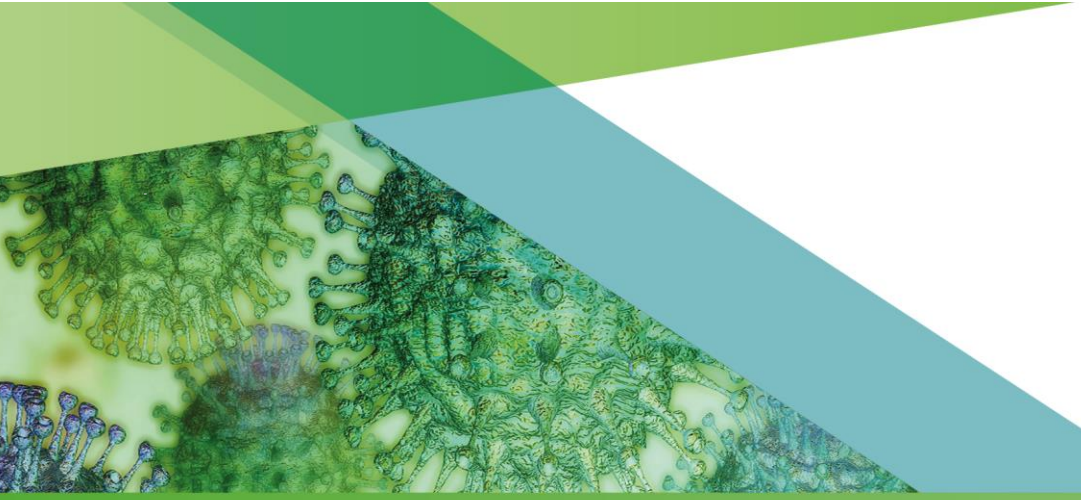


TECHNICAL REPORT

Baseline projections of COVID-19 in the EU/EEA and the UK: update

17 September 2020

Executive summary

Following widespread transmission of SARS-CoV-2 in European Union (EU)/European Economic Area (EEA) countries and the United Kingdom (UK) over several weeks, the COVID-19 epidemic reached a peak in most of these countries in April or early May 2020. Some countries have since experienced a sustained decrease in the number of reported cases, progressively reaching the level of transmission reported during the first week of the outbreak. Due to this decrease in transmission and improvements in epidemiological surveillance and healthcare capacity, some countries have decided to discontinue several non-pharmaceutical interventions and now plan to gradually phase out their 'stay-at-home' policies.

Mathematical modelling of SARS-CoV-2 transmission and associated COVID-19 disease is used to assess the potential progression of the epidemic within a population and to inform decision-making on potential interventions to ensure public health. The methodology inherently facilitates the quantification of uncertainty associated with these estimations and projections. In May 2020, ECDC produced a set of short-term forecasts of the expected number of COVID-19 cases, deaths and hospitalised cases (subdivided into general hospital wards and intensive care units), under a set of assumptions. In this report, we present updated 30-day projections, together with a visual validation of the original forecasts. We continue to model a baseline 'status quo' scenario, assuming all control measures in place on 8 September 2020 will be continued until the end of the projection period (14 October 2020). In this version, we have included data on testing rates to simulate the increased ascertainment of milder cases. For almost all countries, testing data is correct until 23 August. We have also included the use of face masks (both mandatory and voluntary) as a means for reducing both transmission and susceptibility to infection. The model is based on the epidemiological data and scientific evidence available at the time of publication. Further developments are expected as new information and epidemiological data become available.

The model was developed at ECDC and applied at a national level for EU/EEA countries and the UK. Mathematical models provide a helpful approach for quantifying uncertainty, but their output should be interpreted and appraised in light of both the underlying assumptions and the completeness and potential bias of the data used to parameterise and calibrate them.

An assessment of the potential trajectory of disease and mortality caused by the COVID-19 pandemic, and the most appropriate response strategies, should be based on a comprehensive analysis of the specific epidemiological situation in each country, using modelling projections in context.

Suggested citation: European Centre for Disease Prevention and Control. Baseline projections of COVID-19 in the EU/EEA and the UK: update. 17 September 2020. ECDC: Stockholm; 2020.

Introduction

SARS-CoV-2 is the causative agent of the current COVID-19 global pandemic, which began in December 2019. Coronaviruses are transmitted in most instances through large respiratory droplets and direct human-to-human contact, although other modes of transmission (e.g. airborne, faeco-oral and through fomites) have also been proposed. Severe cases require treatment in hospital, while critical cases are treated in intensive care, commonly requiring respiratory support or invasive mechanical ventilation. More information on the latest scientific developments is available from ECDC's regularly updated webpage[1].

By March 2020, all European Union (EU)/European Economic Area (EEA) countries and the United Kingdom (UK) had implemented a range of non-pharmaceutical interventions in response to the SARS-CoV-2 epidemic. Following an observed reduction in the number of confirmed cases and hospitalisations, almost all subsequently took action to reduce the intensity of these measures. The approach to so-called 'de-escalation' or 'lifting' of measures has differed between countries, both in policy and in timing.

