

## Summary

- Pandemic influenza activity continues to decrease across most regions of the UK and in all age groups, though remains at levels higher than expected for this time of year.
- In week 35 (week ending 30 August), the GP consultation rates decreased in England and Northern Ireland but increased slightly in Wales and Scotland, however all rates were below the normal winter seasonal baseline thresholds (were defined).
- The [National Pandemic Flu Service](#) (NPFS) continues to issue antiviral drugs to people in England with an influenza-like illness who call or log onto the internet site. There has been a general decrease in the number of assessments, and antiviral collections, over the past week.
- Interpretation of data to produce estimates on the number of new cases continues to be subject to a considerable amount of uncertainty with the move to National Pandemic Flu Service (NPFS). HPA modelling gives an estimate of 4500 (range 2500 – 10,000) new cases in England in week 35. The estimated number of new cases has decreased in all regions and age groups.
- The main influenza virus circulating in the UK continues to be the pandemic (H1N1) 2009 strain, with few influenza H1 (non-pandemic), H3 and B viruses detected through sentinel and non-sentinel surveillance. To date, in the UK, no pandemic viruses have been found to be resistant to the antiviral drugs oseltamivir or zanamivir.
- The majority of pandemic influenza cases continue to be mild. The cumulative number of deaths reported due to pandemic (H1N1) 2009 in the UK is 70. There was a total of 348 new patients hospitalised with suspected pandemic influenza in week 35 (up to 8am Monday 31 August); a decrease of 65 from the previous week. The highest hospitalisation rates have consistently been in the under 5-year age group. Hospitalisation rates have remained fairly stable and low in recent weeks in all age groups.
- According to the European Centre for Disease Prevention and Control (ECDC), by 01 September, 2944 deaths due to pandemic influenza had been reported globally. This represents an increase of 13% from the previous week, compared to a 21% increase in the week previous to that. In week 34 Ireland, Northern Ireland and Norway reported medium levels of influenza activity while all other European countries reported low levels.

## Weekly consultation rates in national sentinel influenza schemes

The National Pandemic Flu Service (NPFS) became operational in England on Thursday 23 July at 15.00. The service issues antiviral drugs to people with an influenza-like illness who do not fall into a specified risk group (e.g. aged less than 1 year, pregnant or with a high-risk underlying medical condition). According to [FluSurvey](#), an internet-based monitoring system for influenza surveillance which relies on members of the public reporting their health status weekly, the proportion of participants with influenza-like illness who reported that they contacted their GP fell after NPFS was launched. This will have affected GP consultation rates from week 30 onwards. The under 1 year olds are the only age group that are not considered by NPFS and will always be referred to the health service. NPFS is currently not operational in Northern Ireland, Scotland and Wales.

In week 35 the weekly consultation rates decreased in England and Northern Ireland but increased slightly in Wales and Scotland (table 1, figures 1 and 2).

The overall RCGP (England and Wales) consultation rate has decreased to 11.8 per 100,000 which is below the winter baseline activity threshold of 30 per 100,000. The rates have decreased in all three RCGP regions; the highest rate is still in the central region (14.7 per 100,000). The influenza rate has increased slightly in Wales but remains below the winter baseline threshold of 25 per 100,000. The combined influenza/ILI rate in Northern Ireland has decreased. There has been a slight increase in the ILI rate in Scotland, though the rate of 29.2 per 100,000 remains below the winter baseline threshold of 50 per 100,000. The weekly ILI QSurveillance rate also decreased; thresholds have not yet been set.

The consultation rates in the RCGP scheme for the <1 year group stayed stable in week 35 (25.1 per 100,000 compared to 23.8 per 100,000 in week 34): this group are not assessed by NPFS. Decreases were seen in all other age groups (figure 3). Rates decreased in almost all age groups in the QSurveillance scheme, including the under one-year-olds (30.8 to 19.6 per 100,000). In Wales the highest GP consultation rate is now in the 24-35 year group, increasing from 13.6 to 33.1 per 100,000. In Northern Ireland the highest rates were in the 1-4 year-olds (decreased from 79.6 to 62.5 per 100,000) and the 15-44 year-olds (decreased from 99.4 to 83.1 per 100,000). In Scotland, the highest rates were in the older age groups (65-74 years at 43.1 per 100,000 and 75+ years at 45.2 per 100,000).

For further information on the different schemes, including why differences are seen between the four countries, please see [Interpreting the HPA National Weekly report](#).

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Table 1: GP weekly consultation rates for influenza/ILI in the UK

Scheme / Country	Baseline Threshold (per 100,000)	Clinical rate per 100,000				
		Week 31	Week 32	Week 33	Week 34	Week 35
RCGP (England & Wales)	30	42	30.9	21.1	16.6	11.8
RCGP North	30	36	32.7	25.3	16.9	10.6
RCGP Central	30	49	38.5	29.0	18.8	14.7
RCGP South	30	39.2	24.1	13.8	14.7	10.2
Northern Ireland	N/A	142.5	104.5	88.7	77.3	56.6
Scotland	50	29	29	22	27.4	29.2
Wales	25	69.9	49.4	21.8	9.5	10.9
QSurveillance® (UK*)	N/A	72.2	48.3	30.8	19.3	14.4

\* based on data from 43% of England's populations, 10% of the population in Wales, 17% in Northern Ireland and 0% in Scotland

Figure 1: GP weekly consultation rates for influenza/ILI in the UK national sentinel influenza schemes, 2008/09.

