



PHE Weekly National Influenza Report

Summary of UK surveillance of influenza and other seasonal respiratory illnesses

23 November 2017 – Week 47 report (up to week 46 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](#) | [Community surveillance](#) | [GP consultation rates](#) | [Hospitalisations](#) | [All-cause mortality](#) | [Microbiological surveillance](#) | [Vaccination](#) | [International](#) | [Acknowledgements](#) | [Related links](#) |

Summary

During week 46 (ending 19 November 2017), influenza activity was low across all surveillance systems and RSV activity continues to increase.

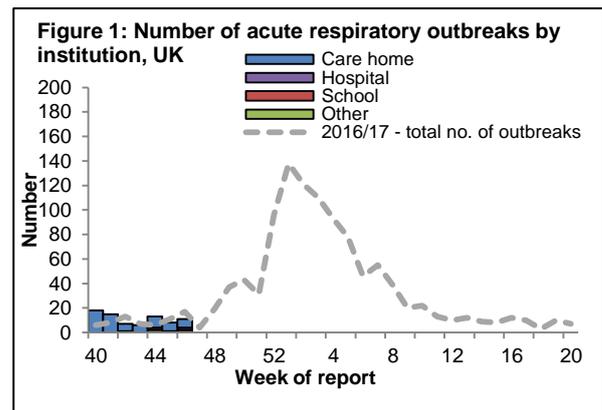
- [Community influenza surveillance](#)
 - Eleven new acute respiratory outbreaks have been reported in the past 7 days. Seven outbreaks were from care homes, where one tested positive for influenza A(unknown subtype) and one for rhinovirus. Two outbreaks were from hospitals where one tested positive for influenza A(H3) and another for influenza A(unknown subtype). The remaining two outbreaks were from schools with no test results available
- [Overall weekly influenza GP consultation rates across the UK](#)
 - In week 46, the overall weekly influenza-like illness (ILI) GP consultation rate was 5.8 per 100,000 in England, compared to 6.4 per 100,000 in week 45. This is below the baseline threshold of 13.1 per 100,000 for this season. In the devolved administrations, ILI rates were also below baseline thresholds.
 - Through the Syndromic Surveillance systems, GP in hours consultations for influenza like illness (ILI) were low in week 46 (GP IH) and there were further increases in selected respiratory indicators, particularly in children aged <5 years, in line with recent increases in laboratory reports for respiratory syncytial virus (RSV).
- [Influenza-confirmed hospitalisations](#)
 - In week 46, there were two admissions to ICU/HDU with confirmed influenza (one influenza A(unknown subtype) and one influenza A(H3N2)) reported across the UK (127/144 Trusts in England) through the USSS mandatory ICU scheme with a rate of 0.00 per 100,000, compared to 0.02 per 100,000 in the previous week.
 - In week 46, there were 28 hospitalised confirmed influenza cases (two influenza A(H1N1)pdm09, seven influenza A(H3N2), ten influenza A(unknown subtype) and nine influenza B) reported through the USSS sentinel hospital network (16 NHS Trusts across England), with a rate of 0.31 per 100,000 compared to 0.08 per 100,000 in the previous week.
 - No laboratory confirmed influenza admissions have been reported from the six Severe Respiratory Failure centres in the UK in week 46.
- [All-cause mortality data](#)
 - In week 46 2017, no statistically significant excess all-cause mortality by week of death was seen through the EuroMOMO algorithm in England. In the devolved administrations, significant excess above the threshold was observed in Scotland but not in Wales or Northern Ireland.
- [Microbiological surveillance](#)
 - Two samples tested positive for influenza (one influenza A(unknown subtype) and one influenza A(H3)) through the UK GP sentinel swabbing schemes, with an overall positivity of 3.4% in week 46.
 - Thirty-six positive detections were recorded through the DataMart scheme (20 influenza A(H3), eight influenza A(not subtyped), two influenza A(H1N1)pdm09 and six influenza B) with a positivity of 2.1% in week 46. RSV activity continues to increase at 18.8% in week 46 and the highest positivity was seen in <5 year olds at 46.9%.
- [Vaccination](#)
 - Up to week 46 2017, in 73.5% of GP practices reporting weekly to Immform, the provisional proportion of people in England who had received the 2017/18 influenza vaccine in targeted groups was: 40.4% in under 65 years in a clinical risk group, 40.6% in pregnant women and 66.6% in 65+ year olds.
 - Up to week 46 2017 in 73.1% of GP practices reporting weekly to Immform, the provisional proportion of children in England who had received the 2017/18 influenza vaccine in targeted groups was: 32.0% in 2 year olds and 32.2% in 3 year olds.
 - Provisional data from the first monthly collection of influenza vaccine uptake by frontline healthcare workers show 46.0% were vaccinated by 31 October 2017, compared to 40.4% vaccinated in the previous season by 31 October 2016.
 - Provisional data from the first monthly collection of influenza vaccine uptake for children of school years Reception, 1, 2, 3 and 4 age show the provisional proportion of children in England who received the 2016/17 influenza vaccine via school, pharmacy or GP practice by 31 October 2017 in targeted groups was as follows: 18.1% in children of school year Reception age (4-5 years); 17.9% in children of school Year 1 age (5-6 years); 17.5% in children of school Year 2 age (6-7 years); 17.0% in children of school Year 3 age (7-8 years) and 16.2% in children of school Year 4 age (8-9 years).
- [International situation](#)
 - Globally, influenza activity remained at low levels in the temperate zone of the northern hemisphere, with the exception of Canada where influenza activity has surpassed the seasonal threshold indicating the start of the influenza season in Canada. Declining levels of influenza activity were reported in the temperate zone of the southern hemisphere. Worldwide, influenza A(H3N2) and B viruses accounted for the majority of influenza detections.

Eleven new acute respiratory outbreaks were reported in the past 7 days.

- Acute respiratory disease outbreaks

- Eleven new acute respiratory outbreaks have been reported in the past 7 days. Seven outbreaks were from care homes, where one tested positive for influenza A(unknown subtype) and one for rhinovirus. Two outbreaks were from hospitals where one tested positive for influenza A(H3) and another for influenza A(unknown subtype). The remaining two outbreaks were from schools with no test results available.

