Integrating open data to tackle infectious diseases

By ensuring timely, quality and integrated data on COVID-19 and other infectious diseases, the multidisciplinary BY-COVID project is helping decision makers better prepare for future threats.

As the SARS-CoV-2 virus spread around the world in 2020, governments faced questions about their preparedness. Despite pandemics regularly appearing on risk registers, many countries appeared to have been caught unprepared.

Launched in October 2021, the EU-funded BY-COVID project is addressing one of the biggest challenges to effectively preparing for and responding to infectious disease outbreaks – the availability of timely, accurate and integrated data.

Drawing on the expertise of over 50 partners from around 20 European countries, the interdisciplinary project is helping to mobilise, connect, standardise and analyse critical data.

Integrated data systems

As the COVID-19 pandemic unfolded, a variety of methods were quickly developed to monitor the spread and evolution of the virus, alongside the adoption of different measures to suppress its health, social and economic impacts. These efforts relied
on establishing various infrastructures around the world, which still generate vast amounts of valuable data.

By leveraging this data to share knowledge, coordinate efforts and allocate resources effectively, the BY-COVID project helps authorities better anticipate and so prepare for future outbreaks.

An example of the initiative in action is the Infectious Diseases Toolkit, a repository of national strategies and best practice responses. So far, resources have been added for Belgium, the Netherlands, Norway, Sweden and Switzerland.

Showcase pages also highlight particularly exciting innovations, such as an automated and modular SARS-CoV-2 genome surveillance system, created around the open-source platform Galaxy.

BY-COVID will also collaborate with the Korea Research Institute of Standards and Science, helping establish a national COVID-19 Data Portal to standardise data (including viral whole genome) and so enhance its compatibility with international databases.

In turn, the sharing of SARS-CoV-2 sequence variations from Korean institutes will extend the comprehensiveness of the European COVID-19 Data Portal, a key component of the COVID-19 Data Platform set up early in the pandemic.

Better preparedness

BY-COVID has also developed a policy brief, to support decision makers develop pandemic preparedness plans. Recommendations include: prioritising open data; encouraging researchers to deposit data; assuring investment in the necessary national, local and research community-driven infrastructures; and ensuring training for the effective use of the tools available.

BY-COVID aligns with the global One Health initiative, to more effectively coordinate the practices and resources of multiple sectors and stakeholders for better public health outcomes. As such, it is designed to integrate into established national and European infrastructures, including ELIXIR, BBMRI, ECRIN, PHIRI and CESSDA, as well as work with partners such as the Versatile Emerging infectious disease Observatory (VEO).

The project is also part of the European Commission’s biodefence preparedness plan – the HERA Incubator, – to anticipate the threat of coronavirus variants and bring together science, industry and public authorities in developing effective responses.
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