



Public Health
England

Protecting and improving the nation's health

Laboratory confirmed cases of measles, rubella and mumps, England: July to September 2020

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Introduction

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 is for the third quarter of 2020 (that is, July to September). Analyses are done by date of onset of rash or symptoms and regional breakdown figures relate to Government Office Regions.

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

- <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 to 39 of 2020

	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	155	87 (56%)	0	0	0	0	0	0.15
Rubella	29	17 (59%)	0	0	0	0	0	0.03
Mumps	820	94 (11%)	2	0	1	0	3 [^]	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 2 cases per 100,000 population. We present quarterly rates here with an equivalent target of 0.5 per 100,000 population.

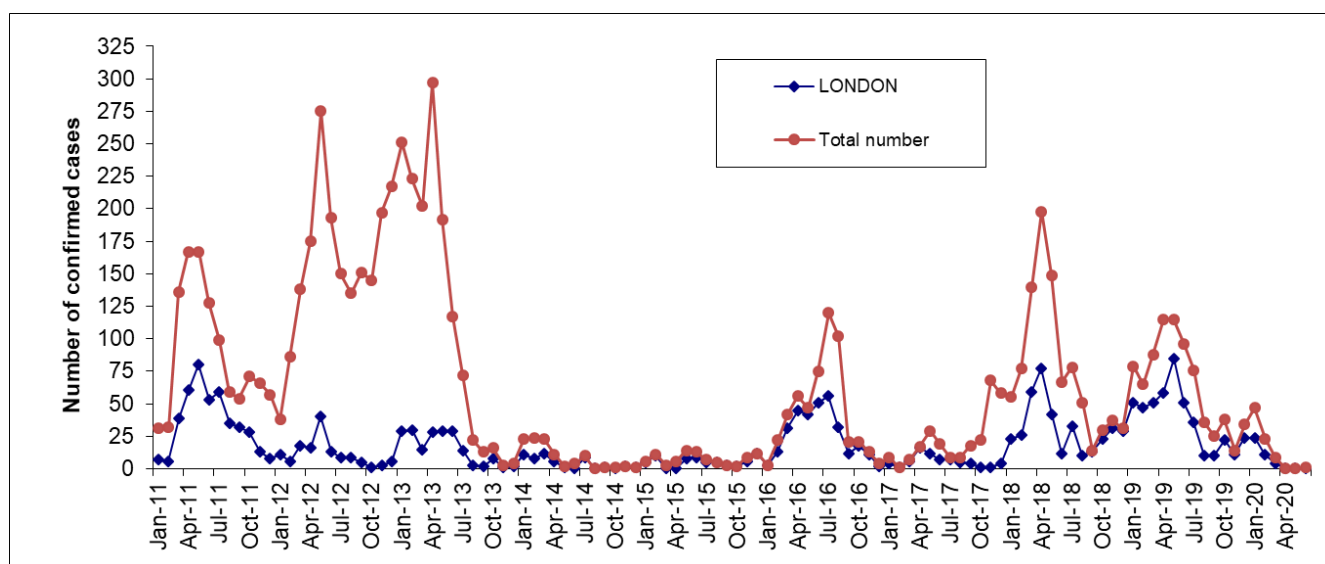
[^] In the third quarter of 2020 some HPTs did not have the capacity to send out oral fluid kits to all suspected mumps cases.

Measles

There have been no new laboratory confirmed measles cases in the UK this quarter and to date this year there have only been 79 confirmed measles cases, with the last onset date recorded on 20 March [1] (Figure1). This is in stark contrast to the 695 confirmed measles cases reported from January to September last year and continues to reflect the significant impact that the COVID-19 pandemic and related public health control measures have had on the spread and detection of other infections.

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: January 2011 to September 2020



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 56% of all suspected measles cases, well below the 80% WHO target (Table 1).

Rubella

There have been no new laboratory confirmed cases of rubella reported in the UK from January to September 2020.

