PHE Weekly National Influenza Report

Summary of UK surveillance of influenza and other seasonal respiratory illnesses

29 January 2015 – Week 5 report (up to week 4 data)

This report is published weekly on the PHE website. For further information on the surveillance schemes mentioned in this report, please see the PHE website and the related links at the end of this document.

Summary

In week 4 2015 (ending 25 January), indicators of influenza activity decreased or were at similar levels to the previous week in England. Significant excess all-cause mortality continues to be seen in 65+ year olds, coinciding with circulating influenza and the recent cold snaps. The Department of Health alert issued on the prescription of antiviral medicines by GPs is still active.

- Community influenza surveillance
  - In week 4 a number of syndromic surveillance indicators for respiratory symptoms in children <15 years old showed small increases, including NHS 111 calls, GP consultations and emergency department admissions.
  - 51 new acute respiratory outbreaks were reported in the last seven days: 41 in care homes (16 A(untyped), 2 A(H3), 1 A(H1N1)pdm09, 1 RSV/A(untyped)/Rhinovirus, and the rest not tested/results not available yet), six in hospitals (3 A(untyped), 1 A(H3), 1 A(untyped)/B/RSV and 1 A (untyped)/Parainfluenza) and four in schools (not tested).
- Overall weekly influenza GP consultation rates across the UK
  - The weekly ILI consultation rate through both the GP In Hours Syndromic Surveillance system and RCGP scheme decreased in recent weeks.
  - In week 3, overall weekly influenza-like illness (ILI) GP consultations decreased in Scotland (23.2 per 100,000), and Wales (12.5 per 100,000) and remained stable in Northern Ireland (34.6 per 100,000).
- Influenza-confirmed hospitalisations
  - 60 new admissions to ICU/HDU with confirmed influenza (43 A unknown subtype, 10 A(H3N2), four influenza A(H1N1)pdm09 and three influenza B) were reported through the USISS mandatory ICU/HDU surveillance scheme across the UK (135 Trusts in England) in week 4, a rate of 0.13 per 100,000 compared to 0.17 per 100,000 the previous week.
  - 63 new hospitalised confirmed influenza cases (39 influenza A(H3N2), 22 A unknown subtype and two influenza B) were reported through the USISS sentinel hospital network across England (21 Trusts), a rate of 0.79 per 100,000 compared to 0.97 per 100,000 the previous week.
- All-cause mortality data
  - In week 4 2015, significant excess all-cause mortality by week of death was seen through the EuroMOMO algorithm in England in 65+ year olds. In the devolved administrations in week 4, significant excess all-cause mortality was seen in Wales, with no significant excess reported in Scotland and Northern Ireland. Since week 40 2014, significant excess mortality has been seen in England from week 50 to 4 2015, coinciding with circulating influenza and the recent cold snaps.
- Microbiological surveillance
  - 47 samples were positive for influenza through the UK GP sentinel schemes in week 4 (22 A(H3), two A(H1N1)pdm09, 20 A(not subtyped) and two B, positivity of 28.8% compared to 27.0% the previous week (updated)).
  - In week 4 2015, 200 influenza positive detections were recorded through the DataMart scheme (178 A(H3), 17 A(not subtyped), 5 influenza A(H1N1)pdm09 and 7 B), a positivity of 16.9% compared to 19.2% the previous week, with the highest positivity by age group remaining in 65+ year olds at 24.1%).
  - The majority of influenza A(H3N2) viruses isolated and characterised by the PHE Respiratory Virus Unit were antigenically similar to the Northern Hemisphere 2014/15 vaccine strain, however 27 (21%) showed reduced reactivity and were similar to the H3N2 virus selected for the 2015 Southern Hemisphere influenza vaccine. PHE is continuing to monitor the situation.
- Vaccination
  - Up to week 4 2015 in 92% of GP practices reporting weekly to Immform, the provisional proportion of people in England who had received the 2014/15 influenza vaccine in targeted groups was as follows: 72.5% in 65+ year olds, 50.1% in under 65 years in a clinical risk group, 43.9% in pregnant women, 38.3% in all 2 year olds, 41.1% in all 3 year olds and 32.6% in all 4 year olds. This is the last week of reporting for weekly uptake data.
  - Provisional data from the third monthly collection of influenza vaccine uptake by frontline healthcare workers show 52.6% were vaccinated by 31 December 2014 from 98.1% of Trusts.
- International situation
  - Globally influenza activity was high in the northern hemisphere with influenza A(H3N2) viruses predominating so far this season. In the European Region, the influenza season is well underway, in particular in western and northern European countries, with influenza A(H3N2) the predominant virus detected across all surveillance systems.

Community surveillance

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In week 4 some syndromic indicators for respiratory symptoms in children <15 years old have seen small increases and 51 new acute respiratory outbreaks were reported in the last seven days.

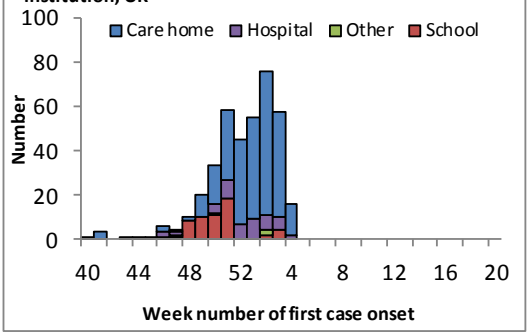
- PHE Real-time Syndromic Surveillance

-In week 4 there were small increases in a number of respiratory indicators in children <15 years old across several syndromic surveillance systems, including NHS 111 calls, GP consultations and emergency department admissions.

