

Disclaimer: We kindly ask to acknowledge that due to the diverse and heterogeneous nature of the questions and dynamic situations they pertain to, some of the information might be incomplete or only correct for the time being. Thus, please consider the date and date of last update with the below information. All available information was provided by a country representative from the PHIRI network during or in connection to the respective meeting.

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Table 1: Country responses: Vision on resilience indicators

Country	<p>Topic: Vision on resilience indicators</p> <ul style="list-style-type: none"> • As COVID-19 measures has been lifted or relaxed around Europe, which COVID-19 indicators, if any, are foreseen to be measured long-term in your country, and are there any thresholds defined that would trigger reintroduction of measures or emergency action? • Have analyses been performed in your country regarding population adherence to NPIs (e.g. via mobility data, surveys), and/or has there been a weighted analysis of effectiveness and economic viability of measures on another basis? • Have strategies/tools/mechanisms for measuring or evaluating the improvement of health system resilience been set up or are there plans to do so?
Austria	<p>There is no nationwide standardised collection in Austria, besides sewage water control and measuring use of hospital beds with Covid-19 patients, see https://datenplattform-covid.goeg.at/covid-19-register.</p> <p>To our knowledge there are no “automatic” thresholds foreseen that trigger measures. But there are two major academic exercises.</p> <p>1) The BETTER Study (Being Equipped To Tackle Epidemics Right) - is a three-year interdisciplinary research project that combines effectiveness research, infectious disease modelling and evidence synthesis to optimise future epidemic and pandemic preparedness. the goal of BETTER is to use real world data from the COVID-19 (corona virus disease 2019) pandemic to model hypothetical decision-scenarios that are applicable to future (non-COVID-19) epi- or pandemic situations. https://www.donau-uni.ac.at/en/research/project/U7_PROJEKT_4294970737</p> <p>2) Austrian Corona Panel Project aims to provide an overview of various health, economic and social aspects of the Corona crisis. First wave was 27 March 2020, latest so far of 23 Feb. 2023, will continue. Method Report (Data collection) https://viecer.univie.ac.at/coronapanel/austrian-corona-panel-data/method-report/</p>
Belgium	<ul style="list-style-type: none"> • The long-lasting COVID measures and threshold indicators are still under development by the federal/regional health authorities. <p>Surveillance of COVID will remain probably through</p> <ul style="list-style-type: none"> - Wastewater, - SARI surveillance in hospital (COVID added during the pandemic), - sentinel network of GPs and - monitoring of variances <p>- Discussions are still ongoing and the results are expected to be similar to the influenza bulletin: https://www.sciensano.be/en/node/464</p> <p>Federal level: continue with the weekly bulletin</p> <ul style="list-style-type: none"> - No final approval on the surveillance that will continue (finance key element) - RAG (Risk Assessment Group): moving away from COVID towards integrated surveillance reports <p>EU presidency: some of the topics that will be addressed</p> <ul style="list-style-type: none"> - Attention on the HIS resilience, - Preparedness: evidence gathering during crisis (vaccine, clinical trial), - EU governance during crisis

