PHE Weekly National Influenza Report

Summary of UK surveillance of influenza and other seasonal respiratory illnesses

2 April 2015 – Week 14 report (up to week 13 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 13 2015 (ending 29 March), influenza B was the predominant flu virus circulating, with indicators of influenza activity generally at low levels. The Department of Health alert issued on the prescription of antiviral medicines by GPs is still active.

- Community influenza surveillance
  - In week 13 respiratory syndromic indicators were at similar levels compared to the previous week.
  - 14 new acute respiratory outbreaks have been reported in the past seven days: four in care homes (one flu A(untyped), two flu B and one not tested); three in hospitals (one flu B and the other two not tested/results not available yet); six in schools (1 flu A(untyped) and others not tested) and one in a nursery (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 system remained stable in week 13.
  - In week 13, overall weekly influenza-like illness (ILI) GP consultations increased slightly in Northern Ireland, remained stable in Scotland and decreased in Wales.
- Influenza-confirmed hospitalisations
  - 32 new admissions to ICU/HDU with confirmed influenza (24 influenza B, five influenza A unknown subtype, one influenza A(H1N1)pdm09 and one influenza A(H3N2)) were reported through the USISS mandatory ICU/HDU surveillance scheme across the UK (123 Trusts in England) in week 13, a rate of 0.08 compared to 0.09 per 100,000 the previous week
  - 52 new hospitalised confirmed influenza cases (48 influenza B, three influenza A(H1N1pdm09) and one influenza A/unknown) were reported through the USISS sentinel hospital network across England (18 Trusts), a rate of 0.77 compared to 0.41 per 100,000 the previous week.
- All-cause mortality data
  - In week 13 2015, no statistically significant excess all-cause mortality by week of death was seen through the EuroMOMO algorithm in England and across the devolved administrations overall and by age group. 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 coincides with circulating influenza and cold snaps.
- Microbiological surveillance
  - 10 samples were positive for influenza through the English GP sentinel schemes (10 B) with a positivity of 43.5% compared to 43.3% the previous week.
  - 69 influenza positive detections were recorded through the DataMart scheme (51 B, 11 A(H3), five influenza A(H1N1)pdm09 and two A(not subtyped), positivity of 10.5% compared to 10.4% the previous week) with the highest positivity seen in 5-14 year olds (14.0%).
  - 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.
  - WHO have published their recommendations for the composition of the 2015/16 northern hemisphere influenza vaccine.
- International situation
  - Globally, influenza activity remains elevated in the northern hemisphere. Influenza A(H3N2) viruses predominate, although the proportion of influenza B viruses are increasing and some countries reported high levels of activity associated with influenza A(H1N1)pdm09 viruses. In the European Region, influenza activity is decreasing in most reporting countries but the proportion of influenza virus positive samples remains high.

Community surveillance

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In week 13 respiratory syndromic indicators were at similar levels compared to the previous week and 14 new acute respiratory outbreaks were reported in the last seven days.

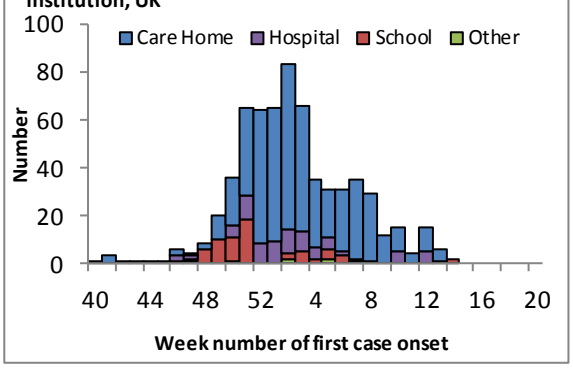
- PHE Real-time Syndromic Surveillance

-In week 13 respiratory syndromic indicators were at similar levels compared to the previous week.
-For further information, please see the syndromic surveillance webpage.