- Acute respiratory disease outbreaks

-51 new acute respiratory outbreaks have been reported in the past seven days, 41 in care homes (16 A(untyped), 2 A(H3), 1 A(H1N1)pdm09, 1 RSV/ A(untyped)/Rhinovrus, and the rest not tested/results not available yet), 6 in hospitals (3 A(untyped), 1 A(H3), 1 A (untyped)/B/RSV and 1 mixed infection with A(untyped)/Parainfluenza) and four in schools (not tested). So far in the 2014/15 flu season, 444 outbreaks (324 in care homes, 62 in schools, 53 in hospitals and 4 in other settings) have been reported in the UK: 55 A(H3), 113 A(untyped), one B, one A(untyped)/ B, eight rhinovirus, four RSV, one parainfluenza, one enterovirus, one hMPV, seven mixed infections with different respiratory viruses and 252 not tested (or test results not yet available).

Figure 1: Number of acute respiratory outbreaks by institution, UK



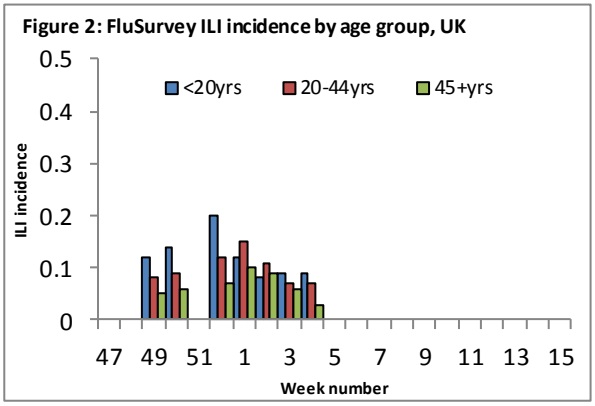
-Outbreaks should be recorded on HPZone and reported to the local Health Protection Teams and Respscidsc@phe.gov.uk.

- FluSurvey

-Internet-based surveillance of influenza in the general population is undertaken through the FluSurvey project (http://flusurvey.org.uk) run by the London School of Hygiene and Tropical Medicine. Please see the website for information on how to register.

-In week 4, the incidence of ILI reports by age group was highest in under 20 year olds (Figure 2, NB. No data is currently available for week 51).

Figure 2: FluSurvey ILI incidence by age group, UK



Weekly consultation rates in national sentinel schemes

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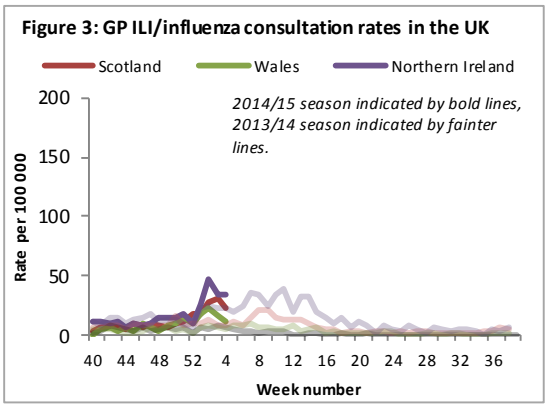
In week 3 overall weekly influenza-like illness GP consultations increased slightly in Scotland and decreased in England, Wales, and Northern Ireland.

- Influenza/Influenza-Like-Illness (ILI)

Figure 3: GP ILI/influenza consultation rates in the UK



Northern Ireland

-The Northern Ireland influenza rate remained stable at 34.6 per 100,000 in week 4 (Figure 3).

-The highest rates were seen in <1 year olds (49.5 per 100,000), 45-64 year olds (46.1 per 100,000) and 15-44 year olds (37.1 per 100,000).

Wales

-The Welsh influenza rate decreased from 17.0 to 12.5 per 100,000 in week 4 (Figure 3).

-The highest rates were seen in 15-44 year olds (16.0 per 100,000), 45-64 year olds (12.5 per 100,000) and 75+ year olds (10.1 per 100,000).

Scotland

-The Scottish ILI rate decreased from 30.7 to 23.2 per 100,000 in week 4 (Figure 3).

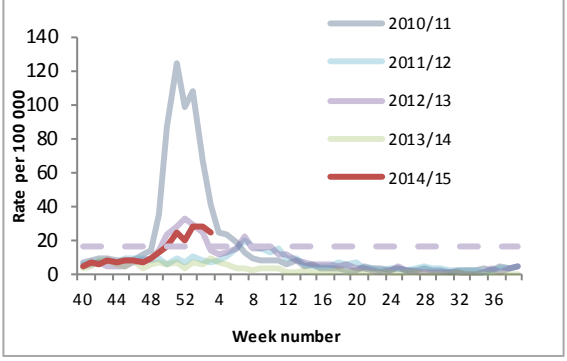
-The highest rates were seen in 15-44 year olds (28.7 per 100,000), 75+ year olds (25.3 per 100,000) and 45-64 year olds (24.6 per 100,000).

RCGP (England and Wales)

-Confirmed data is available up to week 3 2015. The weekly ILI consultation rate through the RCGP surveillance system decreased from 28.1 in week 2 to 24.8 per 100,000 in week 3 (Figure 4*). The highest rate so far this season was in week 1 2015 (28.3 per 100,000).

**The Moving Epidemic Method has been adopted by the European Centre for Disease Prevention and Control to calculate thresholds for GP ILI consultations for the start of influenza activity in a standardised approach across Europe. The threshold to indicate a likelihood of influenza community circulation for as calculated through the Moving Epidemic Method is 16 per 100,000.*

Figure 4: RCGP ILI consultation rates , England and Wales

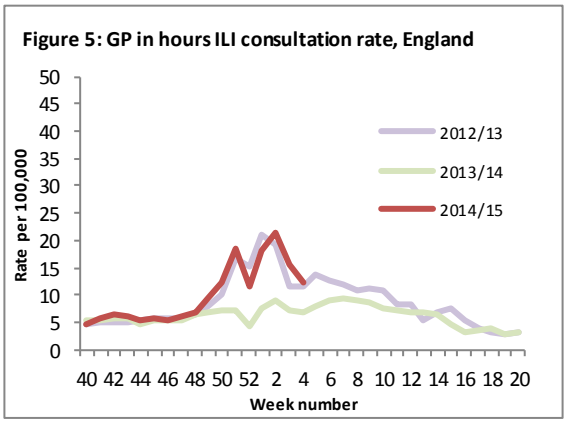


GP In Hours Syndromic Surveillance System (England)

-The weekly ILI consultation rate through the GP In Hours Syndromic Surveillance system decreased from 15.4 to 12.3 per 100,000 in week 4 (Figure 5).