In May 2020, ECDC published baseline projections of the number of confirmed COVID-19 cases and associated hospitalisation and mortality for 30 EU/EEA countries and the UK, with a comprehensive description of the dynamic compartmental model developed to produce the forecasts[2]. In Annex 3, the 30-day projections made in May are plotted against the observed epidemiological data from June.

This report provides updated 30-day projections, together with the inherent model assumptions and uncertainties. Both the model projections and the data to which the model is calibrated should be interpreted with caution given the differences between national surveillance systems, case definitions and testing policies. Comparisons between countries based on the data and forecasts presented in this paper should only be made with extreme caution and should take these differences into account. Nonetheless, the projections presented here illustrate potential future trends in COVID-19 transmission in EU/EEA countries and the UK.

Updates to the ECDC model

Since the publication of ECDC's projections in May 2020, additional functionality has been incorporated into the model. Developments in functionality have been made in response to changes in policy, e.g. the use of face masks and the availability of additional data, such as the number of COVID-19 tests conducted over time.

The use of face masks in the community is now implemented in the model, following the assumption that they limit the number of effective contacts between people by reducing both the probability of infecting others and the probability of being infected. We assume that a mandatory programme of face mask use results in 80% of interactions being protected, while a government-led recommendation of their use would result in 40% of interactions being protected.

A further change from the previous projections is the implementation of population-based testing for COVID-19. The number of diagnostic tests conducted for COVID-19 increased across the EU/EEA and the UK even when the number of hospitalisations was at its lowest ebb. The updated model incorporates the number of tests conducted over time (derived from weekly reported values) between 1 June 2020 and 6 September 2020 to account for an increased rate of identification of mild (non-hospitalised) cases. We estimate the testing positivity rates for hospitalised and non-hospitalised cases respectively, as part of the model calibration process. We make the limiting assumption that the positivity of a test conducted in a certain setting has remained constant over time; that is, among individuals presenting at hospital with symptoms indicative of severe COVID-19, the proportion registering a positive result has not changed over time. This also applies to individuals presenting for testing outside hospital with symptoms indicative of mild COVID-19 (in the period between 1 June and 6 September). In order to forecast over the 30-day period, we assume that the trend in the number of tests conducted in each country over the preceding six weeks will continue over the 30-day period (simple moving average).

[1] Available from: https://www.ecdc.europa.eu/en/covid-19/latest-evidence

[2] This document is available from: https://www.ecdc.europa.eu/en/publications-data/projected-baselines-covid-19-eueea-and-uk-assessing-impact-de-escalation-measures

Projections of COVID-19 cases and deaths

Status quo projections

Figures 1a–1d show the projected trend for confirmed cases and deaths (line), plotted against the observed data to date (bars) for each country of the EU/EEA and the UK (15 February–14 October 2020). The non-pharmaceutical interventions included in the model are shown in horizontal bars (15 February–8 September 2020).

Many EU/EEA countries observed an increased number of confirmed cases in August, following the period of two to three months of low incidence following the introduction of non-pharmaceutical interventions. However, not all these countries have observed an associated increase in the rates of hospitalisation or mortality associated with COVID-19. By incorporating data on the number of tests conducted, and assuming that the ascertainment rate of severe cases has remained constant over time, we attempt to distinguish between increased confirmation associated with the testing of more mild cases and a true increase in the circulation and associated morbidity of the virus (the so-called 'second wave' phenomenon). In countries that have lifted all non-pharmaceutical measures, often following relatively successful containment of the virus in the early months, the projections show the potential for a larger upsurge of cases later in the year, given that an increase has already been observed. In countries where there has been a rapid increase in the rate of testing but not an increase in hospitalisation, intensive care (ICU) admission and mortality, the model predicts continued higher numbers of confirmed cases. In some cases, this is accompanied by increased hospital use and deaths as a result of higher rates of community transmission following the lifting of measures. Some countries that have kept measures constant over time may expect to see rates of hospitalisation and mortality remaining broadly consistent. The number of confirmed cases can be expected to mirror testing rates in the general population, as more mild cases are identified.

The results of the model for each time series modelled (including hospital and ICU admissions and hospital and ICU occupancy) are presented in Annex 1 (30-day projections of confirmed COVID-19 cases, deaths, and hospital requirements in EU/EEA countries and the UK).