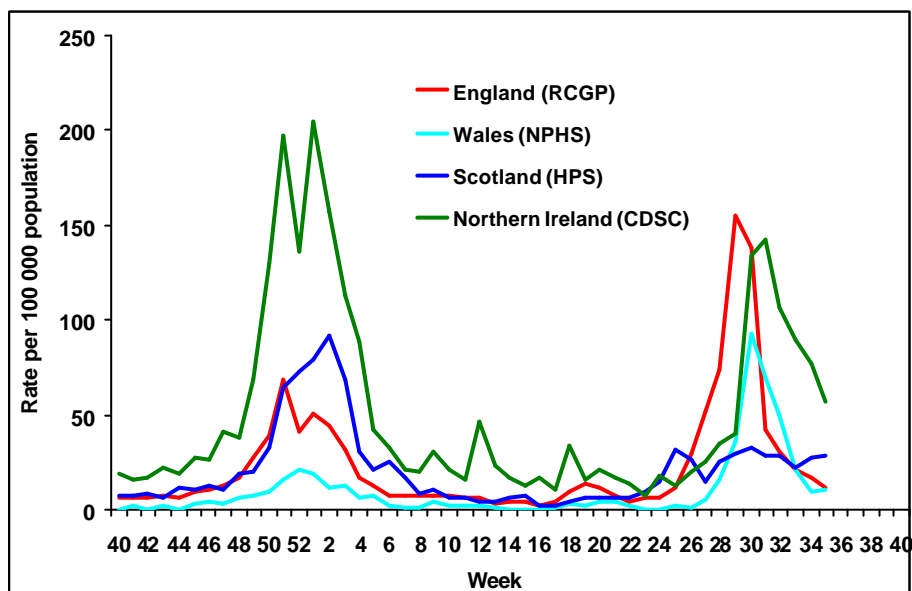
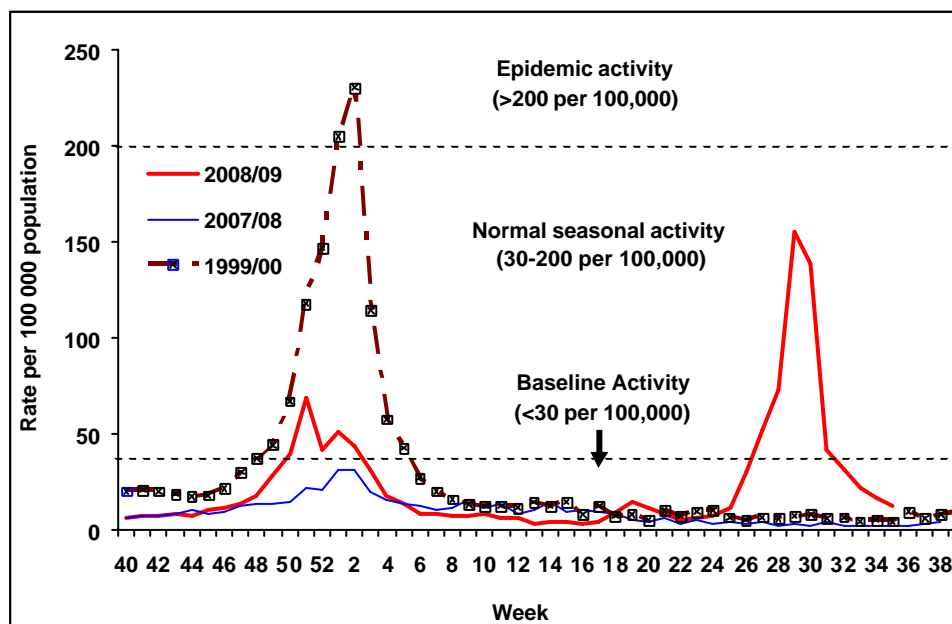


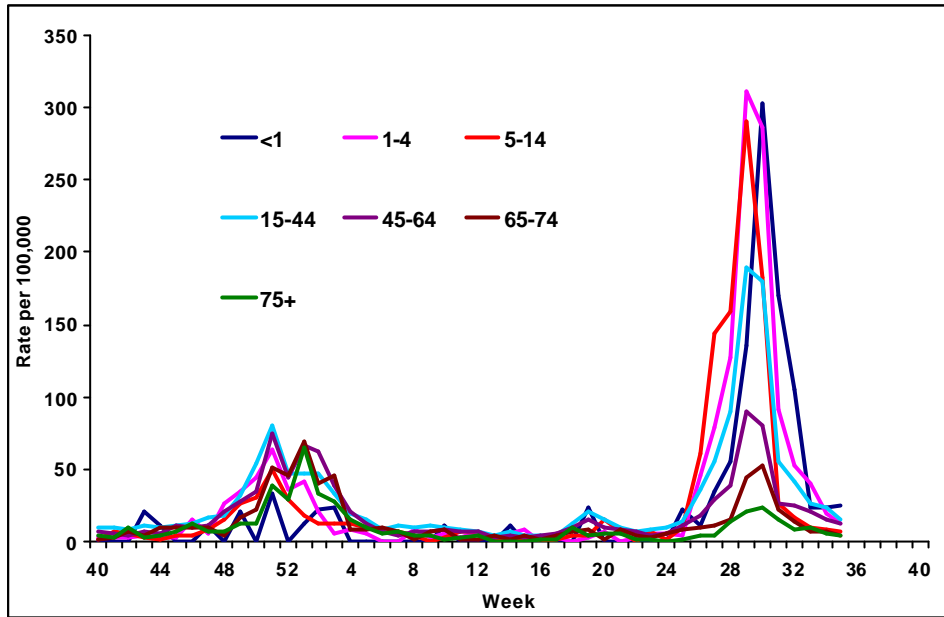
Figure 2: RCGP weekly consultation rate for influenza like illness 2008/09 and recent years.



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Figure 3: RCGP weekly consultation rate for influenza like illness 2008/09, by age group.



Enhanced Daily Syndromic Surveillance (<http://www.hpa.org.uk/hpr/infections/primarycare.htm>)

## QSurveillance®

The daily GP consultation rates are likely to have been affected by the introduction of the National Pandemic Flu Service on 23 July.

The daily GP ILI consultation rate on Tuesday 01 September was 3.4 per 100,000 compared to 2.9 per 100,000 seven days previously on 25 August (figure 4), this represents a slight increase but this may be due to the bank holiday on 31 August when many GP surgeries would have been closed. Rates in all English SHAs are at levels equivalent to estimated rates corresponding to baseline activity in the winter. The under-one year age group is not considered by NPFS; the decrease in daily consultation rates for this group is shown in figure 5.