-For further information, please see the syndromic surveillance webpage.

Figure 5: GP in hours ILI consultation rate, England



Influenza confirmed hospitalisations

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In week 4, 60 new admissions to ICU/HDU with confirmed influenza (43 A unknown subtype, 10 A(H3N2), four influenza A(H1N1)pdm09 and three influenza B) were reported through the national USISS mandatory ICU scheme across the UK (135 Trusts in England). 63 new hospitalised confirmed influenza cases (39 influenza A(H3N2), 22 A unknown subtype and two influenza B) were reported through the USISS sentinel hospital network across England (21 Trusts).

A national mandatory collection (USISS mandatory ICU scheme) is operating in cooperation with the Department of Health to report the number of confirmed influenza cases admitted to Intensive Care Units (ICU) and High Dependency Units (HDU) and number of confirmed influenza deaths in ICU/HDU across the UK. A confirmed case is defined as an individual with a laboratory confirmed influenza infection admitted to ICU/HDU. In addition a sentinel network (USISS sentinel hospital network) of acute NHS trusts has been established in England to report weekly laboratory confirmed hospital admissions. Further information on these systems is available through the website. Please note data in previously reported weeks are updated and so may vary by week of reporting.

- Number of new admissions and fatal confirmed influenza cases in ICU/HDU (USISS mandatory ICU scheme), UK (week 4)

-In week 4, 60 new admissions to ICU/HDU with confirmed influenza (43 A unknown subtype, 10 A(H3N2), four influenza A(H1N1)pdm09 and three influenza B) were reported across the UK (135/156 Trusts in England) through the USISS mandatory ICU scheme (Figures 6 and 7), a rate of 0.13 per 100,000 compared to 0.17 per 100,000 the previous week. Three new confirmed influenza deaths were reported in week 4 2015. A total of 741 admissions (533 A unknown subtype, 153 A(H3N2), 36 A(H1N1)pdm09) and 19 B) and 66 confirmed influenza deaths have been reported since week 40 2014.

Figure 6: Weekly ICU/HDU influenza admission rate per 100,000 trust catchment population , England, since week 40 2014

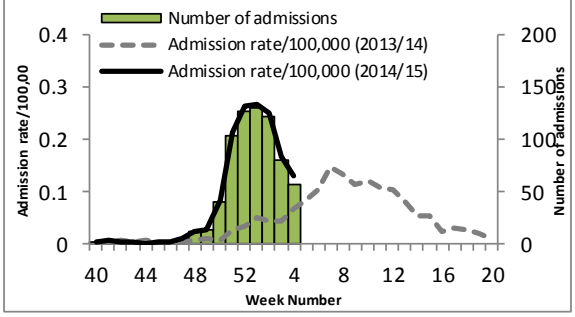
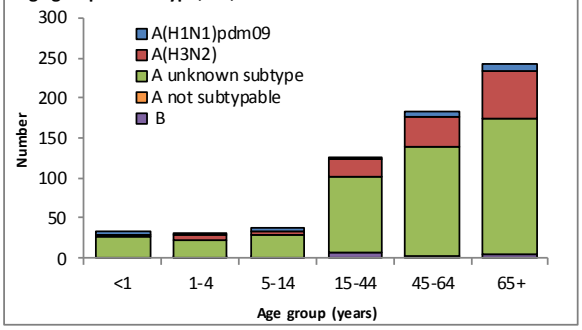


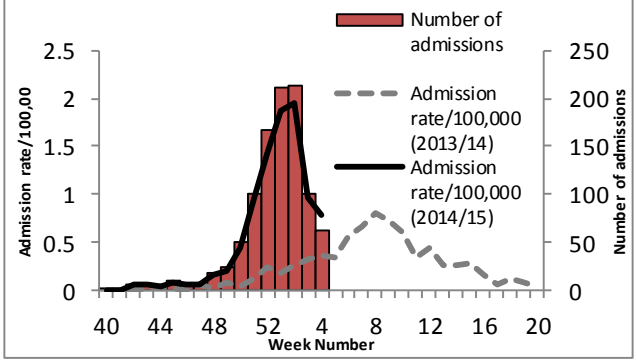
Figure 7: Cumulative ICU influenza admissions (USISS mandatory) by age group and flu type, UK, since week 40 2014



- USISS sentinel weekly hospitalised confirmed influenza cases, England (week 4)

-In week 4, 63 new hospitalised confirmed influenza cases (39 influenza A(H3N2), 22 A unknown subtype and two influenza B) were reported through the USISS sentinel hospital network from 21 NHS Trusts across England (Figure 8), a rate of 0.79 per 100,000 compared to 0.97 per 100,000 the previous week. A total of 991 hospitalised confirmed influenza admissions (673 A(H3N2), 274 A unknown subtype, 30 B and 14 A(H1N1pdm09)) have been reported since week 40.

Figure 8: Weekly hospitalised influenza case rate per 100,000 trust catchment population , England, since week 40 2014



All-cause mortality data

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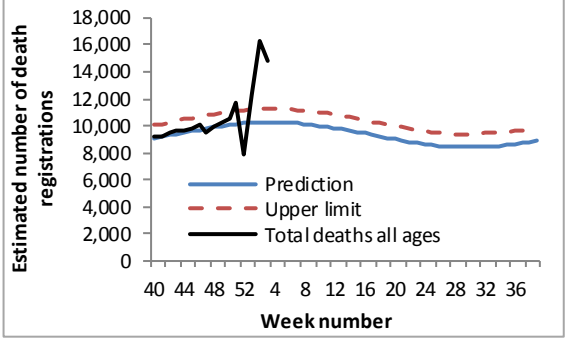
In week 4 2015, significant excess all-cause mortality by week of death was seen through the EuroMOMO algorithm in England in 65+ year olds. In the devolved administrations in week 4, significant excess all-cause mortality was seen in Wales, with no significant excess reported in Scotland and Northern Ireland. Since week 40 2014, significant excess mortality has been seen in England from week 50 to 4 2015, coinciding with circulating influenza and the recent cold snaps.