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



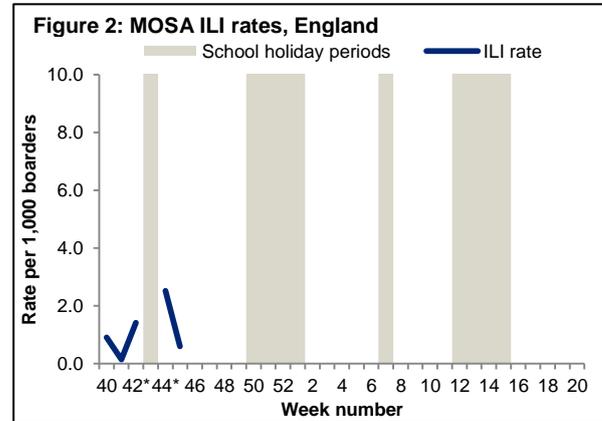
- Medical Officers of Schools Association (MOSA) & PHE surveillance scheme

- Boarding schools in England within the MOSA network are recruited each season to report various respiratory related illnesses including influenza like illnesses (ILI). For the 2017/18 season, 21 MOSA schools have agreed to participate in the scheme, including a total of 7,575 boarders.

- The overall ILI rate (all boarders) for week 45 was 0.6 per 1,000 boarders.

-Since week 40, five outbreaks have been reported from two MOSA schools, with a total of 20 ILI cases identified.

- If you are a MOSA school and would like to participate in this scheme, please email mosa@phe.gov.uk for more information.



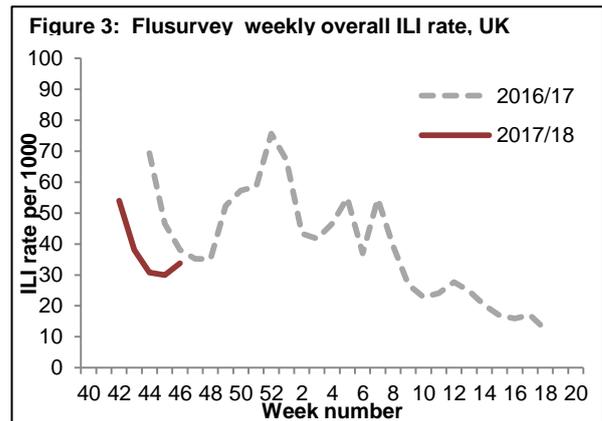
*represents weeks where not all schools will be reporting due to varying school holiday periods.

- FluSurvey

- Internet-based surveillance of influenza-like illness in the general population is undertaken through the FluSurvey. A project run jointly by PHE and the London School of Hygiene and Tropical Medicine.

- The overall ILI rate (all age groups) for week 46 was 33.8 per 1,000 (67/1,918 people reported at least 1 ILI) (Figure 3), with the highest rate seen in the <20 year olds (51.6 per 1,000).

- If you would like to become a participant of the FluSurvey project please do so by visiting the <https://flusurvey.org.uk/en/accounts/register/> website for more information.



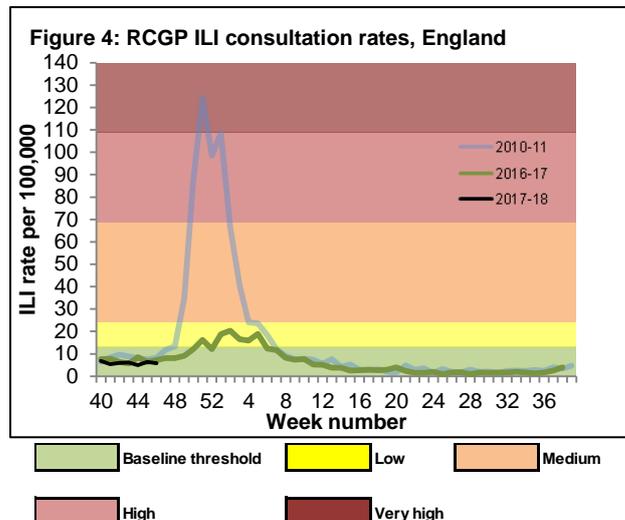
In week 46, the overall weekly influenza-like illness (ILI) GP consultation rate is low and is below the baseline threshold in England. In the devolved administrations, ILI rates remained low in week 46.

- GP ILI consultations in the UK

RCGP (England)

- The weekly ILI consultation rate through the RCGP surveillance is at 5.8 per 100,000 in week 46 compared to 6.4 per 100,000 in week 45. This is below the baseline threshold (13.1 per 100,000) (Figure 3*). By age group, the highest rates were seen in <1 year olds (12.6 per 100,000) and 45-64 year olds (9.1 per 100,000).

*The Moving Epidemic Method (MEM) 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 (based on 10 seasons excluding 2009/10) in a standardised approach across Europe. For MEM intensity threshold values, please visit: <https://www.gov.uk/guidance/sources-of-uk-flu-data-influenza-surveillance-in-the-uk#clinical-surveillance-through-primary-care>



UK

- In week 46, overall weekly ILI consultation rates across the countries of the UK were low (Table 1).
- By age group, the highest rates were seen in the 65-74 year olds in Scotland and Northern Ireland (5.5 per 100,000 and 5.9 per 100,000 respectively) and in the 15-44 year olds in Wales (10.2 per 100,000).

Table 1: GP ILI consultations in the UK for all ages with MEM thresholds applied*

GP ILI consultation rates (all ages)	Week number																
	40	41	42	43	44	45	46	47	48	49	50	51	52	1	2	3	4
England (RCGP)	6.8	5.4	5.9	6.1	5.0	6.4	5.8										
Wales	5.7	6.5	6.6	5.4	5.0	5.4	6.0										
Scotland	4.4	7.1	3.5	5.8	5.2	4.8	4.2										
Northern Ireland	3.4	3.9	3.7	3.3	4.0	3.6	4.5										

*The Moving Epidemic Method (MEM) 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 (based on 10 seasons excluding 2009/10), in a standardised approach across Europe. For MEM threshold values for each country, please visit: <https://www.gov.uk/guidance/sources-of-uk-flu-data-influenza-surveillance-in-the-uk#clinical-surveillance-through-primary-care>

GP In Hours Syndromic Surveillance System (England)

-The weekly ILI consultation rate through the GP In Hours Syndromic Surveillance system is at 4.7 per 100,000 in week 46 (Figure 5).

