Public Health England

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Laboratory confirmed cases of measles, mumps and rubella, England: January to March 2018

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An increase in measles activity in England has been observed in recent months, mainly associated with several large ongoing outbreaks across Europe, in countries where MMR vaccine uptake has been low historically. In March, the European Centre for Disease Prevention and Control (ECDC) [1] published a Rapid Risk Assessment on the measles situation in Europe and in May 2018, PHE re-established the national standard measles response with the aim of supporting local incident management and communications and assessing the need for targeted catch-up campaigns. In this report, data for the first quarter of 2018 is presented. Analyses are done by date of onset of rash/symptoms; regional breakdown figures relate to Government Office Regions.

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.

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.

Historical annual and quarterly measles, rubella and mumps epidemiological data are available, from 2013 onwards, via the following links:

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

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 1-13/2018

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	1201	750 (62%)	175	72	3	15	**265**	0.9
Rubella	132	82 (62%)	1	–	–	–	**1**	0.1
Mumps	2066	1194 (58%)	250	18	7	–	**275**	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

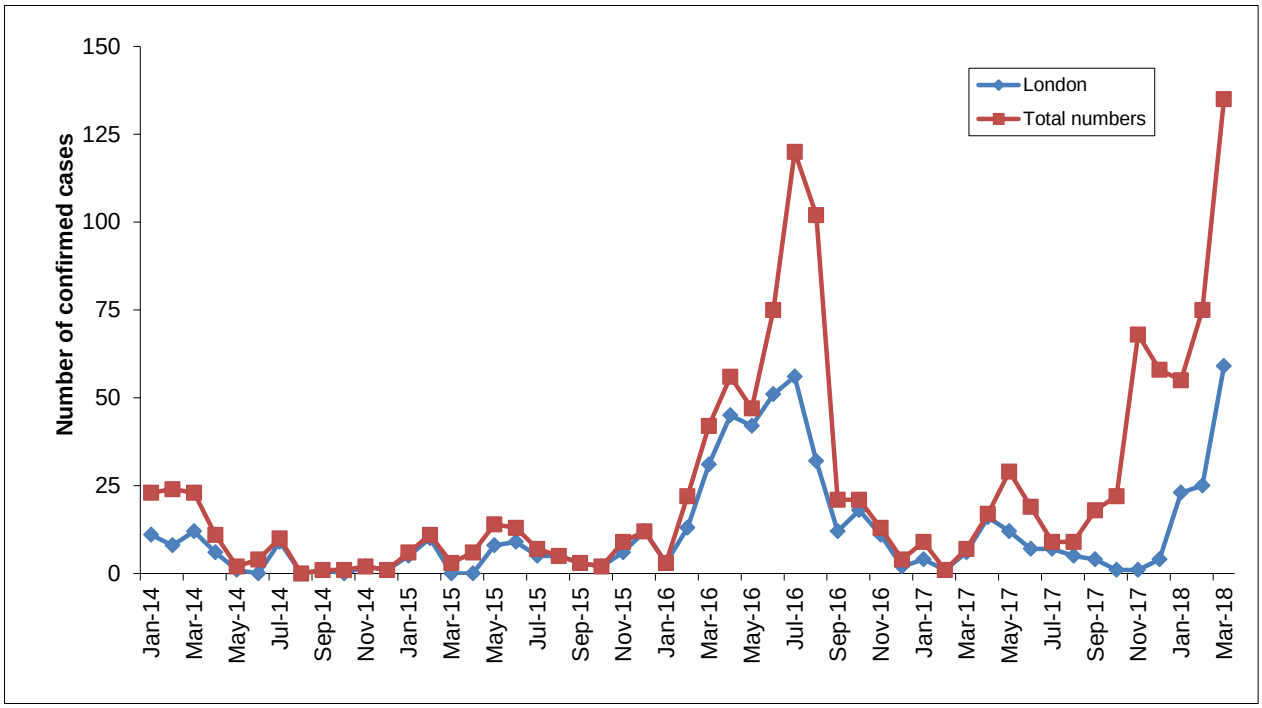
In England, 265 new measles infections were confirmed in the first quarter of 2018 compared to 149 in the period between October and December 2017 [2] (figure1).

In this quarter there has been a relative increase in confirmed cases amongst adults with 42% confirmed cases in adults aged 20 years and above compared with 19% in the previous quarter. 11% confirmed cases occurred in infants under the age of 1; this is higher than the 7% reported in the previous quarter. The hospitalisation rate remains high at 36%, although lower than the previous quarter (45%). 71% confirmed cases reported no measles containing vaccine.

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 62% of all suspected measles cases, well below the 80% WHO target (table 1).

There were a total of 19 (8%) infections associated with recent travel in this quarter. Many of these importations have been from Europe (Georgia, Romania, Italy, France, Spain and Germany), but there have also been importations from Pakistan (3), Afghanistan, Somalia and Djibouti.

Figure 1. Laboratory confirmed cases of measles by month of onset of rash/symptoms reported, London and England: January 2014 to March 2018



The B3 strains circulating in the last quarter of 2017 continue to be identified this quarter. In addition there have been several different D8 strains identified, often associated with the numerous importations that have been described. This matches the situation in Europe with large outbreaks of both B3 and D8.

Wales reported 14 confirmed measles cases in the first quarter of 2018, all linked to an outbreak in Cardiff (D8). Scotland reported one imported measles case (D8) and Northern Ireland reported no new cases.