- Acute respiratory disease outbreaks

-14 new acute respiratory outbreaks have been reported in the past seven days: four in care homes (one flu A(untyped), two flu B and one not tested); three in hospitals (one flu B and the other two not tested/results not available yet); six in schools (1 flu A(untyped) and others not tested) and one in a nursery (not tested). So far in the 2014/15 flu season, 657 outbreaks (494 in care homes, 80 in hospitals, 75 in schools and eight in other settings) have been reported in the UK including 113 with flu A(H3) infection, 182 flu A (untyped), 18 flu B, four flu A(untyped)/flu B, two flu A(H1N1)pdm09, eight rhinovirus, six RSV, five parainfluenza, four hMPV, one enterovirus, 18 mixed infections and 94 not tested/test results not yet available).

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

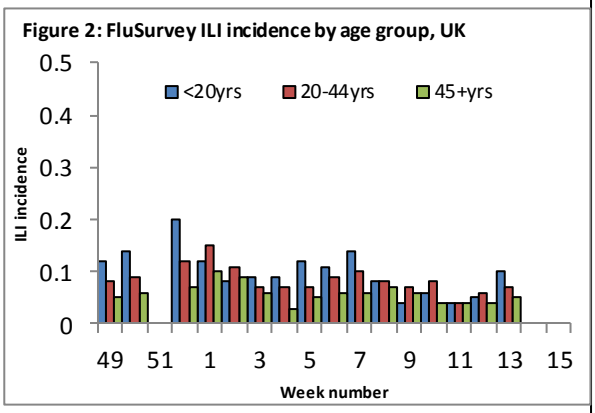


-Outbreaks should be recorded on HPZone and reported to the local Health Protection Teams and Respscidsc@phe.gov.uk.

- 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.
-In week 13, 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).
-This is the last week of reporting for FluSurvey this season.

Figure 2: FluSurvey ILI incidence by age group, UK



Weekly consultation rates in national sentinel schemes

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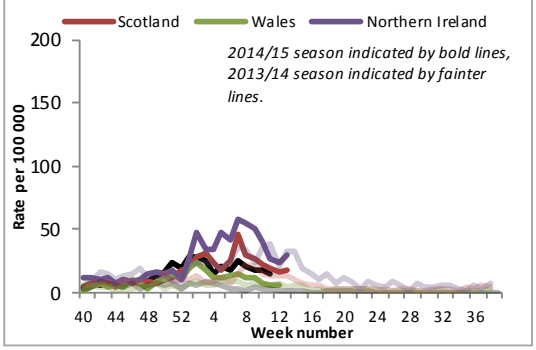
In week 13 overall weekly influenza-like illness GP consultations increased slightly in Northern Ireland, remained stable in Scotland and decreased in Wales.

- Influenza/Influenza-Like-Illness (ILI)

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



Northern Ireland

-The Northern Ireland influenza consultation rate increased slightly from 23.5 to 29.5 per 100,000 in week 13 (Figure 3).

-The highest rates were seen in <1 year olds (54.3 per 100,000), 45-64 year olds (49.3 per 100,000) and 75+ year olds (31.4 per 100,000).

Wales

-The Welsh influenza rate decreased from 6.7 to 3.8 per 100,000 in week 13 (Figure 3).

-The highest rates were seen in 75+ year olds (6.8 per 100,000), 45-64 year olds (6.0 per 100,000) and 65-74 year olds (5.7 per 100,000).

Scotland

-The Scottish ILI rate remained stable at 17.6 per 100,000 in week 13 (Figure 3).

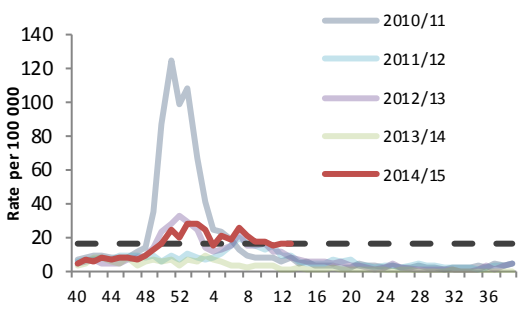
-The highest rates were seen in 45-64 year olds (25.8 per 100,000), 15-44 year olds (18.4 per 100,000) and 75+ year olds (16.9 per 100,000).