Seasonal mortality is seen each year in the UK, with a higher number of deaths in winter months compared to the summer. Additionally, peaks of mortality above this expected higher level typically occur in winter, most commonly the result of factors such as cold snaps and increased circulation of respiratory viruses, in particular influenza. Weekly mortality surveillance presented here aims to detect and report acute significant weekly excess mortality above normal seasonal levels in a timely fashion. Excess mortality is defined as a significant number of deaths reported over that expected for a given point in the year, allowing for weekly variation in the number of deaths. The aim is not to assess general mortality trends or precisely estimate the excess attributable to different factors, although some end-of-winter estimates and more in-depth analyses (by age, geography etc.) are undertaken.

- Excess overall all-cause mortality, England and Wales

-In week 3 2015, an estimated 14,866 all-cause deaths were registered in England and Wales (source: Office for National Statistics). This is less than the 16,237 estimated death registrations in week 2, but remains above the 95% upper limit of expected death registrations for the time of year as calculated by PHE (Figure 9). The sharp drop in number of deaths in week 52 corresponds to a week when there were bank holidays and fewer days when deaths were registered and so is likely to be artificial and result in subsequent increases in following weeks.

Figure 9: Observed & predicted all-cause death registrations, E&W



- Excess all-cause mortality by age group, England, Wales, Scotland and Northern Ireland

-Since week 40 2014 up to week 4 2015 in England, excess mortality by date of death above the upper 2 z-score threshold was seen in 65+ year olds in England after correcting ONS disaggregate data for reporting delay with the standardised EuroMOMO algorithm in weeks 50 to 4 2015 (Figure 10, Table 1). This coincides with circulating influenza and the recent cold snaps. Significant excess was also seen in <5 year olds and 15-64 year olds in week 1 2015. This data is provisional due to the time delay in registration; numbers may vary from week to week.

-In the devolved administrations, up to week 4 2015, excess mortality above the threshold was seen in weeks 51 to 3 2015 in Scotland and weeks 42/50/52-4 in Wales (Table 2). No significant excess mortality was seen in Northern Ireland up to week 4.

Table 1: Excess mortality by age group,England*

Age group (years)	Excess detected in week 4 2015?	Weeks with excess in 2014/15
<5	×	1
5-14	×	NA
15-64	×	1
65+	✓	50-4

** Excess mortality is calculated as the observed minus the expected number of deaths in weeks above threshold*

Figure 10. Excess mortality in 65+ year olds, EuroMOMO, England

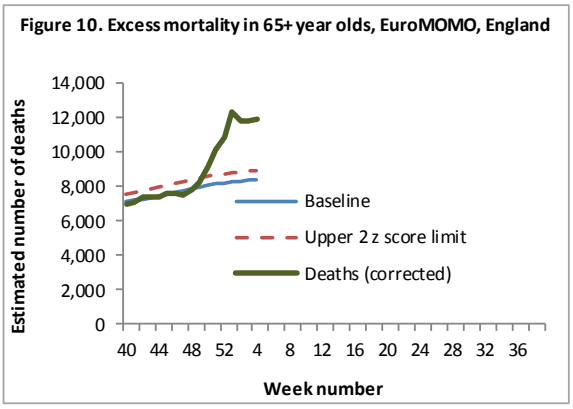


Table 2: Excess mortality by UK country*

Country	Excess detected in week 4 2015?	Weeks with excess in 2014/15
England	✓	50-4
Wales	✓	42,50,52-4
Scotland	×	51-3
Northern Ireland	×	NA

** Excess mortality is calculated as the observed minus the expected number of deaths in weeks above threshold*

NB. Separate total and age-specific models are run for England which may lead to discrepancies between Tables 1 + 2

Microbiological surveillance

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In week 4 2015, 47 samples were positive for influenza through the UK GP sentinel schemes (22 A(H3), two A(H1N1)pdm09, 20 A(not subtyped) and two B, positivity of 28.8%). 207 influenza positive detections were recorded through the DataMart scheme (178 A(H3), 17 A(not subtyped), five influenza A(H1N1)pdm09 and 7 B , positivity of 16.8%).

- Sentinel swabbing schemes in England (RCGP) and the Devolved Administrations

-In week 4, 21 samples were positive for influenza in England (18 A(H3), two A(H1N1)pdm09 and one B), 24 in Scotland (four A(H3), 18 A(not subtyped) and one B), one in Northern Ireland (one A(not subtyped)) and one in Wales (one A(not subtyped)) (Table 3).

Table 3: Sentinel influenza surveillance in the UK

Week	England	Scotland	Northern Ireland	Wales
1	80/191 (41.9%)	15/51 (29.4%)	0/5 (-)	6/10 (60.0%)
2	81/223 (36.3%)	39/93 (41.9%)	3/7 (-)	1/9 (-)
3	57/223 (25.6%)	21/85 (24.7%)	5/8 (-)	4/6 (-)
4	21/95 (22.1%)	24/63 (38.1%)	1/2 (-)	1/3 (-)

NB. Proportion positive omitted when fewer than 10 specimens tested

- Respiratory DataMart System (England)

In week 4 2015, out of the 1,232 respiratory specimens reported through the Respiratory DataMart System, 207 samples (16.8%) were positive for influenza (178 A(H3), 17 A(not subtyped), 5 influenza A(H1N1)pdm09 and 7 B (Figure 11*)), with the highest positivity remaining in 65+ year olds (24.1%, Figure 12).The overall positivity for RSV continued to decrease to 5.6% (Figure 13). Positivity for rhinovirus increased slightly to 8.3%, while other respiratory viruses remained at low levels: adenovirus 3.5%, parainfluenza 1.7% and hMPV 2.1%.

