PHE Weekly National Influenza Report

Summary of UK surveillance of influenza and other seasonal respiratory illnesses

2 January 2014 – Week 1 report (up to week 52 data)

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

Report contents:

Summary

Indicators of influenza activity are at low levels of intensity with evidence of sporadic detections of influenza. RSV is continuing to circulate. Due to bank holidays in week 52 (ending 29 December 2013), GP surgeries were only open for three days – data should therefore be interpreted with caution.

- Overall weekly influenza GP consultation rates across the UK
  - In week 52 (ending 29 December 2013), overall weekly influenza GP consultations remained low in England (2.9 per 100,000), Wales (0.0 per 100,000), Scotland (10.3 per 100,000) and Northern Ireland (7.6 per 100,000)).
  - In week 52 national attendances for bronchitis, particularly in young children, decreased suggesting that levels have peaked. Selected indicators of ILI activity remain stable and below seasonally expected levels.
  - Three new acute respiratory outbreaks have been reported in the past seven days in care homes (one A(H1N1)pdm09 and two RSV) across the UK.
- Virology
  - In week 52 2013, 12 influenza positive detections were recorded through the DataMart scheme (five A(H1N1)pdm09 and seven A(not subtyped), positivity of 3.2% compared to 2.0% in week 51).
  - No samples were tested through the English sentinel schemes.
- Disease severity and mortality
  - 12 new admissions to ICU/HDU with confirmed influenza (six A(H1N1)pdm09 and six A unknown subtype) were reported through the USISS mandatory ICU surveillance scheme across the UK (110 Trusts in England) in week 52. 19 new hospitalised confirmed influenza cases were reported through the USISS sentinel hospital network across England (25 Trusts).
  - In week 50 2013, no excess all-cause mortality was seen across the UK through the EuroMOMO algorithm and none has been reported since week 40 2013. This data is provisional due to the time delay in death registration.
- Vaccination
  - Up to week 52 2013 in 84.4% of GP practices reporting weekly to Immform, the provisional proportion of people in England who had received the 2013/14 influenza vaccine in targeted groups was as follows: 41.1% in all 2 year olds, 37.9% in all 3 year olds, 49.9% in under 65 years in a clinical risk group, 38.8% in all pregnant women and 71.8% in 65+ year olds.
  - Provisional data from the second monthly collection of influenza vaccine uptake by frontline healthcare workers show 48.6% were vaccinated by 30 November 2013 from 95.9% of Trusts, compared to 40.8% vaccinated the previous season by 30 November 2012.
- International situation
  - Overall influenza activity in North America continues to increase.
  - European countries continue to report low levels of influenza activity.

Weekly consultation rates in national sentinel schemes

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In week 52 (ending 29 December 2013), overall weekly influenza GP consultations remained low in England, Wales, Scotland and Northern Ireland.

- Influenza/Influenza-Like-Illness (ILI)

RCGP (England and Wales)

-The overall ILI consultation rate from RCGP for England and Wales decreased in week 52 2013 (2.9 per 100,000) compared to week 51 (6.7 per 100,000) (Figure 1*). ILI rates decreased in the North (from 9.0 to 3.0 per 100,000), South region (from 8.7 to 3.1 per 100,000) and remained stable in the Central region (2.4 per 100,000).

-In week 52 2013, ILI consultations were reported in 65-74 year olds (rate of 4.5 per 100,000), 15-44 year olds (4.0 per 100,000) and 45-64 year olds (3.2 per 100,000).