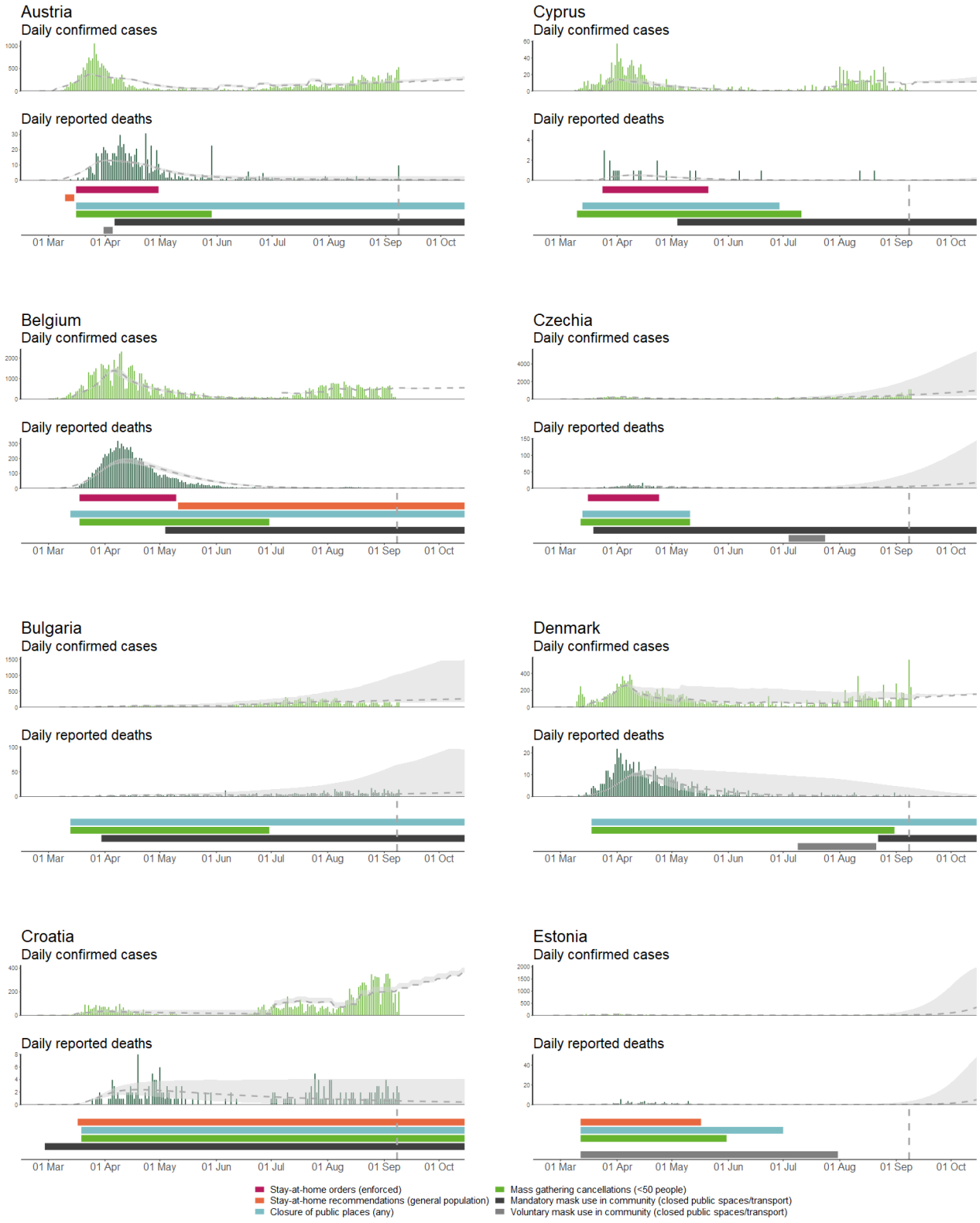
It should be noted that daily time-series data, daily hospital/ICU data, and data on new daily hospital/ICU admissions confirmed to be associated with COVID-19 are not always publicly available. However, the inclusion of as many data sources as possible strengthens the calibration of the mathematical model, thereby reducing uncertainty (for more information on data sources, see Annex 2). ECDC is constantly monitoring data in the public domain and liaises with EU/EEA countries and the UK to extend its data coverage in future analysis. Several additional sources have been incorporated since the first projections were published in May 2020.

Note

The data on non-pharmaceutical interventions used for this report are based on information available from official public sources as of Thursday 8 September at 18.00, in association with the Joint Research Centre. These data may not capture measures that are not reported on publicly available websites. Consequently, this approach should be seen as a snapshot of the response measures reported in the EU/EEA and the UK.

