



Public Health
England

Protecting and improving the nation's health

**Annual summary of respiratory
Mycoplasma pneumoniae laboratory
surveillance data
England and Wales 2018**

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Summary

A total of 393 cases of *Mycoplasma pneumoniae* (Mpn) infection were reported to Public Health England (PHE) during 2018, a decrease from 550 cases in 2017.

This represents the lowest annual number of cases reported since this data was first compiled (2010).

Background

Mycoplasma pneumoniae (Mpn) is a bacterium that causes acute respiratory illness ranging in severity from mild illness to severe pneumonia. It can be fatal in some cases and has rarely been associated with severe complications such as encephalitis. Further information can be found on the [PHE *Mycoplasma pneumoniae* web page](#).

These analyses are based on laboratory reports of Mpn from January to December 2018 in England and Wales, extracted from the PHE voluntary surveillance database Second Generation Surveillance System (SGSS) with data provided from the previous 5 full years for context and comparison.

Laboratory reports included were limited to:

- serological methods (antibody detection, antibody rising titre, IgM detection, antigen detection) on blood, serum or plasma
- nucleic acid amplification testing (NAAT), including polymerase chain reaction (PCR) on blood, serum, plasma, throat, nose/nasal, bronchial, upper respiratory tract, broncho-alveolar lavage (BAL), alveolar, naso-pharyngeal aspirate (NPA), endotracheal aspirate, trachea or sputum

Rates of laboratory detection were calculated using mid-year resident population estimates from the Office for National Statistics (ONS) for the respective year in England [1] and Wales [2]. Geographical analyses by region were based on location of the reporting laboratory.

The data presented here may differ from that in earlier publications due to the inclusion of late reports.

It is recommended that results from serological analyses are interpreted with caution, as NAAT methods are considered to produce a more robust indication of acute infection.

Overall number of Mpn cases reported

In 2018, 393 cases of Mpn were reported to PHE, a 28% reduction from the 550 cases reported in 2017. Following relatively high case numbers in 2012, the number of reported cases of Mpn appeared to decline over 2013 and 2014; case numbers and the overall population rate of detection increased during late 2015 and 2016, before falling back in again 2017, with a further decrease observed in 2018 (Table 1).

Trends in reporting of Mpn cases (combined NAAT and serological methods) can be observed in Figure 1, where 3-weekly moving average numbers of cases are displayed. Distinct peaks are observed in late 2011/early 2012 and late 2015/early 2016, with smaller seasonal peaks in 2013, 2014 and 2017. This trend is consistent with previously-observed epidemic peaks in Mpn incidence at 3 to 4 year intervals, interspersed with smaller seasonal peaks [3]. Cases reported during 2018, however, appeared to decline throughout the year with a less distinctive seasonal pattern.

The proportion of cases detected using NAAT methods, for example PCR, has remained low (14% in 2018, compared with 12% in 2017); a reduction from 34% in 2016. No corresponding large increase in the number of cases detected by serological methods was observed in 2017 and 2018 (Table 3). It is considered that NAAT methods produce a more robust indication of acute infection than serological methods, although the latter appears to be more widely used.

Case numbers reported in 2018 are similar in males and females, and this has remained unchanged, despite fluctuation in overall case numbers during the last 6 years.

Table 1. Annual counts of Mpn cases reported (all methods): 2013 to 2018

Year	Cases	Sex			Overall rate of detection per million population ^{1, 2}
		Male	Female	Unknown	
2013	470	234	234	2	8.25
2014	429	211	216	2	7.47
2015	578	288	289	1	9.98
2016	703	351	348	4	12.09
2017	550	283	265	2	9.42
2018	393	199	191	3	6.70

Population estimates for 1: England; 2: Wales

Table 2. Annual counts of Mpn cases reported (NAAT methods): 2013 to 2018

Year	Cases	Sex			Overall rate of detection per million population ^{1, 2}
		Male	Female	Unknown	
2013	8	4	4	0	0.14
2014	52	29	23	0	0.91
2015	161	78	83	0	2.78
2016	241	119	122	0	4.12
2017	65	35	30	0	1.11
2018	58	28	30	0	0.99

Population estimates for 1: England; 2: Wales

Table 3. Annual counts of Mpn cases reported (serological methods): 2013 to 2018

Year	Cases	Sex			Overall rate of detection per million population ^{1, 2}
		Male	Female	Unknown	
2013	462	230	230	2	8.11
2014	377	182	193	2	6.57
2015	417	210	206	1	7.20
2016	462	232	226	4	7.91
2017	485	248	235	2	8.30
2018	335	171	161	3	5.71

Population estimates for 1: England; 2: Wales

Distribution of Mpn cases by age group, England and Wales, 2013 to 2018

The highest numbers of cases reported in 2018 are observed in the 15 to 44 year age group (Tables 4 and 5), and this has remained consistent since 2013.