Figure 1: RCGP ILI consultation rates , England and Wales

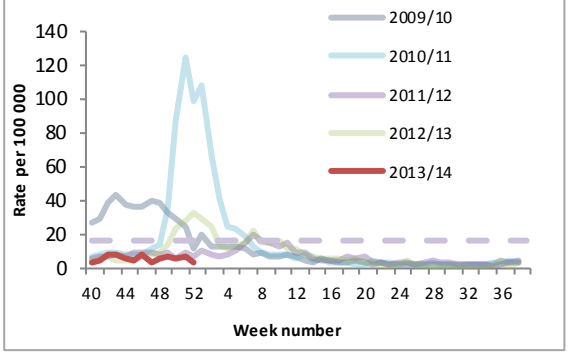


Figure 2: RCGP ILI consultation rates , by age group, E&W

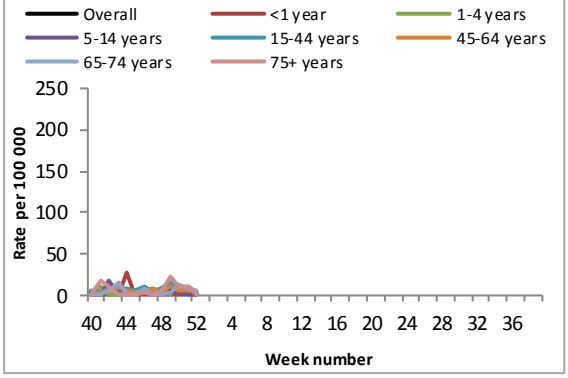
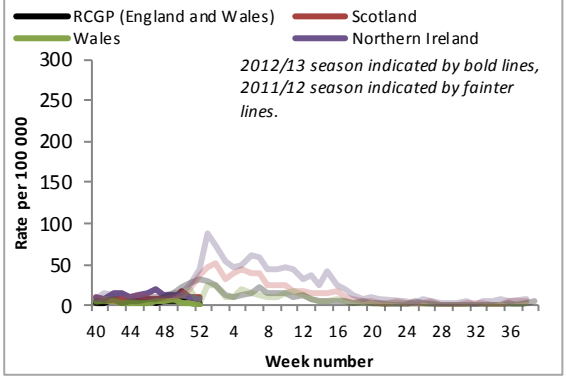


Figure 3: GP ILI/influenza consultation rates in the UK



Northern Ireland

-The Northern Ireland influenza rate remained stable from 9.9 per 100,000 in week 51 to 7.6 per 100,000 in week 52 (Figure 3).

-In week 52 2013, the highest rates were seen in 15-44 year olds (from 12.8 to 10.0 per 100,000) and 45-64 year olds (from 12.3 to 10.0 to per 100,000).

Wales

-The Welsh influenza rate decreased from 3.9 per 100,000 in week 51 to 0.0 per 100,000 in week 52 (Figure 3).

Scotland

-The Scottish ILI rate remained stable from 9.2 per 100,000 in week 51 to 10.3 per 100,000 in week 52 (Figure 3)^.

-The highest rate was seen in 75+ year olds (from 11.0 to 14.3 per 100,000) followed by 65-74 year olds (from 4.6 to 14.1 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 calculated for RCGP ILI consultation rates for 2013/14 is 15.6 per 100,000.*

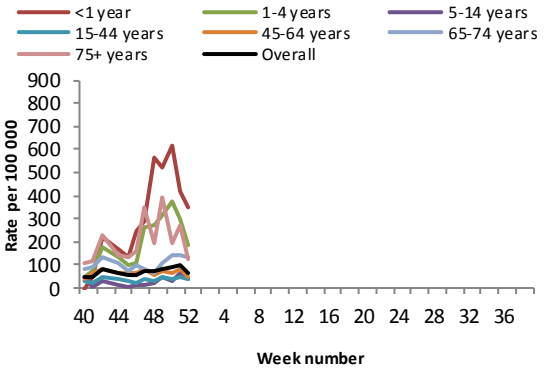
^Please note that the Scottish GP consultation rates for ILI were adjusted to account for the reduced number of working days in week 52. The data for this week must be interpreted with caution.

- Other respiratory indicators

Acute bronchitis (AB)

The overall weekly consultation rate for acute bronchitis (AB) in England and Wales through the RCGP scheme decreased from 101.0 per 100,000 in week 51 to 65.5 per 100,000 in week 52 (Figure 4). The highest rates were seen in <1 year olds (347.1 per 100,000) and 1-4 year olds (186.0 per 100,000).

Figure 4: RCGP AB consultation rates , by age group, E&W



Community surveillance

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In week 51 national attendances for acute respiratory infection remained high and three new acute respiratory outbreaks have been reported.

