

European Centre for Disease Prevention and Control

EU/EEA surveillance of communicable diseases: an overview

Luís Alves de Sousa, *MD, MPH*

xShare WP4 Workshop, 24 March 2026

European Centre for Disease Prevention and Control (ECDC)

- **Public health agency** of the European Union (EU), headquartered in Stockholm, Sweden;
- Established in 2005[1,2];
- Mission and mandate to protect over 500 million people from **communicable diseases**;
- Assess **public health threats** to EU/EEA and provide guidance to prevent and control them;
- Cooperate on public health surveillance data collection, validation, analysis and dissemination with national competent bodies designated by Member States;
- Provide a technical platform for public health **surveillance data** collection, inbuilt validation, storage and retrieval in EU/EEA:
  - The European surveillance portal for infectious diseases (EpiPulse);
  - Single shared, flexible metadata-driven database system.

1. Founding Regulation of ECDC (Reg. 851/2004/EC)
2. Amendment of Founding Regulation of ECDC (Reg. 2022/2370/EU)

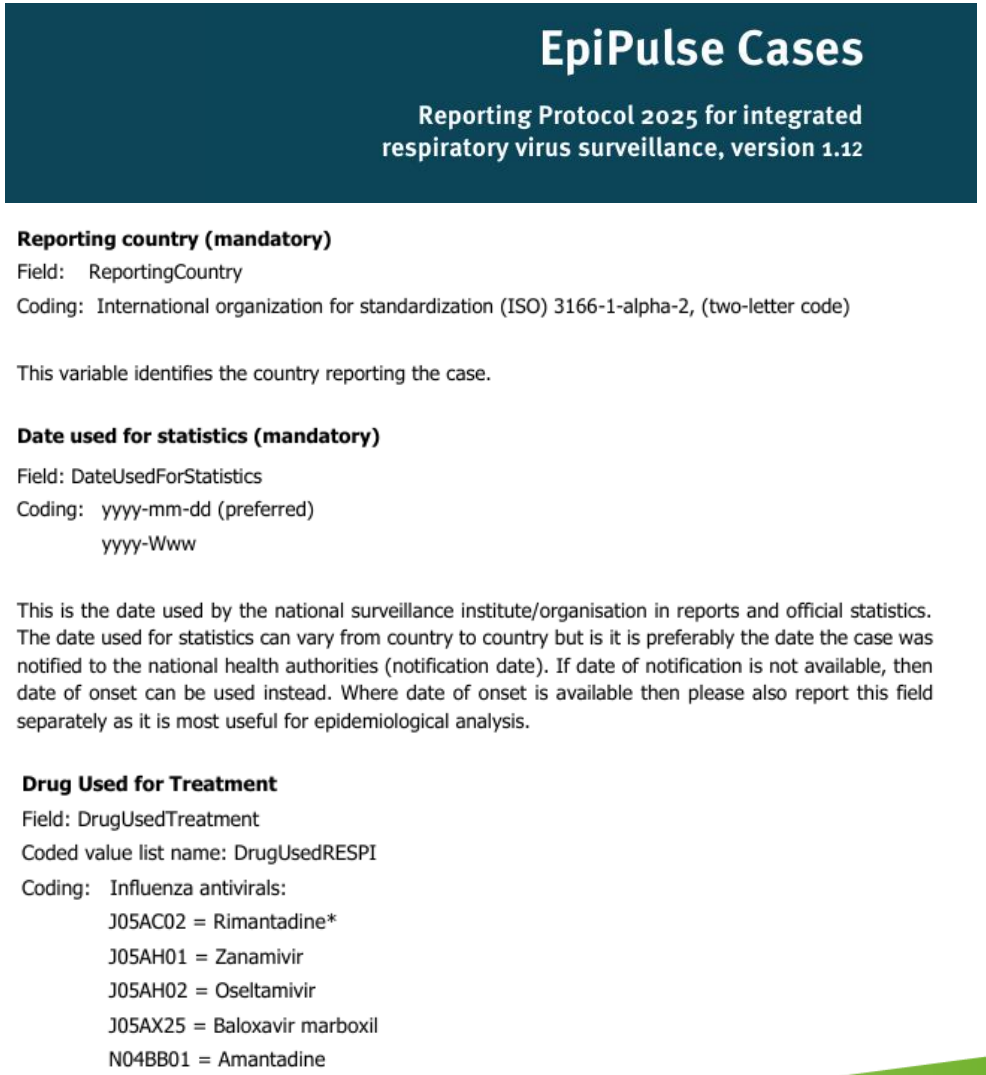
Harmonisation of EU/EEA surveillance

- Legally binding list of more than 60 **communicable diseases and special health issues under EU surveillance**[1], including case definitions;
- Standardisation of laboratory diagnostics and typing through EQAs and training;
- Centralised surveillance data validation but in collaboration with each national data provider;
- Common variables to be reported for each disease.

