

Influenza Surveillance Country, Territory and Area Profiles 2017

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Data

Abbreviations

ARI	Acute respiratory infection
ECDC	European Centre for Disease Prevention and Control
GP	General practitioner/general practice
HMO	Health maintenance organization (Israel)
ICPC	International Classification of Primary Care
ICU	Intensive care unit
ILI	Influenza-like illness
NHS	National Health Service (United Kingdom)
NIC	National Influenza Centre
PAHO	Pan American Health Organization
PCR	Polymerase chain reaction
PHE	Public Health England
RSV	Respiratory syncytial virus
SARI	Severe acute respiratory infection
WHO	World Health Organization

Source

The data in these profiles were submitted by the country, territory or area during the period July to August 2017 and are presented here unedited.

Notes

- I. These profiles include only details of national surveillance systems which provide data to The European Surveillance System (TESSy) and used in the drafting of the joint European Centre for Disease Prevention and Control (ECDC)–WHO Regional Office for Europe influenza bulletin, *Flu News Europe* (<https://flunewseurope.org/>).
- II. Mid-year population estimates are based on 2015 data, according to the WHO Regional Office for Europe’s European Health for All database (<http://data.euro.who.int/hfadb>).
- III. Income group is based on the World Bank list of economies (June 2017) (<http://data.worldbank.org/about/country-and-lending-groups>).
- IV. The type of surveillance can be defined as: 1. sentinel; 2. universal; or 3. non-sentinel. (http://www.euro.who.int/_data/assets/pdf_file/0020/90443/E92738.pdf?ua=1)
 1. A **sentinel** surveillance system is formed by one or more designated health care facilities or providers that routinely and consistently collect epidemiological information from patients presenting with an illness consistent with a specified case definition. Representative clinical specimens are collected from all or a subset of patients according to a randomized/standardized sampling protocol. Sentinel surveillance systems provide an efficient way to obtain high-quality data on relatively common conditions from a manageable number of locations. Each sentinel site should include facilities that together represent the population under surveillance.
 2. A **universal** surveillance system is formed by all designated health care facilities or providers in a country, territory or area. This generally includes reporting of all clinician-defined “ARI” and is part of the national disease surveillance systems of several Member States in the WHO European Region. These universal systems provide subnational resolution of clinician-reported respiratory disease activity.
 3. A **non-sentinel** surveillance system includes other types of surveillance system (e.g. laboratory surveillance), which do not meet the definition of the other two types of system. Non-sentinel surveillance generally refers to viruses reported from/detected in patients from non-sentinel surveillance systems. In the WHO European Region, this includes viruses from clinical diagnostic laboratories, outbreaks, or universal ARI surveillance systems that do not have randomized/ standardized sampling strategies.

The most common **case definitions** can be found in the table below:

ILI	ECDC	Sudden onset of symptoms <i>and</i> at least one of the following four systemic symptoms: fever or feverishness, malaise, headache, myalgia <i>and</i> at least one of the following three respiratory symptoms: cough, sore throat or shortness of breath.
	WHO <2011	Sudden onset of fever >38 C° AND cough OR sore throat in the absence of other diagnosis.
	WHO 2011	An acute respiratory illness with onset during the last 7 days with, measured temperature ≥ 38°C, AND cough.
	WHO 2014	An acute respiratory infection with: measured fever of ≥ 38 C° and cough; with onset within the last 10 days.
ARI	ECDC, WHO	Sudden/acute onset of at least one of the following four respiratory symptoms: cough, sore throat, shortness of breath, coryza; and a clinician’s judgement that the illness is due to an infection.
SARI	WHO <2011	Onset of the following symptoms ≤7 days prior to hospital admission: Fever >38°C AND cough OR sore throat AND shortness of breath or difficulty in breathing. <i>For children aged <5 years the IMCI case definition for pneumonia and severe pneumonia is applied.*</i>
	WHO 2011	An acute respiratory illness with onset during the previous 7 days requiring overnight hospitalization that includes: history of fever or measured fever of ≥ 38°C, AND cough, AND shortness of breath or difficulty breathing.
	WHO 2014	An acute respiratory infection with: history of fever or measured fever of ≥ 38 C°; and cough; with onset within the last 10 days; and requires hospitalization.

**Pneumonia: cough OR difficulty in breathing AND breathing faster than 40 breaths/minute (12 – 59 months); breathing faster than 50 breaths/minute (2 – 11 months); Severe pneumonia: cough OR difficulty in breathing AND any of the following general severe signs: unable to drink or breastfeed OR vomits everything OR convulsions OR lethargy or unconsciousness OR chest in drawing or stridor in a calm child.”*

Albania

Total population: 2 889 173

Income group: upper middle

System characteristic	Primary care		Hospital		Non-sentinel
	Influenza-like illness (ILI)	Acute respiratory infection (ARI)	Severe acute respiratory infection (SARI)	Laboratory-confirmed influenza	
Surveillance type	Sentinel	Universal	Sentinel		Virological surveillance from other hospitals in the country
Population covered (%)	6%	100%	62%		38%
Type of health facilities/hospitals	Pediatric practice, general practice, polyclinic	General practice, paediatric practices, polyclinic, emergency department	8 regional hospitals, 2 university hospital centres (paediatric hospital, infectious diseases hospital), 1 lung hospital		District hospitals
Number of health facilities/hospitals			11 hospitals		27 hospitals
Case definition used	WHO 2014	ECDC, WHO	WHO 2014		WHO 2014
Year introduced	2009	1999	2009		2009
Epidemic threshold	No	Yes	No		No
Sampling strategy	Sampling is performed in 2 polyclinics in Tirana. The first 5 patients (on Tuesdays and Thursdays) are sampled at each polyclinic. Sampling occurs in both paediatric and adult patients.	Sampling occurs when there is an increase in cases in different districts or age groups and in outbreaks.	All SARI cases are sampled at all times (24hrs/7 days a week).		SARI cases

See [Notes](#) for more information on influenza surveillance systems and a description of WHO and ECDC case definitions.

Armenia

Total population: 3 017 712

Income group: lower middle

System characteristic	Primary care		Hospital		Non-sentinel
	Influenza-like illness (ILI)	Acute respiratory infection (ARI)	Severe acute respiratory infection (SARI)	Laboratory-confirmed influenza	
Surveillance type	Sentinel	Universal	Sentinel		Laboratory-confirmed influenza. This includes influenza-confirmed ARI from universal surveillance.
Population covered (%)		100%			
Type of health facilities/hospitals	Polyclinic	General practice, polyclinic	Intensive care unit, general/internal medicine, paediatric medicine, mother care institute		
Number of health facilities/hospitals	6 facilities	All medical facilities	9 hospitals		
Case definition used	WHO 2014	ECDC, WHO	WHO 2014		Laboratory-confirmed influenza
Year introduced	2010	1990	2010		2009
Epidemic threshold	No	Yes	No		No
Sampling strategy	All cases are included in the sampling strategy	A small number of ARI cases are sampled and tested for influenza (2 per week)	All cases are included in the sampling strategy		

See [Notes](#) for more information on influenza surveillance systems and a description of WHO and ECDC case definitions.

Austria

Total population: 8 544 586

Income group: high

System characteristic	Primary care		Hospital		Non-sentinel
	Influenza-like illness (ILI)	Acute respiratory infection (ARI)	Severe acute respiratory infection (SARI)	Laboratory-confirmed influenza	
Surveillance type	Sentinel				Virological samples are collected from hospitals and unaffiliated physicians.
Population covered (%)	0.5-1%				
Type of health facilities/hospitals	General practice, paediatric practice				Paediatricians, paediatric clinic, infectious disease hospital outpatient department and infectious disease hospital department.
Number of health facilities/hospitals	50 facilities				
Case definition used	ECDC				ECDC
Year introduced	2000/2001				1952
Epidemic threshold	Yes				No
Sampling strategy	Strategy is to collect 3-5 specimens per week per sentinel site.				No sampling strategy. Physicians take nasopharyngeal swabs for diagnostic purposes.

See [Notes](#) for more information on influenza surveillance systems and a description of WHO and ECDC case definitions.

Azerbaijan

Total population: 9 649 300

Income group: upper middle

System characteristic	Primary care		Hospital		Non-sentinel
	Influenza-like illness (ILI)	Acute respiratory infection (ARI)	Severe acute respiratory infection (SARI)	Laboratory-confirmed influenza	
Surveillance type	Sentinel	System in place, but not reported to TESSy	Sentinel		
Population covered (%)	20%		2.9%		
Type of health facilities/hospitals	Paediatric practice, polyclinic		Infectious disease ward, pulmonary ward		
Number of health facilities/hospitals	16 facilities		2 hospitals		
Case definition used	WHO <2011		WHO <2011		
Year introduced	2009		2009		
Epidemic threshold	Yes		No		
Sampling strategy	Every 3rd patient is sampled. All age groups are sampled.		Every 3rd patient is sampled. All age groups are sampled.		

See [Notes](#) for more information on influenza surveillance systems and a description of WHO and ECDC case definitions.