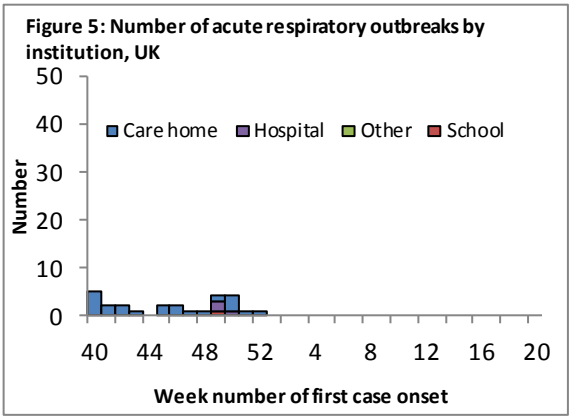
- PHE Real-time Syndromic Surveillance

-In week 52 national attendances for bronchitis, particularly in young children, decreased suggesting that levels have peaked. Selected indicators of ILI activity remain stable and below seasonally expected levels.
-For further information, please see the syndromic surveillance webpage.

- Acute respiratory disease outbreaks

-Three new acute respiratory outbreaks were reported in the last 7 days, comprising one in a care home in the Midlands and East of England from which influenza A (H1N1) pdm09was isolated and two in care homes in the South of England and the Midlands and East of England, from both of which RSV was isolated (Figure 5). So far this season, 23 outbreaks have been reported in care homes, two in hospitals and two in schools (where tested, one influenza A not sub-typed, one influenza A (H1N1)pdm09), three rhinovirus, seven RSV and three parainfluenza).
-Outbreaks should be recorded on HPZone and reported to the local Health Protection Teams and Respcidsc@phe.gov.uk.

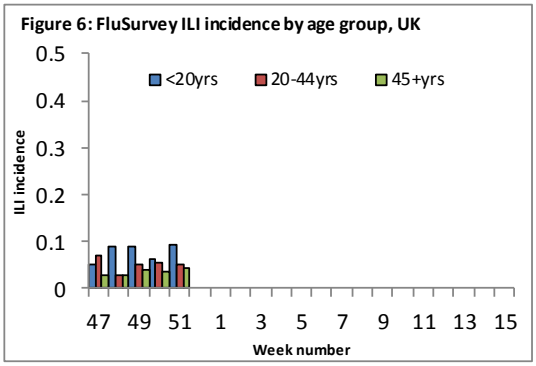
Figure 5: Number of acute respiratory outbreaks by institution, UK



- 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 51, the incidence of ILI reports was comparatively higher in<20 year olds than in week 50 (Figure 6).

Figure 6: FluSurvey ILI incidence by age group, UK



Microbiological surveillance

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In week 52 2013, 12 influenza positive detections were recorded through the DataMart scheme (five A(H1N1)pdm09 and seven A(not subtyped)). No samples were tested through the English sentinel schemes.

- Respiratory DataMart System (England)

In week 52 2013, out of the 403 respiratory specimens reported through the Respiratory Datamart System, five (1.2%) positive for flu A (H1N1) pdm09, and seven (1.7%) positive for flu A (not subtyped) and no samples were positive for influenza B (Figure 7). The overall positivity for RSV increased from 29.3% in week 51 to 37.0% in week 52, with the highest positivity reported in the <5 years were there was an increase from 47.1% in week 51 to 54.0% in week 52 (Figure 8). Positivity for rhinovirus decreased from 14.6% in week 51 to 12.5% in week 52. Positivity for parainfluenza fell slightly at 3.2% in week 52. Other respiratory viruses remained at low levels: adenovirus 3.2% and hMPV 2.8% (Figure 9).