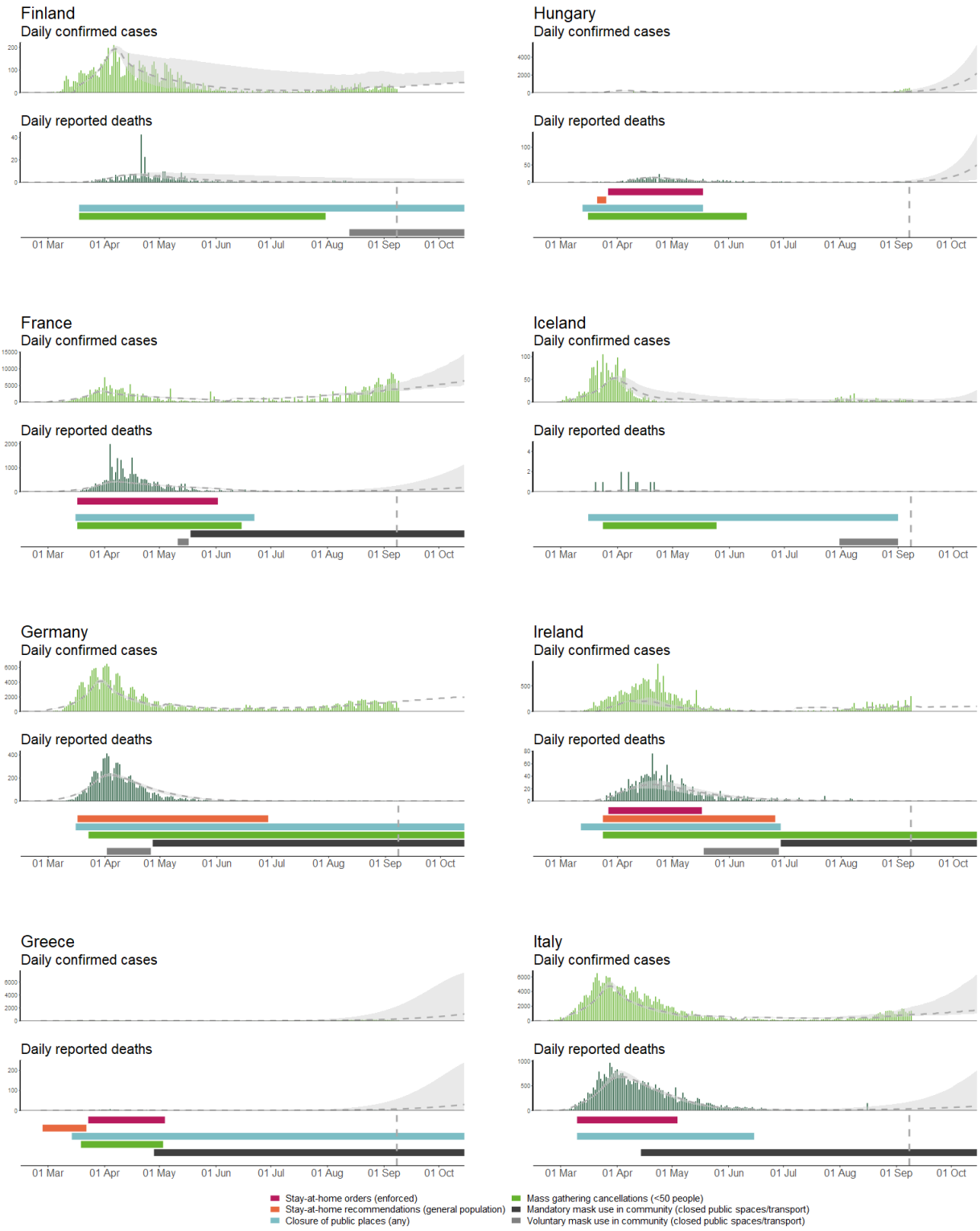
The data on response measures have several limitations. Firstly, there is substantial heterogeneity in physical distancing policies and their implementation between countries. For instance, the level of implementation of measures may vary between countries and there may be specific rules and exceptions to the measures, making interpretation of the data challenging. The measures displayed in these figures are reported at national level, and it should be noted that due to the evolution of the epidemic in certain regions, regional or local measures often preceded national ones. The exact dates of introduction were often available from official sources but delays in their implementation may have occurred. Additionally, the availability of public data from official government sources varies among countries. For some countries, data concerning discontinued measures are no longer available on official websites, which may result in the data for more recent measures being more accurate.

Figure 1a. Number of observed and projected newly reported COVID-19 cases and deaths, and non-pharmaceutical interventions in the EU/EEA and the UK between 1 March 2020 and 14 October 2020



