



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.

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Summary

In week 18 2015 (ending 3 May), influenza activity remained at baseline levels. The Department of Health [alert](#) issued on the prescription of antiviral medicines by GPs is still active.

- [Community influenza surveillance](#)
 - In week 18 all respiratory syndromic indicators were within seasonally expected levels.
 - Three new acute respiratory outbreaks have been reported in the past seven days: two in care homes (not tested/results not available yet) and one in a school (not tested).
- [Overall weekly influenza GP consultation rates across the UK](#)
 - The weekly ILI consultation rate through the RCGP system increased from week 17 to week 18.
 - The weekly ILI consultation rate through the GP In Hours Syndromic Surveillance system decreased from week 17 to week 18.
 - In week 18, overall weekly influenza-like illness (ILI) GP consultations remained stable in Wales, Northern Ireland and Scotland.
- [Influenza-confirmed hospitalisations](#)
 - Six new admissions to ICU/HDU with confirmed influenza (six influenza B) were reported through the USISS mandatory ICU/HDU surveillance scheme across the UK (122 Trusts in England) in week 18, a rate of 0.02 compared to 0.04 per 100,000 the previous week.
 - Eight new hospitalised confirmed influenza cases (seven influenza B and one influenza A unknown subtype) were reported through the USISS sentinel hospital network across England (20 Trusts), a rate of 0.10 compared to 0.17 per 100,000 the previous week.
- [All-cause mortality data](#)
 - In week 18 2015, no statistically significant excess all-cause mortality by week of death was seen through the EuroMOMO algorithm in England overall and by age group and across the devolved administrations. Since week 40 2014, significant excess mortality has been observed in England in weeks 50-7 predominantly in 65+ year olds, peaking in week 2 2015. This period of significant excess coincided with circulating influenza and cold snaps.
- [Microbiological surveillance](#)
 - Two of the eight samples tested were positive for influenza through the English GP sentinel schemes.
 - 29 influenza positive detections were recorded through the DataMart scheme (one influenza A(H3), 27 B and one influenza A(not subtyped), a positivity of 4.0% compared to 6.6% the previous week) with the highest positivity seen in 45-64 year olds (6.6%).
 - Characterisation of influenza B viruses by the PHE Respiratory Virus Unit indicates that a proportion of the viruses circulating this season are distinguishable from the Northern Hemisphere 2014/15 vaccine strain and are similar to the influenza B virus selected for the 2015/16 Northern Hemisphere influenza vaccine.
- [Vaccination](#)
 - Up to the end of January 2015, the provisional proportion of people in England who had received the 2014/15 influenza vaccine in targeted groups was 50.3% in under 65 years in a clinical risk group, 44.1% in pregnant women, 72.8% in 65+ year olds, 38.5% in all 2 year olds, 41.3% in all 3 year olds and 32.9% in all 4 year olds.
 - Provisional data from the fifth monthly collection of influenza vaccine uptake by frontline healthcare workers show 54.9% were vaccinated by 28 February 2015 from 100.0% of Trusts.
 - End-of season reports for vaccine uptake in targeted groups and frontline healthcare workers are due to be published on 21 May.
 - The Annual Flu Letter and Flu Plan for 2015/16 have now been [published](#).
- [International situation](#)
 - Influenza activity declined further in the northern hemisphere and was low in most regions globally. While influenza A(H3N2) viruses predominated this season in the northern hemisphere, the proportions of influenza A(H1N1)pdm09 and B viruses increased during the past few weeks. Influenza activity remains at inter-seasonal levels in the southern hemisphere.

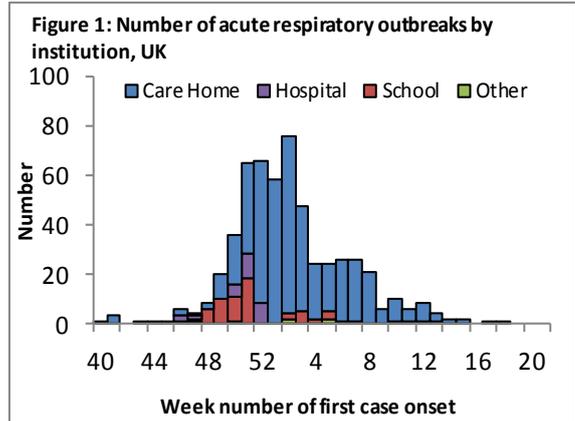
In week 18 all respiratory syndromic indicators were within seasonally expected levels and four new acute respiratory outbreaks were reported in the last seven days.

- PHE Real-time Syndromic Surveillance

-In week 18 all respiratory syndromic indicators were within seasonally expected levels.
 -For further information, please see the syndromic surveillance [webpage](#).