RCGP (England and Wales)

-The weekly ILI consultation rate through the RCGP surveillance system remained stable at 16.3 per 100,000 in week 13 (Figure 4*). By age group, the highest rate was seen in 45-64 year olds (25.6 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

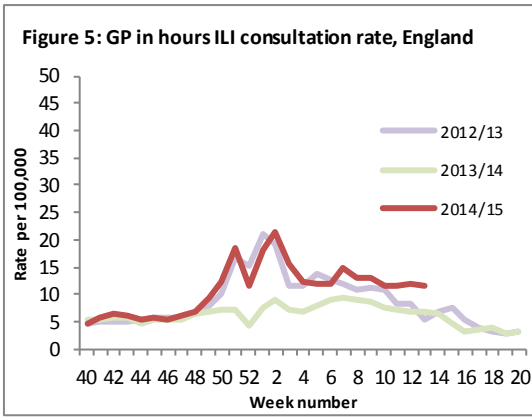


GP In Hours Syndromic Surveillance System (England)

-The weekly ILI consultation rate through the GP In Hours Syndromic Surveillance system remained stable compared to the previous week (11.6 in week 13 compared to 12.0 per 100,000 in week 12, 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 13, 32 new admissions to ICU/HDU with confirmed influenza (24 influenza B, five influenza A unknown subtype, one influenza A(H1N1)pdm09 and one influenza A(H3N2)) were reported through the national USISS mandatory ICU scheme across the UK (123 Trusts in England). 52 new hospitalised confirmed influenza cases (48 influenza B, three influenza A(H1N1pdm09) and one influenza A/unknown) were reported through the USISS sentinel hospital network across England (18 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 13)

-In week 13, 32 new admissions to ICU/HDU with confirmed influenza 24 influenza B, five influenza A unknown subtype, one influenza A(H1N1)pdm09 and one influenza A(H3N2)) were reported across the UK (123/156 Trusts in England) through the USISS mandatory ICU scheme (Figures 6 and 7), a rate of 0.08 per 100,000 compared to 0.09 per 100,000 the previous week. Five new confirmed influenza deaths were reported in week 13 2015. A total of 1,246 admissions (720 A unknown subtype, 255 A(H3N2), 105 A(H1N1)pdm09) and 166 B) and 125 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

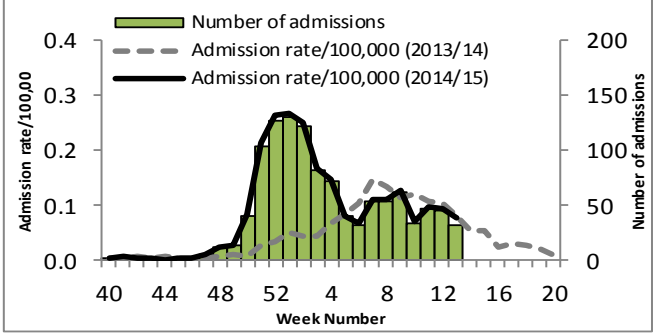
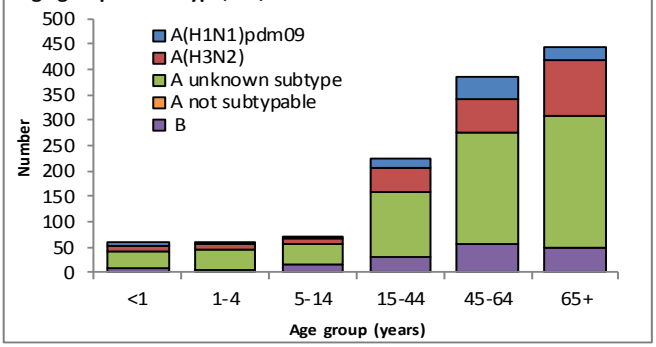


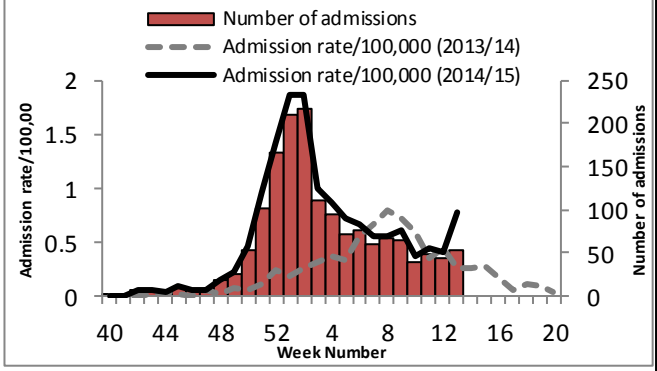
Figure 7: Cumulative ICU influenza admissions (USISS mandatory) by age group and flu type, UK, since week 40 2014