	<ul style="list-style-type: none"> The COVID-19 health surveys are a series of cross-sectional surveys that aim at monitoring the impact of the COVID-19 pandemic on the health and well-being of the general population in Belgium. The first survey was launched about 3 weeks after the start of the crisis and the last one in December 2021. Various topics have been examined including the impact of the crisis on mental and social health, the changes in health related behaviours, attitudes towards vaccination, domestic violence, employment, etc... Since January 2022, these cross-sectional surveys have evolved into a cohort study. The findings of this survey have been extensively disseminated to the media and policy-makers. https://www.sciensano.be/en/projects/covid-19-health-surveys The Motivation Barometer. A scientific research project bridging theory and practice based on interdisciplinary and interuniversity cooperation. https://motivationbarometer.com/en/rapporten-2/ HELICON is a Belspo BRAIN-be project that aims to unravel the social inequalities and the long-term and indirect health effects of the COVID-19 crisis in Belgium https://www.brain-helicon.be/ At the Federal level, a Federal Public Services (FOD) generic pandemic preparedness plan is being developed – by the end of 2023 the plan should be ready and evaluated by ECDC Points: <ul style="list-style-type: none"> Responsibilities will be better clarified Legal aspects will be addressed Communication strategies will be defined: who communicates on what Stocks: who will keep them and how the resources will be distributed Only implemented for crises at the Federal level, for smaller events, regions will be responsible for it
Croatia	<ul style="list-style-type: none"> Croatia is monitoring new cases of COVID-19 and the number of hospitalisations. Monthly report is being published by Croatian Institute of Public Health. There is no threshold for automatic measures that would be applied regarding COVID-19. There is no focal point or broad study that would have all the data on adherence to the NPI-s. There is one study published by University of Split regarding that question. Regarding the economic impact, there is a report by The World Bank and another one by OECD. The government has published The national recovery and resilience plan 2021-2026. In that plan available online, investments to healthcare will be 54% from the total budget. Among other plans, from that budget Croatia will build new quarantine capacities, renew and expand the University hospital for infectious diseases „dr. Fran Mihaljević“ which is the central institution for infectious disease treatment as well as monitoring (for example the antimicrobial resistance).
Czech Republic	<ul style="list-style-type: none"> Czech Republic is producing some kind of coverage reporting on a daily basis and collecting data and producing reports each day and sending it to the governmental team for crisis management. At the same time some kind of online reporting is produced, also on a daily basis and the same data are collected and published as during the pandemic, so number of hospitalizations, capacities, a number of new infections and so on. There are no specific plans or thresholds what to do if the situation gets worse. There were some service surgeries covered and a survey on a mental house, as well as questions which investigated the impact of coverage on different aspects of our daily life. However, we are providing quite detailed open data for analysis. But there are no specific ones which has some recommendations or a clear result. A lot of work has been done on improving the national reporting system for our national data and linking data and monitor systems. This is continuing and we are also improving the area of electronic health tools, such as tools for vaccination monitoring.
Finland	<ul style="list-style-type: none"> COVID-19 monitoring is currently done same way than for example influenza monitoring, i.e. results of new cases are published weekly. During the pandemic, we included questions to our health surveys about NPIs (https://thl.fi/en/web/thlfi-en/research-and-development/research-and-projects/national-finhealth-study/the-finhealth-2017-follow-up-study). There were also some reports about mobility using mobile phone location data during the active phase of pandemic. There has not been analysis of effects but discussion about the need to learn from the past is ongoing. There is discussion about how and by whom this type of evaluation should be done but to my knowledge it has not been done yet.



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Hungary	<ul style="list-style-type: none"> • Covid-19 monitoring is done the same way than other illnesses Monitoring the same way. Another point is that concentration of the virus in the switch water is practically measured weekly and this data is published officially. • There were some reports about mobility using the mobile phone location during the active phase of the pandemic. Later on the National Bank of Hungary and other institutions also conducted some survey about the financial and economic affects of the measures implemented. • There is currently a discussion about this issue because of financial sustainability. The healthcare system is being refurbished or restructured. So it is not a big issue at the moment.
Ireland	<ul style="list-style-type: none"> • In terms of COVID indicators, we are still monitoring cases, deaths, hospitalisations, ICU cases, testing, and vaccination. Data available from: https://covid-19.geohive.ie/ There are no plans to introduce mandatory COVID-19 public health measures at present. If required, the introduction of measures in certain settings will involve a point-in-time assessment of a constellation of indicators with due consideration of the personal, ethical and public health perspectives. Any such measures will be pursued in a proportionate manner, will be the least intrusive measure to achieve the identified legitimate public health goal(s) and will be of limited duration. • There were two main surveys that monitored population adherence to NPIs: <ul style="list-style-type: none"> - Amárach public opinion survey, conducted on behalf of the Department of Health – a public opinion tracking survey that ran from 2020 to early 2022. This included a section on behavioural change which asked respondents if they were adhering to the NPI recommendations. - The Social Activity Measure behavioural study, which recorded the public response to the risk of COVID-19 infection and COVID guidelines over time. It surveyed people about their recent activity and was conducted every two weeks from February 2021 to July 2022. Behavioural research also informed the national COVID-19 response. You can see some examples at the following links: https://www.gov.ie/en/collection/cf0b1-minutes-of-the-covid-19-communications-and-behavioural-advisory-group/ https://www.gov.ie/en/collection/3c5bc8-health-research-and-statistics/ • The implementation of Sláintecare, which is the programme for reform of the healthcare system in Ireland, can be expected to improve health system resilience. Another project with regards to this, was the setup of a Health System Performance Assessment (HSPA) framework to measure, monitor and report on achievements against the objectives of Sláintecare and broader policy and decision-making cycles. Therefore, the Health System Performance Assessment (HSPA) Framework could be considered a tool to improve health system resilience in this regard. More information is available here, with the public-wide accessed platform to be launched in the coming months, and data on many of the HPSA indicators have been uploaded publicly here: https://data.cso.ie/ The HSPA project has also made linkages with the RESTORE (Resilience to Reform) project in Trinity College, which will help develop metrics and indicators in this area. Ireland is also part of an EU HSPA Expert Group which produced a detailed report on assessing the resilience of Health Systems in Europe in 2020. https://health.ec.europa.eu/system/files/2021-10/2020_resilience_en_0.pdf. Another example is the Public Health Reform Expert Advisory Group, which was established in January 2022 and membership comprised national and international experts. The Group was tasked with identifying learnings from the public health components of the response to the COVID-19 pandemic in Ireland with a view towards strengthening health protection generally and future public health pandemic preparedness specifically. The Expert Group was also asked to identify lessons from international best practice regarding reform and strengthening of other core public health functions, including the promotion of health and wellbeing, population health research and health intelligence and health service improvement. The Group was then asked to examine the key components of the existing delivery model(s) for public health in Ireland, and to recommending an appropriate operating model to develop and oversee the delivery of Public Health in Ireland into the future. The Report of the Expert Advisory Group was submitted to the Minister for Health in September. The Minister is considering the recommendations, and intends to bring the report to Cabinet, and then to publish the report.
Italy	<ul style="list-style-type: none"> • The national Surveillance System on COVID-19 is continuing to work and main data on the pandemic spread are daily updated (in English language: https://www.epicentro.iss.it/en/coronavirus/sars-cov-2-dashboard). In addition, a specific project on Long-CoVID conditions is ongoing (in English language: https://www.iss.it/en/long-covid-razionale)