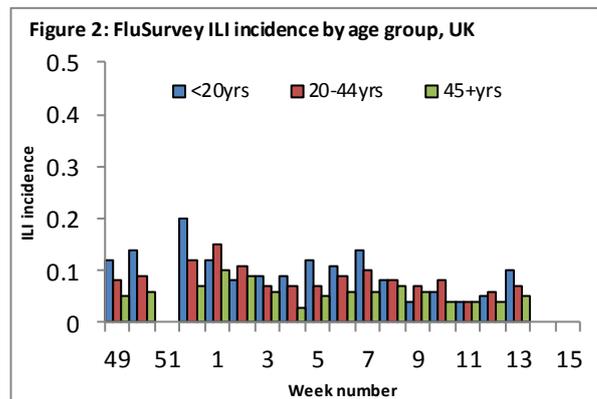
- Acute respiratory disease outbreaks

- Three new acute respiratory outbreaks have been reported in the past seven days: two in care homes (not tested/results not available yet) and one in school (not tested). So far in the 2014/15 influenza season, 685 outbreaks (513 in care homes, 85 in hospitals, 77 in schools and 10 in other settings) have been reported in the UK including 132 with flu A(H3) infection, 167 flu A (untyped), 34 flu B, four flu A(untyped)/flu B, two flu A (H1N1)pdm09, eight rhinovirus, six RSV, five parainfluenza, four hMPV, one enterovirus, 19 other mixed infections with different respiratory viruses and 303 not tested (or test results not yet available or tested negative).
 -Outbreaks should be recorded on HPZone and reported to the local Health Protection Teams and Respscidsc@phe.gov.uk.



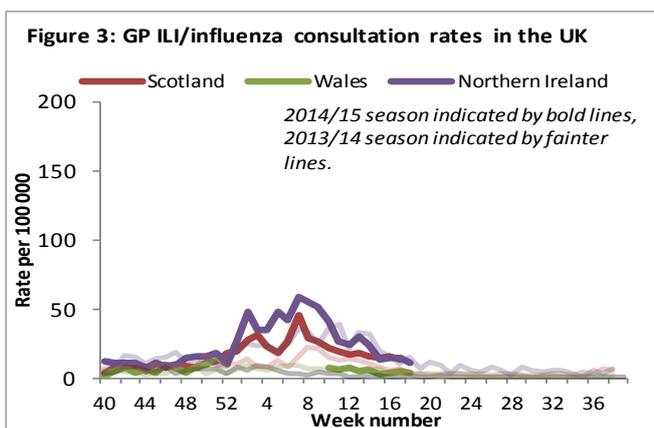
- FluSurvey

-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.
 -In week 13 (the last week of reporting), 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).



In week 18 overall weekly influenza-like illness GP consultations remained stable in Wales and Scotland and decreased in Northern Ireland.

- Influenza/Influenza-Like-Illness (ILI)



Northern Ireland

-The Northern Ireland influenza consultation rate decreased to 10.4 per 100,000 in week 18 (Figure 3).

-The highest rates were seen 65-74 year olds (30.6 per 100,000), 45-64 year olds (16.3 per 100,000) and 15-44 year olds (9per 100,000).

Wales

-The Welsh influenza rate remained stable at 3.4 per 100,000 in week 18 (Figure 3).

-The highest rates were seen in 65-74 year olds (5.4 per 100,000) 15-44 year olds (4.9 per 100,000), 75+ year olds (3.2 per 100,000).

Scotland

-The Scottish ILI rate remained stable at 12.4 per 100,000 in week 18 (Figure 3).

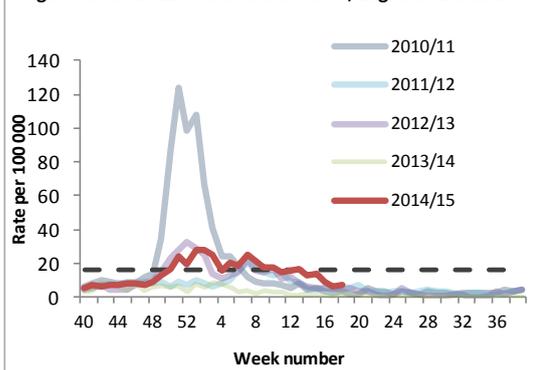
-The highest rates were seen in 45-64 year olds (19.4 per 100,000), 75+ year olds (12.7 per 100,000) and 15-44 year olds (12.2 per 100,000).