Belarus

Total population: 9 495 826

Income group: upper middle

System characteristic	Primary care		Hospital		Non-sentinel
	Influenza-like illness (ILI)	Acute respiratory infection (ARI)	Severe acute respiratory infection (SARI)	Laboratory-confirmed influenza	
Surveillance type	Sentinel	Sentinel	Sentinel		Virological surveillance in all hospitals for severe cases for diagnostics and treatment.
Population covered (%)	5.2%	50%	30%		100%
Type of health facilities/hospitals	Paediatric practice, polyclinic	General practice, paediatric practice, polyclinic, emergency department, infectious disease department.	Intensive care unit, general therapeutic, paediatric, obstetrics and gynecology, infectious disease, pulmonary hospitals/wards.		Intensive care unit, general therapeutic, pediatric, obstetrics and gynecology, infectious disease, pulmonary hospitals/wards.
Number of health facilities/hospitals	13 facilities	189 facilities	11 hospitals		
Case definition used	WHO 2014	ECDC, WHO	WHO 2014		
Year introduced	2010	2010	2010		2010
Epidemic threshold	No	No	No		No
Sampling strategy	In the epidemic period, 10 specimens are collected per week by age group in each site. In the non-epidemic period, 10 specimens are collected per 2 weeks by each age group in each site.	In the epidemic period, 10 specimens are collected per week by age group in each site. In the non-epidemic period, 10 specimens collected per 2 weeks by each age group in each site.	In the epidemic period, 10 specimens are collected per week by age group in each site. In the non-epidemic period, 10 specimens collected per 2 weeks by each age group in each site.		According to the decision of the doctor.

See [Notes](#) for more information on influenza surveillance systems and a description of WHO and ECDC case definitions.

Belgium

Total population: 11 265 834

Income group: high

System characteristic	Primary care		Hospital		Non-sentinel
	Influenza-like illness (ILI)	Acute respiratory infection (ARI)	Severe acute respiratory infection (SARI)	Laboratory-confirmed influenza	
Surveillance type	Sentinel	Sentinel	Sentinel		Virological surveillance possible from all general hospitals in the country.
Population covered (%)	1.3%	1.3%			Unknown
Type of health facilities/hospitals	General Practice	General Practice	General hospitals (all wards)		General hospitals (all wards)
Number of health facilities/hospitals	170 facilities	170 facilities	6 hospitals		117 hospitals
Case definition used	National	National	National		
Description of national case definition	Sudden onset of fever with respiratory symptoms AND general symptoms.	Acute respiratory infection of the upper, medium or lower respiratory tract (including common cold, rhinitis, (rhino)pharyngitis, angina, sinusitis, otitis, laryngitis, (laryngo)-tracheitis, bronchitis, bronchiolitis and (bronco)pneumonia) without influenza syndrome.	Slightly adapted from the case definition proposed in WHO guidance: an acute respiratory illness with onset within the last 7 days of history of fever, or measured fever of $\geq 38^{\circ}\text{C}$, and cough or dyspnoea (shortness of breath or difficulty to breath) and requiring hospitalization (24h or more).		Samples from patients presenting with severe influenza in particular specific conditions: ARDS (acute respiratory distress syndrome), ECMO (extracorporeal membrane oxygenation), death, suspicion of antiviral resistance, returning from abroad or in case of outbeaks.
Year introduced	1985	1985	2011-2012		2011-2012
Epidemic threshold	Yes	No	No		No
Sampling strategy	The first 2 ILI cases in a week seen by the GP.		All hospitalised patients meeting the case definition are sampled.		Only cases from patients with severe suspected influenza.

See [Notes](#) for more information on influenza surveillance systems and a description of WHO and ECDC case definitions.

Bosnia and Herzegovina

Total population: 3 810 416

Income group: upper middle

System characteristic	Primary care		Hospital		Non-sentinel
	Influenza-like illness (ILI)	Acute respiratory infection (ARI)	Severe acute respiratory infection (SARI)	Laboratory-confirmed influenza	
Surveillance type	Universal	Universal	Universal		
Population covered (%)	100%	100%	100%		
Type of health facilities/hospitals	General practice, paediatric practice, polyclinic, emergency department.	General practice, paediatric practice, polyclinic, emergency department.	University clinical centres, general hospitals (ICUs, paediatric wards, infectious disease wards, respiratory disease wards).		
Number of health facilities/hospitals	135 facilities: 52 facilities (Republic of Srpska); 79 facilities (Federation of Bosnia and Herzegovina); 4 facilities (Brcko district of Bosnia and Herzegovina).	135 facilities: 52 facilities (Republic of Srpska); 79 facilities (Federation of Bosnia and Herzegovina); 4 facilities (Brcko district of Bosnia and Herzegovina).	30 hospitals: 10 hospitals (Republic of Srpska); 19 hospitals (Federation of Bosnia and Herzegovina); 1 hospital (Brcko District of Bosnia and Herzegovina).		
Case definition used	WHO 2011	ECDC, WHO	WHO 2011		
Year introduced	2009 (Federation of Bosnia and Herzegovina, Republic of Srpska, Brcko District of Bosnia and Herzegovina)	2009 (Federation of Bosnia and Herzegovina, Republic of Srpska, Brcko District of Bosnia and Herzegovina)	2009 (Federation of Bosnia and Herzegovina, Brcko District of Bosnia and Herzegovina); 2013 (Republic of Srpska) with current WHO case definition.		
Epidemic threshold	No	No	No		
Sampling strategy	FBIH, Brcko District: no sampling strategy, universal surveillance depending on the availability and capacity of the reference laboratory. Republic of Srpska: sampling strategy is 1 case every week at the sentinel site.	No samples collected.	FBIH: all SARI cases are sampled at all times (24 hrs/7 days a week), depending on the availability and capacity of the reference laboratory. Republic of Srpska: sampling strategy is 1 case every week at the sentinel site.		

See [Notes](#) for more information on influenza surveillance systems and a description of WHO and ECDC case definitions.

Bulgaria

Total population: 7 149 787

Income group: upper middle

System characteristic	Primary care		Hospital		Non-sentinel
	Influenza-like illness (ILI)	Acute respiratory infection (ARI)	Severe acute respiratory infection (SARI)	Laboratory-confirmed influenza	
Surveillance type		Sentinel			Virological surveillance from 40 hospitals in the country.
Population covered (%)		5.38%			
Type of health facilities/hospitals		General practices			General practices, polyclinics, intensive care/critical care units, infectious disease hospital and wards, paediatric hospital and wards, pulmonary wards, and general hospitals.
Number of health facilities/hospitals		211 facilities			40 hospitals
Case definition used		ECDC, WHO			ECDC - ILI and ARI case definition
Year introduced		2001			1958
Epidemic threshold		Yes			No
Sampling strategy		Not available			According to the decision of the doctor. Laboratory-confirmed influenza cases are reported.

See [Notes](#) for more information on influenza surveillance systems and a description of WHO and ECDC case definitions.

Croatia

Total population: 4 240 317

Income group: upper middle

System characteristic	Primary care		Hospital		Non-sentinel
	Influenza-like illness (ILI)	Acute respiratory infection (ARI)	Severe acute respiratory infection (SARI)	Laboratory-confirmed influenza	
Surveillance type	Universal		System in place, but not reported to TESSy		
Population covered (%)	100%				
Type of health facilities/hospitals	General practice, paediatric practice, polyclinic, emergency department, hospitals				
Number of health facilities/hospitals	Not available. 21 counties collect data from district level				
Case definition used	ECDC				
Year introduced	1975				
Epidemic threshold	No				
Sampling strategy	Patients are sampled based on the GP's or epidemiologist's decision. All age groups are included. Most samples are collected at the start and during the peak of the season.				

See [Notes](#) for more information on influenza surveillance systems and a description of WHO and ECDC case definitions.

Cyprus

Total population: 853 166

Income group: high

System characteristic	Primary care		Hospital		Non-sentinel
	Influenza-like illness (ILI)	Acute respiratory infection (ARI)	Severe acute respiratory infection (SARI)	Laboratory-confirmed influenza	
Surveillance type	Sentinel	Sentinel	No system available	Universal	
Population covered (%)	100%	100%		90%	
Type of health facilities/hospitals	Paediatric outpatient department of public hospital; adult outpatient department of public hospital; office of primary health care paediatrician and adult-care physician practicing in private sector.	Paediatric outpatient department of public hospital; adult outpatient department of public hospital; office of primary health care paediatrician and adult-care physician practicing in Private Sector		Nearly all hospitals in the private and public sector.	
Number of health facilities/hospitals	54 facilities	54 facilities		9 facilities	
Case definition used	National	National			
Description of national case definition	Sudden appearance of fever >39°C for at least 2 days AND respiratory symptoms, malaise, myalgia, headache.			Severe acute respiratory illness requiring hospitalization including ICU admissions with confirmed virological specimen for influenza.	
Year introduced	2003	2003		2013	
Epidemic threshold	No	No			
Sampling strategy	All cases according to the national case definition visiting the observer at the reporting centre.	All cases according to the national case definition visiting the observer physician at the reporting centre.		Universal	

See [Notes](#) for more information on influenza surveillance systems and a description of WHO and ECDC case definitions.