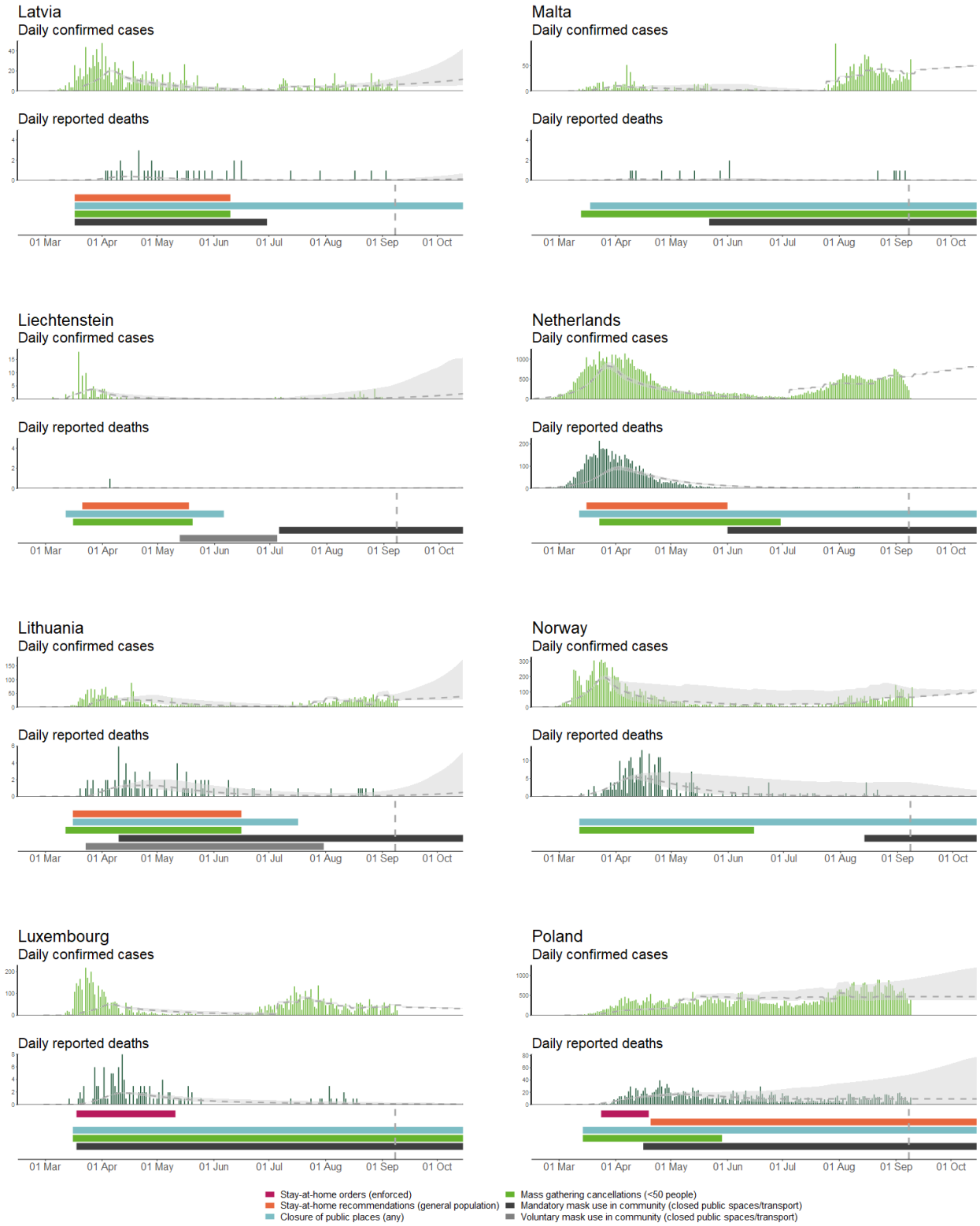
Note: The projections presented here are not suitable for direct country comparisons but may be used to inform an understanding of non-pharmaceutical interventions and potential future trends in COVID-19 transmission in EU/EEA countries and the UK. The vertical line on the non-pharmaceutical interventions represents the point in time after which interventions are assumed to continue unchanged. The grey ribbon surrounding the projections for cases and deaths represents a 95% uncertainty interval as obtained by Bayesian Markov Chain Monte Carlo (MCMC) calibration of the model.

Figure 1b. Number of observed and projected newly reported COVID-19 cases and deaths, and non-pharmaceutical interventions in the EU/EEA and the UK between 1 March and 14 October 2020