RCGP (England and Wales)

-The weekly ILI consultation rate through the RCGP surveillance system increased slightly from 6.0 to 7.0 in week 18 (Figure 4*). By age group, the highest rate was seen in 45-64 year olds (10.7 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

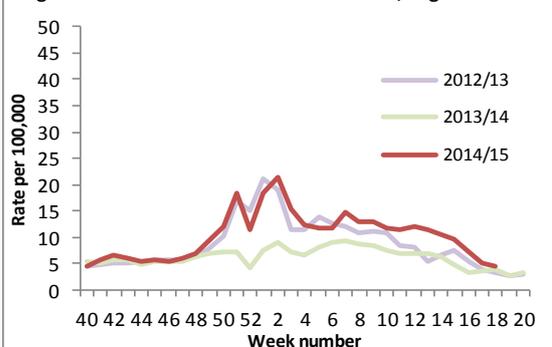


GP In Hours Syndromic Surveillance System (England)

-The weekly ILI consultation rate through the GP In Hours Syndromic Surveillance system decreased slightly from 5.2 to 4.6 per 100,000 in week 18, 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 18, six new admissions to ICU/HDU with confirmed influenza (six influenza B) were reported through the national USISS mandatory ICU scheme across the UK (122 Trusts in England). Eight new hospitalised confirmed influenza cases (seven influenza B and one influenza A unknown subtype) were reported through the USISS sentinel hospital network across England (20 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 18)

-In week 18, six new admissions to ICU/HDU with confirmed influenza (six influenza B) were reported across the UK (122/156 Trusts in England) through the USISS mandatory ICU scheme (Figures 6 and 7), a rate of 0.02 per 100,000 compared to 0.04 per 100,000 the previous week. Two new confirmed influenza deaths were reported in week 18 2015. A total of 1,408 admissions (713 A unknown subtype, 281 A(H3N2), 118 A(H1N1)pdm09 and 296 B) and 143 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

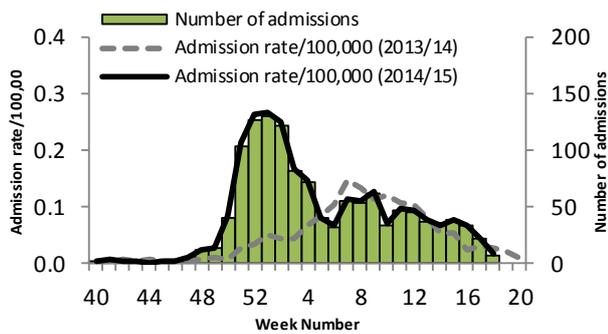
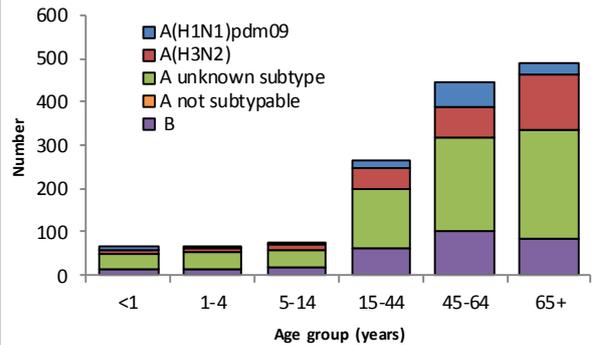


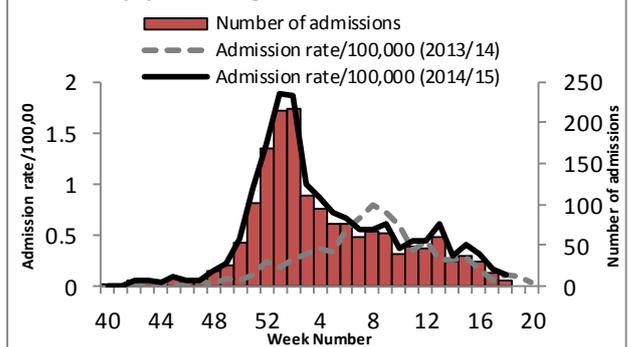
Figure 7: Cumulative ICU influenza admissions (USISS mandatory) by age group and flu type, UK, since week 40 2014



- USISS sentinel weekly hospitalised confirmed influenza cases, England (week 18)

-In week 18, eight new hospitalised confirmed influenza cases (seven influenza B and one influenza A unknown subtype) were reported through the USISS sentinel hospital network from 20 NHS Trusts across England (Figure 8), a rate of 0.10 per 100,000 compared to 0.17 per 100,000 the previous week. A total of 1,705 hospitalised confirmed influenza admissions (883 A(H3N2), 411 A unknown subtype, 349 B and 62 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