Figure 4: QSurveillance® – 7-day moving average daily consultation rate for influenza-like illness in the UK\* (all ages) in 2008 and 2009.

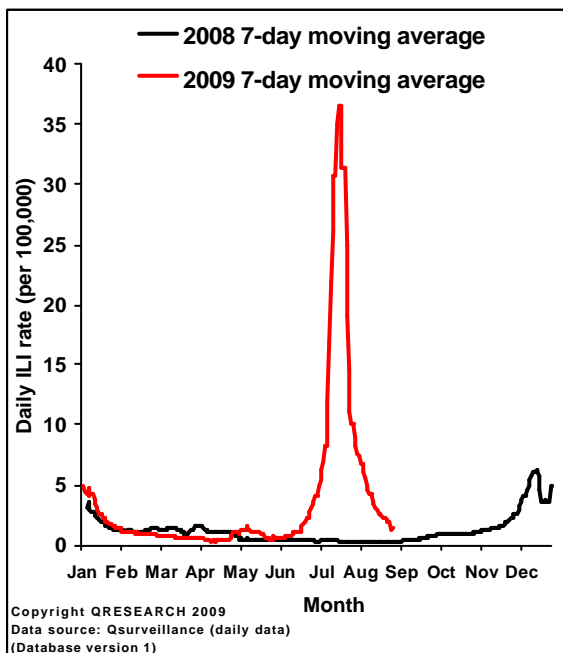
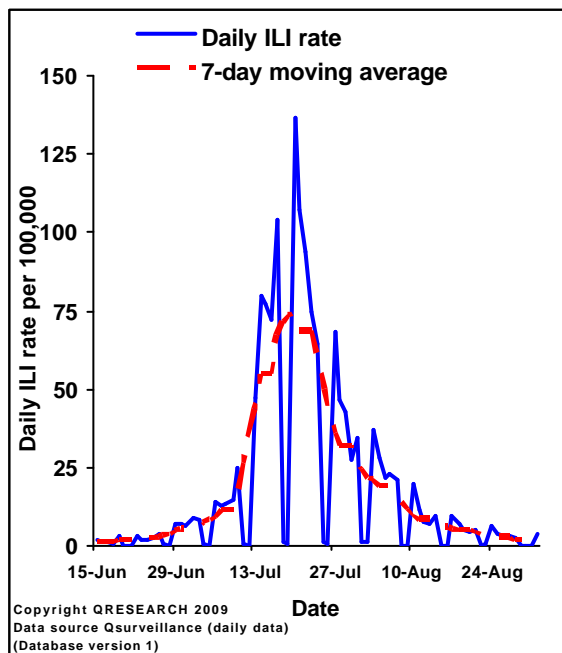


Figure 5: QSurveillance® – daily consultation rate and 7-day moving average for influenza-like illness in children aged under one year in the UK\*.



\* based on data from 43% of England's populations, 10% of the population in Wales, 17% in Northern Ireland and 0% in Scotland

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## National Pandemic Flu Service (NPFS)

The National Pandemic Flu Service (NPFS) became operational in England at 15:00 on 23 July 2009. There were a high number of assessments (92,739) on Monday 27 July; the lowest number of assessments observed so far was 4264 on Saturday 29 August. The range for the number of antivirals authorised (1359 on 30 August to 38,982 on 27 July) was similarly variable (figure 6). The highest numbers of collections were in the North West and London (figure 7) and in 15-44 year olds (figure 8). An increase in assessments tends to be seen at the beginning of each week, but a general decreasing trend has been observed.

Figure 6: Daily number of assessments and antivirals collected, through NPFS England.

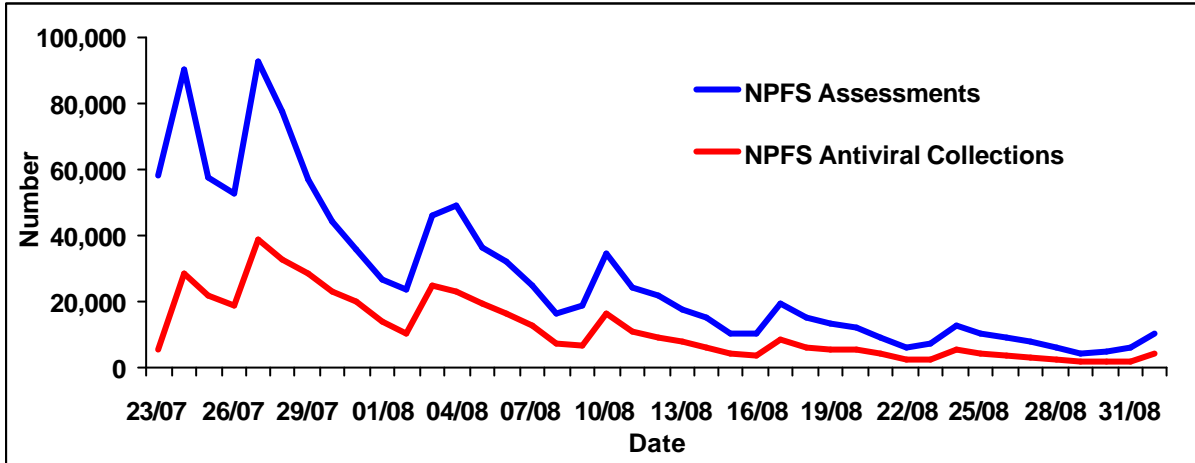


Figure 7: Daily number of antivirals collected, through NPFS, by Strategic Health Authority.