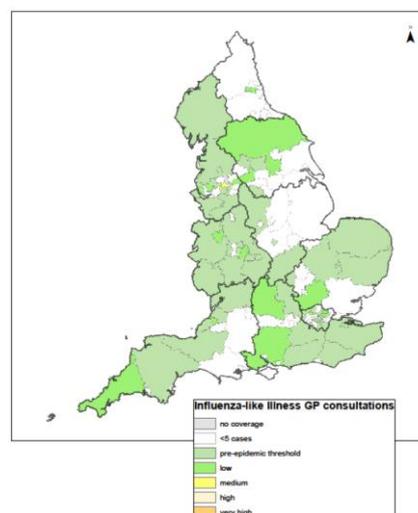
There were further increases in selected respiratory indicators, particularly in children aged <5 years, in line with recent increases in laboratory reports for respiratory syncytial virus (RSV).

Figure 4 represents a map of GP ILI consultation rates in week 46 across England by upper tier Local Authorities (utLA), with influenza-like illness surveillance MEM thresholds applied.

ILI consultation rates presented for each utLA on the map should be interpreted in context of regional and national ILI activity; as MEM thresholds are calculated (based on previous influenza seasons from 2012/13 onwards) separately for each of the nine PHE centres and utLA rates are then compared to Centre-level thresholds only, therefore utLAs with higher background rates than the Centre may appear to have higher ILI activity.

-For further information, please see the syndromic surveillance [webpage](#).

Figure 5: Map of GP ILI consultation rates in week 46

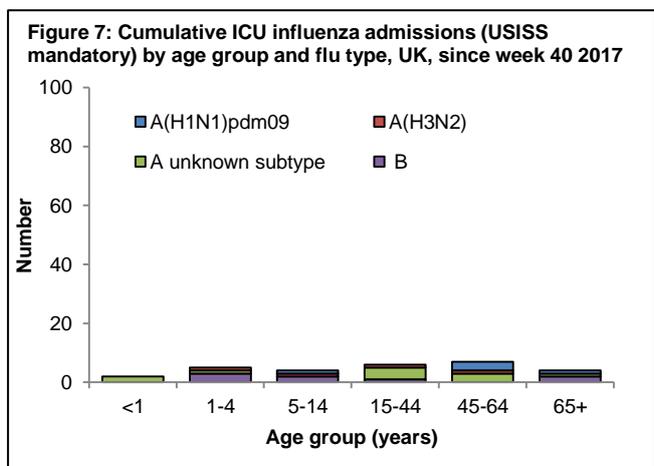
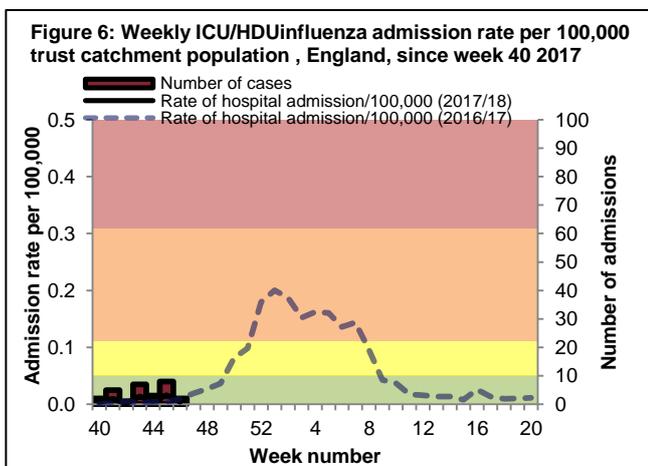


In week 46, there were two admissions to ICU/HDU with confirmed influenza (one influenza A(unknown subtype) and one influenza A(H3N2)) reported through the USISS mandatory ICU/HDU surveillance scheme across the UK (127 Trusts). 28 hospitalised confirmed influenza cases (two influenza A(H1N1)pdm09, seven influenza A(H3N2), ten influenza A(unknown subtype) and nine influenza B) were reported through the USISS sentinel hospital network across England (16 Trusts).

- Number of new admissions and fatal confirmed influenza cases in ICU/HDU (USISS mandatory ICU scheme), UK (week 46)

- In week 46, there were two admissions to ICU/HDU with confirmed influenza (one influenza A(unknown subtype) and one influenza A(H3N2)) reported across the UK (127/144 Trusts in England) through the USISS mandatory ICU scheme, with a rate of 0.00 per 100,000 (Figures 6 and 7). No deaths were reported to have occurred in week 46.

A total of 28 admissions (five influenza A(H1N1)pdm09, four influenza A(H3N2), 11 influenza A(unknown subtype) and eight influenza B) and four confirmed deaths have been reported since week 40 2017.



■ Baseline threshold ■ Low ■ Medium ■ High ■ Very high

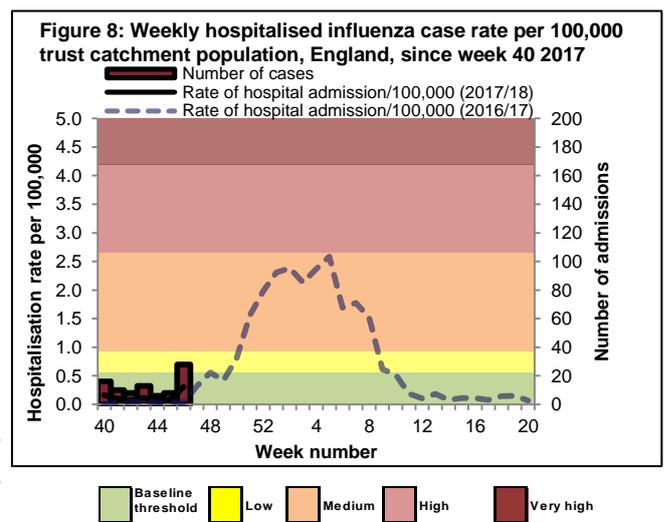
*The Moving Epidemic Method (MEM) has been adopted by the European Centre for Disease Prevention and Control to calculate thresholds for ICU/HDU admission rates for the start of influenza activity (based on 6 seasons) in a standardised approach across Europe. For MEM threshold values, please visit: <https://www.gov.uk/guidance/sources-of-uk-flu-data-influenza-surveillance-in-the-uk#disease-severity-and-mortality-data>

- USISS sentinel weekly hospitalised confirmed influenza cases, England (week 46)

- In week 46, there were 28 hospitalised confirmed influenza cases (two influenza A(H1N1)pdm09, seven influenza A(H3N2), ten influenza A(unknown subtype) and nine influenza B) reported through the USISS sentinel hospital network from 16 NHS Trusts across England (Figure 8), a rate of 0.31 per 100,000 compared to 0.08 per 100,000 in the previous week.

