Operational considerations for influenza surveillance in the WHO European Region during COVID-19: interim guidance

October 2020

Address requests about publications of the WHO Regional Office for Europe to:

Publications
WHO Regional Office for Europe
Marmorvej 51
DK - 2100 Copenhagen Ø, Denmark

Alternatively, complete an online request form for documentation, health information, or for permission to quote or translate, on the Regional Office website (http://www.euro.who.int/pubrequest).

© World Health Organization 2020

All rights reserved. The Regional Office for Europe of the World Health Organization welcomes requests for permission to reproduce or translate its publications, in part or in full.

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement.

The mention of specific companies or of certain manufacturers' products does not imply that they are endorsed or recommended by the World Health Organization in preference to others of a similar nature that are not mentioned. Errors and omissions excepted, the names of proprietary products are distinguished by initial capital letters.

All reasonable precautions have been taken by the World Health Organization to verify the information contained in this publication. However, the published material is being distributed without warranty of any kind, either expressed or implied. The responsibility for the interpretation and use of the material lies with the reader. In no event shall the World Health Organization be liable for damages arising from its use. The views expressed by authors, editors, or expert groups do not necessarily represent the decisions or the stated policy of the World Health Organization.

© European Centre for Disease Prevention and Control 2020

This publication follows WHO terminological practice. The names and designations of countries used in this publication should not be understood as an endorsement by ECDC of the terminology used. The designations used, and the presentation of the maps therein, do not represent ECDC's official position on the legal status of any country, territory, city or area or of its authorities, or the delimitation of its frontiers and boundaries.

Suggested citation. European Centre for Disease Prevention and Control, WHO Regional Office for Europe. Operational considerations for influenza surveillance in the WHO European Region during COVID-19: interim guidance; 2020.

Contents

Key messages

For sentinel primary care influenza surveillance:

- It is important to maintain existing influenza-like illness (ILI) and acute respiratory infection (ARI)case definitions, where possible.
- When the number of cases presenting to sentinel surveillance sites is low, all patients meeting the case definition for ILI or ARI should be sampled.
- Sampled patients meeting the ILI or ARI case definition should ideally be tested concurrently for influenza and SARS-CoV-2 viruses.
- Epidemiological data on ILI should continue to be collected.
- Perform subtyping/lineage determination for all influenza-positive specimens.
- Where sentinel primary care surveillance for influenza has been disrupted because of COVID-19 testing strategies, explore alternative approaches such as patient self-sampling and the utility of telephone consultation syndromic data.

For non-sentinel surveillance:

- Non-sentinel specimens from primary and secondary care should be prioritized for COVID-19 testing; in addition, influenza testing should be performed in parallel for people at risk of developing severe disease (the elderly and those with underlying diseases).
- A random sample of all patients in these settings could be considered for influenza testing, based on clinical judgement and the level of influenza circulation, including further genetic and/or antigenic characterisation and antiviral resistance testing at national influenza centres or reference laboratories.

For hospital influenza surveillance:

- Important to maintain existing SARI case definition, where possible
- Test and report all SARI cases for influenza and SARS-CoV-2 simultaneously, where possible when influenza is known to be circulating

Laboratory considerations:

- Sequence a representative subset of influenza and SARS-CoV-2 viruses (date, geographical region, age, severity).
- Share a representative subset of influenza-positive specimens with national influenza centres or reference laboratories.
- At least 10% of the influenza viruses, or all when low circulation observed, should be characterised genetically and/or antigenically.
- At least 10% of the influenza viruses, or all when low circulation observed, should be tested (phenotypically and/or genotypically) for antiviral resistance

Background

Since 2014, influenza surveillance in Europe has been jointly coordinated by the World Health Organization (WHO) Regional Office for Europe and the European Centre for Disease Prevention and Control (ECDC) [1-3]. In the European Union (EU), the surveillance of influenza is conducted according to the Commission Implementing Decision (EU) 1082/2013 and (EU) 2018/945 [4-6]. For WHO, the surveillance of influenza is conducted based on the Pandemic Influenza Preparedness [7] framework and terms of reference for National Influenza Centers (NICs) and the Global Influenza Surveillance and Response System (GISRS) [8].