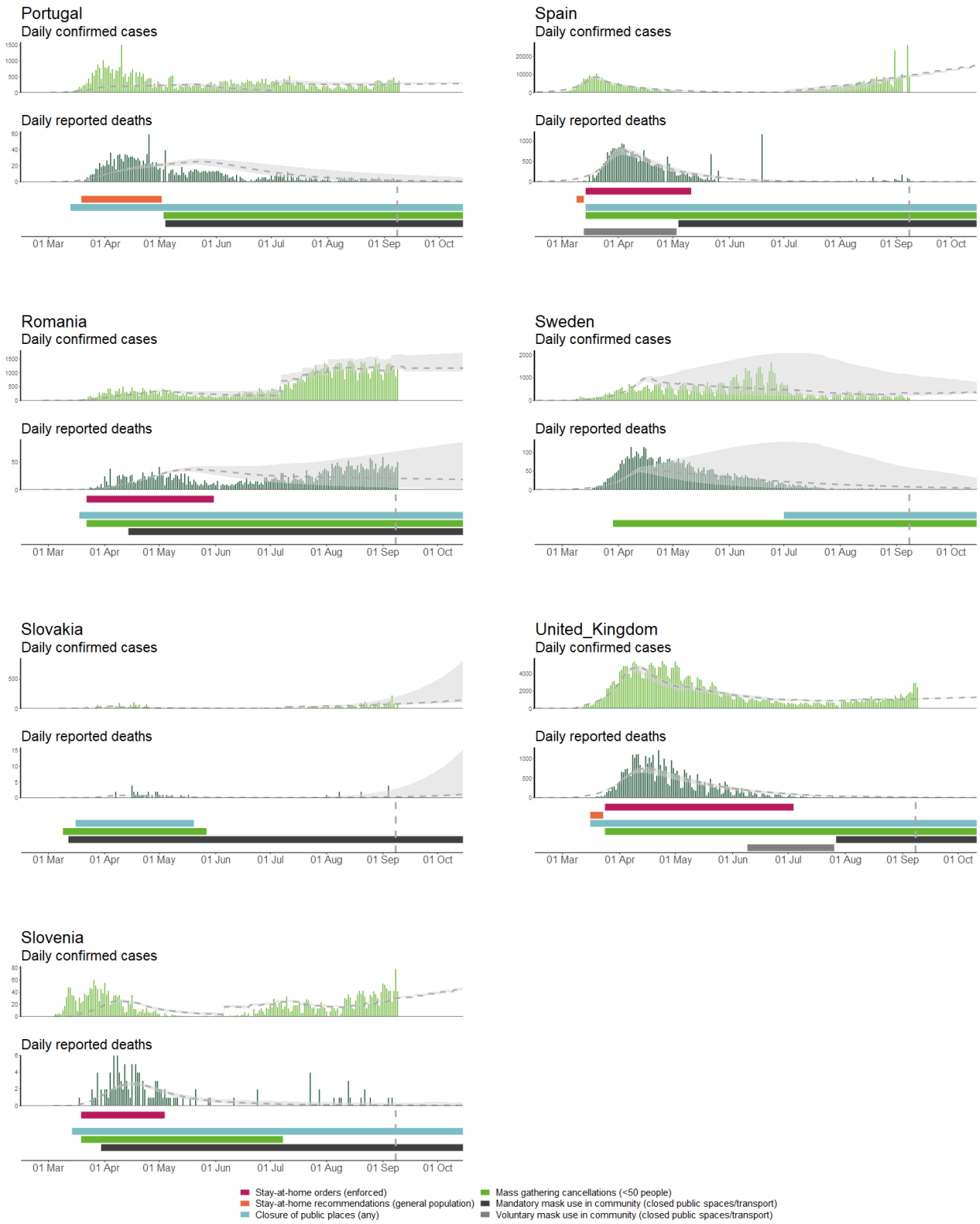
Note: The projections presented here are not suitable for direct country comparisons but may be used to inform an understanding of non-pharmaceutical interventions and potential future trends in COVID-19 transmission in EU/EEA countries and the UK. The vertical line on the non-pharmaceutical interventions represents the point in time after which interventions are assumed to continue unchanged. The grey ribbon surrounding the projections for cases and deaths represents a 95% uncertainty interval as obtained by MCMC calibration of the model. The grey ribbon surrounding the projections for cases and deaths represents a 95% uncertainty interval as obtained by MCMC calibration of the model.

Figure 1c. Number of observed and projected newly reported COVID-19 cases and deaths, and non-pharmaceutical interventions in the EU/EEA and the UK between 1 March and 14 October 2020



Note: The projections presented here are not suitable for direct country comparisons but may be used to inform an understanding of non-pharmaceutical interventions and potential future trends in COVID-19 transmission in EU/EEA countries and the UK. The vertical line on the non-pharmaceutical interventions represents the point in time after which interventions are assumed to continue unchanged. The grey ribbon surrounding the projections for cases and deaths represents a 95% uncertainty interval as obtained by MCMC calibration of the model.

Figure 1d. Number of observed and projected newly reported COVID-19 cases and deaths, and non-pharmaceutical interventions in the EU/EEA and the UK between 1 March and 14 October 2020