A total of 90 hospitalised confirmed influenza admissions (15 influenza A(H1N1)pdm09, 27 influenza A(H3N2), 21 influenza A(unknown subtype) and 27 influenza B) have been reported since week 40 2017.

*The Moving Epidemic Method (MEM) has been adopted by the European Centre for Disease Prevention and Control to calculate thresholds for hospital admission rates for the start of influenza activity (based on 6 seasons) in a standardised approach across Europe. For MEM threshold values, please visit: <https://www.gov.uk/guidance/sources-of-uk-flu-data-influenza-surveillance-in-the-uk#disease-severity-and-mortality-data>



■ Baseline threshold ■ Low ■ Medium ■ High ■ Very high

- USISS Severe Respiratory Failure Centre confirmed influenza admissions, UK (week 46)

- In week 46, there were no laboratory confirmed influenza admissions reported from the six Severe Respiratory Failure (SRF) centres in the UK.

In week 46 2017 in England, no statistically significant excess all-cause mortality by week of death was observed through the EuroMOMO algorithm in England. In the devolved administrations, significant excess all-cause mortality was observed in Scotland in week 46 2017, but not in Wales or Northern Ireland.

- All-cause death registrations, England and Wales

- In week 45 2017, an estimated 10,346 all-cause deaths were registered in England and Wales (source: [Office for National Statistics](#)). This is an increase compared to the 9,984 estimated death registrations in week 44 2017.

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

- In week 46 2017 in England, no excess mortality by week of death above the upper 2 z-score threshold was seen overall, by age group or subnationally, after correcting ONS disaggregate data for reporting delay with the standardised EuroMOMO algorithm (Figure 9). This data is provisional due to the time delay in registration; numbers may vary from week to week.

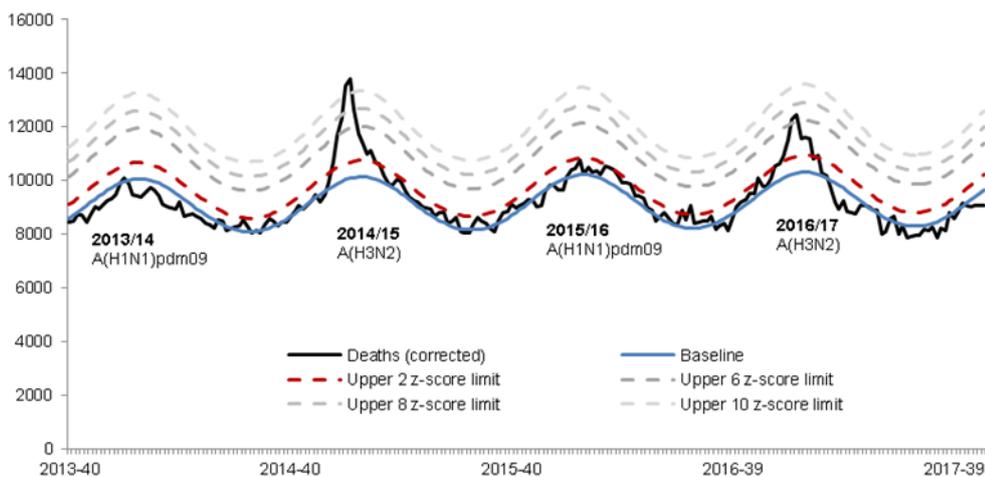
- In the devolved administrations, significant excess mortality above the threshold was observed in Scotland in week 46, but not in Wales or Northern Ireland (Table 2).

Table 2: Excess mortality by UK country, for all ages*

Country	Excess detected in week 46 2017?	Weeks with excess in 2017/18
England	x	NA
Wales	x	NA
Scotland	✓	41,46
Northern Ireland	x	NA

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

Figure 9: Weekly observed and expected number of all-age all-cause deaths, with the dominant circulating strain influenza A type, England, 2013 to 2017

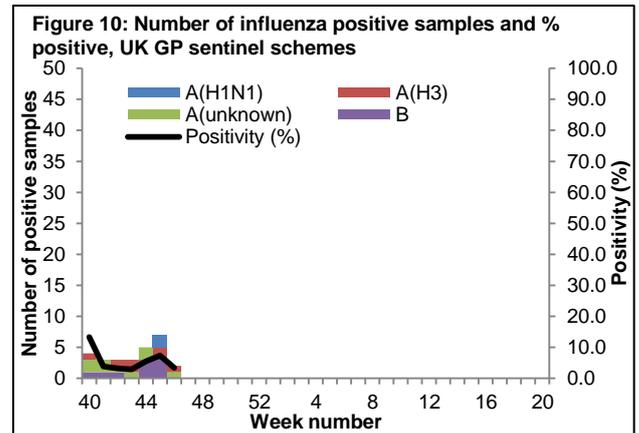


In week 46 2017, two samples tested positive for influenza (one influenza A(H3) and one influenza A(unknown subtype)) through the UK GP sentinel schemes, with an overall positivity of 3.4%. Thirty-six positive detections were recorded through the DataMart scheme (20 influenza A(H3), two influenza A(H1N1)pdm09, eight influenza A(unknown subtype) and six influenza B) with a positivity of 2.1% in week 46. RSV activity continues to increase at 18.8% in week 46 and the highest positivity was seen in <5 year olds at 46.9%.

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

-In week 46, two samples tested positive for influenza (one influenza A(H3) and one influenza A(unknown subtype)) with an overall positivity of 3.4% compared to 7.4% in week 45 through the UK GP sentinel swabbing schemes (Figure 10).