1. Commission Implementing Decision (EU) 2018/945.

Harmonisation of EU/EEA surveillance (II)

- **EpiPulse Reporting Protocols**
- Provide guidance to countries for surveillance data reporting;
- Based on disease subject-specific public health surveillance objectives;
- Timelines and deadlines for data reporting;
- Disease subject-specific metadata (e.g. defined variables and how to code their information);
- History of metadata changes for each disease subject.



EpiPulse Cases

Reporting Protocol 2025 for integrated respiratory virus surveillance, version 1.12

Reporting country (mandatory)

Field: ReportingCountry

Coding: International organization for standardization (ISO) 3166-1-alpha-2, (two-letter code)

This variable identifies the country reporting the case.

Date used for statistics (mandatory)

Field: DateUsedForStatistics

Coding: yyyy-mm-dd (preferred)
yyyy-Www

This is the date used by the national surveillance institute/organisation in reports and official statistics. The date used for statistics can vary from country to country but is it is preferably the date the case was notified to the national health authorities (notification date). If date of notification is not available, then date of onset can be used instead. Where date of onset is available then please also report this field separately as it is most useful for epidemiological analysis.

Drug Used for Treatment

Field: DrugUsedTreatment

Coded value list name: DrugUsedRESPI

Coding: Influenza antivirals:
J05AC02 = Rimantadine*
J05AH01 = Zanamivir
J05AH02 = Oseltamivir
J05AX25 = Baloxavir marboxil
N04BB01 = Amantadine

Lessons from the COVID-19 pandemic

- Extraordinary **demand** for timely, high-quality, representative, and comparable surveillance data to guide the pandemic response;
- **Strained** healthcare and public health **resources** (increased demand for both healthcare provision and immediate public health response);
- **Non-scalable** processes with several manual steps for surveillance data extraction, compilation, and reporting;
- **Representativeness** limitations (e.g. no reporting of cases from a population tested for COVID-19 according to a predefined and stable strategy);
- Health data, also used for public health surveillance, under a **heterogenous ecosystem** of **health data standards**.

Benefits of health data standards and interoperability

- More **resilient** and **adaptable** surveillance systems;
  - **Reduce burden** of data **reporting** for public health surveillance;
  - **Automation** of surveillance data **reporting**;
- Improve data linking and pooling between **different data sources**;
- More **timely** surveillance data reporting;
  - Improve **early detection** of **new** or **unexpected** events;
- Improve ability to design and implement **epidemiological studies** to inform urgent public health action or monitor public health interventions;
- Improve surveillance data **comparability**, internationally and over time.

Potential applications of EHDS primary use

Harmonisation of EHR digital ecosystem

- Common reference (i.e. legal, technical, and semantic) provided by European electronic health record exchange format (EEHRxF);
- Infrastructural setup at national level;

Enhance digitalisation of statutory public health surveillance

- Electronic case reporting (eCR)[1,2] and electronic laboratory reporting (eLR)[3];
- EHR-based "triggering" (e.g. reportable condition trigger codes [RCTC][4]);
- Digital phenotyping and digital case definitions[5];
- Use of Clinical Decision Support (CDS) systems[6];
- Support evidence-based public health recommendations, addressing evidence gaps.

1. Rajamani S, et al. (2022) JAMIA 29(11), 1958;
2. HL7 FHIR® Implementation Guide: Electronic Case Reporting (eCR) - v2.1.2.
3. Mishra, N, et al. (2023) JPHS 9, e38868.
4. Arzt NH, et al. (2019) OJPHI 11(1), e62390.
5. Elson WH, et al. (2024) EuroSurveillance 29(35), 2300682.
6. Strasberg H, et al. (2021) JAMIA 28(8) ,1796.

Thank you