



Public Health  
England

Protecting and improving the nation's health

# Laboratory confirmed cases of measles, rubella and mumps, England: April to June 2020

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# Laboratory confirmed cases of measles, rubella and mumps, England: April to June 2020

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 second quarter of 2020 (ie April to June). 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 14 to 26 of 2020**

	Total suspected cases*	Number (%) tested by OF <b>Target: 80%</b>	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	114	71(62%)	0	0	0	0	0	0.13
Rubella	34	11 (32%)	0	0	0	0	0	0.02
Mumps	1732	377 (22%)	88	14	10	0	112^	N/A

\* This represents all cases reported to HPTs in England, ie 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 two cases per 100,000 population. We present quarterly rates here with an equivalent target of 0.5 per 100,000 population.

^ In the second quarter of 2020 some HPTs did not have the capacity to send out oral fluid kits to all suspected mumps cases.

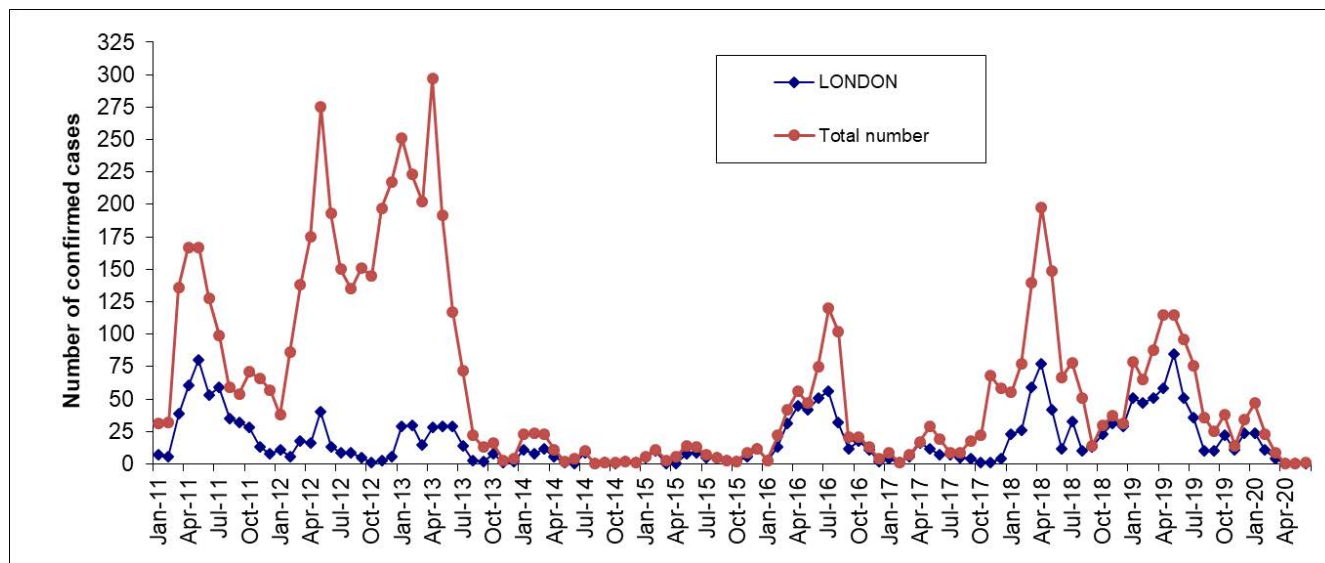
# Measles

The COVID-19 pandemic and the implementation of social distancing measures and lockdown across the UK, including the closure of schools and Universities from the 23<sup>rd</sup> of March (week 13) has had a significant impact on the spread and detection of other infections including measles.

In the UK, no measles infections were detected in the period between April to June 2020 and to date this year there have only been 79 confirmed measles cases, with the last onset date recorded on the 20<sup>th</sup> of March. [1] (Figure 1). There has also been a sharp decline in measles notifications. This is in stark contrast to the 532 confirmed measles cases reported during the same period last year.

This downward trend in measles notifications has been observed across the world during the COVID-19 pandemic [2].