Figure 11: DataMart samples positive for influenza, England

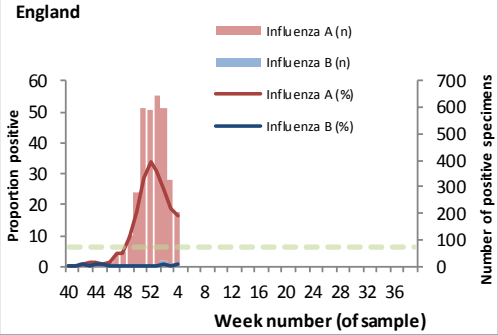


Figure 12: Datamart % positive for influenza by age, England

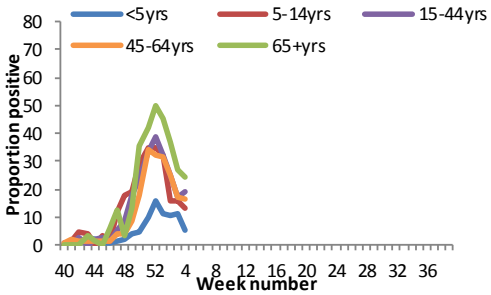
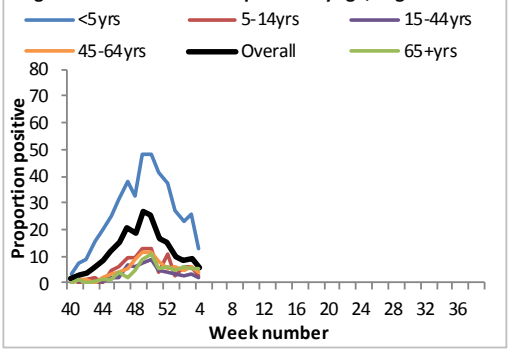


Figure 13: Datamart % RSV positive by age, England



**The Moving Epidemic Method has been adopted by the European Centre for Disease Prevention and Control to calculate thresholds for GP ILI consultations for the start of influenza activity in a standardised approach across Europe. The threshold to indicate a likelihood of influenza community circulation for Datamart % positive as calculated through the Moving Epidemic Method is 6%.*

- Virus characterisation

Since week 40 2014, the PHE Respiratory Virus Unit (RVU) has isolated and antigenically characterised 127 influenza A(H3N2) viruses. Of these, the majority were similar to the A/Texas/50/2012 H3N2 Northern Hemisphere 2014/15 vaccine strain, however 27 (21%) showed reduced reactivity in antigenic tests with A/Texas/50/2012 antiserum. These 27 isolates are antigenically similar to A/Switzerland/9715293/2013, the H3N2 virus selected for the 2015 Southern Hemisphere influenza vaccine. A/Switzerland/9715293/2013 is related to, but antigenically and genetically distinguishable, from the A/Texas/50/2012 vaccine virus.

A portion of recent influenza A(H3N2) viruses do not grow sufficiently for antigenic characterization. For many of these viruses, RVU performs genetic characterisation. Of 38 A(H3N2) viruses characterised genetically by RVU to date, some of which were not able to be antigenically characterised, the majority (82%) fall into a genetic subgroup which has been shown to be antigenically distinguishable from the current A(H3N2) vaccine virus.

Sixteen influenza A(H1N1)pdm09 viruses have been isolated and antigenically characterised as similar to the A/California/7/2009 Northern Hemisphere 2014/15 vaccine strain.

Eight influenza B viruses have been isolated and antigenically characterised as belonging to B/Yamagata/16/88 lineage, the influenza B component of the 2014-2015 Northern Hemisphere trivalent and quadrivalent vaccines.

- Antiviral susceptibility

Since week 40 2014, 32 influenza viruses (9 A(H3N2), 20 A(H1N1)pdm09 and 3 B) have been tested for oseltamivir susceptibility in the UK and all but one H3N2 are sensitive. The nine flu A(H3N2) and the three flu B were also tested against zanamivir and all but one H3N2 are sensitive. The resistant H3N2 influenza virus has an R292K amino acid substitution in the neuraminidase. This sample was taken from a child who had received oseltamivir treatment. The R292K substitution is known to cause resistance to oseltamivir and also reduces susceptibility to zanamivir.

- Antimicrobial susceptibility

-Table 4 shows in the 12 weeks up to 18 January 2015, the proportion of all lower respiratory tract isolates of *Streptococcus pneumoniae*, *Haemophilus influenza, Staphylococcus aureus,* MRSA and MSSA tested and susceptible to antibiotics. These organisms are the key causes of community acquired pneumonia (CAP) and the choice of antibiotics reflects the British Thoracic Society empirical guidelines for management of CAP in adults.

Table 4: Antimicrobial susceptibility surveillance in lower respiratory tract isolates, 12 weeks up to 18 Jan 2015, E&W

Organism	Antibiotic	Specimens tested (N)	Specimens susceptible (%)
S. pneumoniae	Penicillin	2,579	92
	Macrolides	2,790	82
	Tetracycline	2,664	84
H. influenzae	Amoxicillin/ampicillin	11,357	73
	Co-amoxiclav	10,418	94
	Macrolides	4,302	19
	Tetracycline	11,320	98
S. aureus	Methicillin	3,911	86
	Macrolides	3,828	72
MRSA	Clindamycin	428	42
	Tetracycline	513	84
MSSA	Clindamycin	1,858	78
	Tetracycline	2,959	92