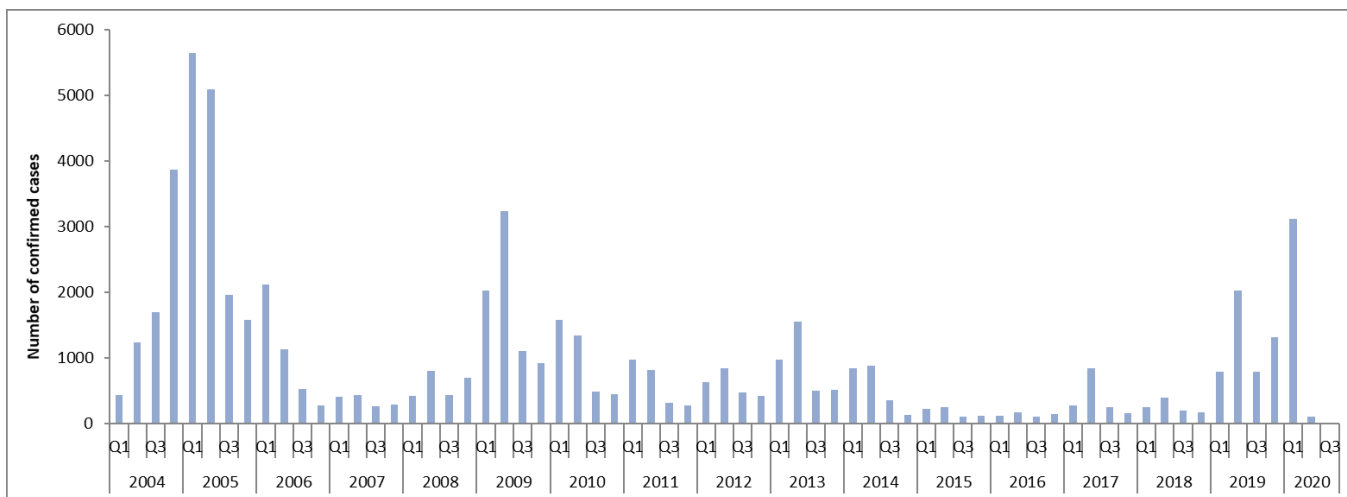
Mumps

In England, there were only 3 laboratory confirmed mumps infections between July and September 2020 compared to 787 in the same period in 2019, and 112 mumps cases in the previous quarter of 2020 [1]. Mumps activity in 2020 continues to be low after the very high numbers reported in the first quarter of 2020 leading to PHE declaring a National Mumps Incident [3] (Figure 2).

Only 11% of suspected mumps cases returned an Oral Fluid Kit (OFK) test in the period between July and September, and so the number of confirmed cases reported is likely to be a significant underestimate.

Health Protection Teams are reminded of the new centralised service for ordering and dispatching Oral Fluid Kits directly to their patients [4].

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



Measles, mumps and rubella Oral Fluid Testing

As previously described [1,4], PHE arrangements with Royal Mail have changed and 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](#) [4] A [new video](#) that explains how to take an oral fluid swab has also been published.

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 tier measures will have had a limited impact on measles transmission which is many times more infectious than SARS-CoV-2 [5]. 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 second and third quarters of this year
- the closure of universities and schools on 23 March will have played a role in interrupting transmission, particularly of mumps outbreaks linked to 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 3 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 39 of 2020 (Source: NOIDS)