Case numbers diagnosed by NAAT methods increased consistently between 2013 and 2016 in all age-groups under 65 years (Table 4), but decreased in all age groups in 2017 and 2018.

Table 4. Annual counts and proportions of Mpn cases by age group (NAAT methods), 2013 to 2018

Year	Number of cases per age group in years (%)							Total cases
	0 to 4	5 to 9	10 to 14	15 to 44	45 to 64	65+	Unknown	
2013	2 (25.0)	0 (0.0)	1 (12.5)	3 (37.5)	2 (25.0)	0 (0.0)	0 (0.0)	8
2014	20 (38.5)	9 (17.3)	0 (0.0)	19 (36.5)	3 (5.8)	1 (1.9)	0 (0.0)	52
2015	53 (32.9)	17 (10.6)	6 (3.7)	58 (36.0)	16 (9.9)	11 (6.8)	0 (0.0)	161
2016	76 (31.5)	22 (9.1)	7 (2.9)	103 (42.7)	27 (11.2)	6 (2.5)	0 (0.0)	241
2017	17 (26.2)	4 (6.2)	5 (7.7)	22 (33.8)	13 (20.0)	4 (6.2)	0 (0.0)	65
2018	26 (44.8)	5 (8.6)	3 (5.2)	16 (27.6)	5 (8.6)	3 (5.2)	0 (0.0)	58

Table 5. Annual counts and proportions of Mpn cases by age group (serological methods), 2013 to 2018

Year	Number of cases per age group in years (%)							Total cases
	0 to 4	5 to 9	10 to 14	15 to 44	45 to 64	65+	Unknown	
2013	33 (7.1)	54 (11.7)	41 (8.9)	151 (32.7)	102 (22.1)	81 (17.5)	0 (0.0)	462
2014	27 (7.2)	36 (9.5)	27 (7.2)	152 (40.3)	60 (15.9)	74 (19.6)	1 (0.3)	377
2015	26 (6.2)	49 (11.8)	32 (7.7)	162 (38.8)	87 (20.9)	60 (14.4)	1 (0.2)	417
2016	38 (8.2)	47 (10.2)	42 (9.1)	181 (39.2)	81 (17.5)	69 (14.9)	4 (0.9)	462
2017	51 (10.5)	69 (14.2)	59 (12.2)	158 (32.6)	76 (15.7)	72 (14.8)	0 (0.0)	485
2018	20 (6.0)	44 (13.1)	27 (8.1)	110 (32.8)	55 (16.4)	79 (23.6)	0 (0.0)	335

Distribution of Mpn cases by geographical region

Large regional differences in case numbers are noted, which may be due to differences in testing algorithm. Overall, the highest proportion of Mpn cases in 2018 has been reported in the Midlands and East of England region. All regions reported fewer cases in 2018 than in 2017, with large reductions in serological detections in the North and South of England regions and in the Midlands and East (Tables 6 and 7).