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	<p>Data on available health facilities are periodically published and regularly available as statistics; just as an example, for the hospital beds indicator, you can find annual statistics at https://www.dati.salute.gov.it/dati/dettaglioDataset.jsp?menu=dati&idPag=18</p> <p>At the moment, no specific thresholds have been defined to regulate reintroduction of measures or emergency action.</p> <ul style="list-style-type: none"> • During the pandemic in a national survey on health Literacy (HL), specific questions related to HL and COVID-19 were included (in English language: https://www.cuore.iss.it/eng/project/health-literacy/hls19) and a peer reviewed paper was published [Rosano A, Lorini C, Unim B, Griebler R, Cadeddu C, Regazzi L, Galeone D, Palmieri L. Coronavirus-Related Health Literacy: A Cross-Sectional Study during the COVID-19 Pandemic in Italy. Int. J. Environ. Res. Public Health 2022, 19, 3807: pp.13. https://doi.org/10.3390/ijerph19073807] Italy participated to several international studies such as Desvars-Larrive, A., Dervic, E., Haug, N. et al. A structured open dataset of government interventions in response to COVID-19. Sci Data 7, 285 (2020). https://doi.org/10.1038/s41597-020-00609-9 and provided data on COVID interventions queryable at the international website http://covid19-interventions.com/CCCSLgraph/. • The National Recovery and Resilience Plan is ongoing in Italy including a huge amount of studies and projects; In March 2021 a report 'Sustainability and Resilience in the Italian Health System' from an Italian group from the Catholic University of Rome (https://www3.weforum.org/docs/WEF_PHSSR_Italy_Report.pdf), although specific strategies/tools/mechanisms for measuring or evaluating the improvement of health system resilience have not been stated specifically and formally at the moment in Italy.
Poland	<ul style="list-style-type: none"> • Poland is about to prolong the legal situation of the state of the economy epidemic a threat and it's going to be a prolonged until 30 April. Further along later on, however, in relation to that all the reports and statistics that have been conducted and regularly published on the government's website, where all informations regarding Covid-19 and the Coronavirus are gathered or continued. So we have still the continuation of the reports on incidents, infections, infection vaccination and so on. There are no threshold indicated that would mean the re- introduction of measures or emergency actions. • As regards the analysis that have been performed the National Institute of Public Health has recently published two interesting analysis. The first one is a general report concerning the situation of healthcare among the people of Poland in 2022. There is a part that also takes into account the situation related to the Covid-19 pandemic. The second is a recently published report, or the conclusions after the pandemic. The publication is called Public Health 3.0 and it consists of conclusions and recommendations resulting from the observation of the public health situation during the pandemic in global terms. It doesn't only take into account the specific situation for Poland, but it looks at the issue in a more global manner and so it is a form of a policy paper on the basis of which a policy brief will be elaborated. • There was also the national recovery resilience plan prepared, where many interventions are planned that have foreseen as an answer to the crisis in healthcare caused by the pandemic and it consists of both, different reforms but also investments. One of the main fiels covered as main issue is medical staff.
Portugal	<p>MoH/DGS have been developing Future Scenarios with our collaboration. Resilience is an important topic, with a special focus on health systems reorganization and on the better integration of information systems. A set of indicators are under discussion to better support the monitoring of health systems resilience. There are under development a set of studies evaluation the impact of NPIs.</p>
Romania	<ul style="list-style-type: none"> • Infection and hospitalisation rates are monitored. There are no thresholds identified for the re-introduction of measures. • There is no information available. • Yes, see below for some examples https://www.europarl.europa.eu/RegData/etudes/BRIE/2022/733641/EPRS_BRI(2022)733641_RO.pdf https://mfe.gov.ro/wp-content/uploads/2021/04/ffdbdf26d6fc01f009a8059cfd94b0dd.pdf
Serbia	<ul style="list-style-type: none"> • Since 2020, only number of new cases, number of deaths caused by COVID and number of patient on the invasive ventilation have been used as indicators. • There are no known Serbian analyses of adherence to the NPIs. • No such tools in Serbia.
Slovenia	<ul style="list-style-type: none"> • At the moment, Slovenia still publishes all indicators regarding Covid-19 in the same shape as during the last (almost) three years - majority of indicators daily, some selected indicators weekly.