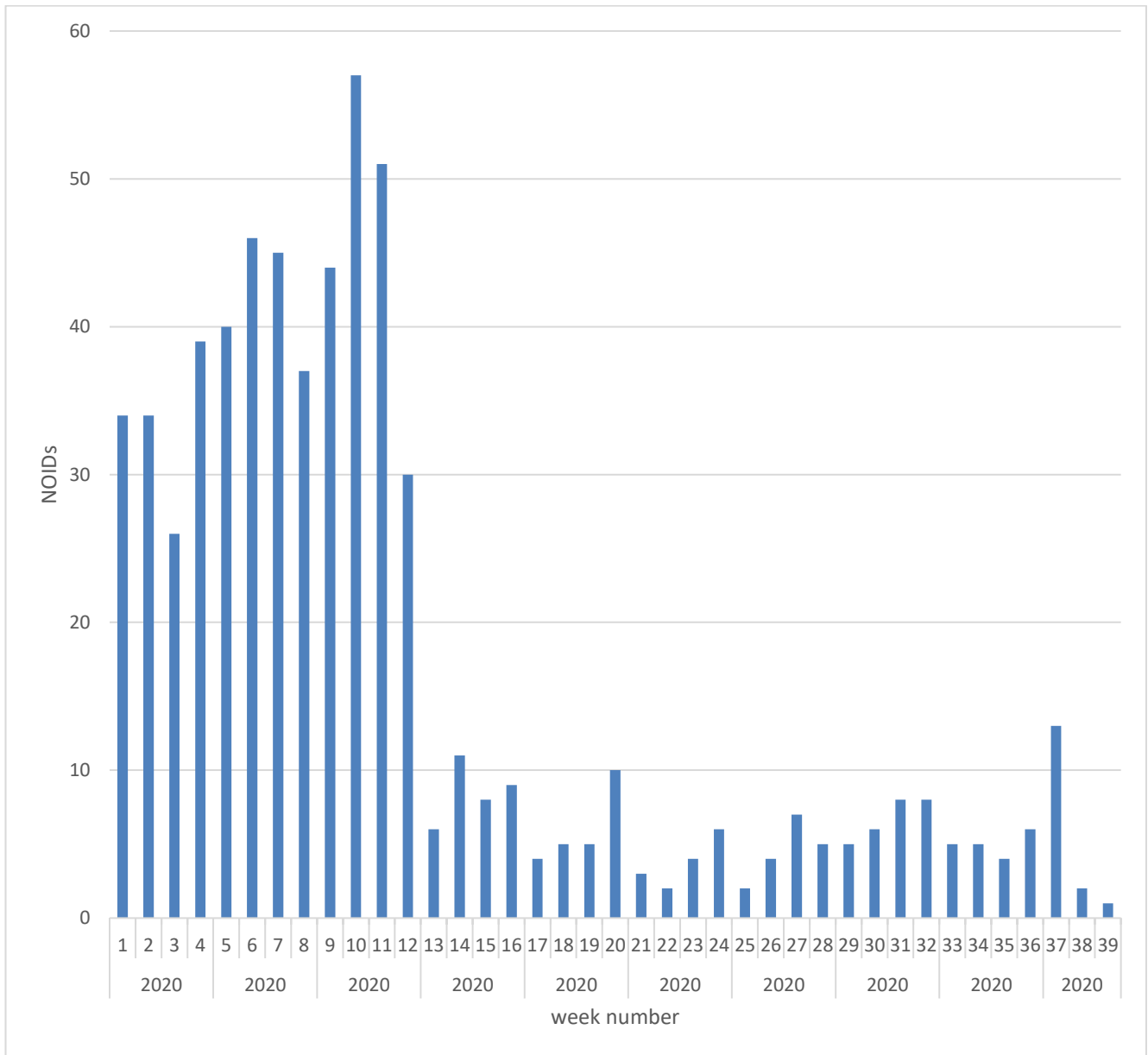


Figure 4. Mumps notifications, England, weeks 1 to 39 of 2020 (Source: NOIDS)