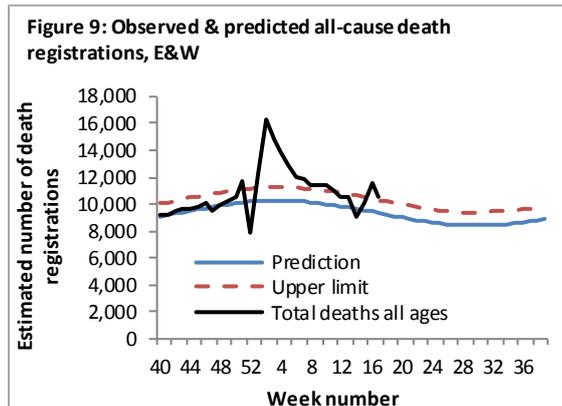
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In week 18 2015, no statistically significant excess all-cause mortality by week of death was seen through the EuroMOMO algorithm in England overall and by age group and across the devolved administrations. Since week 40 2014, significant excess mortality has been observed in England in weeks 50-7 predominantly in 65+ year olds, peaking in week 2 2015. This period of significant excess coincided with circulating influenza and 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 17 2015, an estimated 10,599 all-cause deaths were registered in England and Wales (source: Office for National Statistics). This is less than the 11,639 estimated death registrations in week 16 and is just above the 95% upper limit of expected death registrations for the time of year as calculated by PHE (Figure 9). Weeks 52, 1 and 14 correspond to a week when there were bank holidays and fewer days when deaths were registered. Therefore the decrease in deaths seen is likely to be artificial and result in subsequent increases in following weeks.



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

-Since week 40 2014 up to week 18 2015 in England, excess mortality by date of death above the upper 2 z-score threshold was seen in England after correcting ONS disaggregate data for reporting delay with the standardised EuroMOMO algorithm in 65+ year olds in weeks 50-7 2015, 15-64 year olds in weeks 51-2, and weeks 2 and 5 in under five year olds (Figure 10, Table 1). This period of statistically significant excess coincided with circulating influenza and cold snaps. 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 18 2015, excess mortality above the threshold was seen in weeks 51-4 and 6-9 in Scotland, weeks 42 and 1-3 in Wales and weeks 3-4 and 8-9 in Northern Ireland (Table 2).

Table 1: Excess mortality by age group, England*

Age group (years)	Excess detected in week 18 2015?	Weeks with excess in 2014/15
<5	×	2,5
5-14	×	NA
15-64	×	51-2
65+	×	50-7

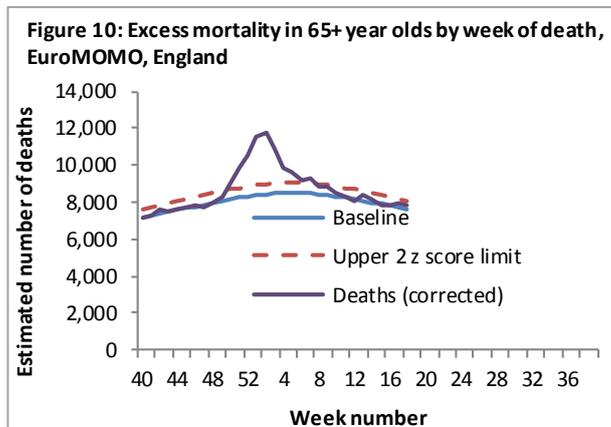
* Excess mortality is calculated as the observed minus the expected number of deaths in weeks above threshold

Table 2: Excess mortality by UK country*

Country	Excess detected in week 18 2015?	Weeks with excess in 2014/15
England	×	50-7
Wales	×	42, 1-3
Scotland	×	51-4, 6-9
Northern Ireland	×	3-4, 8-9

* 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 18 2015, two of the eight samples tested were positive for influenza through the English GP sentinel schemes. 29 influenza positive detections were recorded through the DataMart scheme (one influenza A(H3), 27 B and one influenza A(not-subtyped)).

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

-In week 18, two samples were positive for influenza in England (two B), one was positive in Scotland; two were positive in Northern Ireland and none in Wales (Table 3).

