

State-of-play of the COVID-19 Health Information System *Portugal*

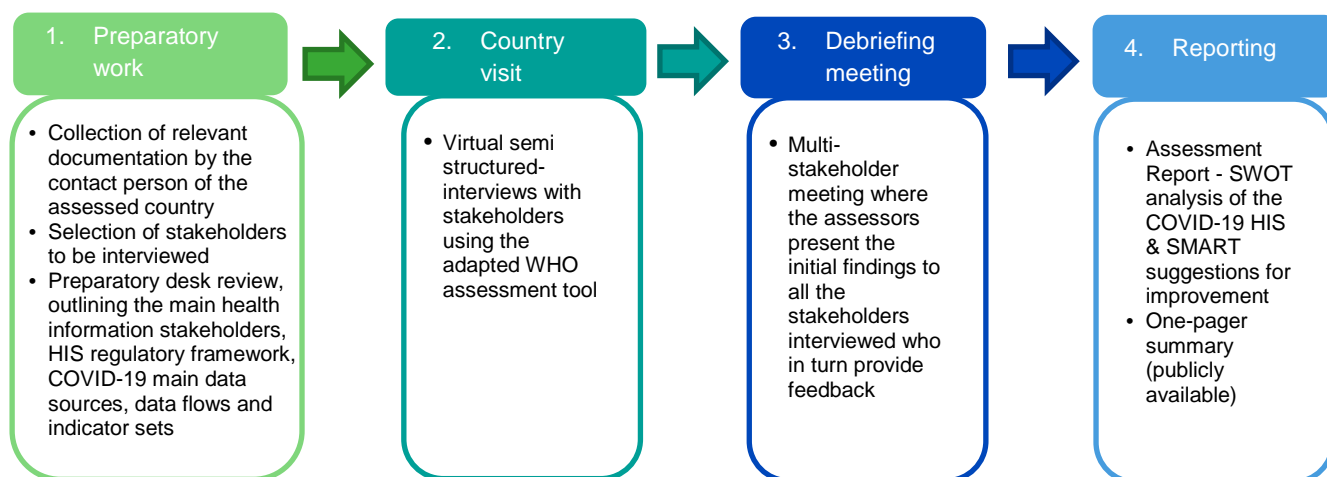
The [Population Health Information Research Infrastructure](#) (PHIRI) carries out COVID-19 Health Information System (HIS) assessments in selected countries that are part of the PHIRI consortium, mapping the Health Information System behind the data and information flows that monitor the effects of COVID-19 on population health.

AIMS OF THE COVID-19 HIS ASSESSMENTS

1. **Identify strengths and weaknesses** of the different data flows across Health Information Systems, whilst monitoring the (broader) effects of COVID-19 in the examined countries.
2. Provide opportunities for other countries to **learn from the experiences** gained during the assessments, and build on these when assessing their own Health Information systems and/or data flows.
3. Potentially **identify data sources** that may not have been used or fully exploited yet and feed them to the [Health Information Portal](#).
4. **Create opportunities for engagement and knowledge exchange** with national stakeholders and authorities.
5. Contribute to **capacity building** across Europe, which in turn can contribute towards reducing health information inequalities within and between countries.
6. Identify key recommendations for **resilient Health Information Systems** and towards **increased preparedness** for future crisis.

METHODOLOGY OF THE COVID-19 HIS ASSESSMENTS

Each country is assessed by experts from another country within the PHIRI consortium. A detailed [manual](#) explains the procedure followed in the assessments, with the steps summarised below.



An adapted version of the [Health Information System assessment tool](#) developed by the WHO Regional Office for Europe (2015), including the add-on module on Infectious Diseases (2021), is used to guide the interviews. The assessment covers data collections and data sources, data analysis, reporting, knowledge translation, governance and resources, best practices and identified gaps.

COUNTRIES INVOLVED IN THE PHIRI COVID-19 HIS ASSESSMENTS

The assessments are performed in Austria, Belgium, Italy, Greece, Hungary, Ireland, Malta, the Netherlands, Norway and Portugal by the end of the project (November 2023). [Italy](#), Portugal, Ireland, Malta and Norway were assessed in the first semester of 2022.



Health Information System (HIS)

The [Directorate General of Health](#) (DGS) within the Ministry of Health formulates and coordinates the public health measures outlined in the contingency plan developed to respond to the COVID-19 crisis. The DGS also coordinates epidemiological surveillance and contact tracing and provides regular COVID-19 reports. Together with the [Shared Services of Ministry of Health](#) (SPMS), a state-owned enterprise, several electronic health systems (e.g. PEM/Electronic Medical Prescription, SCClínico Hospitalar, SNS 24, vaccination portal, SINAVE, Trace COVID-19) were used during the pandemic. Other important stakeholders in the Portuguese COVID-19 Health Information System (HIS) include the [National Health Institute Doutor Ricardo Jorge](#) (INSA), the Central Administration of the Health Services (ACSS) and the [National Statistics Institute](#) (INE).

Data collection/Sources

- **Cases:** Data on infections are collected by doctors, either in primary health care facilities or hospital, and mainly by laboratories and communicated to DGS using SINAVE
- **Surveillance systems:** Pre-existing surveillance system SINAVE for infectious diseases; new system Trace COVID-19 for case follow-up and contact tracing
- **Mortality:** SICO - electronic system for death certificates (updated every 10 minutes)
- **Vaccination:** Electronic national vaccination portal hosted by SPMS
- **Contact tracing app:** STAYAWAY COVID
- **Hospitalisations:** hospitals report COVID-19 cases to Regional Health Administrations

Data Analysis

- Comprehensive use of data science at DGS, SPMS and INSA, as well as analyses by external researchers
- Several scientific studies, surveys and academic publications were produced in collaboration with HIS stakeholders during the pandemic
- Relatively small group of core people conducting data analyses
- Data quality varies across the country (health units), depending both on the respective clinic's degree of trained personnel and information system

Reporting and knowledge translation

- **Dashboards:**
 - [National](#)
 - [DGS](#)
 - [INE](#)
- **Regular monitoring reports:**
 - DGS: daily bulletin
 - INSA: incidence map, risk map, nowcasting, forecasting
- Ad hoc requests from DGS to INSA or SPMS
- COVID-19 related data reported to international institutions e.g. ECDC, EuroMOMO

Governance and resources

- Faster data flows based on emergency legislation
- Data management is centrally organised via SPMS under DGS leadership
- Swift development of innovative digital tools e.g. Trace COVID-19, supporting pandemic management and data management
- Emergency plan developed to cope with the shortage of human resources in some HIS stakeholder institutions
- A preparedness plan was introduced just before the pandemic started
- Communication with the general public and the media is frequent and coordinated by DGS

Best practices

- Quick development of digital tools, their implementation and linkage
- Data management designed in an agile way with continuous feedback mechanisms (SPMS)
- Data linkage possible due to patient identifier
- Regular communication with the public (DGS daily bulletin, INSA: incidence map / risk map / nowcasting / forecasting)
- Mechanisms in place to ensure engagement with stakeholders (e.g. on behalf of SPMS webinars for labs on how to report positive cases)

Identified gaps

- Data flows and secondary data use threatened by lack of legal basis for the use of COVID-19 data beyond the pandemic
- Guidelines for secondary use of data not fully transparent for external researchers
- Shortage of human resources and tailored trainings in some HIS stakeholder institutions
- Partially parallel IT systems that require harmonisation
- Need to modernise old systems and digitalise paper-based processes for integration with more robust digital systems already in place