**Figure 1. Laboratory confirmed cases of measles by month of onset of rash/symptoms reported, London and England: Jan 2011 to June of 2020**



As lockdown eases, international travel and schools re-open we anticipate that measles importations and transmissions within the UK will also resume. All suspected cases of measles and rubella should be reported promptly to Health Protection Teams, a risk assessment conducted, and an Oral Fluid kit (OFK) sent for confirmatory testing even if local diagnostic testing is underway. This quarter an oral fluid sample was taken on 62% of all suspected measles cases, well below the 80% WHO target (Table 1).

## Rubella

In the period between April and June 2020 there were no new rubella cases confirmed in the UK.

## Mumps

In England, there were 112 laboratory confirmed mumps infections between April and June 2020 compared to 3,088 in the period between January and March 2020 and 5,042 mumps cases for all of 2019 [1]. Mumps activity in 2019 was the highest observed in a decade in England and the number of laboratory confirmed cases remained very high in the first quarter of 2020 leading to PHE declaring a National Mumps Incident [3] (Figure 2).

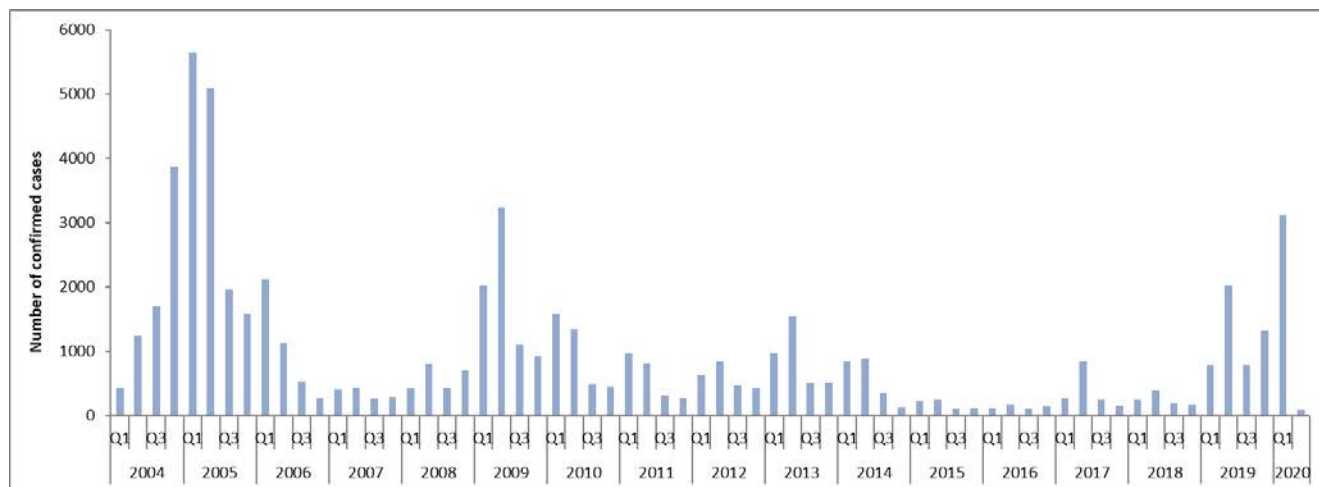
Mumps cases were reported in all regions of England, mainly in April 2020 (Table 3), predominantly in young adults aged 15 to 34 years (91/112, 81%). Around two thirds (75/112, 67%) of the cases this quarter were unvaccinated. Mumps in fully vaccinated individuals can occur, due to secondary vaccine failure, but is less likely to lead to complications requiring hospitalisation such as orchitis and meningitis.

**Table 2. Laboratory confirmed cases of mumps by age group and region, England: weeks 14 to 26 of 2020**

Region	Under 1 year	1-4 yrs	5-9 yrs	10-14 yrs	15-19 yrs	20-24 yrs	25 - 29 years	30 -34 years	> 35 years	NK	Total
North East	–	–	–	2	6	12	9	6	8	–	43
North West	–	–	–	–	1	1	1	–	1	–	4
Yorks. & Humber	–	–	–	1	3	13	1	1	2	–	21
East Midlands	–	–	–	–	1	2	1	–	–	–	4
West Midlands	–	–	–	–	5	6	2	1	–	–	14
East of England	–	–	–	–	3	3	–	–	4	–	10
London	–	–	–	–	2	1	–	–	–	–	3
South East	–	–	–	–	1	4	–	–	2	–	7
South West	–	–	–	–	–	4	–	–	1	–	6
<b>Total</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>3</b>	<b>22</b>	<b>46</b>	<b>14</b>	<b>8</b>	<b>18</b>	<b>–</b>	<b>112</b>

In the second quarter of 2020 some HPTs did not have the capacity to send out oral fluid kits to all suspected mumps cases. In addition, from March, the COVID-19 response may also have affected the ability of some HPTs to send out mumps OFKs. Therefore, the total number of laboratory confirmed mumps cases in the second quarter of 2020 is likely to be an underestimate.