**Macrolides = erythromycin, azithromycin and clarithromycin*

Vaccination

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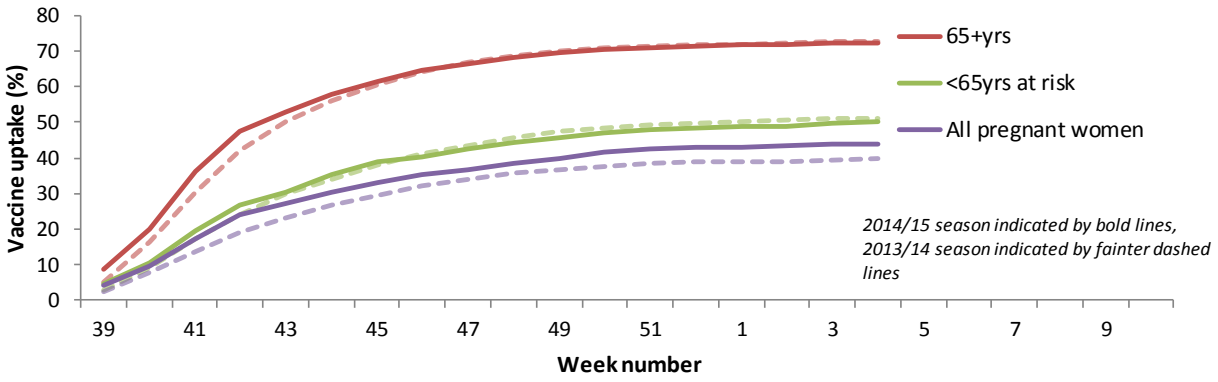
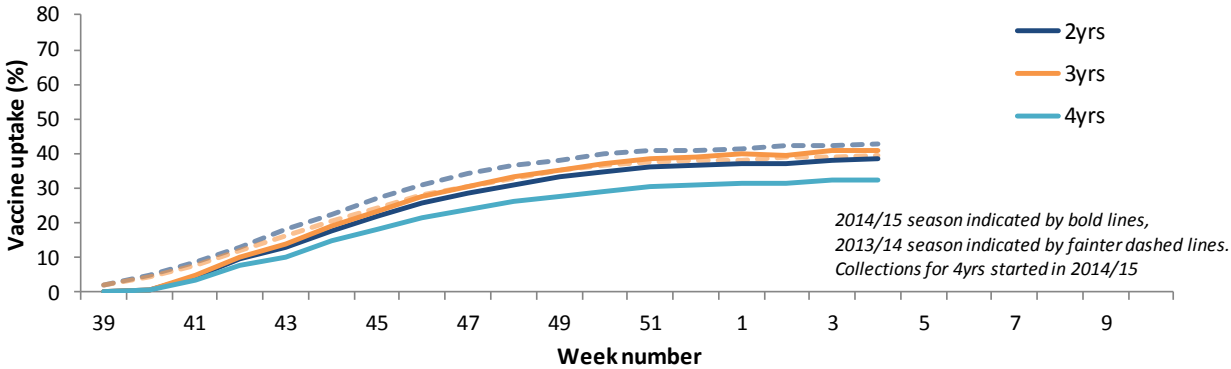
- Up to week 4 2015 in 92% of GP practices reporting weekly to Immform, the provisional proportion of people in England who had received the 2014/15 influenza vaccine in targeted groups was as follows (Figure 13):
    - 50.1% in under 65 years in a clinical risk group
    - 43.9% in pregnant women
    - 72.5% in 65+ year olds

Figure 14: Cumulative weekly influenza vaccine uptake by target group in England



- The childhood universal influenza vaccination programme has extended from 2-3 year olds in 2013/14 to 2-4 year olds in 2014/15. Up to week 4 2015 in 92% of GP practices reporting weekly to Immform, the provisional proportion of people in England who had received the 2014/15 influenza vaccine in targeted groups was as follows (Figure 14):
    - 38.3% in all 2 year olds
    - 41.1% in all 3 year olds
    - 32.6% in all 4 year olds

Figure 15: Cumulative weekly influenza vaccine uptake by target group in England



- This is the last week of reporting for weekly uptake data.
- Provisional data from the third monthly collection of influenza vaccine uptake by frontline healthcare workers show 52.6% were vaccinated by 31 December 2014 from 98.1% of Trusts, compared to 53.1% vaccinated the previous season by 31 December 2013. The report provides uptake at national, geographical area, area team (on behalf of primary care and independent sector healthcare providers) and individual Trust level.
- Provisional data from the third monthly collection of influenza vaccine uptake up to 31 December 2014 by targeted groups has been published. The report provides uptake at national, area team and CCG level.

International Situation

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Globally influenza activity was high in the northern hemisphere with influenza A(H3N2) viruses predominating so far this season. In the European Region, the influenza season is well underway, in particular in western and northern European countries, with influenza A(H3N2) viruses the predominant viruses detected across all surveillance systems.

- Europe 23 January 2015 (Joint ECDC-WHO Influenza weekly update)

The influenza season is well under way, in particular in western and northern European countries. Excess all-cause mortality among the elderly (65+), consistent with the increased influenza activity and the predominating circulation of influenza A(H3N2), has been observed during recent weeks in Portugal, the United Kingdom (England, Scotland and Wales), the Netherlands, Spain and France.

Increased influenza activity compared to the previous week was seen in 29 countries, including United Kingdom (Scotland); 12 countries reported a stable trend. Two countries (United Kingdom (England, Northern Ireland and Wales) and Uzbekistan) reported decreasing trends.

Overall, influenza A(H3N2) viruses have been the predominant viruses detected across all surveillance systems, although some countries reported either influenza A(H1N1)pdm09 or influenza B virus. In addition, most of the A(H3N2) viruses characterized genetically belong to genetic subgroups containing viruses that have drifted antigenically compared to the A(H3N2) virus in use for the 2014–2015 northern hemisphere influenza vaccine.

Thirty-nine countries reported epidemiological data for week 03/2015. Twenty-seven countries, most of which are in eastern Europe, reported low intensity of influenza activity and eight of these reported regional geographic spread of influenza activity, indicating that the season has not yet started in this part of the Region. One country (Italy) is the first country to report high influenza activity this season. In addition, 15 countries, predominantly in western, northern and central Europe, reported medium intensity of influenza activity and 12 of these reported patterns of widespread geographic activity, with laboratory-confirmed influenza cases in 50% or more of their administrative units (or reporting sites).