Figure 7: DataMart samples positive for influenza, England

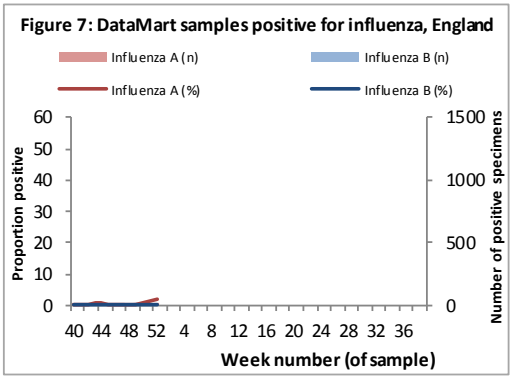


Figure 8: Datamart % RSV positive by age, England

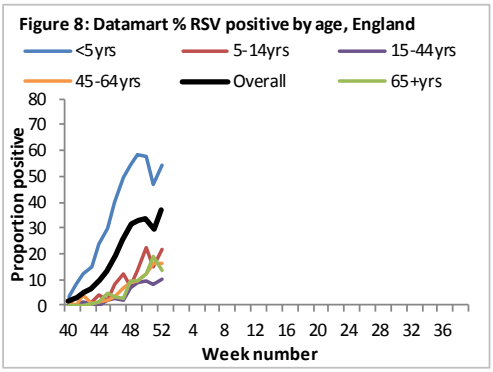
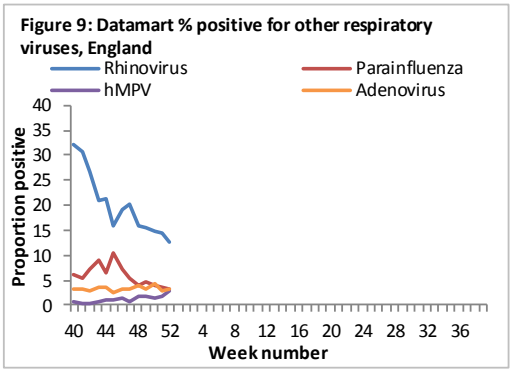


Figure 9: Datamart % positive for other respiratory viruses, England



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

-No sample was positive from Scottish scheme in week 52 (Table 1). No samples were tested through the England, Northern Ireland and Welsh schemes.

Table 1: Sentinel influenza surveillance in the UK

Week	England	Scotland	Northern Ireland	Wales
49	3/95 (3.2%)	2/38 (5.3%)	0/2 (-)	0/0 (-)
50	6/57 (10.5%)	3/66 (4.5%)	0/3 (-)	0/0 (-)
51	1/11 (9.1%)	1/58 (1.7%)	0/4 (-)	0/0 (-)
52	0/0 (-)	0/7 (-)	0/0 (-)	0/0 (-)

NB. Proportion positive omitted when fewer than 10 specimens tested

- Virus characterisation

-Since week 40 2013, the PHE Respiratory Virus Unit (RVU) has isolated and antigenically characterised 18 influenza A(H3N2) viruses, all similar to the A/Texas/50/2012 H3N2 2013/14 vaccine strain, and 12 influenza A(H1N1)pdm09 viruses similar to the A/California/07/2009 vaccine strain for 2013/14. One influenza B isolate, belonging to the B-Yamagata lineage has been characterised.

- Antiviral susceptibility

Since week 40 2013, eighteen and six influenza viruses have been tested for Osetamivir and Zanamivir susceptibilty, respectively, in the UK, and no virus has been found to be resistant so far in this season.

- Antimicrobial susceptibility

-In the 12 weeks up to 22 December 2013, 82% or greater of all lower respiratory tract isolates of *Staphylococcus aureus, Streptococcus pneumoniae* and *Haemophilus influenzae* reported as tested were susceptible to the antibiotics tetracycline and co-amoxiclav (Table 2). There have been no significant changes in susceptibility in recent years.