Czech Republic

Total population: 10 542 942

Income group: high

System characteristic	Primary care		Hospital		Non-sentinel
	Influenza-like illness (ILI)	Acute respiratory infection (ARI)	Severe acute respiratory infection (SARI)	Laboratory-confirmed influenza	
Surveillance type	Sentinel	Sentinel		Sentinel	Virological surveillance from non-sentinel sites.
Population covered (%)	~50%	~50%			
Type of health facilities/hospitals	General practice, paediatric practice.	General practice, paediatric practice.			
Number of health facilities/hospitals	2,230 general practitioners and 1,240 paediatricians. ¹	2,230 general practitioners and 1,240 paediatricians. ¹			
Case definition used	ECDC	ECDC, WHO			ECDC
Year introduced	2004	1956			1956
Epidemic threshold	Yes	Yes		No	No
Sampling strategy	One sample from general practice and one sample from paediatric practice per week from all regions are collected during the influenza season (week 40-20).	One sample from general practice and one sample from paediatric practice per week from all regions are collected during the influenza season (week 40-20).			Upon request from the non-sentinel site.

See [Notes](#) for more information on influenza surveillance systems and a description of WHO and ECDC case definitions.

¹ Details of number of health facilities were not available.

Denmark

Total population: 5 678 348

Income group: high

System characteristic	Primary care		Hospital		Non-sentinel
	Influenza-like illness (ILI)	Acute respiratory infection (ARI)	Severe acute respiratory infection (SARI)	Laboratory-confirmed influenza	
Surveillance type	Sentinel				Data on national influenza PCR tests are obtained weekly from a national microbiology database. Clinical microbiological departments at hospitals send selected positive influenza samples to the NIC for further characterization for virological surveillance.
Population covered (%)	4%				100%
Type of health facilities/hospitals	General practice				All
Number of health facilities/hospitals	140 facilities				All national hospitals, out-patients clinics and GPs.
Case definition used	National				
Description of national case definition	Sudden onset of fever, muscle pain and respiratory tract symptoms.				
Year introduced	1994				2010
Epidemic threshold	Yes				No
Sampling strategy	GPs are asked to swab the first 5 ILI patients they see. 5 Sample kits are sent to 1/3 of all GPs at three different points in time during the season: before the start of the season, and just before and just after the peak.				There are national guidelines for when to swab patients in and outside hospitals during and outside the influenza season.

See [Notes](#) for more information on influenza surveillance systems and a description of WHO and ECDC case definitions.

Estonia

Total population: 1 312 558

Income group: high

System characteristic	Primary care		Hospital		Non-sentinel
	Influenza-like illness (ILI)	Acute respiratory infection (ARI)	Severe acute respiratory infection (SARI)	Laboratory-confirmed influenza	
Surveillance type	Sentinel	Universal		System in place, but not reported to TESSy	Virological surveillance from 3 hospitals in the country
Population covered (%)	13.6%	100%			
Type of health facilities/hospitals	General practice, polyclinic, family doctor	General practice, paediatric practice, polyclinic, family doctor		ICU of central and regional hospitals	2 regional hospitals and 1 central hospital
Number of health facilities/hospitals	16 facilities (80 medical doctors)	470 facilities (925 medical doctors)		9 hospitals	3 hospitals
Case definition used	ECDC	ECDC, WHO		Not available	
Year introduced	2006	1954		2011	2000
Epidemic threshold	Yes	Yes		No	No
Sampling strategy	Each sentinel site collects up to 10 specimens per week from cases that meet the ECDC case definition. All age groups are included.				

See [Notes](#) for more information on influenza surveillance systems and a description of WHO and ECDC case definitions.

Finland

Total population: 5 503 457

Income group: high

System characteristic	Primary care		Hospital		Non-sentinel
	Influenza-like illness (ILI)	Acute respiratory infection (ARI)	Severe acute respiratory infection (SARI)	Laboratory-confirmed influenza	
Surveillance type	Sentinel	Sentinel		Universal	Universal
Population covered (%)	About 50%	About 50%		Not known. All ICUs in Finland are included; specimens are collected on sentinel basis.	100%
Type of health facilities/hospitals	General practice	General practice		Intensive care unit	All hospitals and outpatient clinics
Number of health facilities/hospitals	About 150 health care centres report ILI-visits, 11 of them also collect virological specimens. 10 health care centres of garrisons collect virological specimens.	About 150 health care centres report ARI-visits, 11 of them also collect virological specimens. 10 health care centres of garrisons collect virological specimens.		11 intensive care units	
Case definition used	ECDC	ECDC, WHO		ARI treated in intensive care unit	No case definition used
Year introduced	2013	2013		2014	1995
Epidemic threshold	No	No		No	No
Sampling strategy	Up to 5 specimens are collected per week.	Up to 5 specimens are collected per week.		Defined on clinical basis. All ICUs are asked to send 5-10 clinical samples from patients with clinically suspected influenza infection that require intensive care.	Defined on clinical basis.

See [Notes](#) for more information on influenza surveillance systems and a description of WHO and ECDC case definitions.

France

Total population: 64 395 344

Income group: high

System characteristic	Primary care		Hospital		Non-sentinel
	Influenza-like illness (ILI)	Acute respiratory infection (ARI)	Severe acute respiratory infection (SARI)	Laboratory-confirmed influenza	
Surveillance type	Sentinel	No system available	No system available	Universal	Virological surveillance from 44 hospitals.
Population covered (%)	0.7%			~100%	
Type of health facilities/hospitals	General practice			Intensive care unit	General hospitals
Number of health facilities/hospitals	363 (including 96 paediatricians) ¹				44 hospitals
Case definition used	National			Laboratory-confirmed influenza and cases diagnosed as influenza by the clinician.	No case definition used
Description of national case definition	Sudden onset of fever >39°C with respiratory symptoms and myalgia.				
Year introduced	1984			2009	1994
Epidemic threshold	No			No	No
Sampling strategy	First ILI case of the week.			Virtually all.	No sampling strategy. All samples taken from in-patients for diagnosis of influenza.

See [Notes](#) for more information on influenza surveillance systems and a description of WHO and ECDC case definitions.

¹ Details of number of health facilities were not available.

Georgia

Total population: 3 727 000

Income group: lower middle

System characteristic	Primary care		Hospital		Non-sentinel
	Influenza-like illness (ILI)	Acute respiratory infection (ARI)	Severe acute respiratory infection (SARI)	Laboratory-confirmed influenza	
Surveillance type	Sentinel		Sentinel		Virological testing is performed for unusual cases of SARI.
Population covered (%)	1.7%				
Type of health facilities/hospitals	General practice, paediatric practice, polyclinic.		Children's hospital in Tbilisi and Kutaisi sentinel sites. Wards included are: intensive care unit, internal medicine, paediatric, maternity, infectious disease, respiratory disease, therapeutic/chronic disease.		Hospitals in Batumi, Akhaltsikhe and Zugdid (virological surveillance only).
Number of health facilities/hospitals	1 facility		5 hospitals		
Case definition used	WHO 2014		WHO 2014		PAHO/WHO 2014, unusual SARI
Year introduced	2007		2007		2015
Epidemic threshold	No		No		No
Sampling strategy	Every 3rd ILI patient on Tuesday and Thursday		Every SARI patient on Tuesday and Thursday		Every unusual case of SARI

See [Notes](#) for more information on influenza surveillance systems and a description of WHO and ECDC case definitions.

Germany

Total population: 80 688 544

Income group: high

System characteristic	Primary care		Hospital		Non-sentinel
	Influenza-like illness (ILI)	Acute respiratory infection (ARI)	Severe acute respiratory infection (SARI)	Laboratory-confirmed influenza	
Surveillance type		Sentinel			Virological samples sent to the NIC from non-sentinel sources
Population covered (%)		>1%			
Type of health facilities/hospitals		General practice, paediatric practice			
Number of health facilities/hospitals		650 facilities			
Case definition used		National			
Description of national case definition		Patients with pharyngitis, bronchitis or pneumonia (with or without fever)			
Year introduced		1992			1998
Epidemic threshold		No			No
Sampling strategy		Specimens collected from the first ILI patients (using the ECDC case definition) per week in different age groups.			

See [Notes](#) for more information on influenza surveillance systems and a description of WHO and ECDC case definitions.

Greece

Total population: 10 954 617

Income group: high

System characteristic	Primary care		Hospital		Non-sentinel
	Influenza-like illness (ILI)	Acute respiratory infection (ARI)	Severe acute respiratory infection (SARI)	Laboratory-confirmed influenza	
Surveillance type	Sentinel	No system available	Universal	Universal	Virological surveillance
Population covered (%)	~1.5%				
Type of health facilities/hospitals	Primary health care centers, National Organisation for the Provision of Healthcare Services (EOPYY) clinics, private practitioners.				
Number of health facilities/hospitals	145 facilities				
Case definition used	ECDC				
Year introduced	2004 (revised in 2014)				
Epidemic threshold	No				
Sampling strategy	Sampling plan for 2017-2018: all age groups, at sentinel physician's discretion.				

See [Notes](#) for more information on influenza surveillance systems and a description of WHO and ECDC case definitions.

Hungary

Total population: 9 855 023

Income group: high

System characteristic	Primary care		Hospital		Non-sentinel
	Influenza-like illness (ILI)	Acute respiratory infection (ARI)	Severe acute respiratory infection (SARI)	Laboratory-confirmed influenza	
Surveillance type	Sentinel				Virological surveillance
Population covered (%)	>20%				
Type of health facilities/hospitals	General practice, paediatric practice				Hospitals
Number of health facilities/hospitals	~1400 facilities				
Case definition used	ECDC				
Year introduced	2005				
Epidemic threshold	Yes				No
Sampling strategy	Doctors are advised to collect 2 specimens of ILI patients per week per site				Diagnostic purposes

See [Notes](#) for more information on influenza surveillance systems and a description of WHO and ECDC case definitions.