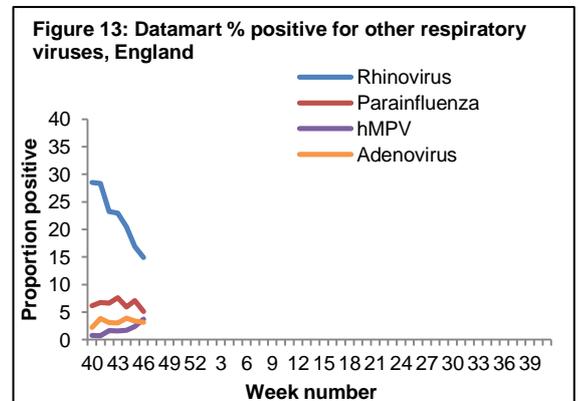
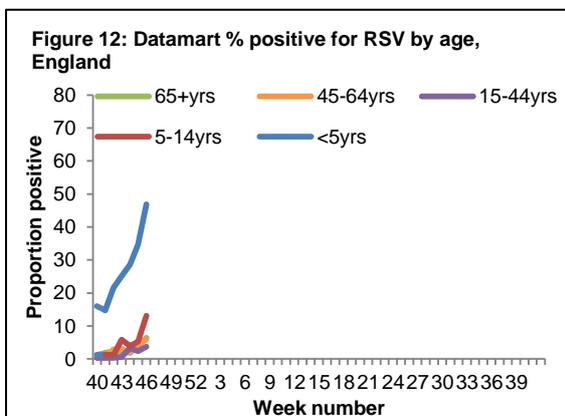
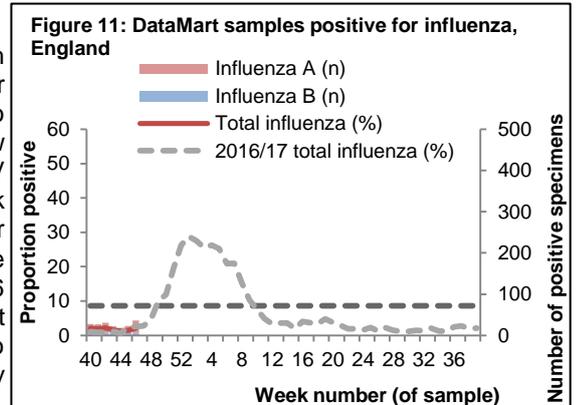
Since week 40, a total of 27 samples (seven influenza A(H3), nine influenza (unknown subtype), two influenza A(H1N1)pdm09 and nine influenza B) tested positive for influenza through this scheme.



NB. Positivity (%) omitted when fewer than 10 specimens were tested

- Respiratory DataMart System (England)

In week 46 2017, out of the 1,682 respiratory specimens reported through the Respiratory DataMart System, 36 samples (2.1%) were positive for influenza (20 influenza A(H3), eight influenza A(unknown subtype), two influenza A(H1N1)pdm09 and six influenza B) (Figure 11), which is below the MEM threshold for this season of 8.6%. The overall positivity for RSV continued to increase at 18.8% in week 46 compared to 12.8% in week 45. The highest positivity for RSV by age group was seen in the <5 year olds at 46.9% in week 46, an increase from 34.7% in week 45 (Figure 12). Rhinovirus positivity continued to decrease at 14.9% in week 46 compared to 16.9% in week 45. Adenovirus positivity remained stable at 3.1%. Parainfluenza positivity decreased slightly from 7.1% in week 45 to 5.1% in week 46, however human metapneumovirus (hMPV) positivity increased slightly in week 46, at 3.8% (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 8.6% in 2017/18.

- Virus characterisation

PHE characterises the properties of influenza viruses through one or more tests, including genome sequencing (genetic analysis) and haemagglutination inhibition (HI) assays (antigenic analysis). These data are used to compare how similar the currently circulating influenza viruses are to the strains included in seasonal influenza vaccines, and to monitor for changes in circulating influenza viruses. The interpretation of genetic and antigenic data sources is complex due to a number of factors, for example, not all viruses can be cultivated in sufficient quantity for antigenic characterisation, so that viruses with sequence information may not be able to be antigenically characterised as well. Occasionally, this can lead to a biased view of the properties of circulating viruses, as the viruses which can be recovered and analysed antigenically, may not be fully representative of majority variants, and genetic characterisation data does not always predict the antigenic characterisation

The PHE Respiratory Virus Unit has characterised 43 influenza viruses detected since late summer (Table 3). Of the 7 A(H1N1)pdm09 influenza viruses that have been characterised, all belong in the genetic subgroup 6B.1, which was the predominant genetic subgroup in the 2016/17 season. The two viruses antigenically analysed are similar to the A/Michigan/45/2015 Northern Hemisphere 2017/18 (H1N1)pdm09 vaccine strain.

Genetic characterisation of 25 A(H3N2) influenza viruses detected since late summer, showed that they all belong to genetic subclade 3C.2a, with 14 belonging to a cluster within this genetic subclade designated as 3C.2a1. The Northern Hemisphere 2017/18 influenza A(H3N2) vaccine strain A/HongKong/4801/2014 belongs in genetic subclade 3C.2a.

Eleven influenza B viruses have been analysed; 8 were characterised as belonging to the B/Yamagata/16/88-lineage and 3 belonging to the B/Victoria/2/1987-lineage. Of the influenza B viruses antigenically characterised, the B/Victoria/2/87-lineage viruses were antigenically similar to B/Brisbane/60/2008, the influenza B/Victoria-lineage component of 2017/18 Northern Hemisphere trivalent and quadrivalent vaccines. B/Yamagata/16/88-lineage viruses were antigenically similar to B/Phuket/3073/2013, the influenza B/Yamagata-lineage component of 2016/17 Northern Hemisphere quadrivalent vaccine.