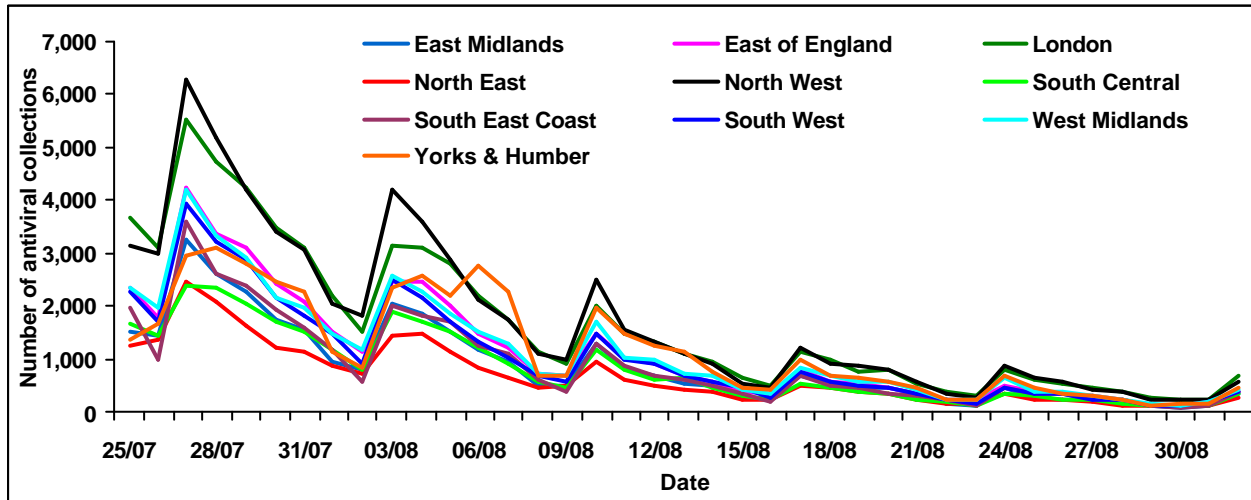
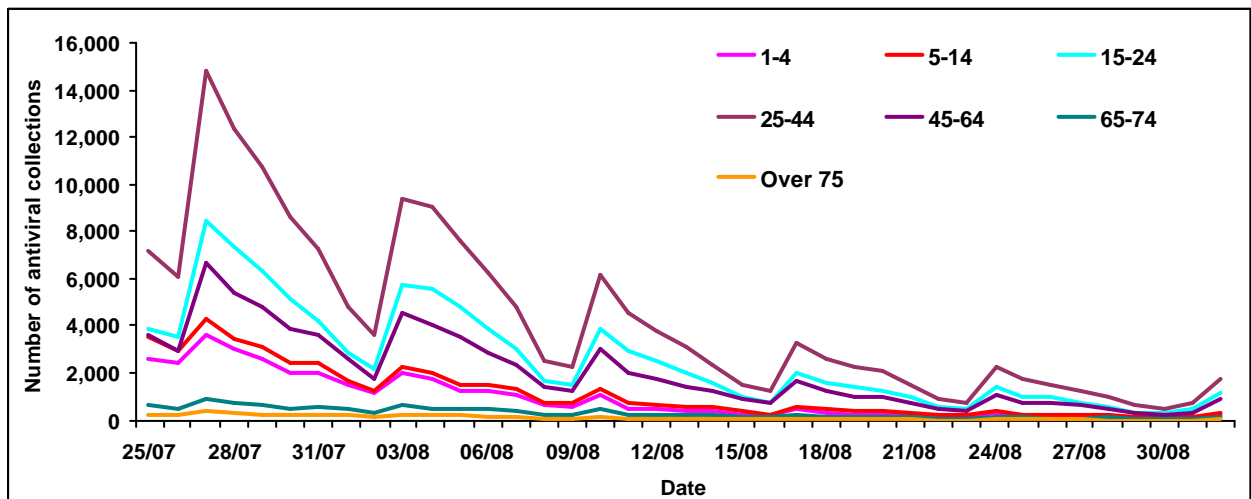


Figure 8: Daily number of antivirals collected, through NPFS, by age group.



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## Modelling by the Health Protection Agency

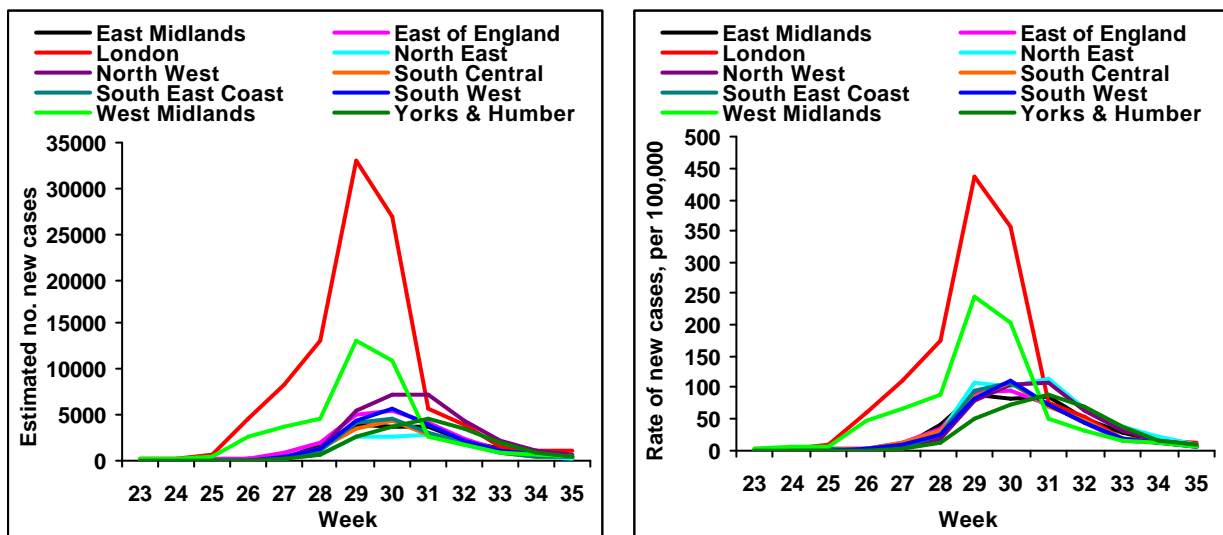
The number of pandemic influenza (H1N1) 2009 cases is estimated using a statistical model. The model relies on data from various surveillance systems and studies. The key surveillance systems that are used consist of the primary care based Q Surveillance® scheme, the RCGP and HPA Regional Microbiology Network sentinel surveillance scheme and latterly data from the NPFS. To provide an estimate of the number of pandemic cases that present to their GP the estimated number of primary care attendances with influenza like illness is multiplied by the positivity rates from testing within sentinel GP schemes. To estimate the number of pandemic (H1N1) 2009 that present to NPFS, the number of NPFS antiviral collections are multiplied by positivity rates from testing from people contacting NPFS. To provide an overall estimate of number of cases in the population, these two estimates are combined and scaled up to allow for a range of 30% to 70% of pandemic (H1N1) 2009 cases contacting either NPFS or a GP.