Iceland

Total population: 330 814

Income group: high

System characteristic	Primary care		Hospital		Non-sentinel
	Influenza-like illness (ILI)	Acute respiratory infection (ARI)	Severe acute respiratory infection (SARI)	Laboratory-confirmed influenza	
Surveillance type	Universal	System in place, but not reported to TESSy	System in place, but not reported to TESSy	Universal	
Population covered (%)	100%			100%	
Type of health facilities/hospitals	General practice, emergency department, long term care, selected private practitioners.			All health care facilities	
Number of health facilities/hospitals	94 facilities				
Case definition used	National			ECDC	
Description of national case definition	ICD-10 codes J09, J10 and J11 with subcodes				
Year introduced	2009			2009	
Epidemic threshold	Yes			No	
Sampling strategy	No sampling strategy, sampling is done on clinical suspicion for diagnostic purposes.			No sampling strategy.	

See [Notes](#) for more information on influenza surveillance systems and a description of WHO and ECDC case definitions.

Ireland

Total population: 4 635 400

Income group: high

System characteristic	Primary care		Hospital		Non-sentinel
	Influenza-like illness (ILI)	Acute respiratory infection (ARI)	Severe acute respiratory infection (SARI)	Laboratory-confirmed influenza	
Surveillance type	Sentinel			Universal	All respiratory specimens referred to the National Virus Reference Laboratory are tested for influenza.
Population covered (%)	6.2%			100%	
Type of health facilities/hospitals	General practice			All acute hospitals	Mainly hospitals and some GPs (excluding sentinel GPs)
Number of health facilities/hospitals	61 facilities			58 acute care public and private hospitals	
Case definition used	ECDC			Laboratory-confirmed influenza	Laboratory-confirmed influenza
Year introduced	2000			2009 (all ages); 2003 (age 0-14)	2000
Epidemic threshold	Yes			No	No
Sampling strategy	One ILI patient per week is sampled by each of the sentinel GPs. For sentinel GPs participating in the IMOVE study: up to 5 ILI patients per week aged <65 years and all patients aged ≥65 years should be tested.			All cases reported	All cases reported

See [Notes](#) for more information on influenza surveillance systems and a description of WHO and ECDC case definitions.

Israel

Total population: 8 064 036

Income group: high

System characteristic	Primary care		Hospital		Non-sentinel
	Influenza-like illness (ILI)	Acute respiratory infection (ARI)	Severe acute respiratory infection (SARI)	Laboratory-confirmed influenza	
Surveillance type	Sentinel				Virological surveillance from one hospital in the country.
Population covered (%)	25%				
Type of health facilities/hospitals	General practice, paediatric practice. Community clinics of the 2nd largest HMO in the country.				Tertiary medical centre
Number of health facilities/hospitals	26 clinics - this is related to laboratory surveillance only.				1 hospital
Case definition used	National				Hospitalized ARI cases
Description of national case definition	Acute fever of at least 37.8 C accompanied by at least one of the following symptoms: runny nose, sore throat, cough, myalgia.				
Year introduced	2000				2012/2013
Epidemic threshold	Yes				No
Sampling strategy	Convenience sampling. Swabs are taken from some ILI cases. Swabs are taken on the first or second day of illness.				Hospitalized cases with ARI.

See [Notes](#) for more information on influenza surveillance systems and a description of WHO and ECDC case definitions.

Italy

Total population: 60 697 504

Income group: high

System characteristic	Primary care		Hospital		Non-sentinel
	Influenza-like illness (ILI)	Acute respiratory infection (ARI)	Severe acute respiratory infection (SARI)	Laboratory-confirmed influenza	
Surveillance type	Sentinel			Universal	Universal
Population covered (%)	2%			100%	100%
Type of health facilities/hospitals	General practice, paediatric practice			Hospitals	Hospitals
Number of health facilities/hospitals	900 facilities			1407 hospitals	
Case definition used	ECDC			National	National
Description of national case definition				Every hospitalized patient in ICU and/or in ECMO with SARI (according to the WHO 2011 case definition) and/or ARDS symptoms is eligible. Only the positive cases for any of the influenza viruses are reported.	Hospitalized patients with ILI and/or ARDS symptoms.
Year introduced	1999			2009	2009
Epidemic threshold	Yes			No	No
Sampling strategy	All age groups are included in the sampling.			All cases hospitalized in ICU and/or in ECMO with SARI and ARDS symptoms.	All cases hospitalized with ILI and/or ARDS symptoms are included in the sampling.

See [Notes](#) for more information on influenza surveillance systems and a description of WHO and ECDC case definitions.

Kazakhstan

Total population: 17 544 126

Income group: upper middle

System characteristic	Primary care		Hospital		Non-sentinel
	Influenza-like illness (ILI)	Acute respiratory infection (ARI)	Severe acute respiratory infection (SARI)	Laboratory-confirmed influenza	
Surveillance type	Sentinel	Universal	Sentinel		
Population covered (%)	9.4%	100%			
Type of health facilities/hospitals	Paediatric polyclinic, adult polyclinic	Paediatric practice, polyclinic, infectious disease hospital, public hospitals, pulmonary department	General/internal, paediatric, infectious disease ward		
Number of health facilities/hospitals	30 facilities		25 hospitals		
Case definition used	National		WHO 2011		
Description of national case definition	Cases of acute respiratory viral diseases accompanied by fever > 38°C and cough, which are observed at least once within 7 days from the onset of the disease.				
Year introduced	2008		2010		
Epidemic threshold	No	Yes	No		
Sampling strategy	Sampling is carried out on a weekly basis from patients with ILI (age > 1 year) and onset of illness <72 hours), all age groups.	Monthly from at least 10 patients with ARVI, influenza, with clear clinical symptoms during pre-epidemic and epidemic seasons of ARVI and influenza morbidity.	Sampling is carried out on SARI patients (age > 1 year) and onset of illness <72 hours, for persons >18 years not more than 7 days from the onset of the disease. Samples taken for max. 1 patient per day from each age group.		

See [Notes](#) for more information on influenza surveillance systems and a description of WHO and ECDC case definitions.

Kyrgyzstan

Total population: 5 957 271

Income group: lower middle

System characteristic	Primary care		Hospital		Non-sentinel
	Influenza-like illness (ILI)	Acute respiratory infection (ARI)	Severe acute respiratory infection (SARI)	Laboratory-confirmed influenza	
Surveillance type	Sentinel	Universal	Sentinel	Sentinel	
Population covered (%)	2.8%	100%	1.5% M (26%)		
Type of health facilities/hospitals	General practice, Polyclinic	General practice, Polyclinic	Intensive care unit, Infectious disease ward, Pulmonary ward		
Number of health facilities/hospitals	4 facilities		5 hospitals		
Case definition used	WHO <2011	ECDC, WHO	WHO <2011		
Year introduced	2009	1950	2008		
Epidemic threshold	No	Yes	No		
Sampling strategy	At least 3 patients in each age group who meet the standard case definition criteria are sampled each week.	Laboratory examination of patients is not carried out.	At least 3 patients in each age group who meet the standard case definition criteria are sampled each week.		

See [Notes](#) for more information on influenza surveillance systems and a description of WHO and ECDC case definitions.

Latvia

Total population: 1 970 503

Income group: high

System characteristic	Primary care		Hospital		Non-sentinel
	Influenza-like illness (ILI)	Acute respiratory infection (ARI)	Severe acute respiratory infection (SARI)	Laboratory-confirmed influenza	
Surveillance type	Sentinel	Sentinel			Virological surveillance mainly from hospitals and also outpatient facilities in the country
Population covered (%)	5.4%	5.4%			
Type of health facilities/hospitals	General/paediatric practice	General/paediatric practice			Any type of hospitals and outpatient facilities
Number of health facilities/hospitals	70 GPs ¹	70 GPs ¹			
Case definition used	ECDC	ECDC, WHO			ECDC
Year introduced	1995	1995			1995
Epidemic threshold	Yes	Yes			No
Sampling strategy	Preferably ILI cases are sampled, including all age groups; 50-100 specimens per season mainly in Riga (capital).	Mainly ILI cases are sampled and very few ARI cases. There is no predefined standard sampling strategy.			Hospitalised severe ILI cases are sampled at any time (24 hrs/7 days per week).

See [Notes](#) for more information on influenza surveillance systems and a description of WHO and ECDC case definitions.

¹ Details of number of health facilities were not available.

Lithuania

Total population: 2 878 405

Income group: high

System characteristic	Primary care		Hospital		Non-sentinel
	Influenza-like illness (ILI)	Acute respiratory infection (ARI)	Severe acute respiratory infection (SARI)	Laboratory-confirmed influenza	
Surveillance type	Sentinel	Sentinel			
Population covered (%)	2.5%	2.5%			
Type of health facilities/hospitals	General practitioner	General practitioner			
Number of health facilities/hospitals	97 medical doctors ¹	97 medical doctors ¹			
Case definition used	ECDC	No case definition used			
Year introduced	2004	2012			
Epidemic threshold	Yes	Yes			
Sampling strategy	All cases are included.	On Tuesday according to medical doctor's decision.			

See [Notes](#) for more information on influenza surveillance systems and a description of WHO and ECDC case definitions.