Table 3: Viruses characterised by PHE Reference Laboratory, 2017/18

Virus type/subtype	No. viruses characterised			
	Genetic and antigenic	Genetic only	Antigenic only	Total
A(H1N1)pdm09	2	5	0	7
A(H3N2)	0	25	0	25
B/Yamagata-lineage	2	5	1	8
B/Victoria-lineage	3	0	0	3

- Antiviral susceptibility

Influenza positive samples are screened for mutations in the virus neuraminidase gene known to confer oseltamivir and/or zanamivir resistance. Additionally, testing of influenza A (H1N1)pdm09, A(H3N2), and influenza B virus isolates for neuraminidase inhibitor susceptibility (oseltamivir and zanamivir) is performed at PHE-RVU using a functional assay. The data summarized below combine the results of both testing methods. The samples tested are routinely obtained for surveillance purposes, but diagnostic testing of patients suspected to be infected with neuraminidase inhibitor-resistant virus is also performed.

During the current 2017/18 season so far, nine influenza A(H3N2) have been tested for oseltamivir susceptibility; seven are susceptible. Two viruses have a deletion in the neuraminidase gene, at amino acids 245 to 248. This deletion reduces susceptibility to oseltamivir, but is not likely to reduce zanamivir susceptibility. One of these two oseltamivir resistant viruses has a E119V amino acid substitution in addition, also affecting oseltamivir susceptibility but not zanamivir. Three of the A(H3N2) viruses were also tested for zanamivir susceptibility with all being fully susceptible. Thirteen influenza A(H1N1)pdm09 virus have been tested for oseltamivir susceptibility and all were fully susceptible. Two of the 13 influenza A(H1N1)pdm09 virus was also tested for zanamivir susceptibility and was fully susceptible. Three influenza B viruses have been tested for oseltamivir susceptibility and were fully susceptible.

- Antimicrobial susceptibility

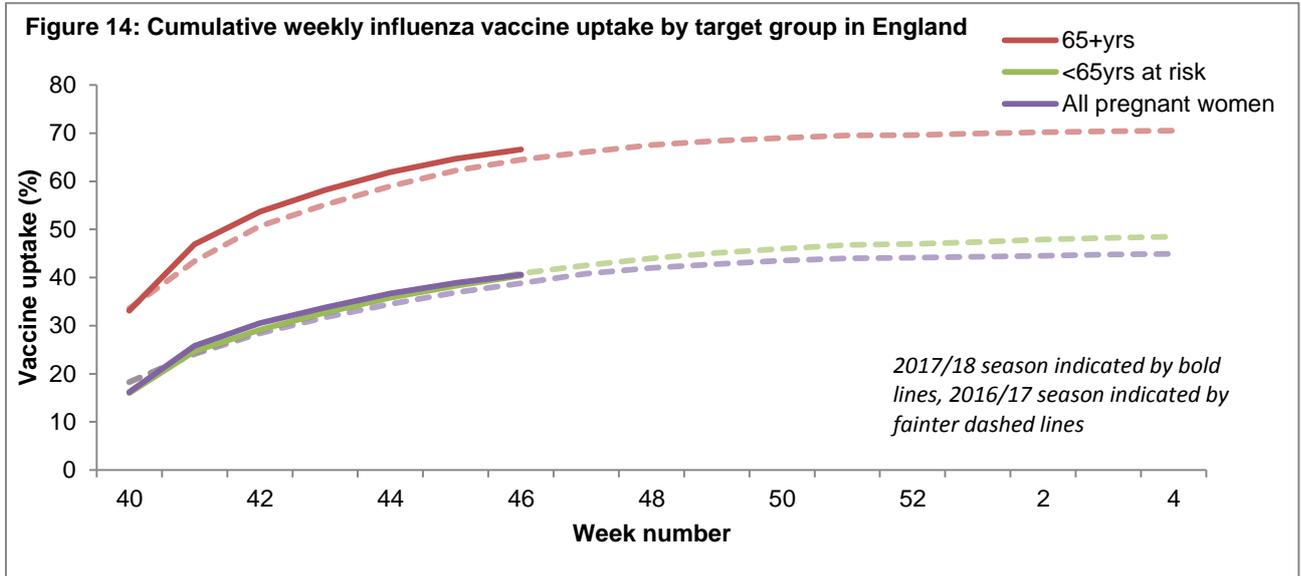
-Table 4 shows in the 12 weeks up to 19 November 2017, the proportion of all lower respiratory tract isolates of *Streptococcus pneumoniae*, *Haemophilus influenzae*, *Staphylococcus aureus*, MRSA and MSSA tested and susceptible to antibiotics. These organisms are the key causes of community acquired 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 19 November 2017, E&W

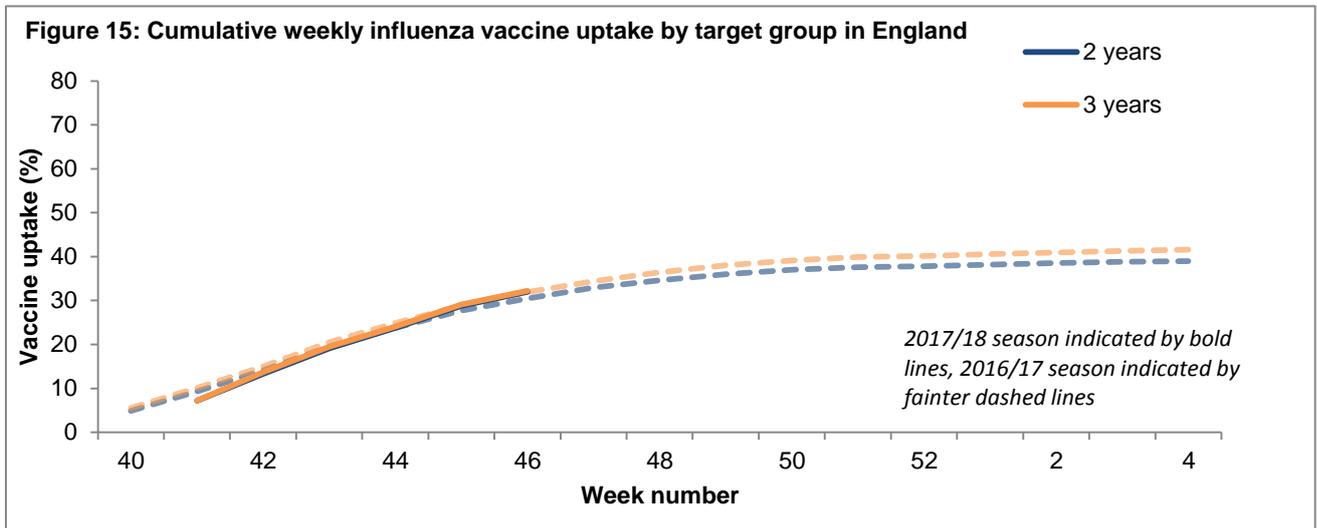
Organism	Antibiotic	Specimens tested (N)	Specimens susceptible (%)
<i>S. pneumoniae</i>	Penicillin	357	86
	Macrolides	396	80
	Tetracycline	382	82
<i>H. influenzae</i>	Amoxicillin/ampicillin	1297	69
	Co-amoxiclav	1310	87
	Macrolides	471	12
	Tetracycline	1313	98
<i>S. aureus</i>	Methicillin	605	91
	Macrolides	656	68
MRSA	Clindamycin	37	35
	Tetracycline	54	83
MSSA	Clindamycin	320	80
	Tetracycline	519	95