Further details on the methodology used can be found on the [HPA website](#).

In week 35, 4500 new cases are estimated to have occurred (range 2500 – 10,000). The estimated number of new cases has decreased in all regions and age groups (figures 9 and 10).

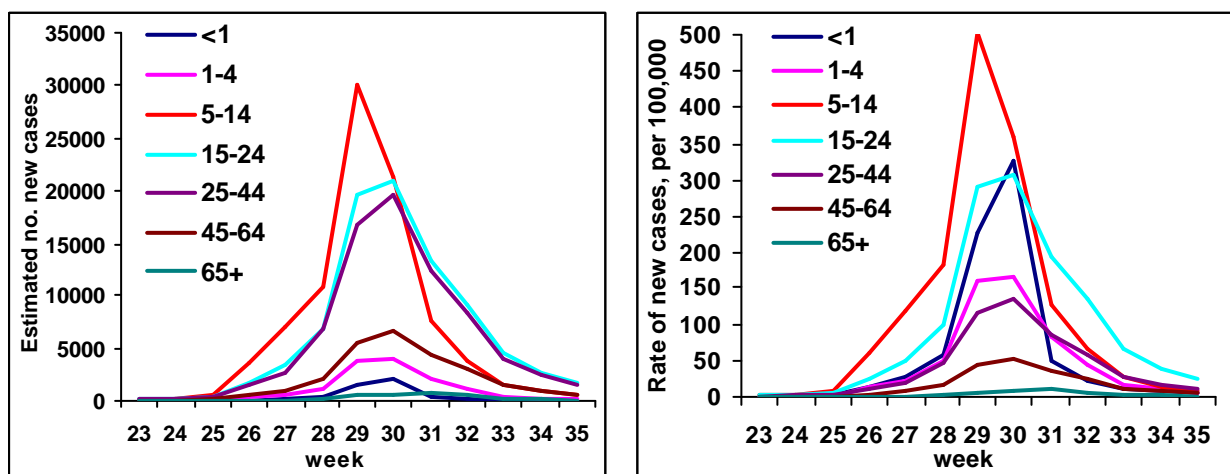
It should be noted that these estimates are subject to a considerable amount of uncertainty.

**Figure 9: Estimated number and rate per 100,000\* of new cases of pandemic influenza in England, by week and SHA.**



\* Based on mid-2007 estimates of England population from ONS.

**Figure 10: Estimated number and rate per 100,000\* of new cases of pandemic influenza in England by week and age group.**



\* Based on mid-2007 estimates of England population from ONS.

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## Microbiological surveillance

The predominant influenza strain circulating is still the pandemic H1N1 2009. Very few [other influenza viruses](#) have been detected recently at the Respiratory Virus Unit, Centre for Infections, Colindale (RVU). [Other circulating respiratory pathogens](#) such as RSV are at levels expected for the time of year.

There have now been 13,192 laboratory confirmed cases of pandemic (H1N1) 2009 in the UK since the beginning of the pandemic (Table 2). There has been a decrease in the number of laboratory confirmed cases since the UK went to treatment only phase on 02 July.

In addition, there have been 353 cumulative confirmed cases reported from the UK Overseas Territories and Crown Dependencies: Anguilla (1), Bermuda (1), British Virgin Islands (10), Cayman Islands (100 – and one death), The Falklands (7), Gibraltar (5), Guernsey (17), Isle of Man (29), Jersey (102), Sovereign Base Area Cyprus (46), Turks and Caicos Islands (35).

**Table 2:** Cumulative number of laboratory confirmed cases, as of 02 September

Region / Country	Cumulative number of laboratory confirmed cases
England	11,116
Northern Ireland	160
Scotland	1798
Wales	118
<b>Total UK</b>	<b>13,192</b>

## Enhanced Virological Community and Primary Care Surveillance

In England three schemes for virological surveillance of influenza are being used: two GP-based (RCGP/HPA and HPA/RMN) and one through NPFS (previous through NHS Direct); the proportion positive from the two GP schemes combined has been above 15% in the past two weeks, though fewer specimens have been tested recently compared to previous weeks. The proportion positive from NPFS has decreased over recent weeks (table 3, figure 11). Schemes through primary care are also used in Wales, Scotland and Northern Ireland though fewer viruses have been detected (table 3). In week 34 the proportion positive from Northern Ireland decreased to 23.5%. It is important to note that samples taken in recent weeks may still be awaiting processing so these data should be treated with caution. More details on these schemes can be read at ['Interpreting the HPA National Weekly Influenza Report'](#).

**Table 3:** Total number of samples tested and positive for pandemic influenza A (H1N1) 2009 from virological sentinel schemes in England (GP and NHS Direct/NPFS), Wales, Scotland and Northern Ireland by week\*.