**Figure 2. Laboratory confirmed cases of mumps by quarter, England: 2003-2020**



## Measles, mumps and rubella Oral Fluid Testing

PHE arrangements with Royal Mail have changed and going forward **ALL Oral Fluid specimens need to be posted using a tracked service** using pre-printed labels. As a result of these changes the measles, mumps and rubella OFKs are now being dispatched through a central service commissioned by the NIS Immunisation Division at PHE Colindale [1]. HPTs are asked to note the changes in the service and to familiarise themselves with the full details [here](#) [5] A [new video](#) that explains how to take an oral fluid swab has also been published.

The mumps OF testing service at the National Reference Laboratory at Colindale is back to operating at business as usual so we encourage all HPTs to send OFKs to all suspected mumps cases.

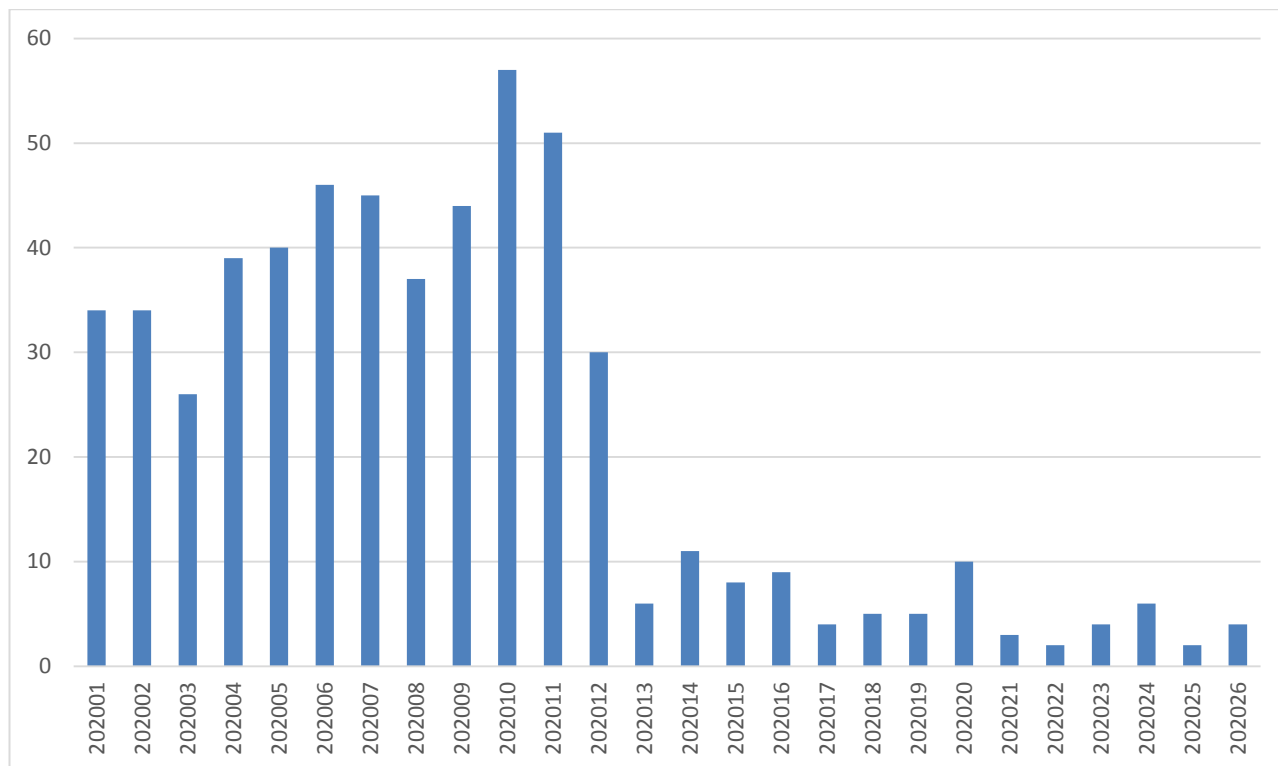
# Impact of the COVID-19 pandemic on measles mumps and rubella surveillance and epidemiology