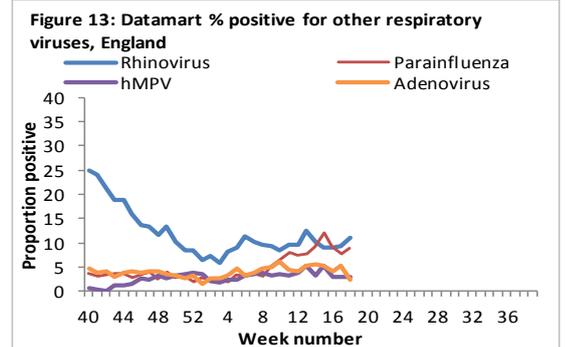
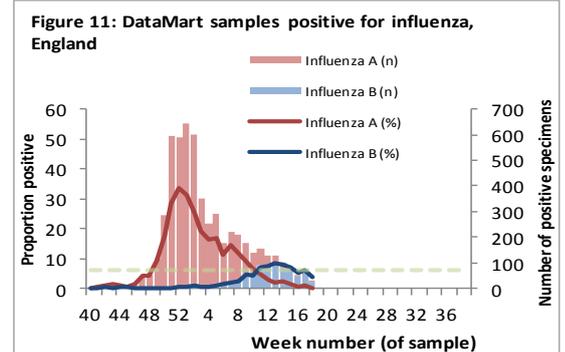
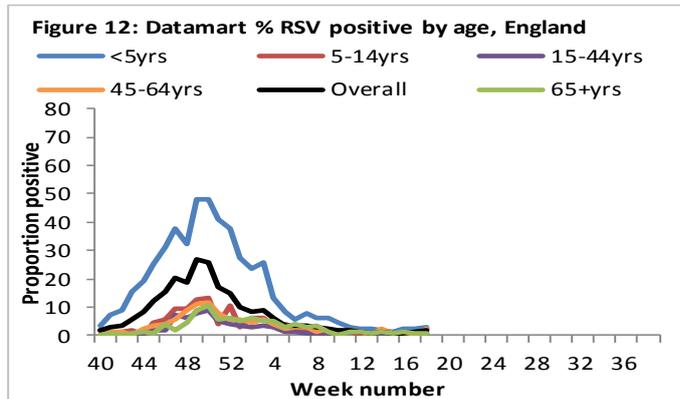
Table 3: Sentinel influenza surveillance in the UK

Week	England	Scotland	Northern Ireland	Wales
14	13/41 (31.7%)	3/32 (9.4%)	1/9 (-)	0/0 (-)
15	7/18 (38.9%)	7/24 (29.2%)	0/1 (-)	0/0 (-)
16	1/8 (-)	14/47 (29.8%)	2/5(-)	0/0 (-)
17	1/8 (-)	8/25 (32%)	0/2 (-)	1/2 (-)
18	2/8 (-)	1/6 (-)	2/3 (-)	0/0 (-)

NB. Proportion positive omitted when fewer than 10 specimens tested

- Respiratory DataMart System (England)

In week 18 2015, out of the 731 respiratory specimens reported through the Respiratory DataMart System, 29 samples (4.0%) were positive for influenza including one influenza A(H3), one influenza A (not subtyped) and 27 B (Figure 11). The overall positivity for RSV remained low (1.8%) (Figure 12). Positivity for rhinovirus increased slightly to 10.9%; adenovirus decreased to 2.4%; parainfluenza increased to 8.9%; human metapneumovirus (hMPV) remained low at 2.9% (Figure 13).



*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

Influenza B: Since week 40 2014, the PHE Respiratory Virus Unit (RVU) has isolated and antigenically characterised 99 influenza B viruses as belonging to the B/Yamagata/16/88 lineage. Of these, 91 (92%) showed reduced reactivity in antigenic tests with antiserum to the 2014/15 Northern hemisphere B/Yamagata-lineage trivalent and quadrivalent vaccine virus, B/Massachusetts/2/2012. These 91 isolates are antigenically similar to B/Phuket/3073/2013, the influenza B/Yamagata lineage virus selected for 2015/16 Northern Hemisphere influenza vaccines. B/Phuket/3073/2013 is related to, but antigenically and genetically distinguishable, from the B/Massachusetts/2/2012 vaccine virus. Nine influenza B viruses have been isolated and antigenically characterised as belonging to the B/Victoria/2/87 lineage, similar to the influenza B/Victoria-lineage component of the 2014/15 Northern Hemisphere quadrivalent vaccine.

Influenza A(H3N2): 242 A(H3N2) influenza viruses have been isolated and antigenically characterised. The majority were similar to the A/Texas/50/2012 H3N2 Northern Hemisphere 2014/15 vaccine strain, however 55 (23%) showed reduced reactivity in antigenic tests with A/Texas/50/2012 antiserum. These 55 isolates are antigenically similar to A/Switzerland/9715293/2013, the H3N2 virus selected for the 2015/16 Northern 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 181 A(H3N2) viruses characterised genetically by RVU to date, some of which were not able to be antigenically characterised, the majority (80%) fall into a genetic subgroup which has been shown to be antigenically distinguishable from the current A(H3N2) vaccine virus.

Influenza A(H1N1)pdm09: 48 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.

- Antiviral susceptibility

Since week 40 2014, 220 influenza viruses (90 A(H3N2), 91 A(H1N1)pdm09 and 39 B) have been tested for oseltamivir susceptibility in the UK and all but four H3N2 are sensitive. Of the four oseltamivir resistant cases, three have an E119V amino acid substitution in the neuraminidase taken from neuraminidase inhibitor treatment patients. These three viruses remain susceptible to zanamivir. The 87 flu A(H3N2), 24 A(H1N1)pdm09 and 39 B were also tested against zanamivir and all but one H3N2 are sensitive. This zanamivir resistant virus has an R292K amino acid substitution in the neuraminidase which is known to cause resistance to oseltamivir and also reduce susceptibility to zanamivir. This sample was taken from a child who had received oseltamivir treatment.