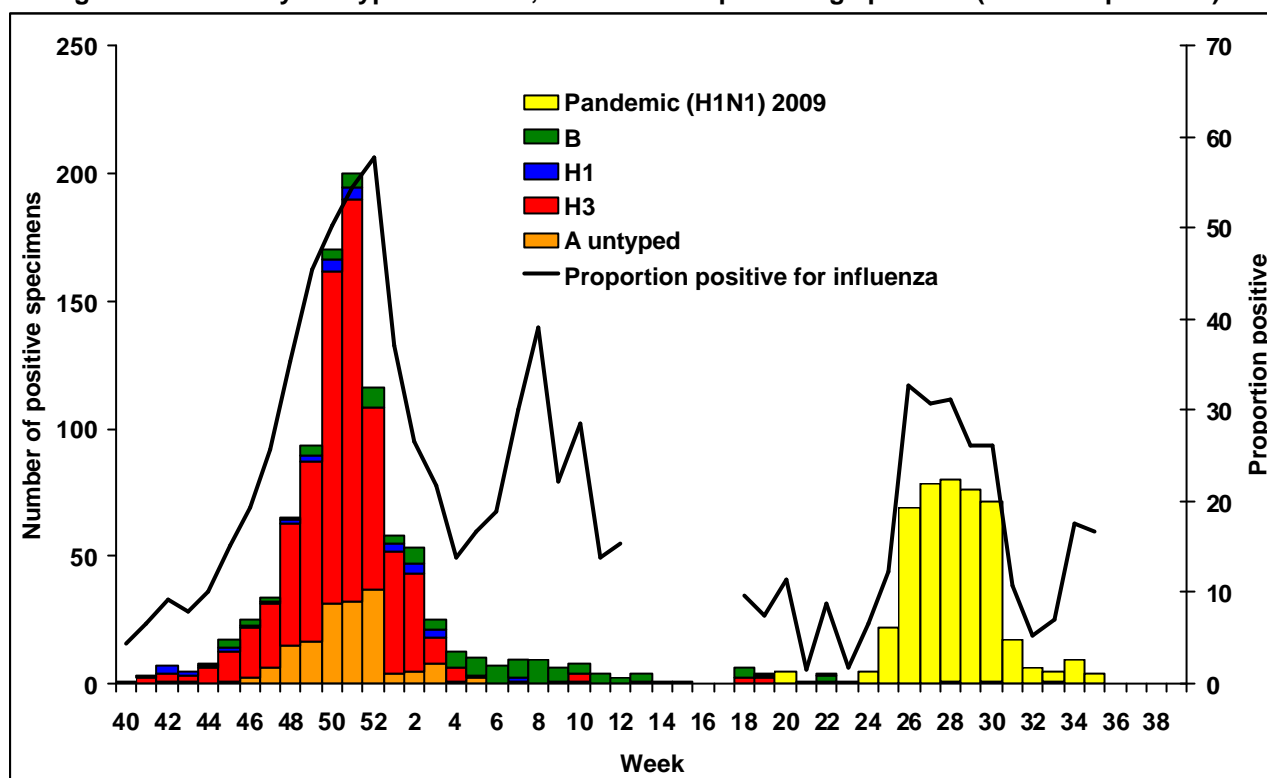
Week	England (GP)			England (NHS Direct/NPFS**)			Wales (GP)			Scotland (GP)			N. Ireland*** (GP)		
	Total tested	Pandemic n	%	Total tested	Pandemic n	%	Total tested	Pandemic n	%	Total tested	Pandemic n	%	Total tested	Pandemic n	%
18-26	792	105	13.3	1285	80	6.2	19	0	0.0	179	0	0.0	29	0	0.0
27	254	78	30.7	420	56	13.3	4	1	25.0	2	0	0.0	4	0	0.0
28	257	79	30.7	310	25	8.1	10	0	0.0	64	2	3.1	4	1	25.0
29	292	76	26.0	329	25	7.6	13	1	7.7	99	6	6.1	13	1	7.7
30	271	70	25.8	157	9	5.7	4	0	0.0	73	11	15.1	22	5	22.7
31	158	17	10.8	no data			9	1	11.1	120	10	8.3	41	7	17.1
32	117	6	5.1	526	44	8.4	10	1	10.0	98	8	8.2	42	4	9.5
33	71	4	5.6	317	22	6.9	5	0	0.0	63	8	12.7	25	4	16.0
34	51	9	17.6	233	12	5.2	3	0	0.0	75	8	10.7	40	13	32.5
35	24	4	16.7	102	3	2.9	0	0	0.0	26	2	7.7	17	4	23.5

\* All data are based on week of specimen, except for Northern Ireland which is by week of report; \*\* Sampling from NHS Direct stopped after week 30 and started from NPFS in week 32, hence there is no data for week 31. \*\*\* Until week 28 it was not possible to differentiate between sentinel and non-sentinel pandemic (H1N1) 2009 positive specimens in Northern Ireland.

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Figure 11: The number of samples testing positive for influenza in the two GP-based English sentinel virological schemes by subtype and week, with the total percentage positive (week of specimen).



**NB.** Proportion positive omitted when fewer than 10 specimens reported; data for the most recent weeks are subject to change due to reporting lag.

## Antiviral susceptibility

Testing for antiviral susceptibility is carried out at the Respiratory Virus Unit, Centre for Infections, Colindale (RVU). Seven hundred and eighty-six viruses have been analysed for the marker commonly associated with resistance to oseltamivir in seasonal influenza (H274Y); none were found to carry this marker. In addition, 252 of these have been fully tested for susceptibility; all were found to be sensitive to oseltamivir and zanamivir (table 4).

Table 4: Samples tested for antiviral susceptibility at RVU, by test method and region.

Region	Samples tested for Resistance				Proportion resistant
	Screened for H274Y mutation		Fully tested		
	Hospital	Community	Hospital	Community	
East of England	32	10	21	3	0%
East Midlands	12	4	8	3	0%
London	111	169	45	14	0%
North East	32	2	4	0	0%
North West	23	4	5	1	0%
South East	84	28	53	9	0%
South West	23	6	6	1	0%
West Midlands	117	58	41	5	0%
Yorkshire and Humber	10	6	8	1	0%
Ireland	8	0	7	0	0%
Northern Ireland	1	0	0	0	0%
Scotland	39	1	14	1	0%
Wales	2	0	0	0	0%
Unknown Region	3	1	1	1	0%
<b>Total</b>	<b>497</b>	<b>289</b>	<b>213</b>	<b>39</b>	<b>0%</b>

**NB:** figures may fluctuate due to de-duplication and correction of database.

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## Antimicrobial susceptibility

Bacterial susceptibility to antimicrobial agents is monitored by the HPA for lower respiratory tract isolates of *Staphylococcus aureus*, *Streptococcus pneumoniae* and *Haemophilus influenzae*. According to guidelines for clinical management of patients with an influenza-like illness during an influenza pandemic (W S Lim, Thorax 2007;62;1-46) the antibiotics recommended for treating bacterial pneumonia in a primary care setting are co-amoxiclav or a tetracycline (Section 8.1.3 of the guidelines). There have been no significant changes to susceptibility trends for these two antibiotics in recent years and the results of a twelve week analysis (Table 5) show that over 89% of all isolates of the three organisms were susceptible to tetracyclines. There were no appreciable changes in resistant patterns for either tetracyclines or co-amoxiclav in the twelve weeks before 23 August 2009.