The routine surveillance and epidemiology of measles, mumps and rubella in the UK has been impacted in a number of ways during the COVID-19 pandemic:

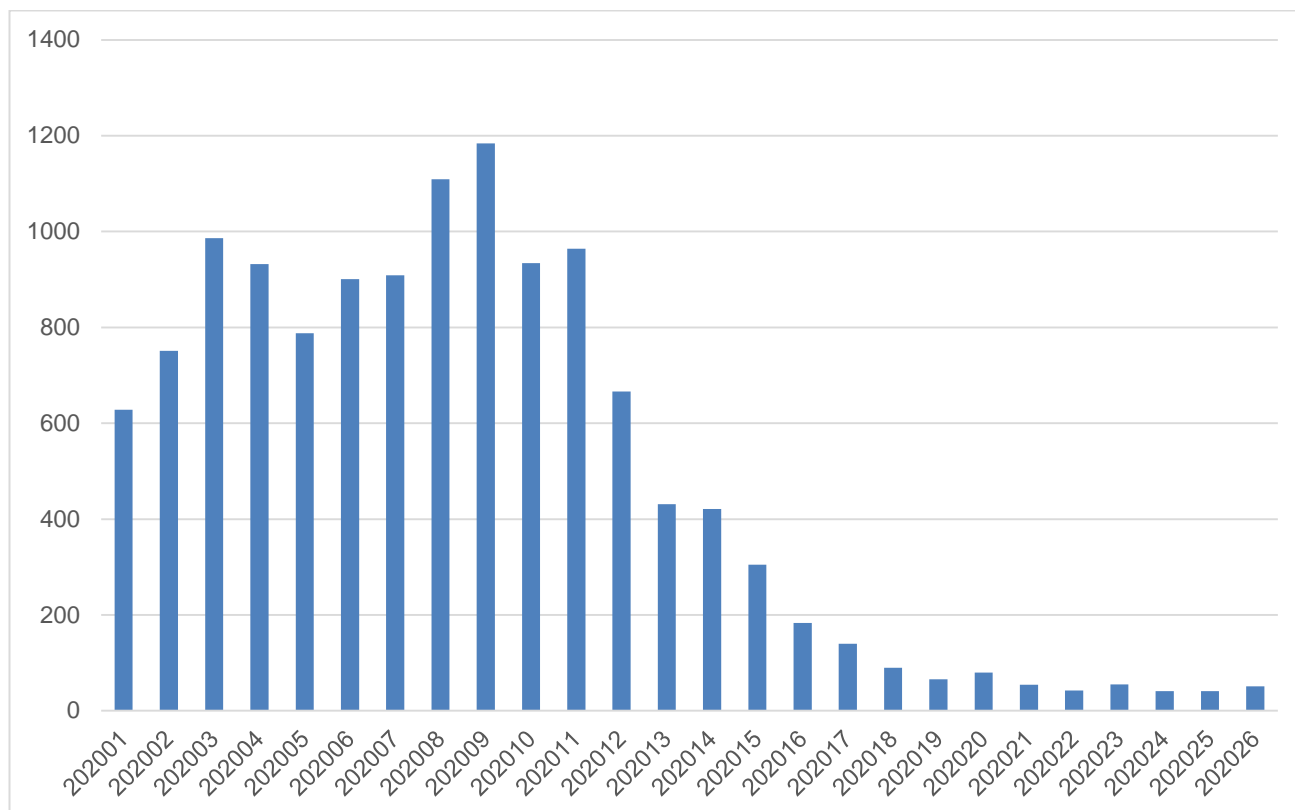
- the significant reduction in international travel will have reduced the number of measles and rubella importations to the UK providing fewer opportunities for new chains of transmission
- social distancing and lockdown will have had a limited impact on measles transmission which is many times more infectious than SARS-CoV-2 [4]. However there has been a significant impact on health seeking behaviour making it more likely that people with mild symptoms did not present to healthcare services. A fall in measles and mumps notifications (Notifications of Infectious Diseases, NOIDS) made to PHE was observed from week 12 and is more pronounced from week 13, the first week of COVID lockdown (see Figures 4 and 5). This drop continued into the next quarter
- the closure of universities in particular will have interrupted mumps transmission linked to outbreaks in these settings.