*Macrolides = erythromycin, azithromycin and clarithromycin

- Up to week 46 2017 in 73.5% of GP practices reporting weekly to Immform, the provisional proportion of people in England who had received the 2017/18 influenza vaccine in targeted groups was as follows (Figure 14):
 - 40.4% in under 65 years in a clinical risk group
 - 40.6% in pregnant women
 - 66.6% in 65+ year olds



- In 2017/18, all two- and three-year-olds continue to be eligible for flu vaccination, through their GPs. Up to week 46 2017 in 73.1% of GP practices reporting weekly to Immform, the provisional proportion of children in England who had received the 2017/18 influenza vaccine in targeted groups was as follows (Figure 15):
 - 32.0% in 2 year olds
 - 32.2% in 3 year olds



- Provisional data from the first monthly collection of influenza vaccine uptake by frontline healthcare workers show 46.0% were vaccinated by 31 October 2017 from 97.6% of all organisations, compared to 40.4% vaccinated in the previous season by 31 October 2016. The [report](#) provides uptake at national, NHS local team, “old” area teams and Trust-level.

- Provisional data from the first [monthly](#) collection of influenza vaccine uptake for children of school years Reception, 1, 2, 3 and 4 age (from a sample of 99.3% of all Local Authorities in England) show the provisional proportion of children in England who received the 2017/18 influenza vaccine via school, pharmacy or GP practice by 31 October 2017 in targeted groups was as follows:
 - 18.1% in children school year reception age (4-5 yrs)
 - 17.9% in children school year 1 age (5-6 yrs)
 - 17.5% in children school year 2 age (6-7 yrs)
 - 17.0% in children school year 3 age (7-8 yrs)
 - 16.2% in children school year 4 age (8-9 yrs)

International Situation

[Back to top](#)

Influenza activity remained at low levels in the temperate zone of the northern hemisphere, with exception of Canada where influenza activity has surpassed the seasonal threshold indicating the start of the influenza season in Canada. Declining levels of influenza activity were reported in the temperate zone of the southern hemisphere. Worldwide, influenza A(H3N2) and B viruses accounted for the majority of influenza detections.

- [Europe](#) updated on 17 November 2017 (Joint ECDC-WHO Europe Influenza weekly update)

In week 45/2017, low intensity of influenza activity was reported by all of the 42 reporting countries. No geographic spread was reported by 21 of the 43 countries reporting on this indicator, while sporadic cases or local geographic spread was reported by 22 countries.

For week 45/2017, 33 (4.5%) of 739 sentinel specimens tested positive for influenza viruses: 6 A(H1N1)pdm09, 4 A(H3N2), 3 untyped A viruses, 3 B/Yamagata lineage and 17 B viruses not ascribed to a lineage.

Since week 40/2017, 6 countries have reported laboratory-confirmed hospitalized influenza cases in intensive care units (ICU) or other wards: 26 cases in ICU (18 in the United Kingdom and 5 in Spain, while the Czech Republic, Denmark and Sweden each had 1) and 42 in other wards (19 in Ireland, 16 in Denmark, 5 in Spain and 2 in the Czech Republic). Of 26 cases in ICU, 20 (77%) were infected with type A viruses (4 A(H1N1)pdm09, 6 A(H3N2), 10 A untyped) and 6 (23%) with type B viruses. A similar distribution was observed in other wards: of 42 patients, 31 (74%) were infected with influenza A (8 A(H1N1)pdm09, 9 A(H3N2), 14 A untyped) and 11 (26%) with influenza B viruses.

For week 45/2017, 216 specimens from non-sentinel sources (such as hospitals, schools, non-sentinel primary care facilities, nursing homes and other institutions) tested positive for influenza viruses. Of these, 74% were type A and 26% type B viruses. The majority of viruses from non-sentinel specimens were not subtyped or assigned to a lineage.

For week 45/2017, data from the 19 countries or regions reporting to the EuroMOMO project indicated all-cause mortality at expected levels for this time of the year.

- [United States of America](#) updated on 17 November 2017 (Centre for Disease Control report)

During week 45, influenza activity is increasing in the United States.

The most frequently identified influenza virus type reported by public health laboratories during week 45 was influenza A. The percentage of respiratory specimens testing positive for influenza in clinical laboratories is increasing.

The proportion of deaths attributed to pneumonia and influenza (P&I) was below the system-specific epidemic threshold in the National Center for Health Statistics (NCHS) Mortality Surveillance System.

The proportion of outpatient visits for influenza-like illness (ILI) was 1.9%, which is below the national baseline of 2.2%.

- [Canada](#) updated on 17 November 2017 (Public Health Agency report)

Overall, influenza activity crossed the seasonal threshold in week 45, indicating the beginning of the influenza season at the national level.

The number and percentage of laboratory tests positive for both influenza A and B is higher for this time of year compared to previous seasons. The majority of influenza detections continue to be A(H3N2) although an elevated number of influenza B detections have also been reported.

In week 45, 1.2% of visits to healthcare professionals were due to influenza-like illness; a decrease compared to the previous week, but remains below the 5-year average.

In week week 45, 25 influenza-associated hospitalizations were reported by participating provinces and territories.

To date this season, 211 influenza-associated hospitalizations have been reported, 92% of which were associated with influenza A, and 152 cases (72%) were in adults 65 years of age or older. The number of cases is considerably elevated relative to this period in the previous two seasons. Nine ICU admissions and five deaths have been reported.