Since week 40/2014, 8979 (7%) of 124 626 specimens from non-sentinel sources have tested positive for influenza virus: 7433 (83%) were type A and 1546 (17%) type B. Of the type A viruses, 3380 were subtyped: 2659 (79%) were A(H3N2) and 721 (21%) were A(H1N1)pdm09 (Fig. 2). The lineage of 225 influenza B viruses was determined: two were of the B/Victoria lineage and 223 (99%) of the B/Yamagata lineage.

Since week 40/2014, 8 countries (Finland, France, Ireland, Romania, Slovakia, Spain, Sweden and the United Kingdom) have reported a total of 1000 laboratory-confirmed hospitalized influenza cases, 835 of which were in intensive care units (ICUs): 655 cases reported by the United Kingdom, 101 by France, 65 by Spain, 6 by Sweden, 4 by Finland, 2 by Ireland, 1 by Romania and 1 by Slovakia. In addition to the patients admitted to ICUs, Spain reported 122 laboratory-confirmed hospitalized influenza cases on other hospital wards, Ireland 37 and Romania 6. Of the 1000 confirmed cases, 944 (95%) were positive for influenza A virus (309 subtyped: 243 A(H3N2) and 66 A(H1N1)pdm09) and 55 for influenza B virus.

- United States of America 23 January 2015 (Centre for Disease Control report)

During week 2 (January 11-17, 2015), influenza activity remained elevated in the United States. The proportion of outpatient visits for influenza-like illness (ILI) was 4.5%, above the national baseline of 2.0%. All 10 regions reported ILI at or above region-specific baseline levels. Puerto Rico and 23 states experienced high ILI activity; New York City and 10 states experienced moderate ILI activity; 10 states experienced low ILI activity; seven states experienced minimal ILI activity; and the District of Columbia had insufficient data. The geographic spread of influenza in 44 states was reported as widespread; Guam, Puerto Rico, the U.S. Virgin Islands, and five states reported regional activity; and the District of Columbia and one state reported local activity During week 2, 9.3% of all deaths reported through the 122 Cities Mortality Reporting System were due to P&I. This percentage was above the epidemic threshold of 7.1% for week 2.

Of 26,205 specimens tested and reported by U.S. World Health Organization (WHO) and National Respiratory and Enteric Virus Surveillance System (NREVSS) collaborating laboratories during week 2, 5,104 (19.5%) were positive for influenza.. (2,976 influenza A subtype not performed, 1,821 influenza A (H3), 304 influenza B and three influenza A(H1N1)pdm09).

A total of 56 influenza-associated deaths have been reported during the 2014-2015 season from New York City and 23 states. 11 influenza-associated paediatric deaths were reported to CDC during week 2 Three deaths were associated with an influenza A (H3) virus and occurred during weeks 51, 53, and 1. Eight deaths were associated with an influenza A virus for which no subtyping was performed and occurred during weeks 51, 52, 53, 1, and 2. Additional data can be found at: http://gis.cdc.gov/GRASP/Fluview/PedFluDeath.html.

CDC has characterized 508 influenza viruses [10 A(H1N1)pdm09, 395 A(H3N2), and 103 influenza B viruses] collected by U.S. laboratories since October 1, 2014. All 10 H1N1 viruses tested were characterized as A/California/7/2009-like, the influenza A (H1N1) component of the 2014-2015 Northern Hemisphere influenza vaccine. 141 (35.7%) of the 395 H3N2 viruses tested have been characterized as A/Texas/50/2012-like, the influenza A (H3N2) component of the 2014-2015 Northern Hemisphere influenza vaccine. 254 (64.3%) of the 395 viruses tested showed either reduced titres with antiserum produced against A/Texas/50/2012 or belonged to a genetic group that typically shows reduced titres to A/Texas/50/2012. Among viruses that showed reduced titres with antiserum raised against A/Texas/50/2012, most were antigenically similar to A/Switzerland/9715293/2013, the H3N2 virus selected for the 2015 Southern Hemisphere influenza vaccine. A/Switzerland/9715293/2013 is related to, but antigenically and genetically distinguishable, from the A/Texas/50/2012 vaccine virus. A/Switzerland-like H3N2 viruses were first detected in the United States in small numbers in March of 2014 and began to increase through the spring and summer.

Early estimates of seasonal vaccine effectiveness in the United States suggest the 201415 vaccine has low effectiveness against circulating influenza A(H3N2) viruses.

- Canada 23 January 2015 (Public Health Agency report)

In week 2, influenza activity levels decreased slightly from the previous week with fewer regions reporting widespread activity. Many regions continue to report localized and sporadic influenza activity. Several indicators (number of laboratory detections, outbreaks and hospitalizations, and the ILI consultation rate) declined from the previous week, indicating that peak of the influenza season in Canada may have passed. RSV is the second most frequently detected virus after influenza and since week 38 detections of RSV have been higher than in the previous season. A(H3N2) continues to be the most common type of influenza affecting Canadians. In both laboratory detections, hospitalizations and deaths, the majority of cases have been among seniors ≥65 years of age.

To date, the NML has found that the majority of A(H3N2) influenza specimens are not optimally matched to the vaccine strain. This may result in reduced vaccine effectiveness against the A(H3N2) virus. However, the vaccine can still provide some protection against A(H3N2) influenza illness and can offer protection against other influenza strains such as A(H1N1) and B. Data from the NML suggests that the circulating A(H1N1) and B strains are good match for this year's vaccine and will continue to provide protection for the rest of the flu season.

The number of positive tests decreased from 4,579 in week 01 to 3,761 in week 02; however the percentage of positive influenza tests increased slightly from 26.4% to 29.5%. This may be an indication that we have reached the peak in laboratory detections with the percent positive for influenza peaking in week 52 (35.9%) and the number of positive influenza tests peaking in week 53. To date, 97% of influenza detections have been influenza A, and 99.8% of those subtyped have been A(H3). The timing of the season and predominant A(H3N2) subtype is similar to the pattern observed during the 2012-13 influenza season when percent positive for influenza peaked in week 52 (35%). To date, among the cases of influenza with reported age, the largest proportion was in adults ≥65 years of age (63%).