Table 2: Antimicrobial susceptibility surveillance in lower respiratory tract isolates, 12 weeks up to 22 Dec 2013, E&W

Organism	Tetracyclines		Co-amoxiclav	
	Specimens tested (N)	Specimens susceptible (%)	Specimens tested (N)	Specimens susceptible (%)
S. aureus	3,216	92	179	88
S. pneumoniae	2,152	82	2273*	90*
H. influenzae	8,366	99	7,878	92

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

Influenza confirmed hospitalisations

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In week 52, 12 new admissions of confirmed influenza cases to ICU/HDU (six A(H1N1)pdm09 and six A unknown subtype) and no confirmed influenza deaths in ICU/HDU have been reported through the national USISS mandatory ICU scheme across the UK (110 Trusts in England). 19 new hospitalised confirmed influenza cases have been reported through the USISS sentinel hospital network across England (25 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 52)

-In week 52, 12 new admissions to ICU/HDU with confirmed influenza infection (six A(H1N1)pdm09 and six A unknown subtype) were reported across the UK (110/156 Trusts in England) through the USISS mandatory ICU scheme (Figures 10 and 11) compared to 15 in week 51. No new confirmed influenza deaths were reported in week 51 2013. A total of 52 admissions (17 A(H1N1)pdm09, 26 A(unknown), eight B and one A(H3N2)) and one confirmed influenza death have been reported since week 40 2013.

Figure 10: Weekly ICU influenza admissions and deaths (USISS mandatory) by week of admission/death, UK, since week 40 2013

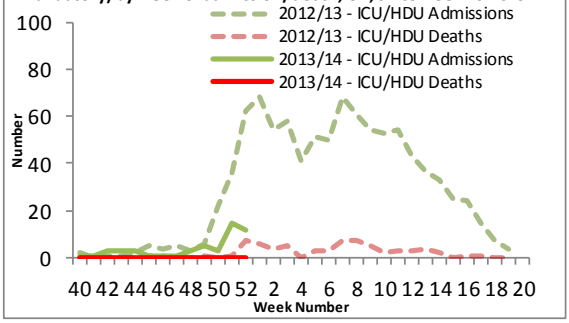
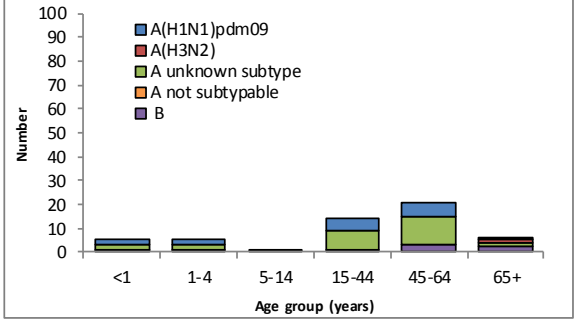


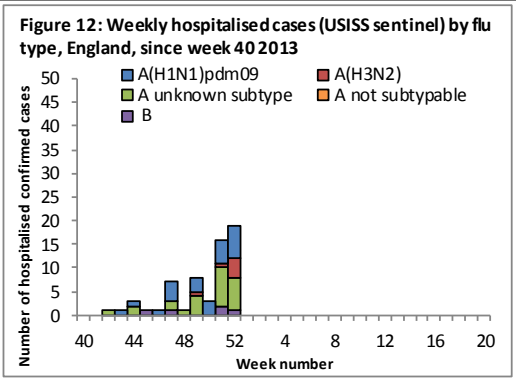
Figure 11: Cumulative ICU influenza admissions (USISS mandatory) by age group and flu type, UK, since week 40 2013



- USISS sentinel weekly hospitalised confirmed influenza cases, England (week 52)

-In week 52, 19 new hospitalised confirmed influenza case were reported through the USISS sentinel hospital network from 25 NHS Trusts across England (Figure 12) compared to 16 in week 51. A total of 61 hospitalised confirmed influenza admissions (25 A(H1N1)pdm09, 25 A unknown, six A(H3N2) and five B) have been reported since week 40 2013.

Figure 12: Weekly hospitalised cases (USISS sentinel) by flu type, England, since week 40 2013



All-cause mortality data

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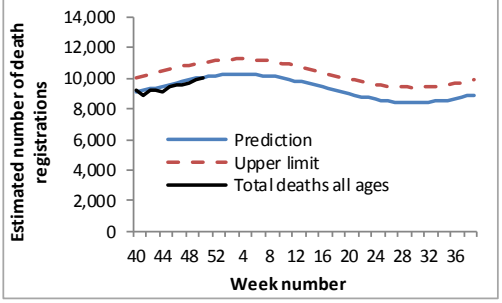
In week 50, no excess in all-cause mortality was seen across the UK overall, by age group or by region.