¹ Details of number of health facilities were not available.

Luxembourg

Total population: 567 110

Income group: high

System characteristic	Primary care		Hospital		Non-sentinel
	Influenza-like illness (ILI)	Acute respiratory infection (ARI)	Severe acute respiratory infection (SARI)	Laboratory-confirmed influenza	
Surveillance type	Sentinel	Sentinel			The laboratory provides routine virology results to interested physicians.
Population covered (%)	3%	3%			
Type of health facilities/hospitals	Private GP practices	Private GP practices			GPs, pediatricians, pneumologist, neonatologist.
Number of health facilities/hospitals	15 facilities	15 facilities			
Case definition used	ECDC	ECDC, WHO			
Description of national case definition	Respiratory symptoms AND sudden fever >38.0 degrees Celcius AND myalgia				
Year introduced	2003	2003			
Epidemic threshold	Yes	No			No
Sampling strategy	All patients are sampled in principle	No systematic sampling for ARI cases			

See [Notes](#) for more information on influenza surveillance systems and a description of WHO and ECDC case definitions.

Malta

Total population: 418 670

Income group: high

System characteristic	Primary care		Hospital		Non-sentinel
	Influenza-like illness (ILI)	Acute respiratory infection (ARI)	Severe acute respiratory infection (SARI)	Laboratory-confirmed influenza	
Surveillance type	Sentinel				Virological data from hospitalized SARI cases and other patients admitted with respiratory symptoms at the single state hospital from some respiratory physicians.
Population covered (%)					
Type of health facilities/hospitals	General practice for sentinel (public and private)				Main state hospital
Number of health facilities/hospitals	One large health care centre and 7 private GP clinics				1 state hospital
Case definition used	WHO 2014				WHO 2014
Year introduced	2003				2009
Epidemic threshold	No				No
Sampling strategy	Patients that accept to have a specimen taken.				At discretion of the hospital respiratory physician or paediatrician.

See [Notes](#) for more information on influenza surveillance systems and a description of WHO and ECDC case definitions.

Montenegro

Total population: 625 781

Income group: upper middle

System characteristic	Primary care		Hospital		Non-sentinel
	Influenza-like illness (ILI)	Acute respiratory infection (ARI)	Severe acute respiratory infection (SARI)	Laboratory-confirmed influenza	
Surveillance type	Universal		Universal		
Population covered (%)	100%		100%		
Type of health facilities/hospitals	General practice, paediatric practice, polyclinic		General hospitals, Clinical Centre of Montenegro		
Number of health facilities/hospitals	29 health facilities		8 hospitals		
Case definition used	ECDC		WHO 2011		
Year introduced	2009		2016		
Epidemic threshold	No		No		
Sampling strategy	Limited virological diagnostics performed		All SARI cases are sampled at all times		

See [Notes](#) for more information on influenza surveillance systems and a description of WHO and ECDC case definitions.

Netherlands

Total population: 16 924 928

Income group: high

System characteristic	Primary care		Hospital		Non-sentinel
	Influenza-like illness (ILI)	Acute respiratory infection (ARI)	Severe acute respiratory infection (SARI)	Laboratory-confirmed influenza	
Surveillance type	Sentinel	Sentinel			1) Peripheral and hospital laboratory surveillance of influenza. 2) Virological surveillance of RSV from 21 laboratories in the country.
Population covered (%)	0.8%	1) ARI syndrome: 7% 2) ARI virology: 0.75%			
Type of health facilities/hospitals	General practice	1) ARI syndrome: General practice. 2) ARI virology: General practice; same network as sentinel ILI.			Virology laboratories
Number of health facilities/hospitals	40 facilities	1) 280 facilities 2) 40 facilities			1) 21 laboratories 2) 24 laboratories
Case definition used	National	National			1) All influenza virus-positive and RSV-positive laboratory results. 2) Depending on laboratory, all or subset of influenza virus-positive results.
Description of national case definition	Acute onset AND rectal temperature >38°C AND at least one of the following symptoms: cough, coryza, sore throat, frontal headache, retrosternal pain, myalgia	1) ICPC codes R74, R75, R77, R78, R80 2) any ARI other than ILI			Based on diagnostic requests from physicians, no specific case definition.
Year introduced	1970; testing of specimens introduced in 1994	1) 2015 2) 1994			1) 1964 2) 1948
Epidemic threshold	Yes	No			No

Influenza surveillance profiles



System characteristic	Primary care		Hospital		Non-sentinel
	Influenza-like illness (ILI)	Acute respiratory infection (ARI)	Severe acute respiratory infection (SARI)	Laboratory-confirmed influenza	
Sampling strategy	All ILI patients ≥65 years and first two ILI patients <65 years presenting Monday-Wednesday. If there are no ILI patients Monday -Wednesday, then the first two ILI or ARI patients presenting Thursday -Sunday. In absence of ILI cases, samples are collected from ARI cases.	1) No sampling, syndromic surveillance only. 2) See ILI surveillance.			Based on diagnostic requests from physicians, no national sampling strategy.

See [Notes](#) for more information on influenza surveillance systems and a description of WHO and ECDC case definitions.

Norway

Total population: 5 210 967

Income group: high

System characteristic	Primary care		Hospital		Non-sentinel
	Influenza-like illness (ILI)	Acute respiratory infection (ARI)	Severe acute respiratory infection (SARI)	Laboratory-confirmed influenza	
Surveillance type	Universal	System in place, but not reported to TESSy	No system available	System in place, but not reported to TESSy	Universal reporting of laboratory confirmed influenza by laboratories. Most detections or from hospitalized cases, and some are from primary care.
Population covered (%)	100%				100%
Type of health facilities/hospitals	All general practices and emergency clinics in primary health care.				Medical microbiology laboratories performing influenza virus diagnostics.
Number of health facilities/hospitals	About 5600 medical doctors report data. ¹				17 laboratories
Case definition used	National	National		National	National
Description of national case definition	ICPC-2 diagnosis code "R80 Influenza" where an ILI case is defined as: Myalgia and cough without abnormal findings upon airway examination except inflammation of nasal mucosa and throat, plus three or more of the following: -sudden onset of symptoms (within 12 hours) - fever, chills or feverishness - malaise and fatigue - influenza in the community - ongoing influenza epidemic - laboratory confirmed influenza			Hospitalized AND laboratory-confirmed influenza	Laboratory confirmed influenza

¹ Details of number of health facilities were not available.

Influenza surveillance profiles



System characteristic	Primary care		Hospital		Non-sentinel
	Influenza-like illness (ILI)	Acute respiratory infection (ARI)	Severe acute respiratory infection (SARI)	Laboratory-confirmed influenza	
Year introduced	2014 (the current system). Prior to this there was a sentinel system for ILI that started in 1998; before that clinical influenza was notifiable (aggregated).	2017			1980s
Epidemic threshold	Yes				No
Sampling strategy	82 general practices and primary care emergency wards are participating in the voluntary network of influenza sentinel practices coordinated by the NIC. These send in ILI patient specimens all year round, based on WHO 2014 case definition.				Medical microbiology laboratories that perform influenza virus diagnostics report weekly all detections, by type and subtype, with testing denominators by age group (0-4, 5-14, 15-24, 25-59, >60). These labs also submit influenza positive specimens to NIC, each up to five samples per type per week plus special cases (severe, unusual circumstances, suspicion of resistance).

See [Notes](#) for more information on influenza surveillance systems and a description of WHO and ECDC case definitions.

Poland

Total population: 38 454 576

Income group: high

System characteristic	Primary care		Hospital		Non-sentinel
	Influenza-like illness (ILI)	Acute respiratory infection (ARI)	Severe acute respiratory infection (SARI)	Laboratory-confirmed influenza	
Surveillance type	Sentinel				Virological surveillance from all hospitals and all non-sentinel GPs in the country.
Population covered (%)	19%				100%
Type of health facilities/hospitals	General practice				General practice and hospitals
Number of health facilities/hospitals	625 facilities				
Case definition used	ECDC				ECDC
Year introduced	2004				1951
Epidemic threshold	No				No
Sampling strategy	It is advised to collect specimens 7 days a week (by age and sentinel site). The sampling procedure is the same in the whole season - all cases and all age groups are included.				There is no national sampling strategy. Sampling is based on the doctors' decision.

See [Notes](#) for more information on influenza surveillance systems and a description of WHO and ECDC case definitions.

Portugal

Total population: 10 349 803

Income group: high

System characteristic	Primary care		Hospital		Non-sentinel
	Influenza-like illness (ILI)	Acute respiratory infection (ARI)	Severe acute respiratory infection (SARI)	Laboratory-confirmed influenza	
Surveillance type	Sentinel			System in place, but not reported to TESSy	Laboratory surveillance based on emergency units and hospitals (laboratory network) in the Portugal mainland and Atlantic islands.
Population covered (%)	2.1%			300 beds	Not known
Type of health facilities/hospitals	General practice			ICU/hospitals	Hospitals, Emergency Units
Number of health facilities/hospitals	125 general practitioners ¹			30 ICU/24 hospitals	111 Emergency Units + 19 Hospitals (laboratory network)
Case definition used	ECDC			National	ECDC
Description of national case definition				Hospitalized influenza-confirmed cases	
Year introduced	1989			2011-2012	1989: Emergency Units. 2009: Hospital (Laboratory Network)
Epidemic threshold	Yes			No	No
Sampling strategy	Samples are collected from ILI cases, from GP patient list, all ages, and during the whole season.			Once a week (Wednesdays) the ICU sends information on cases admitted to ICU during the previous week with laboratory confirmation for influenza. All cases and all age groups are included in the sampling; the same sampling procedure is used during the entire season.	Laboratory based surveillance. All cases are sampled. Cases sampled fit the ECDC case definition and/or the clinician's decision.