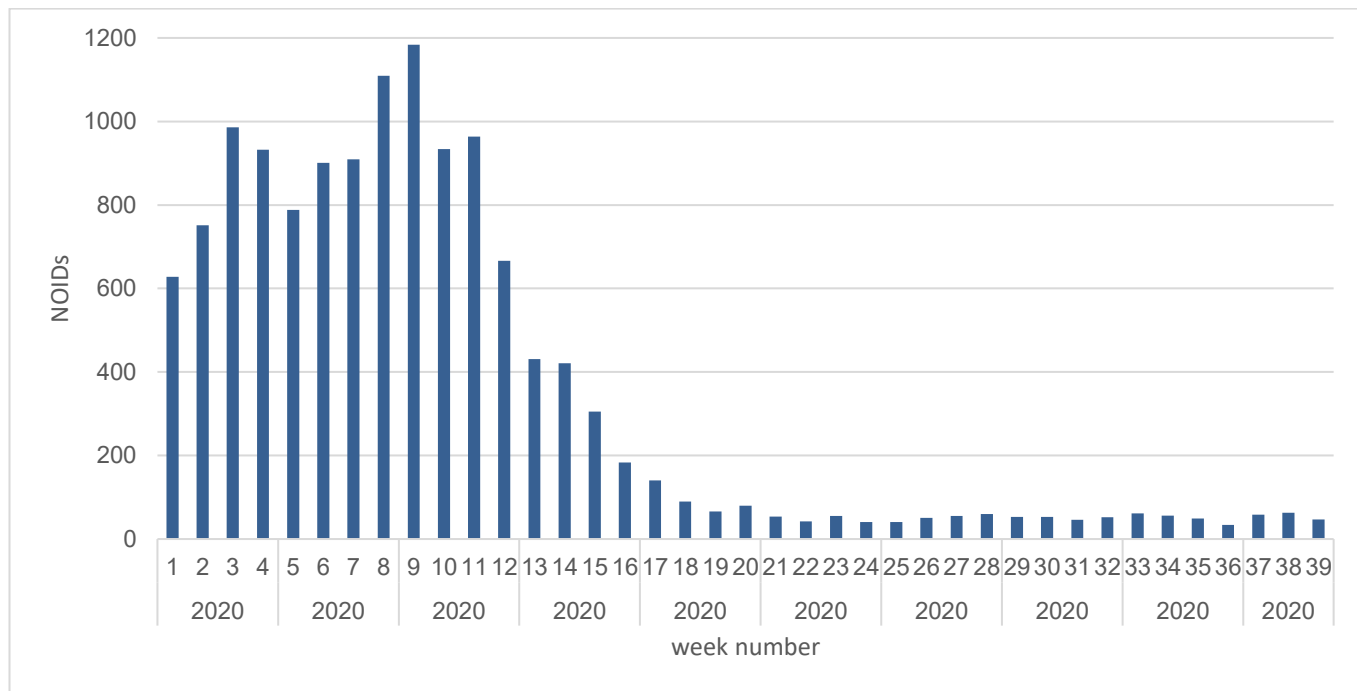
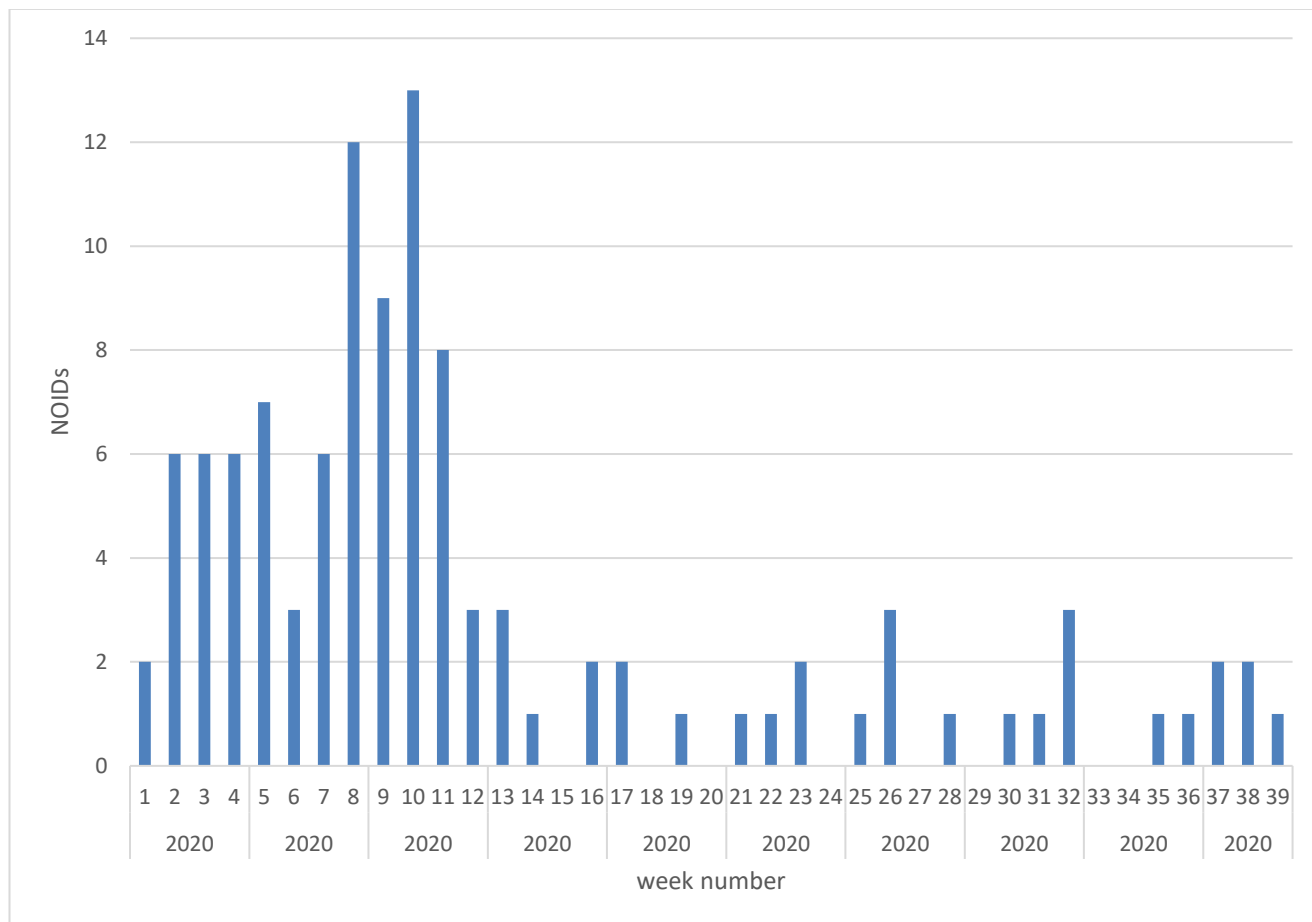


Figure 5. Rubella notifications, England, weeks 1 to 39 of 2020 (Source: NOIDS)



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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 or communicable diseases of public health significance and of reports on outbreaks, incidents and ongoing investigations.

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