Public Health England

Protecting and improving the nation's health

# Laboratory confirmed cases of measles, rubella and mumps, England: January to March 2019

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# Laboratory confirmed cases of measles, rubella and mumps, England: January to March 2019

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 first quarter of 2019 (i.e. January to March). 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 1-13/2019

| | 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 | 1055 | 661 (62.7%) | 144 | 58 | 14 | 15 | 231 | 1.3 |
| Rubella | 115 | 63 (54.8%) | 0 | 0 | 0 | 0 | 0 | 0.3 |
| Mumps | 3051 | 1788 (58.6%) | 747 | 9 | 39 | 0 | 795 | 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

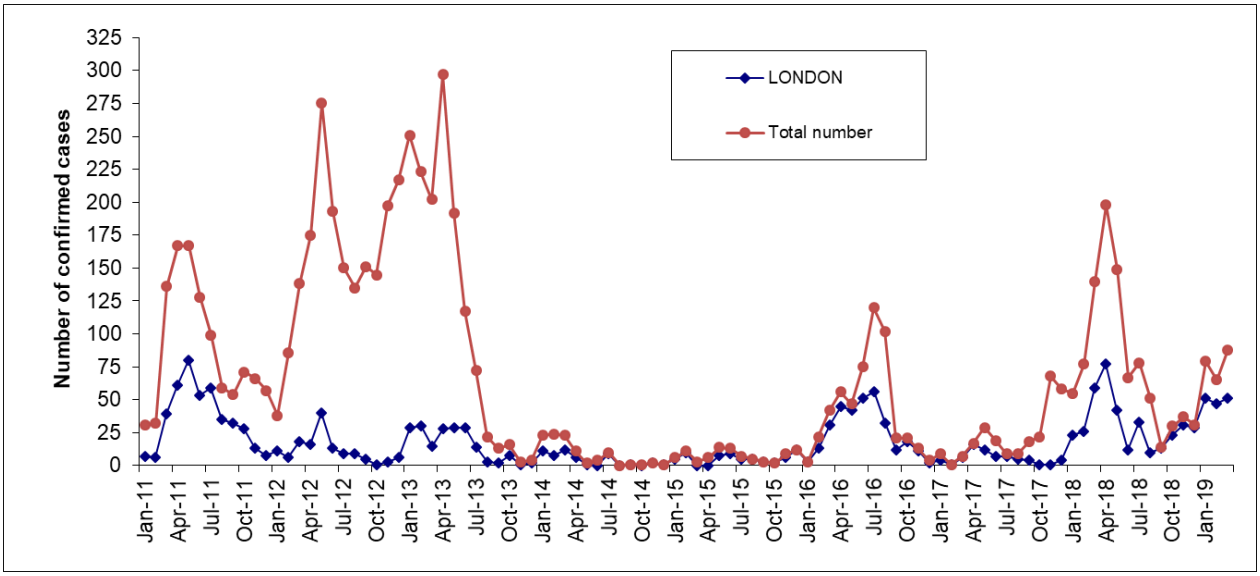
## Measles

In England, 231 new measles infections were confirmed in the period between January and March 2019 compared to 90 in the last quarter of 2018 [1] (see figure1). Most of the cases this quarter were associated with outbreaks in London, the North West and the East of England. Under-vaccinated ultra-orthodox Jewish communities and traveller communities have been particularly affected.

In total this quarter there were 25 (11%) infections associated with recent travel abroad. The majority of the infections acquired abroad (16/25, 64%) were associated with recent travel to Europe, eight were linked to travel to Asia and one to the Americas.

Almost 70 percent of all the cases this quarter (151/231) were in children under 15 years of age. The hospitalisation rate was consistent with previous quarter around 20%. Twenty-five cases (11%) 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 – Mar 2019



All the measles cases that had genotyping information available (102/231, 44%) 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 March 2019 with continuous increases in cases observed across Europe, most notable in France, Lithuania, Poland and Bulgaria. In the 12 months up to March 2019, 11,383 cases of measles were reported to the European Centre for Disease Prevention and Control, Italy (2 107), France (2 028), Romania (1 390), Greece (870), United Kingdom (860), Poland (828), Germany (733) and Slovakia (714) [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 (see table 1).