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 overall all-cause mortality, England and Wales

-In week 50 2013, an estimated 10,003 all-cause deaths were registered in England and Wales (source: Office for National Statistics). This is slightly more than the 9,908 estimated death registrations in week 49 but remains below the 95% upper limit of expected death registrations for this time of year as calculated by PHE (Figure 13).

Figure 13: Observed & predicted all-cause death registrations, E&W



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

-In week 50 2013, no 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 (Figure 14, Table 3). This data is provisional due to the time delay in registration and so numbers may vary from week to week.

-No excess mortality above the threshold through the same standardised algorithm was seen subnationally or in the devolved administrations (Table 4).

Figure 14: Excess mortality in 65+ year olds by week of death, EuroMOMO, England

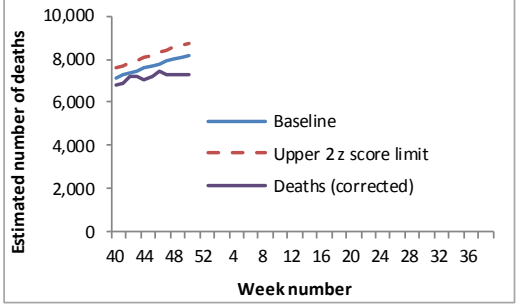


Table 3: Excess mortality by age group,England*

Age group (years)	Excess detected in week 50 2013?	Weeks with excess in 2013/14
<5	×	NA
5-14	×	NA
15-64	×	NA
65+	×	NA

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

Table 4: Excess mortality by UK country*

Country	Excess detected in week 50 2013?	Weeks with excess in 2013/14
England	×	NA
Wales	×	NA
Scotland	×	NA
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 3 + 4

Vaccination

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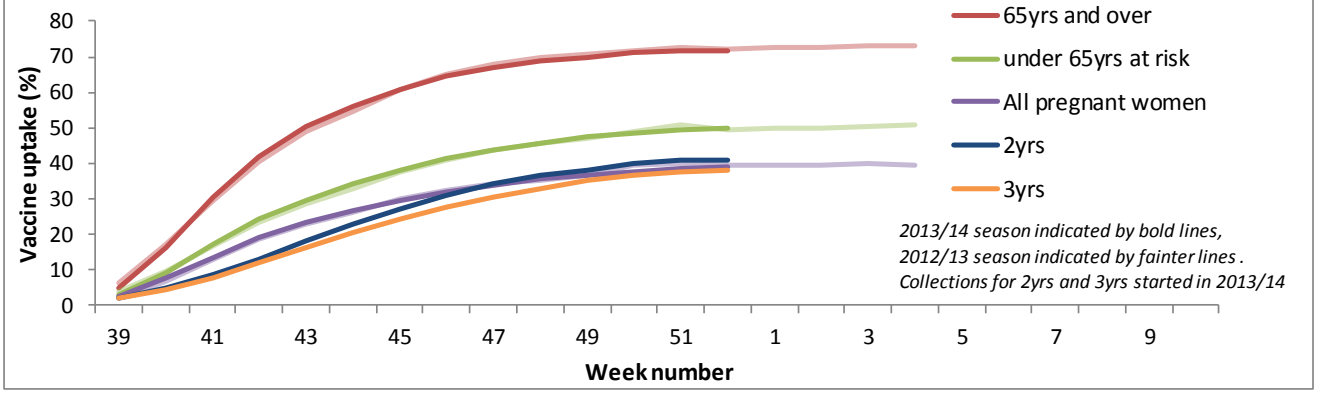
- Up to week 52 2013 in 84.4% of GP practices reporting weekly to Immform, the provisional proportion of people in England who had received the 2013/14 influenza vaccine in targeted groups was as follows (Figure 15):
  - 41.1% in all 2 year olds
  - 37.9% in all 3 year olds
  - 49.9% in under 65 years in a clinical risk group
  - 38.8% in all pregnant women
  - 71.8% in 65+ year olds

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



- In the second monthly collection up to 30 November 2013, provisional cumulative seasonal influenza vaccine uptake from 95.6% of GP practices was 68.8% in 65 years and over, 45.8% in under 65 year olds at risk, 35.8% in all pregnant women, 36.5% in all 2 year olds and 33.6% in all 3 year olds. The report provides uptake to Area Team level, CCG level and in key targeted groups.
- Provisional data from the second monthly collection of influenza vaccine uptake by frontline healthcare workers show 48.6% were vaccinated by 30 November 2013 from 95.9% of Trusts, compared to 40.8% vaccinated the previous season by 30 November 2012. The report provides uptake to Trust level.