See [Notes](#) for more information on influenza surveillance systems and a description of WHO and ECDC case definitions.

¹ Details of number of health facilities were not available.

Republic of Moldova

Total population: 4 068 897

Income group: lower middle

System characteristic	Primary care		Hospital		Non-sentinel
	Influenza-like illness (ILI)	Acute respiratory infection (ARI)	Severe acute respiratory infection (SARI)	Laboratory-confirmed influenza	
Surveillance type	Sentinel	Sentinel	Sentinel		Health facilities not covered by sentinel surveillance.
Population covered (%)	11%	11%	43%		57%
Type of health facilities/hospitals	Polyclinic	Polyclinic	Intensive care unit, general/internal medicine, paediatric medicine, infectious disease and respiratory disease ward, therapeutic/chronic disease ward.		Intensive care unit, general/internal medicine, paediatric medicine, infectious disease and respiratory disease ward, therapeutic/chronic disease ward, polyclinic.
Number of health facilities/hospitals	10 facilities	10 facilities	17 hospitals		492 facilities
Case definition used	ECDC	ECDC, WHO	WHO <2011		ILI: ECDC case definition. ARI: ECDC/WHO case definition. SARI: WHO <2011 case definition.
Year introduced	2004	1995	2009 (changed in 2015)		2009
Epidemic threshold	No	Yes	No		No
Sampling strategy	12 samples are collected weekly from the first patient presenting with case definition symptoms in 10 facilities regardless of the age group. Sampling is performed between week 40 and week 20; outside this period sampling is performed in case of their existence.	12 samples are collected weekly from the first patient presenting with case definition symptoms in 10 facilities regardless of the age group. Sampling is performed between week 40 and week 20; outside this period sampling is performed in case of their existence.	20 samples are collected weekly from patients presenting with SARI symptoms in 17 hospitals. Sampling is performed between week 40 and week 20; outside this period, sampling is performed in case of their existence.		Any sample collected from patients with severe evolution of ILI, ARI and SARI, in outbreaks, patients from high risk group regardless of age group and period of the year.

See [Notes](#) for more information on influenza surveillance systems and a description of WHO and ECDC case definitions.

Romania

Total population: 19 511 324

Income group: upper middle

System characteristic	Primary care		Hospital		Non-sentinel
	Influenza-like illness (ILI)	Acute respiratory infection (ARI)	Severe acute respiratory infection (SARI)	Laboratory-confirmed influenza	
Surveillance type	Sentinel	Sentinel	Sentinel		For ILI/ARI: virological surveillance from all non-sentinel health care providers in the country.
Population covered (%)	2%	2%	20%		98%
Type of health facilities/hospitals	General practice	General practice	Intensive care unit, general/internal medicine, paediatric medicine, infectious disease ward, respiratory disease ward.		Hospitals, primary health care practices, specialized medical practices, health centres, outpatient clinics, emergency services providers, home care providers, long term care institutions.
Number of health facilities/hospitals	192 facilities	192 facilities	20 hospitals		around 12000 GPs and 10000 other health facilities/hospitals
Case definition used	National	ECDC, WHO	National		Clinical criteria: Fever $\geq 38^{\circ}\text{C}$ Cough Onset within the last 10 days In the absence of other clinical diagnosis.
Description of national case definition	ECDC and WHO 2014		An acute respiratory illness with a history of fever or measured fever of $\geq 38^{\circ}\text{C}$ and cough and shortness of breath or difficulty breathing, with onset within the past 10 days, requiring hospitalization overnight.		For ILI: WHO 2014
Year introduced	2014	2001	2009		for ILI: 2014
Epidemic threshold	Yes	Yes	No		No

Influenza surveillance profiles

System characteristic	Primary care		Hospital		Non-sentinel
	Influenza-like illness (ILI)	Acute respiratory infection (ARI)	Severe acute respiratory infection (SARI)	Laboratory-confirmed influenza	
Sampling strategy	On Tuesdays from week 40 (onset of influenza season) swabs are collected from all cases presented and who meet the ILI case definition. After the onset of the season the algorithm is established by the National Center, according to specific season parameters.	Depending on the epidemiological context, ARI cases can be sampled and tested for influenza.	From week 46 until the onset of the influenza season, the first 3 detected SARI cases in each sentinel hospital are sampled. After that, only the first detected SARI case in each sentinel hospital is sampled.		For ILI: there is only a sentinel sampling strategy. Non-sentinel: sampling is done for the more serious cases, depending on the funds available for payment of the tests.

See [Notes](#) for more information on influenza surveillance systems and a description of WHO and ECDC case definitions.

Russian Federation

Total population: 143 456 912

Income group: upper middle

System characteristic	Primary care		Hospital		Non-sentinel
	Influenza-like illness (ILI)	Acute respiratory infection (ARI)	Severe acute respiratory infection (SARI)	Laboratory-confirmed influenza	
Surveillance type	Universal	Universal	Sentinel		Virological surveillance from a large number of hospitals and polyclinics in the country.
Population covered (%)	35%	35%	About 17% of the population in the cities where sentinel sites are located.		About 35% of the population
Type of health facilities/hospitals	Polyclinic (GP)	Polyclinic (GP)	Intensive care units, paediatric medicine, infectious disease and respiratory disease wards.		Intensive care units, paediatric medicine, infectious disease and respiratory disease wards
Number of health facilities/hospitals	59 cities (baselabs)	59 cities (baselabs)	19 hospitals (10 laboratories confirmed influenza by PCR)		58 laboratories
Case definition used	No case definition used	No case definition used	WHO 2011		
Year introduced	2005	1971	2010		1971
Epidemic threshold	Yes	Yes	No		No
Sampling strategy	The average number of samples taken from ILI/ARI patients is 29 per week; all age groups are included. The WHO 2011 case definition is used for ARI and ILI sentinel surveillance.	The average number of samples taken from ILI/ARI patients is 29 per week; all age groups are included. The WHO 2011 case definition is used for ARI and ILI sentinel surveillance.	All SARI cases are sampled. The average number of SARI cases sampled is 26 per week; all age groups are included.		20-50 samples are tested for influenza per week. The number depends on the epidemiological situation.

See [Notes](#) for more information on influenza surveillance systems and a description of WHO and ECDC case definitions.

Serbia

Total population: 7 131 787

Income group: upper middle

System characteristic	Primary care		Hospital		Non-sentinel
	Influenza-like illness (ILI)	Acute respiratory infection (ARI)	Severe acute respiratory infection (SARI)	Laboratory-confirmed influenza	
Surveillance type	Universal		Sentinel		Laboratory-confirmed influenza cases from non-sentinel primary care and from non-sentinel hospitals.
Population covered (%)	100%		80%		
Type of health facilities/hospitals	General practice, paediatric practice.		Intensive care unit, general/internal medicine, paediatric medicine, infectious disease ward, respiratory disease ward.		
Number of health facilities/hospitals	158 facilities		11 hospitals		
Case definition used	WHO 2011		WHO 2011		
Year introduced	2006		2009		
Epidemic threshold	Yes		No		
Sampling strategy	ILI cases are sampled mostly during the first 4 days in the week.		Sentinel SARI cases are sampled mostly during the first 4 days in the week.		

See [Notes](#) for more information on influenza surveillance systems and a description of WHO and ECDC case definitions.

Slovakia

Total population: 5 426 258

Income group: high

System characteristic	Primary care		Hospital		Non-sentinel
	Influenza-like illness (ILI)	Acute respiratory infection (ARI)	Severe acute respiratory infection (SARI)	Laboratory-confirmed influenza	
Surveillance type	Universal	Universal	Universal		
Population covered (%)	52.6%	52.6%	100%		
Type of health facilities/hospitals	General practice, paediatric practice	General practice, paediatric practice	Intensive care unit		
Number of health facilities/hospitals	88 facilities	88 facilities	74 hospitals		
Case definition used	ECDC	ECDC, WHO	WHO 2014		
Year introduced	2002	2002	2009		
Epidemic threshold	Yes	Yes	No		
Sampling strategy	Based on the doctor's decision. All cases are included in the sampling strategy.	Based on the doctor's decision. All cases are included in the sampling strategy.	All reported SARI cases are laboratory tested.		

See [Notes](#) for more information on influenza surveillance systems and a description of WHO and ECDC case definitions.

Slovenia

Total population: 2 063 077

Income group: high

System characteristic	Primary care		Hospital		Non-sentinel
	Influenza-like illness (ILI)	Acute respiratory infection (ARI)	Severe acute respiratory infection (SARI)	Laboratory-confirmed influenza	
Surveillance type	Sentinel	Sentinel			Virological surveillance of non-sentinel sites
Population covered (%)	4%	4%			100%
Type of health facilities/hospitals	General/family practices, paediatric practices, school doctors	General/family practices, paediatric practices, school doctors			Hospitals
Number of health facilities/hospitals	45 facilities	45 facilities			All facilities/hospitals
Case definition used	ECDC	ECDC, WHO			No case definition used. Most samples are derived from hospitalized patients with ARI, but not exclusively.
Year introduced	1999	1999			
Epidemic threshold	No	No			No
Sampling strategy	Samples are collected from ILI patients. More intensive sampling is advised during the beginning of the season. The number of samples is not limited.	No samples are collected from ARI patients			

See [Notes](#) for more information on influenza surveillance systems and a description of WHO and ECDC case definitions.