	<ul style="list-style-type: none"> • During the pandemic, Slovenia (NIJZ) included some questions on NPIs in our monthly web panel on pandemic fatigue (https://nijz.si/zivljenjski-slog/izsledki-panelne-spletne-raziskave-si-panda/). At the referred web page, there are reports available. Besides, I haven't been aware of any additional analysis. • There are some discussions going on, but I haven't found any conclusions or decisions made so far.
The Netherlands	<ul style="list-style-type: none"> • At this moment, there are no measures on COVID-19. From 11 March 2023, the advice on testing for coronavirus infection and isolating after a positive test will no longer apply. To our knowledge, no thresholds have been defined that would trigger the reintroduction of measures or emergency action https://www.government.nl/topics/coronavirus-covid-19/tackling-new-coronavirus-in-the-netherlands/preventing-respiratory-infections https://www.rijksoverheid.nl/onderwerpen/coronavirus-covid-19/hoe-gaat-nederland-om-met-het-coronavirus/ • Not to our knowledge. Monitoring of the infection is continuous and there is research on Long-COVID. There is also sewage monitoring. https://www.rivm.nl/en/covid-19/sewage https://www.rivm.nl/en/coronavirus-covid-19/long-covid https://coronadashboard.government.nl/ https://www.rivm.nl/resultaten-ggd-gezondheidsmonitors • Not to our knowledge
United Kingdom	<ul style="list-style-type: none"> • Infection and hospitalisation rates are monitored. There are no thresholds identified for the re-introduction of measures. • Yes, see below for some examples: Ding X, Brazel DM, Mills MC. Factors affecting adherence to non-pharmaceutical interventions for COVID-19 infections in the first year of the pandemic in the UK. https://bmjopen.bmj.com/content/11/10/e054200.abstract Marchant E, Lowthian E, Crick T, Griffiths L, Fry R, Dadaczynski K, Okan O, James M, Cowley L, Torabi F, Kennedy J, Akbari A, Lyons R, Brophy S. Pre-COVID-19 pandemic health-related behaviours in children (2018-2020) and association with being tested for SARS-CoV-2 and testing positive for SARS-CoV-2 (2020-2021): a retrospective cohort study using survey data linked with routine health data in Wales, UK. BMJ Open http://dx.doi.org/10.1136/bmjopen-2022-061344 • Not that there is anything found, there are some research insights e.g. Qi C, Osborne T, Bailey R, Cooper A, Hollinghurst JP, Akbari A, Crowder R, Peters H, Law RJ, Lewis R, Smith D, Edwards A, Lyons RA. Impact of COVID-19 pandemic on incidence of long-term conditions in Wales: a population data linkage study using primary and secondary care health records. BJGP.2022.0353. DOI: https://doi.org/10.3399/BJGP.2022.0353 Also, the WP6 use case A shows the time taken to return to normal activities for index conditions: stroke and MI, Hip/knee replacements – varies considerably between countries.