- USISS sentinel weekly hospitalised confirmed influenza cases, England (week 13)

-In week 13, 52 new hospitalised confirmed influenza cases (48 influenza B, three influenza A(H1N1pdm09) and one influenza A/unknown) were reported through the USISS sentinel hospital network from 18 NHS Trusts across England (Figure 8), a rate of 0.77 per 100,000 compared to 0.41 per 100,000 the previous week. A total of 1,561 hospitalised confirmed influenza admissions (867 A(H3N2), 408 A unknown subtype, 230 B and 56 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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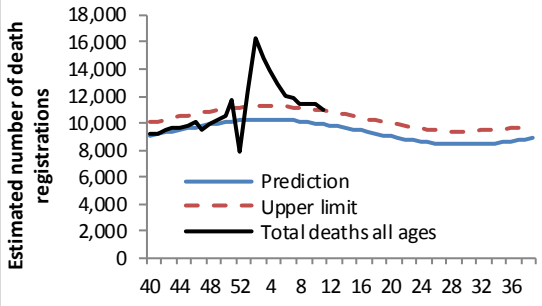
In week 13 2015, no statistically significant excess all-cause mortality by week of death was seen through the EuroMOMO algorithm in England and across the devolved administrations overall and by age group. Since week 40 2014, significant excess mortality has been observed in England in weeks 50-7 predominantly in 65+ year olds, peaking in week 2 2015. This period of significant excess coincides 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 12 2015, an estimated 10,568 all-cause deaths were registered in England and Wales (source: Office for National Statistics). This is less than the 10,951 estimated death registrations in week 11, and is now below 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 13 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 1-2 and 5 in under five year olds (Figure 10, Table 1). This period of statistically significant excess coincides 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 13 2015, excess mortality above the threshold was seen in weeks 51-9 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 13 2015?	Weeks with excess in 2014/15
<5	×	1-2, 5
5-14	×	NA
15-64	×	51-2
65+	×	50-7

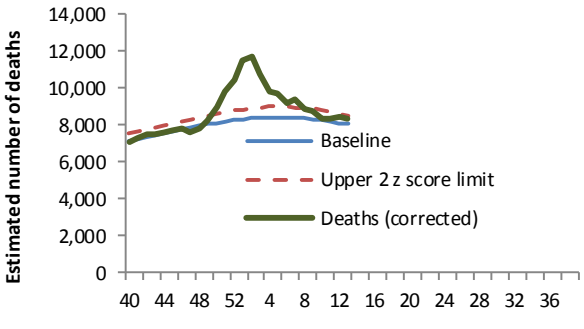
** Excess mortality is calculated as the observed minus the expected number of deaths in weeks above threshold*

Table 2: Excess mortality by UK country*

Country	Excess detected in week 13 2015?	Weeks with excess in 2014/15
England	×	50-7
Wales	×	42, 1-3
Scotland	×	51-9
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

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



Microbiological surveillance

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In week 13 2015, 10 samples were positive for influenza through the English GP sentinel schemes (10 B with a positivity of 43.5%). 69 influenza positive detections were recorded through the DataMart scheme (51 B, 11 A(H3), five influenza A(H1N1)pdm09 and two A(not subtyped).

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

-In week 13, 10 samples were positive for influenza in England (10 B), ten in Scotland (nine B and one A(not subtyped), two in Northern Ireland (one A(not subtyped) and one B) and no samples were tested for influenza in Wales (Table 3).