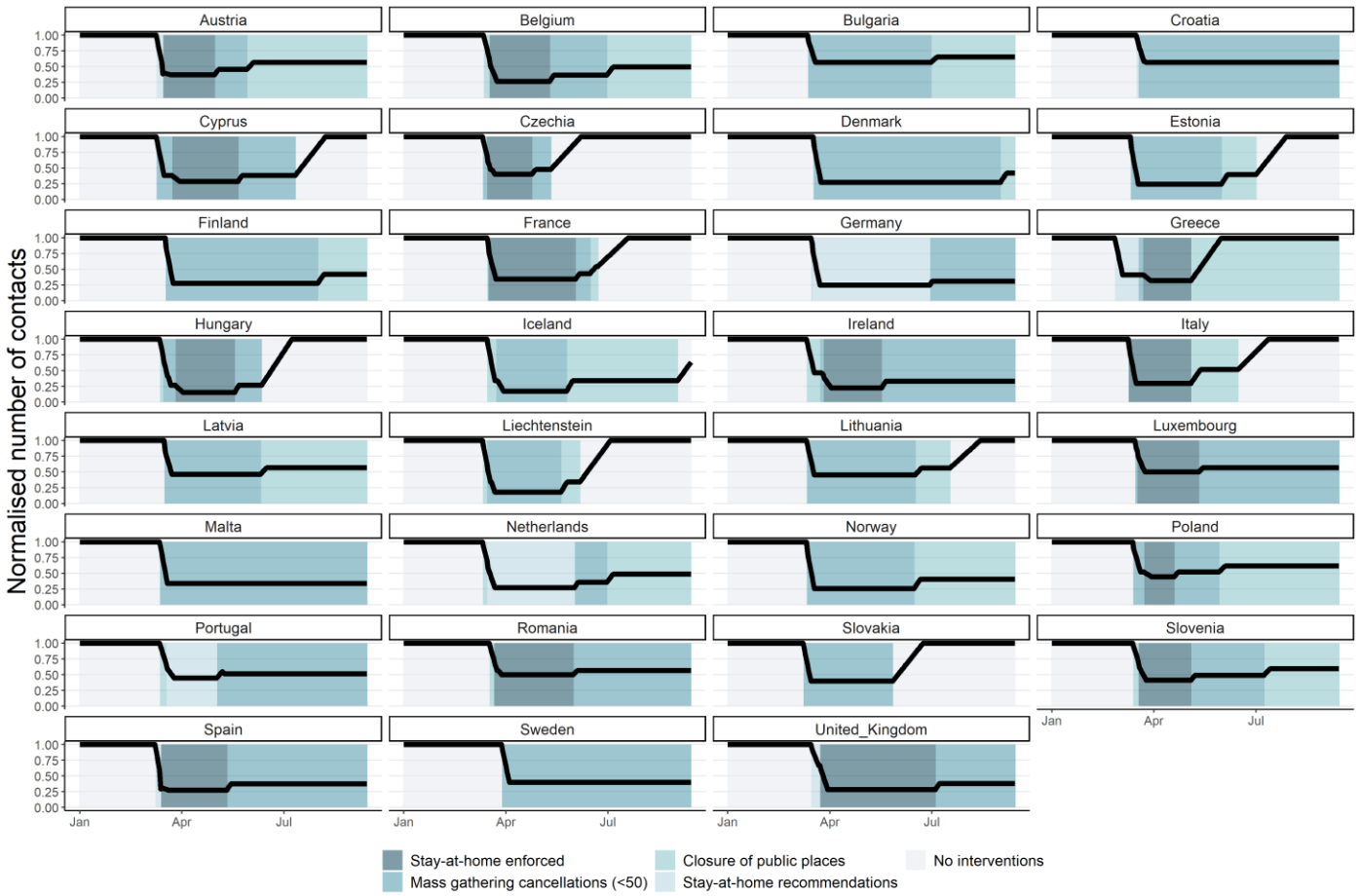


Note: The projections presented here are not suitable for direct country comparisons but may be used to inform an understanding of non-pharmaceutical interventions and potential future trends in COVID-19 transmission in EU/EEA countries and the UK. The vertical line on the non-pharmaceutical interventions represents the point in time after which interventions are assumed to continue unchanged. The grey ribbon surrounding the projections for cases and deaths represents a 95% uncertainty interval as obtained by MCMC calibration of the model.

Effect of non-pharmaceutical interventions

Calibrating the model to epidemiological data allows the inference of changes to behaviour over time. In Figure 2, we present the normalised number of contacts between individuals over time. In the period where the strictest non-pharmaceutical measures were applied, the number of contacts was reduced from baseline 1.00 to 0.28 (median), varying from 0.09 to 0.47 between the countries. Around a third of countries have now returned to the baseline level of contacts as a result of lifting measures. It is noteworthy that these tend to be the countries that implemented the strictest measures in March. This plot illustrates the change in the absolute number of interactions but not the risk of transmission in a given encounter, which may be mitigated by the wearing of a face mask.

Figure 2. Effect of non-pharmaceutical interventions on the number of contacts between individuals in the EU/EEA and the UK in the period between 1 March and 8 September 2020



Note: Only the strongest non-pharmaceutical intervention on a given day was taken into account; for a prior estimation of the effect of the interventions, see the original model description for further details: https://www.ecdc.europa.eu/en/publications-data/projected-baselines-covid-19-eueea-and-uk-assessing-impact-de-escalation-measures

Summary

We present a dynamic compartmental model of SARS-CoV-2 transmission and associated progression to COVID-19 of increasing severity, developed at ECDC. The model is calibrated to epidemiological data from all EU/EEA countries and the UK, including multiple community and hospital COVID-19 case time series. The model provides 30-day projections of the number of reported cases and deaths, together with the expected requirement for hospital and intensive care (ICU) beds for EU/EEA countries and the UK.

These projections illustrate the number of newly reported cases that could be anticipated in countries, under the baseline scenario that the response measures currently implemented are maintained for the coming 30-days. In this analysis, the baseline scenario corresponds to a 'status quo' in which all control measures in place on 8 September 2020 will be continued until the end of the projection period (14 October 2020). We assumed that for a test conducted in hospital or in the community, respectively, the probability of a positive result has not changed over the period since 1 June. It is possible that when tests first became widely available more healthy people would have chosen to be tested even in the absence of COVID19-like symptoms. If so, the positivity rate in population-based tests might have increased over time and we would underestimate the number of mild cases in recent days. The impact of this assumption is mitigated by fitting to data on both number of confirmed cases and hospitalisations. We have also assumed that testing rates will continue the trend of the preceding six weeks for the 30-day projection period. If testing rates were to plateau, there would be a flattening in the projected trend of the number of confirmed cases. However, the projected rates of hospitalisation, ICU admission and death would not be affected.