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

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

Health Protection Teams have been 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 1-13/2019

| **Region** | Under 1yr | 1 to 4 yrs | 5 to 9 yrs | 10 to 14 yrs | 15 to 19 yrs | 20 to 24 yrs | 25 to 29 yrs | 30 to 34 yrs | Over 35 yrs | **Total** |
|---|---|---|---|---|---|---|---|---|---|---|
| East Midlands | – | – | – | – | – | – | – | – | 1 | **1** |
| East of England | 4 | 3 | 6 | 2 | – | – | – | – | 3 | **18** |
| London | 28 | 50 | 13 | 8 | 7 | 7 | 9 | 13 | 14 | **149** |
| North East | 1 | – | – | – | – | – | – | – | – | **1** |
| North West | 1 | 11 | 10 | 6 | 3 | – | 5 | 2 | 1 | **39** |
| South East | – | – | – | – | 1 | 4 | – | – | 2 | **7** |
| South West | – | – | 1 | – | – | 1 | – | – | 4 | **6** |
| West Midlands | – | – | 3 | 2 | – | 1 | – | – | | **6** |
| Yorkshire and The Humber | 2 | – | – | – | 1 | – | – | – | 1 | **4** |
| **Total** | **36** | **64** | **33** | **18** | **12** | **13** | **14** | **15** | **26** | **231** |

**Rubella**

No new cases of rubella were reported in the period between January and March 2019.

ECDC reported that, in March 2019, the majority of rubella cases were reported from Poland although Germany and Ireland also identified cases. In the 12 months up to March 2019, 547 rubella cases were reported across the EU countries with the majority reported in Poland, Germany, Italy, Spain and Romania [2].

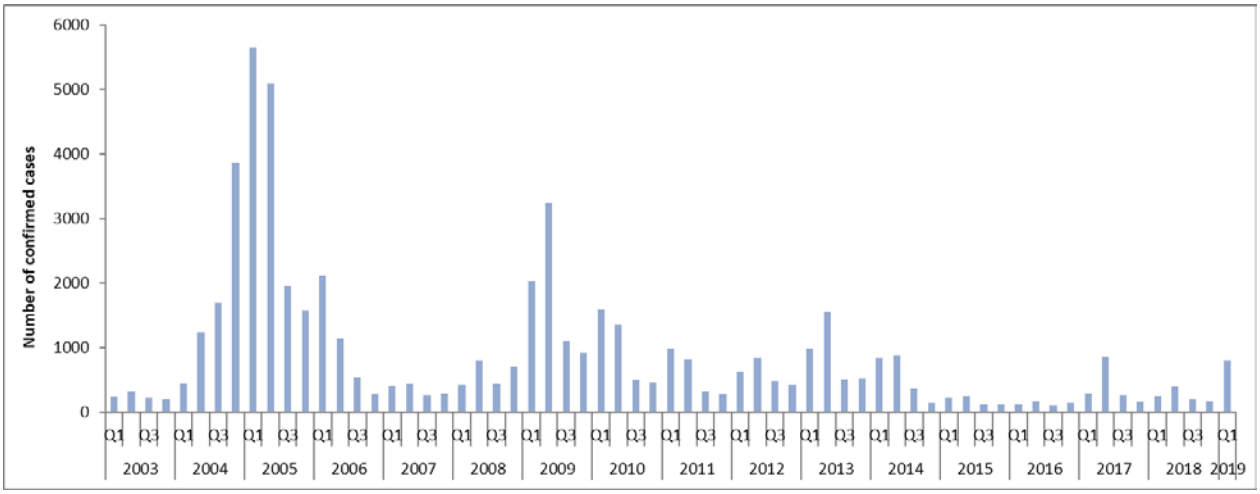
**Mumps**

An increase in mumps activity was observed in England in the first quarter of 2019 with 795 laboratory confirmed mumps infections[1] (see figure 2). The increase in numbers is three folds the total number of mumps infections, 247 cases, confirmed in England in the first quarter of 2018. Mumps cases were reported in all regions of England, (see table 3) predominantly in young adults aged 15 to 34 years (703/795, 88%). Almost half (352/795, 44%) 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 1-13/2019

| Region | <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | NK | Total |
|---|---|---|---|---|---|---|---|---|---|
| North East | – | – | – | – | 10 | 13 | 10 | – | **33** |
| North West | – | 1 | 5 | 10 | 50 | 104 | 64 | – | **234** |
| Yorkshire and the Humber | – | – | – | 3 | 10 | 32 | 11 | – | **56** |
| East Midlands | – | – | 1 | 1 | 51 | 104 | 18 | – | **175** |
| West Midlands | – | 1 | – | 1 | 18 | 26 | 19 | – | **65** |
| East of England | – | – | 1 | – | 3 | 13 | 11 | – | **28** |
| London | – | – | 1 | 1 | 10 | 15 | 34 | – | **61** |
| South East | – | 2 | 3 | – | 17 | 29 | 32 | – | **83** |
| South West | – | – | 1 | – 0 | 15 | 34 | 10 | – | **60** |
| **Total** | **0** | **4** | **12** | **16** | **184** | **370** | 209 | – | **795** |

Figure 2: Laboratory confirmed cases of mumps by quarter, England - 2003-2019




## References

1. PHE (February 2019). Laboratory confirmed cases of measles, mumps and rubella, England: October to December 2018. *HPR* **13**(8).
2. ECDC (May 2019). Monthly measles and rubella monitoring report.
3. Measles and rubella elimination UK strategy 2019.

# About Public Health England

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 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.

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