Spain

Total population: 46 423 064

Income group: high

System characteristic	Primary care		Hospital		Non-sentinel
	Influenza-like illness (ILI)	Acute respiratory infection (ARI)	Severe acute respiratory infection (SARI)	Laboratory-confirmed influenza	
Surveillance type	Sentinel			Sentinel	Influenza-confirmed cases reported from virological diagnostic assays in regional influenza laboratories.
Population covered (%)	2.4%			52%	
Type of health facilities/hospitals	General practice, paediatric practice			All wards in mainly public general hospitals	Laboratories mainly in public hospitals
Number of health facilities/hospitals	776 facilities			91 hospitals	
Case definition used	ECDC			Laboratory-confirmed influenza in all wards	Influenza-confirmed cases (no case definition used)
Year introduced	1996			2009	1996
Epidemic threshold	Yes			No	No
Sampling strategy	Samples are collected from the first 2 patients who attend the sentinel facility during the week.			All patients who meet clinical criteria of severe influenza like illness who required hospitalization (pneumonia/septic shock/ ARDS/multiple organ dysfunction syndrome or admitted to intensive care) are sampled.	

See [Notes](#) for more information on influenza surveillance systems and a description of WHO and ECDC case definitions.

Sweden

Total population: 9 799 186

Income group: high

System characteristic	Primary care		Hospital		Non-sentinel
	Influenza-like illness (ILI)	Acute respiratory infection (ARI)	Severe acute respiratory infection (SARI)	Laboratory-confirmed influenza	
Surveillance type	Sentinel			Universal	Virological surveillance from all laboratories in the country
Population covered (%)	8%			100% (with 25% underreporting)	100%
Type of health facilities/hospitals	General practice, and some infectious disease and paediatric clinics.			Intensive care unit	Primarily emergency care, hospitals, infectious disease and paediatric clinics, and some primary care facilities.
Number of health facilities/hospitals	99 facilities			78 intensive care units	28 laboratories
Case definition used	ECDC			Laboratory-confirmed influenza	Laboratory-confirmed influenza cases. Patients presenting with ILI - similar to ECDC ILI case definition.
Year introduced	2006			2013	1993, changed in 2013
Epidemic threshold	No			No	No
Sampling strategy	Up to 5 specimens collected per week per site.			No sampling strategy. Samples are collected based on decision of the clinician.	No sampling strategy. Samples are collected based on decision of the clinician.

See [Notes](#) for more information on influenza surveillance systems and a description of WHO and ECDC case definitions.

Switzerland

Total population: 8 298 663

Income group: high

System characteristic	Primary care		Hospital		Non-sentinel
	Influenza-like illness (ILI)	Acute respiratory infection (ARI)	Severe acute respiratory infection (SARI)	Laboratory-confirmed influenza	
Surveillance type	Sentinel				Virological surveillance from all laboratories in the country
Population covered (%)	1.9-2%				100%
Type of health facilities/hospitals	General practice, paediatrician				Laboratories
Number of health facilities/hospitals	150-200 facilities				<200 laboratories
Case definition used	WHO <2011				Laboratory-confirmed influenza
Year introduced	1987				1988
Epidemic threshold	Yes				No
Sampling strategy	About 45% of the sentinel facilities collect specimens. They sample all ILI patients when the incidence is below the epidemic threshold, and every 4th-5th ILI patients when the incidence is above the epidemic threshold.				Mandatory notification of influenza detection. Consequently, no standard sampling strategy.

See [Notes](#) for more information on influenza surveillance systems and a description of WHO and ECDC case definitions.

Tajikistan

Total population: 8 481 855

Income group: lower middle

System characteristic	Primary care		Hospital		Non-sentinel
	Influenza-like illness (ILI)	Acute respiratory infection (ARI)	Severe acute respiratory infection (SARI)	Laboratory-confirmed influenza	
Surveillance type	Universal	Universal	Sentinel		
Population covered (%)	100%	100%	10.3%		
Type of health facilities/hospitals	Health Centers (PHC) and Hospitals	Health Centers (PHC) and Hospitals	Hospital		
Number of health facilities/hospitals	3085 facilities	3085 facilities	1 hospital		
Case definition used	National	National	WHO 2014		
Description of national case definition	Cases are identified primarily based on clinical diagnoses, consequently the system includes the surveillance of both viral and bacterial acute respiratory diseases.	Cases are identified primarily based on clinical diagnoses, consequently the system includes the surveillance of both viral and bacterial acute respiratory diseases.			
Year introduced			2016		
Epidemic threshold	No	No	No		
Sampling strategy	Not available	Not available	All patients that meet the SARI case definition (hospitalized ARI with fever ($\geq 38^{\circ}\text{C}$ or verbal mentioning of increased temperature/fever) and cough) who are newly hospitalized through the admission unit on Monday and Tuesday, and more often upon instruction of the MoH RT, need to be sampled.		

See [Notes](#) for more information on influenza surveillance systems and a description of WHO and ECDC case definitions.

The former Yugoslav Republic of Macedonia

Total population: 2 078 453

Income group: upper middle

System characteristic	Primary care		Hospital		Non-sentinel
	Influenza-like illness (ILI)	Acute respiratory infection (ARI)	Severe acute respiratory infection (SARI)	Laboratory-confirmed influenza	
Surveillance type	Universal	Sentinel	System in place, but not reported to TESSy	System in place, but not reported to TESSy	Virological surveillance
Population covered (%)	100%	1.7%			
Type of health facilities/hospitals	General practice, paediatric practice, polyclinic, infectious disease clinic, all other health facilities from primary care, secondary care and tertiary level of health care	General practices			
Number of health facilities/hospitals	All	14 facilities			
Case definition used	ECDC	ECDC, WHO			Laboratory-confirmed influenza
Year introduced	1966	2014			
Epidemic threshold	Yes	No			
Sampling strategy	For universal surveillance there is no sampling strategy.	For sentinel ILI/ARI surveillance, the first ILI case in the week is sampled. As of the 2017/2018 season, advice is to collect 2 specimens per site per week. All age groups are included in the sampling, and all cases are included in the sampling strategy.			Based on clinician's decision.

See [Notes](#) for more information on influenza surveillance systems and a description of WHO and ECDC case definitions.

Turkey

Total population: 78 665 832

Income group: upper middle

System characteristic	Primary care		Hospital		Non-sentinel
	Influenza-like illness (ILI)	Acute respiratory infection (ARI)	Severe acute respiratory infection (SARI)	Laboratory-confirmed influenza	
Surveillance type	Sentinel		System in place, but not reported to TESSy		Virological surveillance from non-sentinel facilities
Population covered (%)	1%				
Type of health facilities/hospitals	Family physician centres		Intensive care unit, emergency department, internal disease department, paediatric disease department, infectious disease department, pulmonary disease department.		Hospitals
Number of health facilities/hospitals	17 provinces/ 180 family physicians ¹		5 provinces/ 9 hospitals		
Case definition used	WHO <2011		WHO 2014		WHO 2014
Description of national case definition			WHO 2014; age-specific case definitions		
Year introduced	2004		2016		2004
Epidemic threshold	No		No		No
Sampling strategy	At least one sample for each week randomly chosen until Friday showing ILI case definition, including all age groups, by 180 family doctors.		Samples are collected from all patients that meet the SARI case definition, all age-groups included, in 9 hospitals.		No sampling strategy.

See [Notes](#) for more information on influenza surveillance systems and a description of WHO and ECDC case definitions.

¹ Details of number of health facilities were not available.

Turkmenistan

Total population: 5 373 502

Income group: upper middle

System characteristic	Primary care		Hospital		Non-sentinel
	Influenza-like illness (ILI)	Acute respiratory infection (ARI)	Severe acute respiratory infection (SARI)	Laboratory-confirmed influenza	
Surveillance type	System in place, but not reported to TESSy	System in place, but not reported to TESSy	System in place, but not reported to TESSy	System in place, but not reported to TESSy	Conventional surveillance of ARI and influenza
Population covered (%)					
Type of health facilities/hospitals	Polyclinic	Polyclinics and hospitals	Hospitals	Virological reference laboratory in the Centre for Public Health and Nutrition	
Number of health facilities/hospitals	1	Bce	1	Currently, one laboratory provides confirmation	
Case definition used	WHO <2011	National	WHO 2011		
Description of national case definition	Case definition of influenza-like illness (ILI): acute respiratory disease with onset in previous 7 days and with the following symptoms: <ul style="list-style-type: none"> • measured fever ≥ 38 °C; • cough. 	Acute upper respiratory infections of multiple and unspecified sites (ICD-10 code J06).	Case definition of the severe acute respiratory infection (SARI): acute respiratory disease with onset in previous 7 days, requiring hospitalisation, and with the following symptoms: <ul style="list-style-type: none"> • measured fever or history of fever ≥ 38 °C, • cough, • shortness of breath or difficulty in breathing, not caused by nasal congestion or other types of upper respiratory obstruction. 	Influenza case confirmed by use of one of laboratory tests recommended for flu diagnosis in the country.	
Year introduced	2016	2009	2016	2009	
Epidemic threshold	No	No	No	No	Yes

System characteristic	Primary care		Hospital		Non-sentinel
	Influenza-like illness (ILI)	Acute respiratory infection (ARI)	Severe acute respiratory infection (SARI)	Laboratory-confirmed influenza	
Sampling strategy	Two throat swabs are taken from each of the two patients referred by the responsible family physician. The first swab is used for the rapid testing on site, the second one is sent (compliant to cold chain requirements) to the virological reference laboratory in the Centre for Public Health and Nutrition for PCR testing. One throat swab is taken from subsequent patients referred by the responsible family physicians, for on-site rapid testing.		Samples are taken from patients admitted from 8 a.m. Tuesday till 8 a.m. Wednesday, who present three positive indicators, with onset of the symptoms ≤ 7 days prior to hospital admission. The number of daily samples should not exceed 10.		