International Situation

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Overall influenza activity in North America continues to increase. European countries continue to report low levels of influenza activity.

- Europe 27 December 2013 (European Centre for Disease Prevention and Control report)

For week 51/2013, clinical data (ILI or ARI) were reported by 13 countries. All of them reported low-intensity influenza activity, the lowest category of reporting. Geographic patterns of influenza activity were reported as sporadic by five countries and the UK (Scotland). All other countries reported no activity. Stable or decreasing trends were reported by all countries. Among the countries reporting influenza-virus-positive sentinel specimens, only Belgium reported an increase in clinical rates.

For week 51/2013, 15 countries tested a total of 111 sentinel specimens, five (5%) of which from five of the countries were positive for influenza virus. Since week 40/2013, of 131 sentinel specimens positive for influenza, 114 (87%) were type A and 17 (13%) were type B. Of 92 subtyped influenza A viruses, 49 (53%) were A(H3) and 43 (47%) were A(H1)pdm09. Since week 40/2013, 35 A(H1)pdm09, 20 A(H3) viruses and two B viruses have been tested for susceptibility to the neuraminidase inhibitors oseltamivir and zanamivir: none showed genetic or phenotypic (IC50) evidence for reduced inhibition. In week 51/2013, 13 countries reported 281 respiratory syncytial virus (RSV) detections, much less than in previous weeks. This decrease is very likely to be due to the fact that few countries reported during the Christmas holiday period.

Since week 40/2012, five countries have reported 40 hospitalised laboratory-confirmed influenza cases, but no cases were reported in week 51/2013. One fatal case was reported by France for week 49/2013. Of the 40 hospitalised laboratory-confirmed influenza cases reported since week 40/2013, 29 (73%) were related to infection with influenza virus type A and 11 (27%) to infection with influenza virus type B.

- United States of America 27 December 2013 (Centre for Disease Control report)

During week 51 2013, influenza activity continued to increase in the United States.

Nationwide during week 51, 3.0% of patient visits reported through the U.S. Outpatient Influenza-like Illness Surveillance Network (ILINet) were due to influenza-like illness (ILI). This percentage is above the national baseline of 2.0%. *(ILI is defined as fever (temperature of 100°F [37.8°C] or greater) and cough and/or sore throat.)* On a regional level, the percentage of outpatient visits for ILI ranged from 0.9% to 7.1% during week 51. Eight regions (Regions 1, 3, 4, 5, 6, 7, 8, and 10) reported a proportion of outpatient visits for ILI at or above their region-specific baseline level. Six states experienced high ILI activity; eight states experienced moderate ILI activity; six states experienced low ILI activity; 28 states experienced minimal ILI activity, and the District of Columbia, New York City, and two states had insufficient data.

During week 51, 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 51. One influenza-associated pediatric death that occurred during the 2012-2013 season was reported to CDC during week 51 and was associated with an influenza B virus. This death brings the total number of reported pediatric deaths for that season to 171. A total of four influenza-associated pediatric deaths for the 2013-2014 season have been reported.

Of 6,813 specimens tested and reported by U.S. World Health Organization (WHO) and National Respiratory and Enteric Virus Surveillance System (NREVSS) collaborating laboratories during week 51, 1,639 (24.1%) were positive for influenza. By type, 1,610 (98.2%) were influenza A (915 (56.8%) A(H1N1)pdm09, 673 subtyping not performed and 22 (1.4%) A(H3)) and 28 (1.8%) were influenza B.