- Antimicrobial susceptibility

-Table 4 shows in the 12 weeks up to 26 April 2015, the proportion of all lower respiratory tract isolates of *Streptococcus pneumoniae*, *Haemophilus influenzae*, *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 26 April 2015, E&W

Organism	Antibiotic	Specimens tested (N)	Specimens susceptible (%)
<i>S. pneumoniae</i>	Penicillin	3,038	92
	Macrolides	3,319	83
	Tetracycline	3,186	85
<i>H. influenzae</i>	Amoxicillin/ampicillin	13,886	74
	Co-amoxiclav	13,257	95
	Macrolides	4,801	20
	Tetracycline	13,932	99
<i>S. aureus</i>	Methicillin	4,239	86
	Macrolides	4,170	71
MRSA	Clindamycin	497	53
	Tetracycline	558	89
MSSA	Clindamycin	2,043	77
	Tetracycline	3,261	92

*Macrolides = erythromycin, azithromycin and clarithromycin

Vaccination

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- Provisional data from the fourth monthly collection of influenza vaccine uptake up to 31 January 2015 by targeted groups has been published. The [report](#) provides uptake at national, area team and CCG level. Up to the end of January 2015, the provisional proportion of people in England who had received the 2014/15 influenza vaccine in targeted groups was as follows:
 - 50.3% in under 65 years in a clinical risk group
 - 44.1% in pregnant women
 - 72.8% in 65+ year olds
 - 38.5% in all 2 year olds
 - 41.3% in all 3 year olds
 - 32.9% in all 4 year olds
- Provisional data from the fifth monthly collection of influenza vaccine uptake by frontline healthcare workers show 54.9% were vaccinated by 28 February 2015 from 100.0% of Trusts, compared to 54.8% vaccinated the previous season by 31 January 2014. The [report](#) provides uptake at national, geographical area, area team (on behalf of primary care and independent sector healthcare providers) and individual Trust level.
- A mid-season influenza vaccine effectiveness estimate for the 2014/15 season in the United Kingdom has been [published](#), with an adjusted value of 3.4% (upper 95% confidence interval of 35.5%) against primary care consultations with laboratory-confirmed influenza. The low value reflects mismatch between circulating A(H3N2) viruses and the 2014/15 northern hemisphere A(H3N2) vaccine strain. Annual flu vaccination remains the best protection we have against an unpredictable virus which can cause severe illness and deaths each year. Early use of antivirals for prophylaxis and treatment of vulnerable populations remains important.

International Situation

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Influenza activity declined further in the northern hemisphere and was low in most regions globally. While influenza A(H3N2) viruses predominated this season in the northern hemisphere, the proportions of influenza A(H1N1)pdm09 and B viruses increased during the past few weeks. Influenza activity remains at inter-seasonal levels in the southern hemisphere.

- [Europe](#) updated on 1 May 2015 (Joint ECDC-WHO Influenza weekly update)

Influenza activity continued to decrease in most of the 37 reporting countries: the proportion of influenza-virus-positive specimens from sentinel sources decreased from 25% in week 16 to 20% for week 17. Since week 51/2014 the positivity rate has been over the threshold of 10%, indicating seasonal influenza activity. Of the 37 countries that reported epidemiological data for week 17/2015, five indicated medium intensity of influenza activity with the remainder reporting low intensity. No country reported widespread activity. Decreasing trends in respiratory-disease activity were reported by 14 countries and one country in the United Kingdom (Scotland). Azerbaijan, Georgia and Uzbekistan reported increasing rates of influenza-like illness (ILI) or acute respiratory infection (ARI). These data indicate that the season either has ended or is ending in most countries.

Influenza A(H1N1)pdm09, A(H3N2) and type B viruses continued to circulate in the WHO European Region, but type B viruses accounted for 92% of sentinel detections in week 17/2015.

The number of hospitalised influenza cases remained low.

Excess all-cause mortality among people aged 65 years and above, concomitant with increased influenza activity and the predominance of A(H3N2) viruses, had been observed in most countries participating in the European project for monitoring excess mortality for public health action (EuroMOMO), but has now abated (see the EuroMOMO website).

Antigenic drift in the A(H3N2) was observed in the 2014–2015 influenza season, so the northern hemisphere vaccine did not provide optimal protection against the A(H3N2) viruses. Despite some antigenic drift among B/Yamagata viruses, the A(H1N1)pdm09 and B/Yamagata components in the vaccine are likely to protect against circulating viruses.