**Table 5:** Bacterial specimens tested for susceptibility to tetracyclines and co-amoxiclav in HPA/NHS labs in England, Wales and Northern Ireland for 12 weeks up to 23 August 09.

Organism	Tetracyclines		Co-amoxiclav	
	Specimens tested (N)	Specimens susceptible (%)	Specimens tested (N)	Specimens susceptible (%)
<i>S. aureus</i>	2060	94	355	76
<i>S. pneumoniae</i>	1329	89	1307*	92*
<i>H. influenzae</i>	5038	99	4650	92

\* *S. pneumoniae* isolates are not routinely tested for susceptibility to co-amoxiclav, however laboratory results for benzylpenicillin are extrapolated to determine sensitivity to other  $\beta$ -lactams such as co-amoxiclav.

## Disease severity and mortality data

Disease severity continues to be monitored. HPA receives data on hospitalisation and deaths due to pandemic influenza in England from the Department of Health, and from the relevant bodies in Scotland, Wales and Northern Ireland.

In England, on 02 September there were 159 hospitalised patients with suspected pandemic influenza, a decrease from 218 seven days previously. Of the 159, 31 (19.5%) were in intensive care and 45 were newly hospitalised in the 24 hours up to 8am. In week 35 (the 7 days up to 8am Monday 31 August), 348 new patients were hospitalised with suspected pandemic influenza corresponding to a rate of 0.7 per 100,000, a decrease from 0.8 per 100,000 in week 34 (table 6). The highest hospitalisation rate has consistently been in those aged under 5 years, and rates in all age groups have been fairly stable in past two weeks (figure 12). It should be noted that the hospitalisations are current, not cumulative, and are for suspected pandemic influenza rather than virologically confirmed. Historical data for hospitalisation for influenza-like illness are not available for comparison.

In Scotland there have been 124 cumulative hospitalisations of patients with confirmed pandemic influenza, 46 in Wales and 56 in Northern Ireland.

**Table 6:** Current inpatients with suspected pandemic influenza in England, up to 02 September 2009.

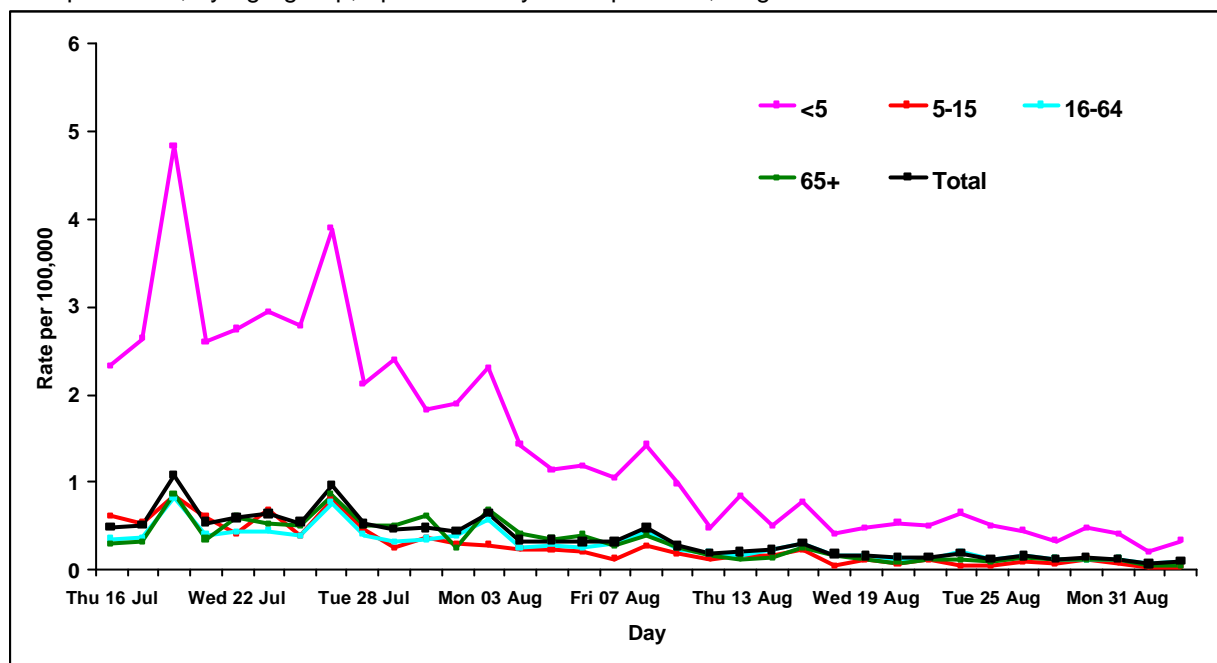
	Number (rate per 100,000* population)				
	<5	5-15	16-64	65+	Total
Patients currently hospitalised (as of 8am 02 Sept)	22 (0.7)	7 (0.1)	109 (0.3)	21 (0.3)	159 (0.3)
Patients currently in ICU (as of 8am 02 Sept)	2 (0.1)	2 (0.0)	24 (0.1)	3 (0.0)	31 (0.1)
New patients hospitalised in 24 hours up to 8am 02 Sept	10 (0.3)	2 (0.0)	29 (0.1)	4 (0.0)	45 (0.1)
New patients hospitalised in week 30 (7 days to 8am Mon 27 July)	442 (15.0)	195 (2.9)	799 (2.4)	229 (2.8)	1665 (3.3)
New patients hospitalised in week 31 (7 days to 8am Mon 03 Aug)	312 (10.6)	112 (1.7)	667 (2.0)	208 (2.6)	1299 (2.6)
New patients hospitalised in week 32 (7 days to 8am Mon 10 Aug)	184 (6.2)	72 (1.1)	505 (1.5)	147 (1.8)	908 (1.8)
New patients hospitalised in week 33 (7 days to 8am Mon 17 Aug)	106 (3.6)	59 (0.9)	367 (1.1)	77 (1.0)	609 (1.2)
New patients hospitalised in week 34 (7 days to 8am Mon 24 Aug)	76 (2.6)	24 (0.4)	263 (0.8)	50 (0.6)	413 (0.8)
New patients hospitalised in week 35 (7 days to 8am Mon 31 Aug)*	64 (2.2)	27 (0.4)	209 (0.6)	48 (0.6)	348 (0.7)