- [Global influenza update](#) updated on 13 November 2017 (WHO website)

Influenza activity remained at low levels in the temperate zone of the northern hemisphere. Declining levels of influenza activity were reported in the temperate zone of the southern hemisphere. Worldwide, influenza A(H3N2) and B viruses accounted for the majority of influenza detections.

In North America, overall influenza activity increased slightly but remained low, with detections of predominantly influenza A(H3N2) and B viruses in the past weeks.

In Europe, influenza activity remained low, with detections of predominantly influenza A(H3N2) and B viruses.

In Western Asia, influenza activity was low in general. In Qatar, influenza activity remained high with all seasonal subtypes co-circulating. In Central Asia, influenza like illness (ILI) and severe acute respiratory infection (SARI) indicators appeared to increase in Kazakhstan, Tajikistan and Uzbekistan.

In East Asia, influenza activity remained low in general. In Northern China, influenza A(H3N2) detections increased slightly in recent weeks.

In South East Asia, influenza activity continued to decrease, with influenza A(H3N2) and B viruses most frequently detected.

In Southern Asia, influenza activity remained low in general. In India, influenza A(H1N1)pdm09 and A(H3N2) detections decreased in recent weeks.

In Northern Africa, there were no reports during the reporting period. In Western and Middle Africa, influenza detections continued to be reported, with all seasonal influenza subtypes present in the region. In Eastern Africa, little to no influenza activity was reported.

In the Caribbean and Central American countries, respiratory illness indicators and influenza activity remained low in general but respiratory syncytial virus (RSV) activity remained high in several countries.

In the tropical countries of South America, influenza and RSV activity remained at low levels.

In the temperate zone of the Southern Hemisphere, influenza activity appeared to have decreased overall.

Between 16 October 2017 and 29 October 2017, 4,088 specimens tested positive for influenza viruses through the WHO GISRS laboratories, of which 2,954 (72.3%) were typed as influenza A and 1,134 (27.7%) as influenza B. Of the sub-typed influenza A viruses, 318 (13.8%) were influenza A(H1N1)pdm09 and 1,985 (86.2%) were influenza A(H3N2). Of the characterized B viruses, 485 (81.1%) belonged to the B-Yamagata lineage and 113 (18.9%) to the B-Victoria lineage.

- [Avian Influenza](#) latest update on 30 October 2017 (WHO website)

Influenza A(H5) viruses

Since the last update on [27 September 2017](#), one new laboratory-confirmed human case of influenza A(H5N1) virus infection was reported to WHO from Indonesia.

Since 2003, a total of 860 laboratory-confirmed cases of human infection with avian influenza A(H5N1) virus, including 454 deaths, have been reported to WHO from 16 countries.

Influenza A(H5) subtype viruses have the potential to cause disease in humans and thus far, no human cases, other than those with influenza A(H5N1) and A(H5N6) viruses, have been reported to WHO. According to reports received by the World Organisation for Animal Health (OIE), various influenza A(H5) subtypes continue to be detected in birds in Africa, Europe and Asia.

Influenza A(H7N9)

Since the last update on [27 September 2017](#), no new laboratory-confirmed human cases of influenza A(H7N9) virus infection were reported to WHO.

Since 2013, a total of 1,564 laboratory-confirmed cases of human infection with avian influenza A(H7N9) viruses, including at least 612 deaths, have been reported to WHO.

Influenza A(H1N2) variant viruses

Between [28 September and 30 October 2017](#), one new laboratory-confirmed human infection with influenza A(H1N2)v virus was detected in the state of Ohio in the United States (U.S).

Since 2005, 12 cases of A(H1N2)v influenza virus infections have been reported to the U.S Centers for Disease Control and Prevention (CDC).

Influenza A(H3N2) variant viruses

Since [27 September 2017](#), 41 human infections with influenza A(H3N2)v viruses were detected in the U.S. in several states. Characterization of the viruses from these cases indicates they are similar to A(H3N2)v viruses previously detected and similar to the existing candidate vaccine virus.

Since reporting of novel influenza A viruses became nationally notifiable in 2005, 462 human infections with influenza A(H3N2)v viruses have been reported to the U.S. CDC and 59 of these occurred in 2017.

- [Middle East respiratory syndrome coronavirus \(MERS-CoV\)](#) latest update on 22 November 2017

Up to 22 November 2017, a total of four cases of Middle East respiratory syndrome coronavirus, MERS-CoV, (two imported and two linked cases) have been confirmed in the UK. On-going surveillance has identified 1,095 suspect cases in the UK that have been investigated for MERS-CoV and tested negative.

On [1 November 2017](#), the International Health Regulations (2005) national focal point of Oman reported one case of Middle East respiratory syndrome coronavirus (MERS-CoV) infection. Prior to this case, the most recent case of MERS-CoV from Oman was reported on 30 August 2017.

Between [27 September and 31 October 2017](#), the National IHR Focal Point of the Kingdom of Saudi Arabia reported 12 additional cases of Middle East respiratory syndrome coronavirus (MERS-CoV) infection, including two deaths. Additionally, one death from a previously reported case was reported to WHO.

Globally, since September 2012, WHO has been notified of 2,102 laboratory-confirmed cases of infection with MERS-CoV, including at least 733 related deaths. Further information on management and guidance of possible cases is available [online](#). The latest ECDC MERS-CoV risk assessment can be found [here](#), where it is highlighted that risk of widespread transmission of MERS-CoV remains low.

Acknowledgements

[Back to top](#)

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Related links

[Back to top](#)

Sources of flu data

- [Clinical surveillance through primary care in the UK](#)
- [Outbreak reporting](#)
- [FluSurvey](#)
- [MOSA](#)
- [Real time syndromic surveillance](#)
- MEM threshold [methodology paper](#) and [UK pilot paper](#)

Vaccination

- Seasonal influenza vaccine programme ([Department of Health Book](#))
- Childhood flu programme information for healthcare practitioners ([Public Health England](#))
- 2017/18 Northern Hemisphere seasonal influenza vaccine recommendations ([WHO](#))

Disease severity and mortality data

- [USISS](#) system
- [EuroMOMO](#) mortality project