Of all the influenza viruses screened for reduced susceptibility to neuraminidase inhibitors, only four A(H3N2) viruses and two A(H1N1)pdm09 virus have shown genetic or phenotypic evidence of reduced susceptibility: one A(H3N2) virus to oseltamivir and zanamivir and the other five to oseltamivir only.

- [United States of America](#) Updated on 1 May 2015 (Centre for Disease Control report)

During week 16 (April 19-25, 2015), influenza activity continued to decrease in the United States. The proportion of outpatient visits for influenza-like illness (ILI) was 1.4%, which is below the national baseline of 2.0%. Two regions reported ILI at or above region-specific baseline levels. Puerto Rico experienced low ILI activity; New York City and 49 states experienced minimal ILI activity; and the District of Columbia and one state had insufficient data. The geographic spread of influenza in three states was reported as widespread; Guam and nine states reported regional activity; Puerto Rico and 14 states reported local activity; the District of Columbia, the U.S. Virgin Islands, and 21 states reported sporadic activity; and three states reported no influenza activity.

Of 8,294 specimens tested and reported by U.S. World Health Organization (WHO) and National Respiratory and Enteric Virus Surveillance System (NREVSS) collaborating laboratories during week 16, 542 (6.5%) were positive for influenza (36 influenza A subtype not performed, 24 influenza A(H3), 481 influenza B and one influenza A(H1N1)pdm09).

During week 16, 6.7% of all deaths reported through the 122 Cities Mortality Reporting System were due to P&I. This percentage was below the epidemic threshold of 6.9% for week 16.

CDC has characterized 1,865 influenza viruses [49 A(H1N1)pdm09, 1,220 A(H3N2), and 596 influenza B viruses] collected by U.S. laboratories since October 1, 2014. 243 (19.9%) of the 1,220 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. 977 (80.1%) of the 1,220 viruses tested showed either reduced titers with antiserum produced against A/Texas/50/2012 or belonged to a genetic group that typically shows reduced titers to A/Texas/50/2012. 407 (68.3%) of the influenza B viruses tested belong to B/Yamagata/16/88 lineage and the remaining 189 (31.7%) influenza B viruses tested belong to B/Victoria/02/87 lineage. 396 (97.3%) of the 407 B/Yamagata-lineage viruses were characterized as B/Massachusetts/2/2012-like, which is included as an influenza B component of the 2014-2015 Northern Hemisphere trivalent and quadrivalent influenza vaccines. Eleven (2.7%) of the B/Yamagata-lineage viruses tested showed reduced titers to B/Massachusetts/2/2012. 184 (97.4%) of the 189 B/Victoria-lineage viruses were characterized as B/Brisbane/60/2008-like, the virus that is included as an influenza B component of the 2014-2015 Northern Hemisphere quadrivalent influenza vaccine. Five (2.6%) of the B/Victoria-lineage viruses tested showed reduced titers to B/Brisbane/60/2008.

All 49 H1N1 viruses tested were characterized as A/California/7/2009-like, the influenza A (H1N1) component of the 2014-2015 Northern Hemisphere influenza vaccine.

Mid-season [estimates](#) of seasonal vaccine effectiveness in the United States suggest the 2014/15 vaccine has low effectiveness against circulating influenza A(H3N2) viruses.

- [Canada](#) Updated on 1 May 2015 (Public Health Agency report)

In week 16, influenza B continued to be the most common influenza virus circulating in Canada. Influenza B is having a greater impact on adults less than 65 years of age, compared to influenza A(H3N2), which predominated earlier in the season. Although overall influenza activity in Canada continued to decline, elevated activity was still reported (mostly in the Central and Atlantic provinces). No regions reported widespread activity, twenty regions reported localized activity.

The national influenza-like-illness (ILI) consultation rate remained similar to the previous week at 31.9 consultations per 1,000 in week 16.

In week 16, 99 laboratory-confirmed influenza-associated hospitalizations were reported from participating provinces and territories*, which is lower than the number reported the previous week. Of the 99 hospitalizations, 63 (64%) were due to influenza A and 63 (64%) were in patients ≥65 years of age.

Since the start of the 2014-15 season, 7,231 hospitalizations have been reported; 6,414 (89%) with influenza A. Among cases for which the subtype of influenza A was reported, 99.4% were A(H3N2). The majority of cases (71%) were ≥65 years of age. A total of 375 ICU admissions have been reported to date: 53% (n=199) were in adults ≥65 years of age and 33% (n=123) were in adults 20-64 years. A total of 547 deaths have been reported since the start of the season: four children <5 years of age, four children 5-19 years, 33 adults 20-64 years, and 506 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.