MMR vaccine is available to all adults and children who are not up to date with the recommended two doses. Practices should maximise all opportunities for catch-up. The vaccine can also be given from six months of age before travel to a high risk country.

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Table 2: Laboratory confirmed cases of measles by age group and region, England: Weeks 1-13/ 2018

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
East Midlands	1	–	–	–	–	–	–	–	1	**2**
East of England	–	–	–	1	1	–	1	–	1	**4**
London	6	14	19	9	9	11	14	9	16	**107**
North East	1	–	–	1	1	–	–	–	–	**3**
North West	1	–	1	–	–	1	–	1	1	**5**
South East	5	8	1	2	5	7	7	6	12	**53**
South West	3	4	1	6	9	–	2	1	5	**31**
West Midlands	10	12	5	6	9	3	6	3	4	**58**
Yorks/Humber	2	–	–	–	–	–	–	–	–	**2**
Total	29	38	27	25	34	22	30	20	40	**265**

Rubella

One new rubella infection was identified this quarter in England in a pregnant woman who was born outside of the UK, highlighting the importance of opportunistic MMR check and offer in women of child bearing age. The outcome of the pregnancy is being followed up.

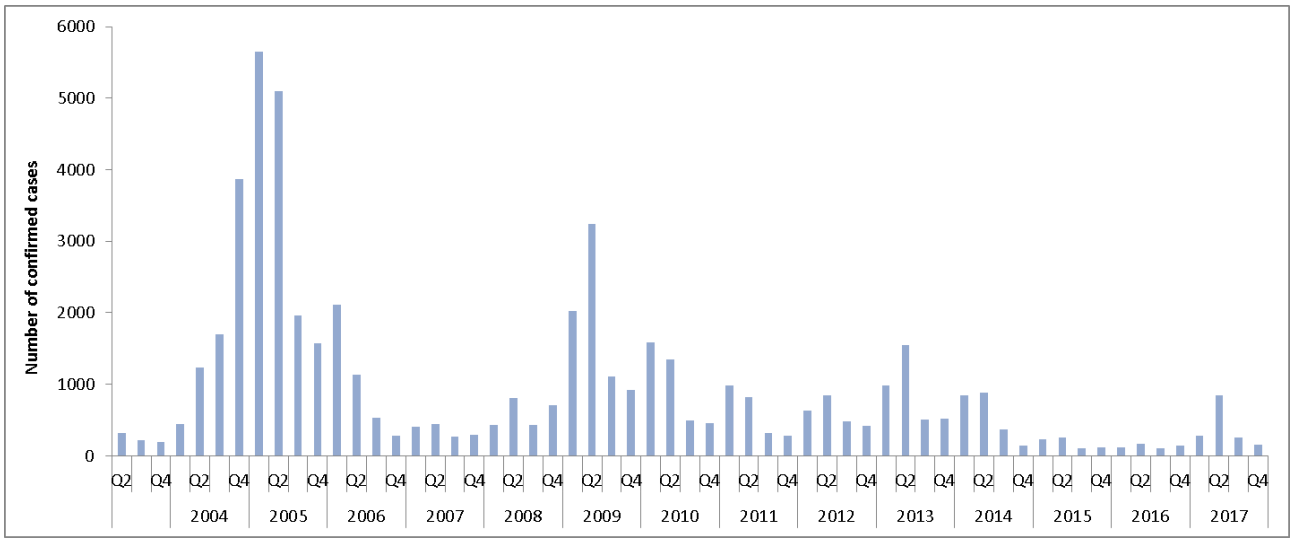
Mumps

An increase in mumps activity in England was observed this quarter with 275 laboratory confirmed mumps infections compared to the 160 the previous quarter, in line with usual seasonal trends and similar to levels observed in quarter 1 of 2017 (283) [1] (figure 2). Mumps cases were reported in all regions of England (table 3) predominantly in young adults aged 15 to 24 years (136/275, 49%). Of the cases where vaccination status was known, (33/136), 24% cases this quarter were unvaccinated. Although mumps in fully vaccinated individuals can occur, the illness is less severe, with shorter duration and less likely to requiring hospitalisation for complications such as orchitis and meningitis.

Table 3. Laboratory confirmed cases of mumps by age group and region, England: Weeks 1-13/ 2018

Region	<1	1-4	5-9	10-14	15-19	20-24	25+	NK	Total
East Midlands	1	–	1	13	7	2	1	3	**28**
East of England	1	–	–	2	2	1	2	3	**11**
London	1	–	–	4	8	4	7	6	**30**
North East	–	–	–	3	2	3	1	–	**9**
North West	1	1	8	20	20	19	13	13	**95**
South East	1	–	–	2	13	10	3	7	**36**
South West	–	–	1	3	7	2	1	4	**18**
West Midlands	–	1	1	8	4	2	3	3	**22**
Yorks/Humber	2	1	1	10	8	2	–	2	**26**
Total	7	3	12	65	71	45	31	41	**275**

Figure 2. Laboratory confirmed cases of mumps by quarter, England: 2003-2017



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1. ECDC (21 March 2018). "Rapid risk assessment: risk of measles transmission in the EU/EEA."

2. PHE (2018). Laboratory confirmed cases of measles, mumps and rubella, England: October to December 2017. *HPR* **12**(7): immunisation.

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, 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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