Table 3: Sentinel influenza surveillance in the UK

Week	England	Scotland	Northern Ireland	Wales
10	16/51 (31.4%)	11/59 (18.6%)	3/10 (30.0%)	0/3 (-)
11	16/40 (40.0%)	7/43 (16.3%)	5/6 -)	0/3 (-)
12	29/67 (43.3%)	4/42 (9.5%)	5/10 (50.0%)	0/2 (-)
13	10/23 (43.5%)	10/29 (34.5%)	2/4 (-)	0/0 (-)

NB. Proportion positive omitted when fewer than 10 specimens tested

- Respiratory DataMart System (England)

In week 13 2015, out of the 660 respiratory specimens reported through the Respiratory DataMart System, 69 samples (10.5%) were positive for influenza (11 A(H3), two A(not subtyped), five influenza A(H1N1)pdm09 and 51 B (Figure 11*), with the highest positivity in 5-14 year olds (14.0% compared to 29.7% the previous week, Figure 12)). The overall positivity for RSV remained at low levels (0.5%) in week 13. Positivity for rhinovirus increased to 11%, adenovirus positivity increased to 4.7%, parainfluenza positivity decreased to 5.6% and human metapneumovirus (hMPV) positivity increased to 4.9% in week 13 (Figure 13).

Figure 11: DataMart samples positive for influenza, England

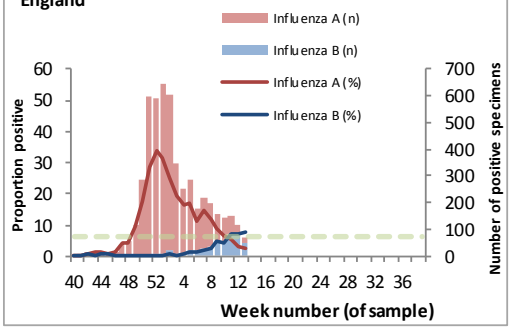


Figure 12: Datamart % positive for influenza by age, England

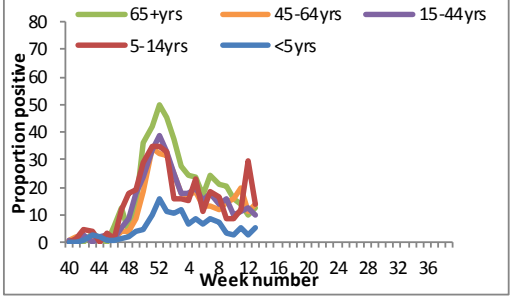
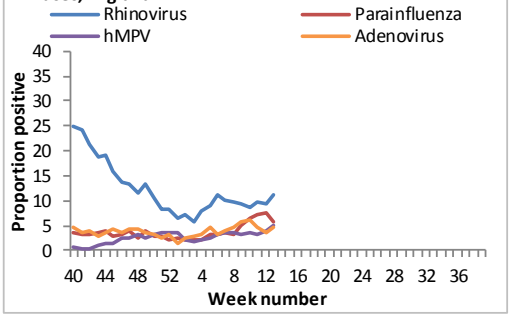


Figure 13: Datamart % positive for other respiratory viruses, England



**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%.*

- Antiviral susceptibility

Influenza B: Since week 40 2014, the PHE Respiratory Virus Unit (RVU) has isolated and antigenically characterised 56 influenza B viruses as belonging to the B/Yamagata/16/88 lineage. Of these, 51 (91%) 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 51 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. One influenza B virus has 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): 240 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 57 (24%) showed reduced reactivity in antigenic tests with A/Texas/50/2012 antiserum. These 57 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 76 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: 45 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, 192 influenza viruses (88 A(H3N2), 79 A(H1N1)pdm09 and 25 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 85 flu A(H3N2), 21 A(H1N1)pdm09 and 25 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 22 March 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 22 March 2015, E&W

Organism	Antibiotic	Specimens tested (N)	Specimens susceptible (%)
S. pneumoniae	Penicillin	3,413	92
	Macrolides	3,716	83
	Tetracycline	3,552	85
H. influenzae	Amoxicillin/ampicillin	15,377	74
	Co-amoxiclav	14,478	95
	Macrolides	5,842	20
	Tetracycline	15,496	99
S. aureus	Methicillin	4,733	87
	Macrolides	4,642	72
MRSA	Clindamycin	513	42
	Tetracycline	575	88
MSSA	Clindamycin	2,242	78
	Tetracycline	3,634	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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Globally, influenza activity remained elevated in the northern hemisphere. Influenza A(H3N2) viruses predominate, although the proportion of influenza B viruses are increasing and some countries in Asia, Europe and North Africa reported high levels of activity associated with influenza A(H1N1)pdm09 viruses. In the European Region, influenza activity is decreasing in most reporting countries but the proportion of influenza virus positive samples remains high.