\* No report available for Monday 31 August due to bank holiday, Monday's data incorporated into Tuesday's report. Number of new cases for 72 hours up to Monday 31 Aug estimated using a reduction factor of 0.67 from the previous Monday, based on observed ratios.

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**Figure 12:** Daily rate (per 100,000) of new admissions to hospital with suspected pandemic influenza in 24 hours up to 8am\*, by age group, up to Tuesday 02 September, England.



\* Weekend data were incorporated into Monday's data

Seventy deaths (61 in England, seven in Scotland, one in Northern Ireland and one in Wales) have been reported across the UK in people with pandemic H1N1 infection.

HPA receives weekly death registrations from the Office for National Statistics. In week 34/09, an estimated 8341 all-cause deaths were registered, which is a slight decrease compared to 8548 in week 33/09. It should be noted that these deaths are due to all causes and cannot be attributed to influenza. The weekly number is in the expected range for this time of year and no excess deaths have been observed since week 05/09 in February.

## International Situation

### Global/European update from [ECDC](#) and [WHO](#)

According to the ECDC report of 17.00 CEST 01 September, all 31 EU/EFTA countries had reported 46,301 (though many countries are not recommending testing of all cases so this numbers will be an underestimation) cases of laboratory confirmed pandemic (H1N1) 2009 and 105 deaths (UK (65 - not including latest data), Spain (21), France (10 - 8 in overseas territories and 2 in mainland France), the Netherlands (2), Ireland (2), Belgium (1), Greece (1), Hungary (1), Malta (1) and Sweden (1)). Globally 2944 deaths were reported.

In week 34 Ireland, Northern Ireland and Norway reported medium activity while all other European countries reported low activity levels. These three countries plus Spain and England reported local activity, the remaining countries reported sporadic or no activity. Bulgaria and Romania reported increasing trends in activity while in Hungary, Ireland, Slovakia, England and Northern Ireland a decreasing trend was reported.

WHO has been notified of 12 cases of oseltamivir resistant viruses; all have a characteristic mutation at position 274/275 associated with resistance to oseltamivir, though the viruses remain sensitive to zanamivir. Of these 8 have been associated with oseltamivir post exposure prophylaxis, one with treatment of uncomplicated illness, and two have been from immunocompromised patients receiving oseltamivir treatment. These isolated cases have arisen in Japan (4), USA (2), China, Hong Kong SAR China (2), and 1 in Denmark, Canada, Singapore and China), and there are no epidemiological links between them. There is also no evidence of onward transmission from these cases.

### [Ireland](#)

The GP consultation rate for ILI decreased from 35.7 per 100,00 (updated rate) in week 34 to 33.7 per 100,000 in week 35, this remains above the baseline threshold of 17.8 per 100,000 which would be considered normal seasonal activity during the winter period. The Irish ILI rates since the beginning of the

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pandemic have remained lower than the peak observed in the 2008/09 winter season. Three of fifteen sentinel specimens tested in week 35 were positive for pandemic influenza.

## United States of America

Reporting period: August 16 – 22 2009, influenza activity remained stable or continued to decline in most areas of the US, though activity appears to be increasing in the south east. A total of 8843 hospitalisations and 56 deaths associated with pandemic influenza have been reported. The proportions of out-patient visits for ILI were below baseline levels. The majority (99%) of all influenza viruses subtyped were pandemic (H1N1) 2009. Two states and Puerto Rico reported geographically widespread influenza activity, 13 states reported regional activity, 10 states and the District of Columbia reported local activity and 25 reported sporadic or no activity.

## Canada

Reporting period: week ending August 15 2009. The overall influenza activity decreased; levels are relatively low but higher than expected at this time of year. The national ILI consultation rate is 12 consultations per 1,000 visits as opposed to 15 consultations in the previous week and the proportion of influenza positive tests decreased to 3.4% from 4.2%. The number of regions reporting localized activity and the overall number of influenza outbreaks remain stable compared to the previous week. A total of 1441 hospitalisations and 71 deaths associated with pandemic influenza have been reported.

## Australia

Reporting period: 18 – 24 July 2009. Nationally, rates of influenza-like illness (ILI) presentations to GPs are slightly above levels seen at the same time in 2007 (the highest influenza season in recent years). Presentations in 2009 to the sentinel GP network have decreased in Victoria this reporting period but have increased in other states and territories. Available information indicates about one third of cases of ILI are not due to influenza. The pandemic strain is the most common circulating influenza virus. Extensive pressure has been placed on intensive care units.

## New Zealand

Reporting period: 24 – 30 August. There was a decrease in consultations for influenza-like illness through sentinel surveillance in week 35, however, the weekly ILI consultation rate is still higher than previous years for the same week. So far, the highest ILI consultation rates have been reported among children and teenagers aged 0 to 19 years. The pandemic (H1N1) 2009 virus was the predominant strain detected through sentinel (56%) and non-sentinel (87%) surveillance. There have been 981 hospitalisations and 15 deaths reported associated with pandemic influenza infection.

## **Acknowledgements**

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