- Canada 20 December 2013 (Public Health Agency report)

Influenza activity in Canada continued to increase in week 50. The number of regions that reported sporadic or localized influenza/ILI activity increased, with activity reported in 8 of the 10 provinces. Influenza A(H1N1)pdm09 remains the predominant influenza virus type this season. In week 50, four regions (in AB(1), ON(2) and QC(1)) reported localized activity and 25 regions (in BC(5), AB(4), SK(3), MB(1), ON(5), QC(4), NS(1), and NL(2)) reported sporadic activity. The national influenza-like-illness (ILI) consultation rate increased from 19.2/1,000 in week 49 to 25.7/1,000 in week 50. In week 50, 14 new laboratory-confirmed influenza-associated paediatric (≤16 years of age) hospitalizations were reported by the Immunization Monitoring Program Active (IMPACT) network. Thirteen were cases of influenza A: five A(H1N1)pdm09 and eight A(unsubtyped). Three cases were children under 6 months of age, two were 6-23 months of age, five were 2-4 years of age, one was 5-9 years of age and three were 10-16 years of age. Two ICU admissions were reported in week 50, one child 5-9 years of age with influenza B, and one 10-16 years of age with A(H1N1)pdm09. To date this season, a total of 53 influenza-associated paediatric hospitalizations have been reported by the IMPACT network, the majority of which have been influenza A. Eighteen (34%) of cases have been children under 2 years of age. Five ICU admissions have been reported: two cases with influenza B and three with A(H1N1)pdm09, all children 2 years of age or older. No deaths have been reported.

- Global influenza update 20 December 2013 (WHO website)

In North America the influenza season has started. The predominant subtype of influenza viruses detected was influenza A(H1N1)pdm09. For the rest of the northern hemisphere as well as in the southern hemisphere influenza activity remained low.

In countries of tropical areas variable influenza activity was reported.

Based on FluNet reporting (as of 19 December 2013, 07:15 UTC), during weeks 48 to 49 (24 November 2013 to 7 December 2013), National Influenza Centres (NICs) and other national influenza laboratories from 89 countries, areas or territories reported influenza surveillance data. The WHO GISRS laboratories tested more than 42 360 specimens. 3304 were positive for influenza viruses, of which 2816 (85.3%) were typed as seasonal influenza A and 487 (14.7%) as influenza B. Of the sub-typed seasonal influenza A viruses, 1166 (66.4%) were influenza A(H1N1)pdm09and 591 (33.6%) were influenza A(H3N2). Of the characterized B viruses, 39 (70.9%) belonged to the B-Yamagata lineage and 16 (29.1%) to the B-Victoria lineage.

- Avian Influenza 17 December 2013 (WHO website)

Influenza A(H7N9)

Up to 17 December 2013, 143 cases of human infection with influenza A(H7N9) from China have been reported by WHO, including 45 deaths (case fatality ratio=32%). Two new laboratory-confirmed cases of human infection have been reported in the past week. The first patient is a 39-year-old man from Guangdong Province. He became ill on 6 December 2013 and was admitted to hospital on 11 December 2013. He is currently in critical condition. The second patient is a 65-year-old woman from Guangdong Province. She was exposed to live poultry and became ill on 11 December 2013 and was admitted to hospital on 15 December 2013. She is currently in critical condition. 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 to 10 December 2013, 648 human cases of H5N1 avian influenza have been officially reported to WHO from 15 countries, of which 384 (59%) died.

- Novel coronavirus 27 December 2013

Up to 27 December 2013, 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 108 suspect cases in the UK that have been investigated for MERS-CoV and tested negative. A further 159 confirmed cases have been reported internationally. This results in a current global total of 170 cases, 72 of which have died (case fatality ratio=42%). 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 paper

Community surveillance

- Outbreak reporting
- FluSurvey
- MOSA

Disease severity and mortality data

- USISS system
- EuroMOMO mortality project

Vaccination

- 2012/13 seasonal influenza vaccine programme (Department of Health Book)
- Childhood flu programme Q&A for healthcare professionals (Public Health England)
- 2013/14 Northern Hemisphere seasonal influenza vaccine recommendations (WHO)