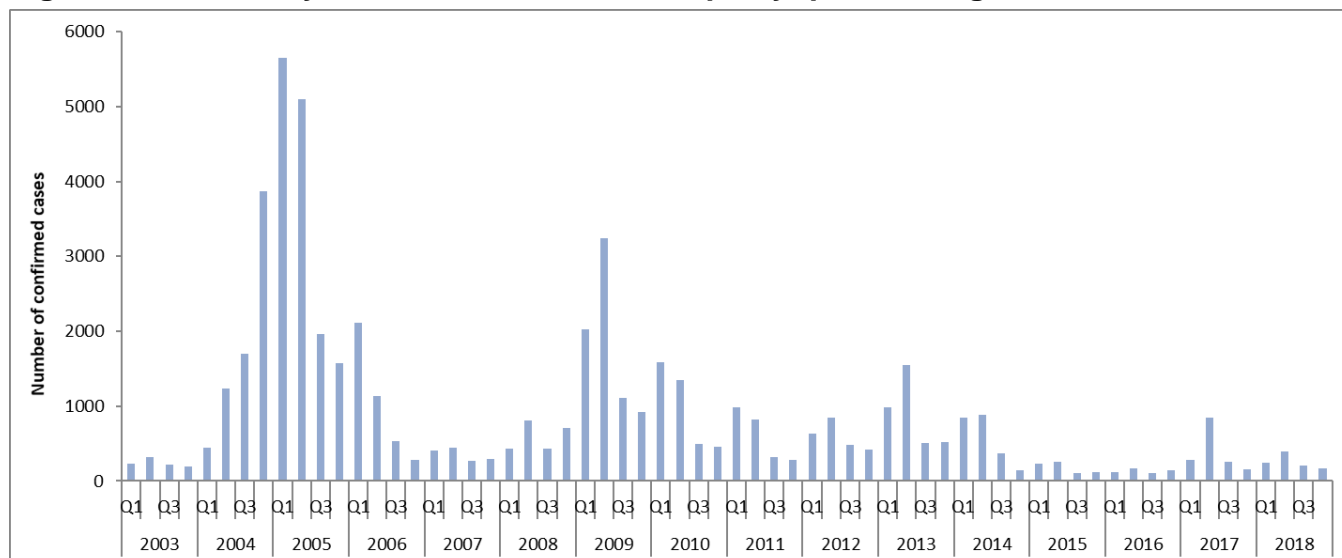
A decrease in mumps activity was observed in England this quarter with 170 laboratory confirmed mumps infections, in line with usual seasonal trends [1] (Figure 2). The total number of mumps infection confirmed in England in 2018 was 1024 compared to 1796 infections in 2017. Mumps cases were reported in all regions of England, (Table 3) predominantly in young adults aged 15 to 34 years (132/170, 78%). More than a half (91/170, 54%) 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 40-53/2018

Region	<1	1-4	5-9	10-14	15-19	20-24	25+	NK	Total
North East	–	–	–	–	5	3	2	–	10
North West	–	–	–	2	29	22	7	–	60
Yorkshire & Humber	–	–	–	–	2	11	5	–	18
East Midlands	–	–	1	–	–	1	–	–	2
West Midlands	–	–	2	1	5	4	9	–	21
East of England	–	1	–	3	1	1	4	–	10
London	–	–	–	–	2	5	15	–	22
South East	–	3	1	1	1	5	6	–	17
South West	–	–	–	–	2	5	3	–	10
Total	0	4	4	7	47	57	51	0	170

Figure 2: Laboratory confirmed cases of mumps by quarter, England 2003-2018



References

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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 to advise and support government, local authorities and the NHS in a professionally independent manner.

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.

Public Health England, Wellington House, 133-155 Waterloo Road, London SE1 8UG

Tel: 020 7654 8000 www.gov.uk/phe

Twitter: [@PHE_uk](https://twitter.com/PHE_uk) Facebook: www.facebook.com/PublicHealthEngland

Queries relating to this document should be directed to: the Immunisation, Hepatitis and Blood Safety Department, National Infection Service, 61 Colindale Avenue, London NW9 5EQ.

immunisation@phe.gov.uk

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