In 2020, the WHO European Region has experienced widespread community transmission of COVID-19. In response, countries have implemented extensive public health and societal measures to slow its transmission. A range of surveillance systems are in place to monitor the progression and evolution of COVID-19 throughout the course of the pandemic [9]. These include a mix of syndromic and laboratory-based data collection systems, some of which are based on existing established influenza surveillance frameworks.

The case definitions used to monitor influenza in primary care (influenza-like illness [ILI] or acute respiratory infection [ARI]) and hospital settings (severe acute respiratory infection [SARI]) substantially overlap with those for COVID-19 [6]. This potentially enables influenza surveillance systems to fulfil selected surveillance objectives for COVID-19 in addition to influenza [10,11]. However, the functioning of these systems was affected at the end of the 2019–2020 season due to national interventions and healthcare reprioritisation for COVID-19. Some 75% of Member States in the WHO European Region who responded to ECDC and WHO surveys (n=32) reported that there was a national recommendation for the population not to visit their general practitioners regarding COVID-19. Similarly, the changes in the use of hospitals has made an impact on sentinel SARI surveillance (unpublished data, ECDC and WHO). More detail on the Regional surveillance and national surveillance systems can be found on the websites of ECDC and WHO Regional Office for Europe [12-14].

Purpose of the document

This document outlines operational considerations for how to support the continuity of national influenza surveillance systems and public health laboratories for the epidemiological and virological surveillance for influenza in the 2020–2021 season during the ongoing COVID-19 pandemic. In addition, it describes how these systems might be used to contribute to COVID-19 surveillance.

The intended audience for this document is those with national responsibility for influenza and/or COVID-19 surveillance.

Common objectives of influenza and COVID-19 surveillance

Common objectives for influenza and COVID-19 surveillance in the WHO European Region are to:

- monitor the timing, geographic spread, intensity of transmission and severity over time of SARS-CoV-2, influenza and other respiratory viruses;
- inform hospital preparedness and appropriate mitigation measures such as vaccination or antiviral treatment for seasonal influenza;
- monitor characteristics of circulating influenza and SARS-CoV-2 viruses to inform treatment, drug and vaccine development;
- assess the impact on health systems;
- assess the impact of public health interventions.

Operational considerations for influenza surveillance during COVID-19

Sentinel primary care surveillance

Sentinel surveillance of influenza in primary care is conducted by representative national networks of primary care practitioners, covering typically 1-6% of the population [12]. It relies on the use of syndromic case definitions for ILI and/or ARI. An advantage of the continued use of sentinel influenza surveillance systems for influenza but now also including COVID-19 is that robust epidemiological data are routinely collected in systematic, standardized approaches. In addition, data can be compared with historical data that were collected in similar ways and thereby allow for reliable analysis and be used as basis for the assessment of impact. Standardised approaches to testing are employed in these systems, which should limit the impact of changes in national testing strategies that affect other COVID-19 surveillance approaches [15].

Determining optimal thresholds for sensitivity and specificity for the ILI case definition is always a balance based on the needs and objectives of surveillance for influenza, COVID-19 and other respiratory infections with similar and non-discriminatory clinical characteristics [16]. As the COVID-19 clinical spectrum does not always include high temperature, systematic sampling from ARI cases, where this case definition is already in use, may be considered as a more sensitive approach to capture both COVID-19 and influenza in sentinel surveillance than ILI. A substantial number of countries already have monitoring systems based on ARI in place; of 53 countries reporting influenza data in the Region, 29 report ILI and ARI consultations, 21 report ILI consultations only, two report ARI consultations only and one reports neither ILI nor ARI consultations [2,12].

Countries are encouraged to continue to collect the number of consultations from patients based on existing ILI case definitions. An expansion to report ARI consultation from existing systems could be considered. An increase in the number of participating practitioners in sentinel surveillance could also be considered but this would be challenging, especially during a pandemic, given the difficulties involved in setting up and maintaining new sites, training staff and ensuring good quality data from these sites.

Using thresholds based on historical ILI/ARI consultation data for defining the start of the influenza season might be compromised by changes in health-seeking behaviour (e.g. supplementing or replacing physical GP visits with telephone or video consultations) or the expansion of the number of reporting sentinel physicians, and should be used with caution.