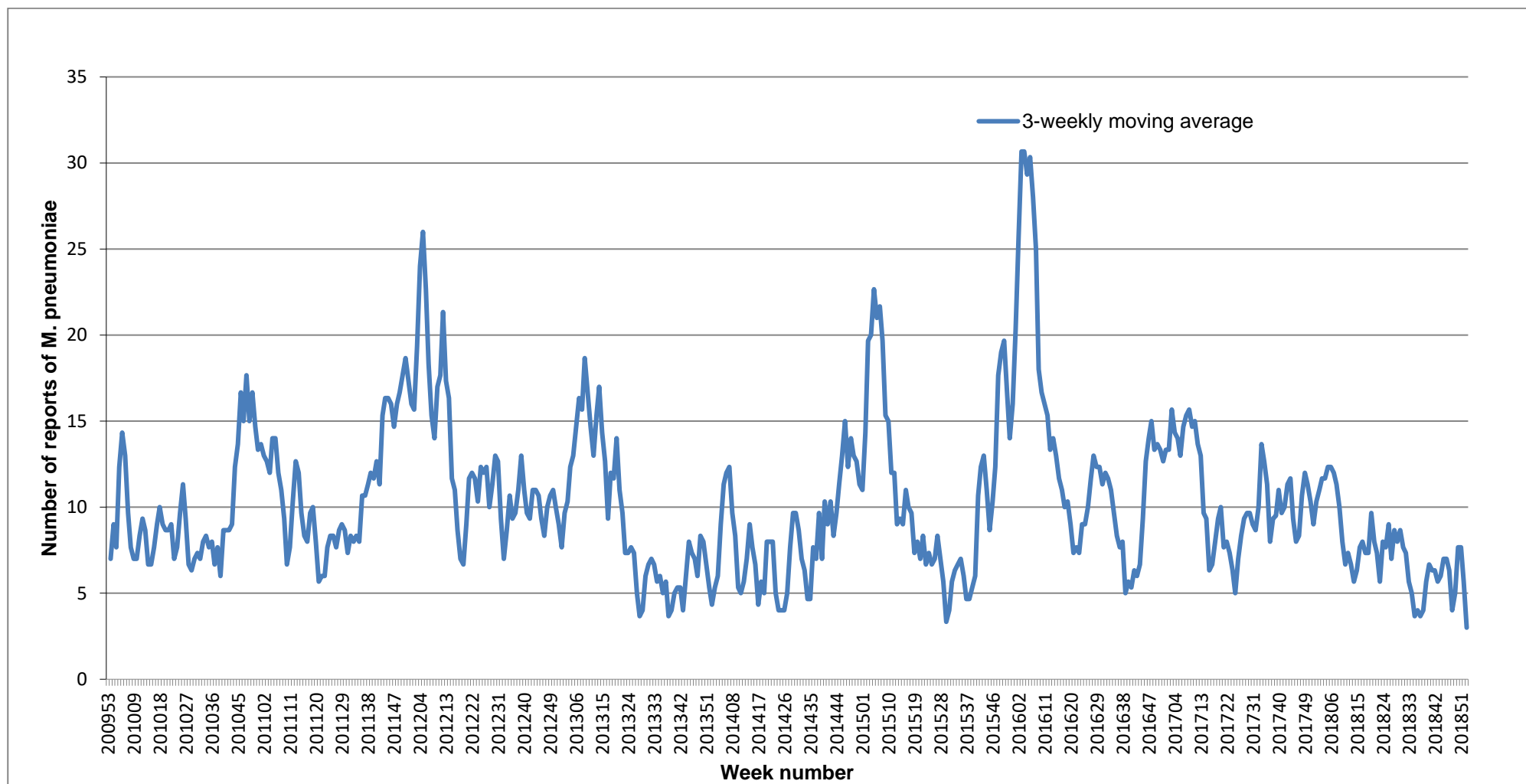
Table 6. Annual counts and proportions of total Mpn cases by England and Wales region (NAAT methods), 2013 to 2018

Year	Cases per region (%)					Total cases
	London	Midlands and East	North	South	Wales	
2013	0 (0.0)	2 (25.0)	1 (12.5)	5 (62.5)	0 (0.0)	8
2014	11 (21.2)	5 (9.6)	10 (19.2)	24 (46.2)	2 (3.8)	52
2015	56 (34.8)	1 (0.6)	59 (36.6)	45 (28.0)	0 (0.0)	161
2016	81 (33.6)	2 (0.8)	93 (38.6)	64 (26.6)	1 (0.4)	241
2017	36 (55.4)	1 (1.5)	14 (21.5)	14 (21.5)	0 (0.0)	65
2018	31 (53.4)	0 (0.0)	20 (34.5)	7 (12.1)	0 (0.0)	58

Table 7. Annual counts and proportions of total Mpn cases by England and Wales region (serological methods), 2013 to 2018

Year	Cases per region (%)					Total cases
	London	Midlands and East	North	South	Wales	
2013	0 (0.0)	142 (30.7)	240 (51.9)	57 (12.3)	23 (5.0)	462
2014	2 (0.5)	149 (39.5)	171 (45.4)	45 (11.9)	10 (2.7)	377
2015	5 (1.2)	190 (45.6)	139 (33.3)	79 (18.9)	4 (1.0)	417
2016	4 (0.9)	218 (47.2)	116 (25.1)	121 (26.2)	3 (0.6)	462
2017	6 (1.2)	201 (41.4)	125 (25.8)	147 (30.3)	6 (1.2)	485
2018	5 (1.5)	156 (46.6)	89 (26.6)	80 (23.9)	5 (1.5)	335

Figure 1. Laboratory detection of Mpn in England and Wales (all methods) from 2010 to 2018 (3-weekly moving average)



NB: Colleagues are kindly requested to refer all positive specimens or DNA extracts for molecular detection of mutations associated with macrolide resistance to the reference laboratory, RVPBRU, BRD, PHE Colindale.

Acknowledgements

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