- Europe updated on 27 March 2015 (Joint ECDC-WHO Influenza weekly update)

Influenza activity is decreasing in most reporting countries but the proportion of influenza virus positive samples remains high (41%). Of the 43 countries that reported epidemiological data for week 12/2015, 21 indicated medium intensity; no country reported high intensity of influenza activity. Geographically widespread activity was reported in 16 countries, compared to 22 in the previous week. Decreasing trends in respiratory disease activity were reported by 30 countries. Two countries (Armenia and Georgia) reported increasing rates of influenza-like illness (ILI) or acute respiratory infections (ARI).

Influenza A(H1N1)pdm09, A(H3N2) and type B viruses continued to circulate in the Region, with an increasing proportion of type B viruses. For week 12/2015, 41% of sentinel specimens tested positive for influenza virus, with detections in 34 of the 37 countries that reported virological data. Whereas influenza A viruses dominated in previous weeks, influenza B is now dominating, with 64% of the reported detections. Of

the subtyped type A viruses, 53% were A(H3N2) and 47% A(H1N1)pdm09; this is an increase of A(H1N1)pdm09 viruses detected compared to the previous week. Of B viruses ascribed to lineage, 99% were B/Yamagata. Influenza type B viruses were dominant in 10 countries across the European Region and A(H3N2) viruses were dominant in Albania, Bulgaria and Denmark. Approximately two thirds of the A(H3N2) viruses characterized so far show antigenic differences compared to the virus included in the 2014-2015 northern hemisphere influenza vaccine. The observed reduction in effectiveness of the A(H3N2) component of the vaccine might have contributed to the excess mortality reported among older age groups. The A(H1N1)pdm09 and B components of the vaccine are likely to be effective.

Since week 40/2014, 8 countries (Finland, France, Ireland, Romania, Slovakia, Spain, Sweden and the United Kingdom) have reported a total of 5180 laboratory-confirmed hospitalized influenza cases. Of these, 3262 were reported in ICUs, including 1402 (43%) by France and 1168 (36%) by the United Kingdom. Of the 5180 confirmed cases, 4373 (84%) were positive for influenza A virus and 807 (16%) for influenza B virus. Of 2020 subtyped A viruses, 1499 (74%) were A(H3N2) and 521 (26%) A(H1N1)pdm09.

- United States of America Updated on 27 March 2015 (Centre for Disease Control report)

During week 11 (March 15-21, 2015), influenza activity continued to decrease, but remained elevated in the United States. The proportion of outpatient visits for influenza-like illness (ILI) was 2.2%, above the national baseline of 2.0%. Six regions reported ILI at or above region-specific baseline levels. Puerto Rico and one state experienced high ILI activity; four states experienced moderate ILI activity; 12 states experienced low ILI activity; New York City and 33 states experienced minimal ILI activity; and the District of Columbia had insufficient data. The geographic spread of influenza in seven states was reported as widespread; Guam, the U.S. Virgin Islands, and 27 states reported regional activity; the District of Columbia, Puerto Rico, and 15 states reported local activity; and one state reported sporadic activity.

Of 12,824 specimens tested and reported by U.S. World Health Organization (WHO) and National Respiratory and Enteric Virus Surveillance System (NREVSS) collaborating laboratories during week 11, 1,358 (10.6%) were positive for influenza (232 influenza A subtype not performed, 101 influenza A(H3), 1,024 influenza B and one influenza A(H1N1)pdm09).

During week 11, 7.5% of all deaths reported through the 122 Cities Mortality Reporting System were due to P&I. This percentage was above the epidemic threshold of 7.2% for week 11.

CDC has characterized 1,346 influenza viruses [27 A(H1N1)pdm09, 1,026 A(H3N2), and 293 influenza B viruses] collected by U.S. laboratories since October 1, 2014. 242 (23.6%) of the 1,026 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. 784 (76.4%) of the 1,026 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. 207 (70.6%) of the influenza B viruses tested belong to B/Yamagata/16/88 lineage and the remaining 86 (29.4%) influenza B viruses tested belong to B/Victoria/02/87 lineage. 198 (95.7%) of the 207 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. Nine (4.3%) of the B/Yamagata-lineage viruses tested showed reduced titers to B/Massachusetts/2/2012. 82 (95.3%) of the 86 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. Four (4.7%) of the B/Victoria-lineage viruses tested showed reduced titers to B/Brisbane/60/2008.