Early estimates of seasonal vaccine effectiveness in Canada published in [January](#) and [February](#) suggest the 2014/15 vaccine has low effectiveness against circulating influenza A(H3N2) viruses.

- [Global influenza update](#) Updated on 4 May 2015 (WHO website)

Influenza activity declined further in the northern hemisphere with mainly influenza B virus circulation and was low in most regions globally.

In North America, influenza activity continued to decrease and was close to inter-seasonal levels. Influenza B was the dominant virus during the last weeks.

In Europe, influenza activity continued to decrease in most countries. Influenza B virus remained predominant in recent weeks.

In northern Africa and the Middle East, influenza activity continued to decrease throughout most of the region.

In western Asia, a decrease in influenza activity mainly associated with A(H1N1)pdm09 virus was observed in the last weeks.

In the temperate countries of Asia, influenza activity of mainly influenza B virus was further declining.

In tropical countries of the Americas, influenza activity was low in most countries.

In tropical Asia, influenza activity and influenza-like illness (ILI) activity continued to decrease in southern Asia, where influenza A(H1N1)pdm09 virus predominated. Influenza activity has continued to decrease from its peak in southern China including Hong Kong Special Administrative Region, China. In the southern hemisphere, influenza activity remained at inter-seasonal levels.

In Africa, increased activity was reported from West Africa. Ghana reported increased influenza activity with influenza A(H3N2) and A(H1N1)pdm09 viruses predominating. Cote d'Ivoire reported some influenza A(H3N2) and A(H1N1)pdm09 viruses co-circulating in recent weeks. Few influenza detections were reported from the Democratic Republic of Congo. Decreasing influenza detections were reported from Eastern Africa.

In the southern hemisphere, influenza activity remained at inter-seasonal levels in most of the reporting countries.

The [WHO vaccine recommendation](#) for the northern hemisphere 2015-2016 season was made on 26 February 2015: it recommended that vaccines for use in the season (northern hemisphere) contain the following: an A/California/7/2009 (H1N1)pdm09-like virus; an A/Switzerland/9715293/2013 (H3N2)-like virus; a B/Phuket/3073/2013-like virus and a B/Brisbane/60/2008-like virus.

- Enterovirus D68 (EV-D68) Updated on 22 April 2015

From mid-August 2014 to 15 January 2015, CDC or state public health laboratories 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 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 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](#) latest update on 29 April 2015 (WHO website)

Influenza A(H7N9) latest update on 15 April 2015

On [10 April 2015](#), the National Health and Family Planning Commission (NHFPC) of China notified WHO of 20 additional laboratory-confirmed cases of human infection with avian influenza A (H7N9) virus, including 4 deaths.

WHO is assessing the epidemiological situation and conducting further risk assessment based on the latest information. Overall, the public health risk from avian influenza A(H7N9) viruses has not changed.

For further updates and WHO travel advice, please see the [WHO website](#) and for advice on clinical management please see information available [online](#).

Influenza A(H5N1)

From 2003 through 31 March 2015, 826 human cases of H5N1 avian influenza have been officially reported to [WHO](#) from 16 countries, of which 440 (53.3%) have died. Since the last WHO Influenza update on 3 March 2015, 42 new laboratory-confirmed human cases of avian influenza A(H5N1) virus infection, including 11 fatal cases, were reported to WHO from Egypt (37), China (three) and Indonesia (two). The cases reported from these three countries appear to be sporadic cases and the virus is known to be circulating endemically in poultry in these countries. Whenever avian influenza viruses are circulating in poultry, sporadic infections and small clusters of human cases are possible in people exposed to infected poultry or contaminated environments, therefore the additional sporadic human cases would not be unexpected. Although an increased number of animal-to-human infections have been reported by Egypt over the past few months, these influenza A(H5) viruses do not currently appear to transmit easily among people. As such, the risk of community-level spread of these viruses remains to be low. Although the risk assessment remains unchanged, further studies are needed to understand the risk factors for human infections and the potential role of mild cases if they are occurring. Further analyses on virus isolates from the animal sector and human cases need to be undertaken to better understand if changes in the transmissibility of the virus from animals to humans may be playing a role in the current situation.

- Middle East respiratory syndrome coronavirus (MERS-CoV) latest update on 29 April 2015

Between 14 and 20 April 2015, the National IHR Focal Point for the Kingdom of Saudi Arabia notified WHO of 4 additional cases of Middle East respiratory syndrome coronavirus (MERS-CoV) infection, including 1 death.

Up to 20 April 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 282 suspect cases in the UK that have been investigated for MERS-CoV and tested negative.

Globally, WHO has been notified of 1110 laboratory-confirmed cases of infection with MERS-CoV, including at least 422 related deaths. Further information on management and guidance of possible cases is available [online](#).

Acknowledgements

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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](#))