Finally, a PHE evaluation [6] on the early impact of the COVID-19 pandemic and social distancing measures on the routine childhood vaccinations in England shows that MMR vaccination counts fell from February 2020, and in the three weeks after introduction of social distancing measures were 19.8% lower (95% CI -20.7 to -18.9%) than the same period in 2019, before improving in mid-April. PHE is working closely with partners on a recovery plan to catch-up any children who missed out on MMR and other vaccines in order to prevent outbreaks occurring as social distancing measures are gradually eased.

**Figure 3. Measles notifications, England, weeks 1 to 26 of 2020 (Source: NOIDS)**

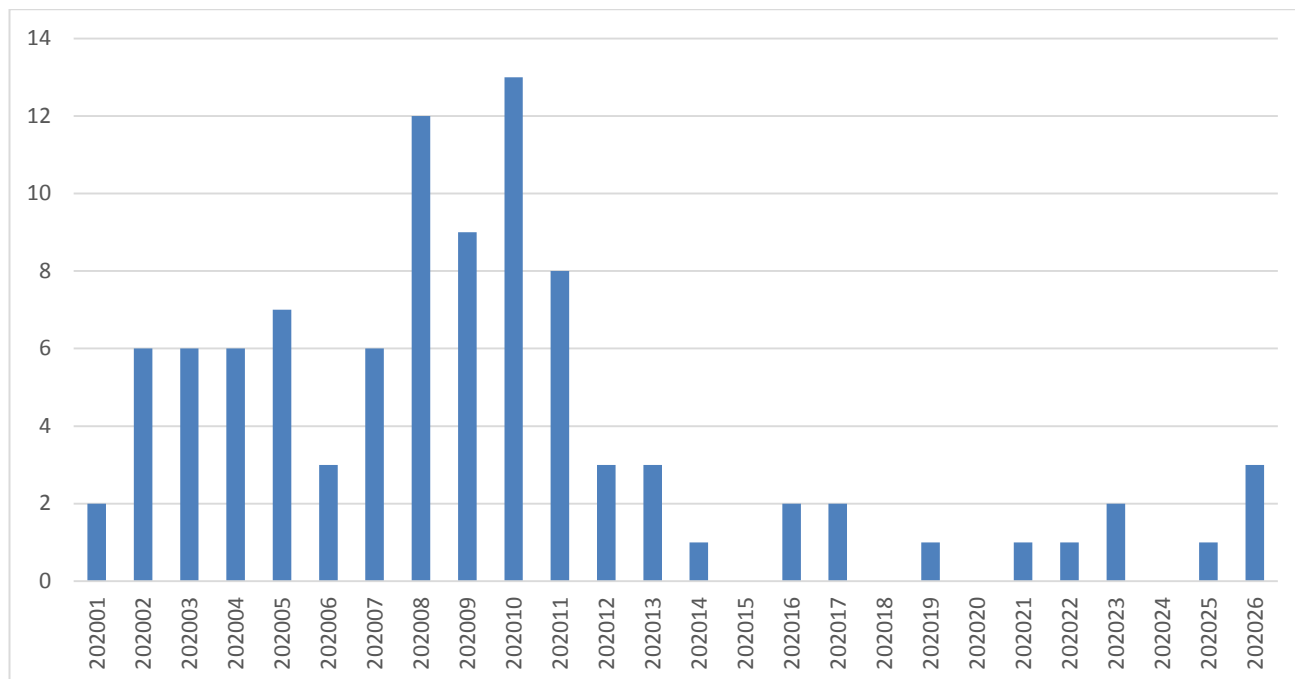


**Figure 4. Mumps notifications, England, weeks 1 to 26 of 2020 (Source: NOIDS)**





**Figure 5. Rubella notifications, England, weeks 1 to 26 of 2020 (Source: NOIDS)**



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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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