Outside of the influenza season, sentinel ILI and/or ARI surveillance data might be a good proxy for the incidence of COVID-19 when the proportion of SARS-CoV-2-positive sentinel specimens is high. When multiple respiratory viruses (e.g. SARS-CoV-2, influenza, RSV) are co-circulating, data from sentinel syndromic surveillance needs to be combined with the results of the virological testing to understand the contribution of the viruses in the consultation rates in primary care. Sentinel syndromic surveillance of ILI and/or ARI and reporting to ECDC and WHO via The European Surveillance System (TESSy) hosted at ECDC should continue throughout the year.

In the past, a subset of patients with ILI or ARI in sentinel primary care practices were swabbed and specimens sent to national influenza centres (NICs) or reference laboratories for virological testing and further genetic and antigenic virus characterisation. During the ongoing COVID-19 pandemic period, when the number of cases presenting to sentinel surveillance sites are low, all patients with ILI or ARI symptoms in sentinel primary care should ideally be sampled and tested concurrently for influenza and SARS-CoV-2 viruses; a multiplex RT-PCR assay can be considered. If the laboratories do not have sufficient capacity to test all specimens, a subset of specimens should be sent to NICs, as in previous years, while the diagnosis of the additional specimens should be performed in other primary diagnostic laboratories instead, following the scheme described below for primary care. Where this is not possible, testing should be sequential, with SARS-CoV-2-negative specimens, or a subset there of, tested for influenza viruses.

During previous influenza seasons, NICs were asked to subtype/lineage determine all influenza-positive sentinel detections and characterise genetically and/or antigenically a representative subset of influenza viruses of 10%. Should lower numbers of influenza viruses than in previous years circulate, all influenza-positive viruses should be characterised in addition to subtyping/lineage determination. Antiviral resistance testing (genotypic and/or phenotypic) should also be performed for all, or at least a subset of influenza viruses. At the minimum, a representative subset should be further characterised at the NICs and sent to WHO Collaborating Centre in London. SARS-CoV-2-positive viruses should also be further analysed by sequencing at the national laboratories or at a WHO referral laboratory. Testing for other respiratory viruses should be based on available capacities. The storage of clinical specimens at the site of collection and transport to the testing laboratory should follow the WHO manual for laboratory diagnosis for influenza and WHO guidance for laboratory testing for COVID-19 [17,18].

The redirection of patients presenting with ILI or ARI to COVID-19-specific testing centres instead of primary care is likely to disrupt primary care influenza surveillance in many countries in the Region. In these scenarios, a randomly selected subset of these specimens should be redistributed to the NICs for influenza diagnostic, subtyping/lineage determination and further virus characterisation and antiviral susceptibility analysis.

Non-sentinel surveillance

Non-sentinel specimens from primary and secondary care should be prioritized for COVID-19 testing. Influenza testing could be performed in parallel to SARS-CoV-2 for a random sample of all patients with ILI or ARI when testing capacities allow, there is evidence of influenza circulation and if few influenza viruses are being identified through sentinel surveillance. People in risk groups or elderly people with increased risk to develop severe disease progression when infected with influenza and based on clinical judgement to initiate early antiviral treatment could also be prioritized for influenza testing.

Influenza-positive specimens should be made available to NICs or reference laboratories for further virus genetic and/or antigenic characterisation and antiviral resistance testing. When capacity allows, testing of samples for other respiratory viruses (e.g. RSV) should be considered based on clinical judgement.

Hospital surveillance

Countries vary in their hospital surveillance approaches, with sentinel SARI surveillance implemented mainly in the Eastern part of the Region, while EU/EEA countries have been conducting hospital surveillance based on laboratory-confirmed hospitalized and/or ICU-admitted influenza cases. In some countries, there is comprehensive SARI surveillance

During the COVID-19 pandemic, more countries have implemented sentinel SARI surveillance with subsequent laboratory testing of all SARI patients for SARS-CoV-2. When there is evidence of influenza circulation from primary care surveillance systems, all SARI cases in sentinel sites should ideally be tested simultaneously for influenza and SARS-CoV-2. However, when this is not possible due to limited testing capacity, sequential testing may be considered with influenza testing following a SARS-CoV-2 negative test. Based on clinical judgement antiviral treatment for influenza should be empirical pending either simultaneous or consecutive testing results.