See [Notes](#) for more information on influenza surveillance systems and a description of WHO and ECDC case definitions.

Ukraine

Total population: 44 823 764

Income group: lower middle

System characteristic	Primary care		Hospital		Non-sentinel
	Influenza-like illness (ILI)	Acute respiratory infection (ARI)	Severe acute respiratory infection (SARI)	Laboratory-confirmed influenza	
Surveillance type	Sentinel	Sentinel	Sentinel		Universal
Population covered (%)	1.8%	1.8%	6.5%		100%
Type of health facilities/hospitals	General practice, paediatric practice, polyclinic	General practice, paediatric practice, polyclinic	Intensive care unit, paediatric infectious disease ward, respiratory disease ward		General practice, paediatric practice, polyclinic, intensive care unit, infectious disease respiratory disease ward, maternity units
Number of health facilities/hospitals	39 facilities	39 facilities	10 hospitals		16730 facilities
Case definition used	WHO 2011	WHO 2011	WHO 2011		WHO 2011
Year introduced	2016	2016	2007		1976
Epidemic threshold	No	No	No		No
Sampling strategy	The samples are taken in each sentinel institution, on every Monday during the year, from each of the first 5 patients who meet the case definition. The sampling procedure does not differ between the beginning and the peak of the season; - all cases and all age groups are included in the sampling strategy.		6 by site during the week 40-20; 3 by site during week 21-39. All severe cases should be sampled.		The sampling strategy for non-sentinel surveillance is defined in order no. 499 of the Ministry of Health of Ukraine.

See [Notes](#) for more information on influenza surveillance systems and a description of WHO and ECDC case definitions.

United Kingdom

Total population: 64 715 808

Income group: high

England

System characteristic	Primary care		Hospital		Non-sentinel
	Influenza-like illness (ILI)	Acute respiratory infection (ARI)	Severe acute respiratory infection (SARI)	Laboratory-confirmed influenza	
Surveillance type	Sentinel			Universal	Influenza data are collected from pathology systems transmitted from PHE, NHS, and private microbiology laboratories across England.
Population covered (%)	1.7%			100%	100%
Type of health facilities/hospitals	General practice			Intensive care units	PHE, NHS and private microbiology laboratories
Number of health facilities/hospitals	190 general practices			150 hospitals	>200 laboratories
Case definition used	National				
Description of national case definition	ILI is clinically defined as an individual presenting in primary care with an acute respiratory illness with physician-diagnosed fever or complaint of feverishness.			Laboratory-confirmed influenza in ICU patients (Symptoms: Fever ($\geq 38^{\circ}\text{C}$) or history of fever in previous 7 days AND two or more of: cough, sore throat, headache, rhinorrhoea, myalgia; D&V, increased resp. rate, poor feeding).	
Year introduced	1964			2010	
Epidemic threshold	Yes			No	No
Sampling strategy	At the start of the season 2-3 ILI cases are swabbed per week. At the peak of the season max. 20 patients are swabbed per week.			All cases should be sampled	

See [Notes](#) for more information on influenza surveillance systems and a description of WHO and ECDC case definitions.

Northern Ireland

System characteristic	Primary care		Hospital		Non-sentinel
	Influenza-like illness (ILI)	Acute respiratory infection (ARI)	Severe acute respiratory infection (SARI)	Laboratory-confirmed influenza	
Surveillance type	Sentinel	Sentinel		Universal	Universal
Population covered (%)	12%	12%		100%	100%
Type of health facilities/hospitals	General practice	General practice		All hospitals	All except sentinel GP's (12%)
Number of health facilities/hospitals	37 facilities	37 facilities		All hospitals	All except sentinel GP's (12%)
Case definition used	National	ECDC, WHO		Laboratory-confirmed influenza	National
Description of national case definition	A disabling acute respiratory illness accompanied by severe fever and myalgia – Read Code H27	Sudden onset and symptoms including one or more of the following – cough, sore throat, shortness of breath, coryza and a clinician's judgement that the illness is due to an infection.			A disabling acute respiratory illness accompanied by severe fever and myalgia – Read Code H27.
Year introduced	2001	2009			2001
Epidemic threshold	Yes	No		No	No
Sampling strategy	We encourage doctors to sample all cases meeting the ILI case definition, with a weekly maximum of 5 specimens. We encourage the collection of samples from all age groups with particular attention paid to children (from 2 years) if possible. Sampling should not differ between start and peak season except in number.	None			Varies by site

See [Notes](#) for more information on influenza surveillance systems and a description of WHO and ECDC case definitions.

Scotland

System characteristic	Primary care		Hospital		Non-sentinel
	Influenza-like illness (ILI)	Acute respiratory infection (ARI)	Severe acute respiratory infection (SARI)	Laboratory-confirmed influenza	
Surveillance type	Universal	Universal		Universal	Virological surveillance (universal)
Population covered (%)	99% (ILI); 6% (sampling)	99%		100%	100%
Type of health facilities/hospitals	GP practices	GP practices		Hospital, ICU (3rd level care)	Mostly hospital/ GP practices
Number of health facilities/hospitals	953 practices; 59 GPs (sampling)	953 practices		23 hospitals	277 hospitals/ 953 GP practices
Case definition used	No case definition used	No case definition used		National	Laboratory confirmed Influenza cases
Description of national case definition	Based on clinical discretion of GP; for sampling cases presenting to primary care with ILI symptoms and within 7 days of date of onset of those symptoms).	Based on clinical discretion of GP.		Laboratory-confirmed influenza cases admitted to the hospital for intensive care management.	
Year introduced	2009 (ILI); 2000 (sampling)	2009 (ARI); 2000 (sampling)		2010	2009
Epidemic threshold	Yes	No		No	No
Sampling strategy	Up to first 8 patients per week; 4 swabs in those aged <15 years; 2 in 15-64 and 2 in 65+.				Based on clinical discretion of the doctor/healthcare professional.

See [Notes](#) for more information on influenza surveillance systems and a description of WHO and ECDC case definitions.

Wales

System characteristic	Primary care		Hospital		Non-sentinel
	Influenza-like illness (ILI)	Acute respiratory infection (ARI)	Severe acute respiratory infection (SARI)	Laboratory-confirmed influenza	
Surveillance type	Sentinel			Universal	Universal surveillance for ILI in all primary care GPs.
Population covered (%)	11.7%			100%	100%
Type of health facilities/hospitals	General practice			All wards	General practice

Influenza surveillance profiles



System characteristic	Primary care		Hospital		Non-sentinel
	Influenza-like illness (ILI)	Acute respiratory infection (ARI)	Severe acute respiratory infection (SARI)	Laboratory-confirmed influenza	
Number of health facilities/hospitals	44 facilities			19 hospitals	450 facilities
Case definition used	National			Laboratory-confirmed influenza in all wards	National
Description of national case definition	GP diagnosed ILI (ECDC ILI definition given as guidance)				GP diagnosed ILI (ECDC ILI definition given as guidance)
Year introduced	1987			2005	2009
Epidemic threshold	Yes			No	
Sampling strategy	Sentinel GPs are asked to swab all diagnosed ILI cases (around the peak of an epidemic this may be limited to the first 5 patients diagnosed in each practice per week).			All confirmed cases of influenza in hospital patients for whom respiratory screen tests are requested.	All clinically diagnosed cases of ILI.

See [Notes](#) for more information on influenza surveillance systems and a description of WHO and ECDC case definitions.

Uzbekistan

Total population: 29 893 488

Income group: lower middle

System characteristic	Primary care		Hospital		Non-sentinel
	Influenza-like illness (ILI)	Acute respiratory infection (ARI)	Severe acute respiratory infection (SARI)	Laboratory-confirmed influenza	
Surveillance type	Sentinel	Sentinel	Sentinel	No system available	
Population covered (%)	0.01%	0.01%			
Type of health facilities/hospitals	General practice, polyclinic	General practice, polyclinic	Hospital, maternity hospital		
Number of health facilities/hospitals	1 facility	1 facility	3 hospitals		
Case definition used	WHO 2014	ECDC, WHO	WHO 2014		
Year introduced	2016	2016			
Epidemic threshold	No	No			
Sampling strategy	Five doctors, five samples, once a week.		All SARI patients when admitted.		

See [Notes](#) for more information on influenza surveillance systems and a description of WHO and ECDC case definitions.