The national influenza-like-illness (ILI) consultation rate decreased in week 02 to 37.7 ILI consultations per 1,000 patient visits, which is within expected levels for week 02. The rates were highest among the 20 to 64 and <5 year age group (55.9 and 50.0 ILI consultations per 1,000).

In week 02, 461 laboratory-confirmed influenza-associated hospitalizations were reported from participating provinces and territories, all but five with influenza A, and 77% were reported in adults ≥65 years of age. Since the start of the 2014-15 season, 3127 hospitalizations have been reported; 3072 (98%) with influenza A. Among cases for which the subtype of influenza A was reported, 99.7% (1483/1487) were A(H3N2). The majority of hospitalizations (70%) were reported in adults ≥65 years of age. A total of 168 ICU admissions have been reported to date, including 94 ICU admissions in adults ≥65 years of age. A total of 179 deaths have been reported since the start of the season: one child <5 years of age, two children 5-19 years, ten adults 20-64 years, and 166 adults ≥65 years of age. Adults 65 years of age or older represent 93% of all deaths reported this season. Detailed clinical information (e.g. underlying medical conditions) is not known for these cases.

- Global influenza update 26 January 2015 (WHO website)

Globally influenza activity was high in the northern hemisphere with influenza A(H3N2) viruses predominating so far this season. Antigenic characterization of most recent A(H3N2) viruses thus far indicated differences from the A(H3N2) virus used in the influenza vaccines for the northern hemisphere

2014-2015. Based on tests to date, the influenza A(H3N2) viruses are expected to be sensitive to neuraminidase inhibitors.
In North America, the influenza season was ongoing with still high levels of influenza activity in most countries. Influenza A(H3N2) virus predominated. The influenza activity might have peaked in the USA.

In Europe influenza activity was still on the rise with highest activity in the north-western part. Influenza A(H3N2) predominated this season.

In northern and western Africa influenza activity seemed to have peaked with influenza B virus predominating, while Egypt reported mainly influenza A(H3N2) detections.

In eastern Asia, influenza activity started to decrease with influenza A(H3N2) virus predominating.

In central Asia influenza activity remained low.

In western Asia, Bahrain and the Islamic Republic of Iran reported mainly influenza A(H1N1)pdm09 activity.

In tropical countries of the Americas, influenza activity was low in most countries of the Caribbean, Central America and in the tropical countries of South America.

In the southern hemisphere, influenza activity remained at inter-seasonal levels.

- Enterovirus D68 (EV-D68) 15 January 2015

From mid-August to 15 January 2015, CDC or state public health laboratories have confirmed a total of 1,153 persons in 49 states and the District of Columbia with respiratory illness caused by EV-D68. Almost all of the confirmed cases were among children, many whom had asthma or a history of wheezing. Additionally, there were likely millions of mild EV-D68 infections for which people did not seek medical treatment and/or get tested.

ECDC have published a rapid risk assessment. Based on information currently available to ECDC, the risk of increased severe cases of EV-D68 in EU/EEA countries is assessed as moderate, in light of recent reports of such cases and because the circulation of this strain in the population seems to be geographically widespread in the EU.

The UK has an enhanced enterovirus surveillance system established as part of poliovirus elimination. Samples from individuals who present with neurological symptoms (such as acute flaccid paralysis or meningitis) and in whom enterovirus is detected should be sent for sub-typing at the reference laboratory. From 2012 to 1 September 2014, a total of 12 EV-D68 cases had been diagnosed, mainly in children. Following the reports from North America, guidance was developed highlighting that EV-D68 should be considered as a possible cause of disease in children with severe acute respiratory infections and/or with unexplained neurological symptoms, when all other respiratory virus screens are negative and if a rhinovirus/enterovirus positive PCR is initially detected. Although no unexplained clusters of severe respiratory or neurological disease have been reported, since September 2014, a total of 33 sporadic cases have been detected in children and adults. From the information available to date, the majority seem to have presented with respiratory symptoms, with two children presenting with neurological symptoms.

- Avian Influenza 27 January 2015 (WHO website)

Influenza A(H7N9)

The most recent human infection with influenza A(H7N9) reported by WHO was on 27 January 2015 (1 case). An individual has also tested positive in Canada after becoming symptomatic upon return from China. So far, the overall risk associated with the H7N9 virus has not changed. WHO does not advise special screening at points of entry with regard to this event, nor does it currently recommend any travel or trade restrictions. For further updates please see the WHO website and for advice on clinical management please see information available online.

Influenza A (H5N1)

From 2003 through 6 January 2015, 694 human cases of H5N1 avian influenza have been officially reported to WHO from 16 countries, of which 402 (59%) died.

- Novel coronavirus 28 January 2015

Up to 28 January 2015, a total of four cases of Middle East respiratory syndrome coronavirus, MERS-CoV, (two imported and two linked cases) have been confirmed in England. On-going surveillance has identified 224 suspect cases in the UK that have been investigated for MERS-CoV and tested negative.

A further 949 confirmed cases have been reported internationally, resulting in a current global total of 953 cases, with the most recent cases reported on 17 January 2015 from Kingdom of Saudi Arabia. Further information on management and guidance of possible cases is available online.

Acknowledgements

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Related links

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Weekly consultation rates in national sentinel schemes

- Sentinel schemes operating across the UK
- RCGP scheme
- Northern Ireland surveillance (Public Health Agency)
- Scotland surveillance (Health Protection Scotland)
- Wales surveillance (Public Health Wales)
- Real time syndromic surveillance
- MEM threshold methodology paper and UK pilot paper

Community surveillance

- Outbreak reporting
- FluSurvey
- MOSA

Disease severity and mortality data

- USISS system
- EuroMOMO mortality project

Vaccination

- Seasonal influenza vaccine programme (Department of Health Book)
- Childhood flu programme information for healthcare practitioners (Public Health England)
- 2014/15 Northern Hemisphere seasonal influenza vaccine recommendations (WHO)