The reporting of either case-based or aggregate SARI or laboratory-based data for influenza and COVID-19 to TESSy and WHO should continue as in previous seasons.

Qualitative indicators

Qualitative indicators to assess the level of geographic spread and intensity utilising primary care data are established for influenza, but not for COVID-19. However, within its Pandemic Influenza Severity Assessment (PISA) work, WHO has suggested a set of qualitative indicators, and work is ongoing to adapt these indicators to include a more general respiratory syndromic and COVID-19-specific indicator [19]. The implementation of PISA indicators might help to assess the pandemic situation in a simplified way.

Operational laboratory considerations

A subset of influenza-positive specimens from sentinel and other (non-sentinel) sources, including hospitalised patients, should be shared with NICs to perform more in-depth virus characterization analysis, which includes the assessment of antiviral susceptibility, as well as antigenic and genetic characterisation. In order to ensure that a sufficient number of influenza viruses that represent circulating strains in countries are shared with WHO to inform the bi-annual vaccine composition meeting, it is important that national influenza laboratories

continue to perform virus culture (BSL2 for SARS-CoV-2-negative, influenza-positive specimens) and ship influenza viruses and clinical specimens from positive specimens to WHO Collaborating Centre according to existing WHO guidance [20,21].

Continuity in the monitoring of influenza and SARS-CoV-2 virus evolution through the sequencing of representative viruses is essential for monitoring changes in the viruses. WHO guidance for SARS-CoV-2 is under development and will be published separately. Sequence data from SARS-CoV-2 and influenza virus samples should be shared through GISAID [22].

Plans for updating

ECDC and WHO Regional Office for Europe continue to monitor the situation closely for any changes that may affect this interim guidance. Should any factors change, ECDC and WHO Regional Office for Europe will issue a further update.

Contributors

Technical advisors from WHO (James Fielding, Piers Mook, Mark Muscat and Richard Pebody) and ECDC staff (Cornelia Adlhoch, Bruno Ciancio, Angeliki Melidou and Gianfranco Spiteri).

Declaration of interests

There are no conflicts of interest.

Funders

The development of this document was funded by WHO and ECDC.