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 27 March 2015 (Public Health Agency report)

The majority of influenza activity is occurring in the Central and Atlantic provinces. Influenza B detections continue to increase steadily across Canada while detections of influenza A continues to steadily decrease. This increase in influenza B is expected as influenza B often shows up later in the flu season. Despite the late-season circulation of influenza B, influenza A(H3N2) remains the most common influenza virus detected this season to date and seniors continue to be affected. Evidence from the National Microbiology Laboratory (NML) indicates that this year's vaccine will continue to provide protection against the circulating A(H1N1) and B strains.

The national influenza-like-illness (ILI) consultation rate decreased in week 11 to 28.9 consultations per 1,000, which is within expected levels.

In week 11, 148 laboratory-confirmed influenza-associated hospitalizations were reported from participating provinces and territories which is slightly more than the number reported in week 10 (n=139). Of the 148

hospitalizations, all but 49 were due to influenza A, and 67% were in patients 65+ years of age. Since the start of the 2014-15 season, 6,249 hospitalizations have been reported; 5,877 (95%) with influenza A. Among cases for which the subtype of influenza A was reported, 99.5% were A(H3N2). The majority of cases (71%) were 65+ years of age. A total of 321 ICU admissions have been reported to date: 54% (n=172) were in adults 65+ years of age and 32% (n=102) were in adults 20-64 years. A total of 462 deaths have been reported since the start of the season: three children <5 years of age, three children 5-19 years, 38 adults 20-64 years, and 418 adults 65+ years of age. Adults 65 years of age or older represent 90% 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 23 March 2015 (WHO website)

Globally, influenza activity remained elevated in the northern hemisphere with influenza A(H3N2) viruses predominating, although some countries in Asia, Europe and North Africa reported high levels of activity associated with influenza A(H1N1)pdm09 viruses.

In North America, influenza activity was decreasing but remained above the threshold. Influenza A(H3N2) viruses predominated so far this season.

In Europe, influenza activity appeared to have peaked in many countries. Influenza A(H3N2)virus continued to be predominant.

In northern Africa and the middle East, influenza activity continued to decrease with influenza A(H1N1)pdm09 viruses predominating, except in Egypt, where there was co-circulation with influenza A(H3N2) and influenza B viruses.

In the temperate countries of eastern Asia, influenza A(H3N2) was predominant Asia with very little influenza A(H1N1)pdm09 virus activity, while in western Asia, influenza A(H1N1)pdm09 and influenza B were predominant.

In tropical countries of the Americas, influenza activity remained low with mainly A(H3N2) viruses detected.

In tropical Asia, influenza activity patterns varied with influenza(H1N1)pdm09 predominant in Bhutan and India, influenza A(H3N2) predominant in the Hong Kong Special Administrative Region, and influenza B predominant in south China.

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

The term “swine flu” has recently been used incorrectly to refer to the seasonal influenza A(H1N1)pdm09 virus which infects humans during influenza season. The term “swine flu” means influenza viruses that circulate in swine population (pigs) and infect pigs. A(H1N1)pdm09 is not “swine flu” virus. Please see the link below for more information on the terminology of influenza viruses infections in humans.

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 31 March 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 latest update on 11 March 2015 (WHO website)

Influenza A(H7N9)

On 9 March 2015, the National Health and Family Planning Commission (NHFPC) of China notified WHO of 59 additional laboratory-confirmed cases of human infection with avian influenza A(H7N9) virus, including 17 fatal cases.

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 3 March 2015, 784 human cases of H5N1 avian influenza have been officially reported to WHO from 16 countries, of which 429 (54.7%) died.

- Middle East respiratory syndrome coronavirus (MERS-CoV) latest update on 26 March 2015

Up to 31 March 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 1,086 confirmed cases have been reported internationally, resulting in a current global total of 1,090 cases, with the most recent case reported on 26 March 2015 from the 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)