References

1. Snacken R, Brown C. New developments of influenza surveillance in Europe. Euro Surveill. 2015;20(4). Available from: https://www.eurosurveillance.org/content/10.2807/ese.20.04.21020-en
2. European Centre for Disease Prevention and Control and World Health Organization Regional Office for Europe. Flu News Europe - Joint ECDC-WHO/Europe weekly influenza update 2020 [accessed 3 October 2020]. Available from: https://flunewseurope.org/
3. European Centre for Disease Prevention and Control. Flu News Europe: Weekly influenza updates [accessed 5 October 2020]. Available from: https://www.ecdc.europa.eu/en/seasonal-influenza/surveillance-and-disease-data/flu-news-europe
4. European Commission. Decision No 1082/2013/EU of the European Parliament and of the Council of 22 October 2013 on serious cross-border threats to health and repealing Decision No 2119/98/EC [Internet]. 2013 [cited 2013 02/21]. Available from: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:293:0001:0015:EN:PDF
5. Commission Implementing Decision (EU) 2018/945 of 22 June 2018 on the communicable diseases and related special health issues to be covered by epidemiological surveillance as well as relevant case definitions, (2018).
6. European Centre for Disease Prevention and Control. EU case definitions [accessed 5 October 2020]. Available from: https://www.ecdc.europa.eu/en/surveillance-and-disease-data/eu-case-definitions
7. World Health Organization. Pandemic Influenza Preparedness (PIP) Framework 2020 [accessed 21 September 2020]. Available from: https://www.who.int/influenza/pip/en/
8. World Health Organization. Terms of Reference for National Influenza Centers of the Global Influenza Surveillance and Response System 2017 [accessed 21 September 2020]. Available from: https://www.who.int/influenza/gisrs_laboratory/national_influenza_centres/tor_nic.pdf?ua=1
9. World Health Organization. Public health surveillance for COVID-19: interim guidance, 7 August 2020: WHO; 2020 [accessed 28 September 2020]. Available from: https://apps.who.int/iris/handle/10665/333752
10. European Centre for Disease Prevention and Control. Facts about influenza surveillance [accessed 5 October 2020]. Available from: https://www.ecdc.europa.eu/en/seasonal-influenza/surveillance-and-disease-data/facts
11. European Centre for Disease Prevention and Control. Strategies for the surveillance of COVID-19 [accessed 5 October 2020]. Available from: https://www.ecdc.europa.eu/en/publications-data/strategies-surveillance-covid-19
12. World Health Organization Regional Office for Europe. Influenza surveillance country profiles of WHO European Region Member States 2017 [accessed 12 February 2018]. Available from: http://www.euro.who.int/en/health-topics/communicable-diseases/influenza/surveillance-and-lab-network/influenza-surveillance-country-profiles/influenza-surveillance-country-profiles-of-who-european-region-member-states
13. European Centre for Disease Prevention and Control. Sentinel surveillance [accessed 5 October 2020]. Available from: https://www.ecdc.europa.eu/en/seasonal-influenza/surveillance-and-disease-data/facts-sentinel-surveillance
14. European Centre for Disease Prevention and Control. National and global influenza surveillance systems and reports [accessed 5 October 2020]. Available from: https://www.ecdc.europa.eu/en/seasonal-influenza/surveillance-and-disease-data/national-regional-global-reports
15. European Centre for Disease Prevention and Control. Testing strategy for SARS-CoV-2 2020 [accessed 5 October 2020]. Available from: https://www.ecdc.europa.eu/en/covid-19/surveillance/testing-strategies
16. Fitzner J, Qasmieh S, Mounts AW, Alexander B, Besselaar T, Briand S, et al. Revision of clinical case definitions: influenza-like illness and severe acute respiratory infection. Bulletin of the World Health Organization. 2018;96(2):122-8.
17. World Health Organization. Influenza - WHO information for molecular diagnosis of influenza virus - update 2020 [accessed 8 September 2020]. Available from: https://www.who.int/influenza/gisrs_laboratory/molecular_diagnosis/en/
18. World Health Organization. Influenza - Manual for the laboratory diagnosis and virological surveillance of influenza 2011 [accessed 8 September 2020]. Available from: https://www.who.int/influenza/gisrs_laboratry/manual_diagnosis_surveillance_influenza/en
19. World Health Organization. Influenza - Pandemic Influenza Severity Assessment (PISA) [accessed 8 September 2020]. Available from: https://www.who.int/influenza/surveillance_monitoring/pisa/en/
20. World Health Organization. Influenza - Shipping and logistic activities [accessed 8 Sept 2020]. Available from: https://www.who.int/influenza/gisrs_laboratory/logistic_activities/en/
21. World Health Organization. Influenza- Operational Guidance on Sharing Seasonal Influenza viruses [accessed 8 September 2020]. Available from: https://www.who.int/influenza/gisrs_laboratory/seasonal_sharing_guide/en/
22. World Health Organization. Influenza - Global Influenza Surveillance and Response System (GISRS) [accessed 8 September 2020]. Available from: https://www.who.int/influenza/gisrs_laboratory/en/

European Centre for Disease Prevention and Control (ECDC)

Gustav III:s Boulevard 40, SE-169 73 Solna
Sweden
Tel. +46 858 60 10 00
Fax. +46 858 60 10 01
www.ecdc.europa.eu

Contact us
publications@ecdc.europa.eu

Follow us on Twitter
@ECDC_EU

Like our Facebook page
www.facebook.com/ECDC.EU

World Health Organization Regional Office for Europe

UN City, Marmorvej 51, DK-2100 Copenhagen Ø
Denmark
Tel. +45 45 33 70 00
Fax. +45 45 33 70 01
www.euro.who.int

Contact us
eupathogens@who.int

Follow us on Twitter
@WHO_EUROPE

Like our Facebook page
www.facebook.com/WHOEurope