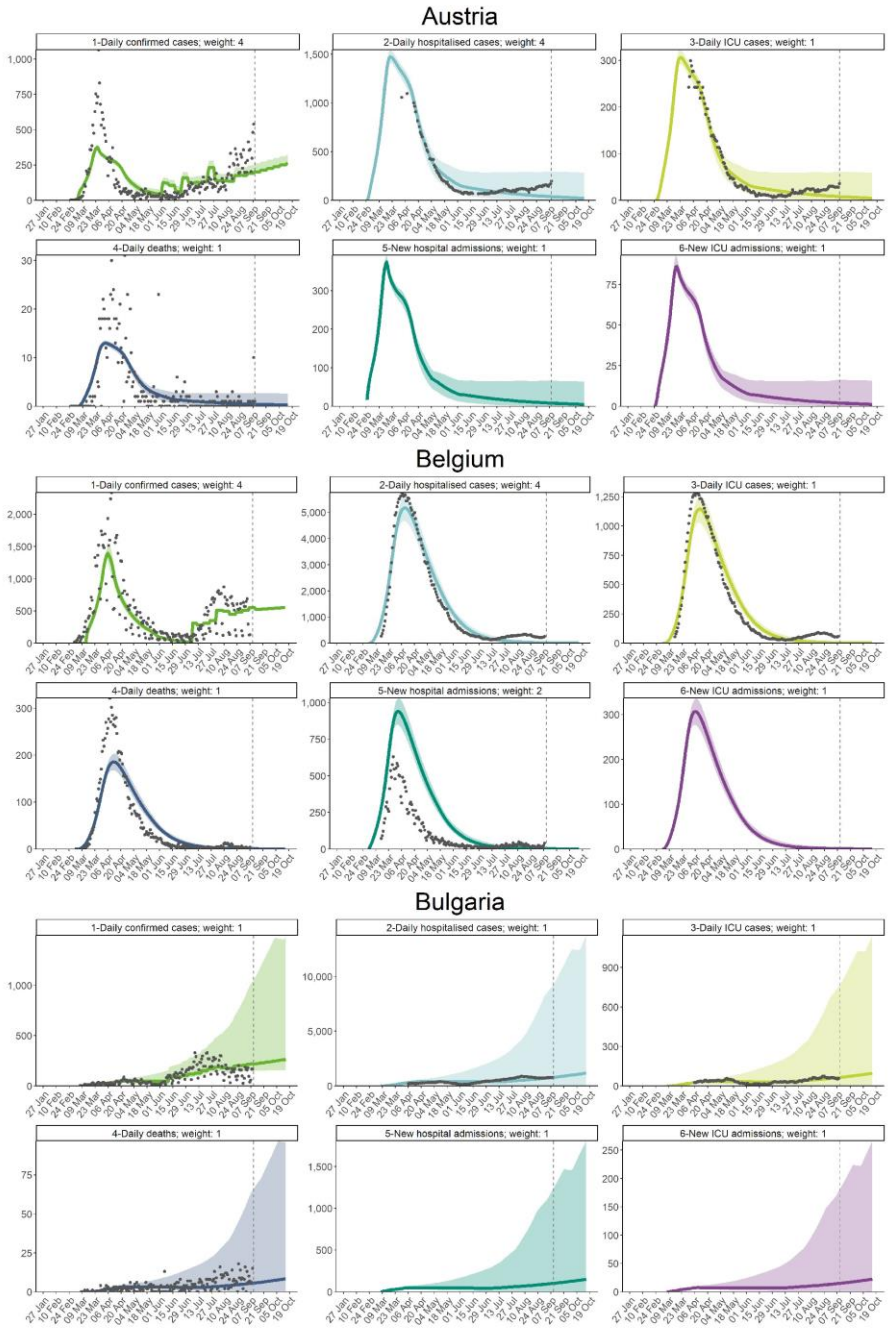
The current challenge for the public health community (including modellers and epidemiologists) and policy-makers is to disentangle how much of the increase in observed COVID-19 cases across the EU/EEA and UK is due to increased testing rates in mild cases and how much is due to increased transmission in communities as a result of the de-escalation of measures. We present forecasts that aim to clarify the dynamics at play and to illustrate how the pandemic may continue to unfold.

Further anticipated developments to the ECDC dynamic model are presented in the original 30-day projections report[3].

[3] This document is available from: https://www.ecdc.europa.eu/en/publications-data/projected-baselines-covid-19-eueea-and-uk-assessing-impact-de-escalation-measures

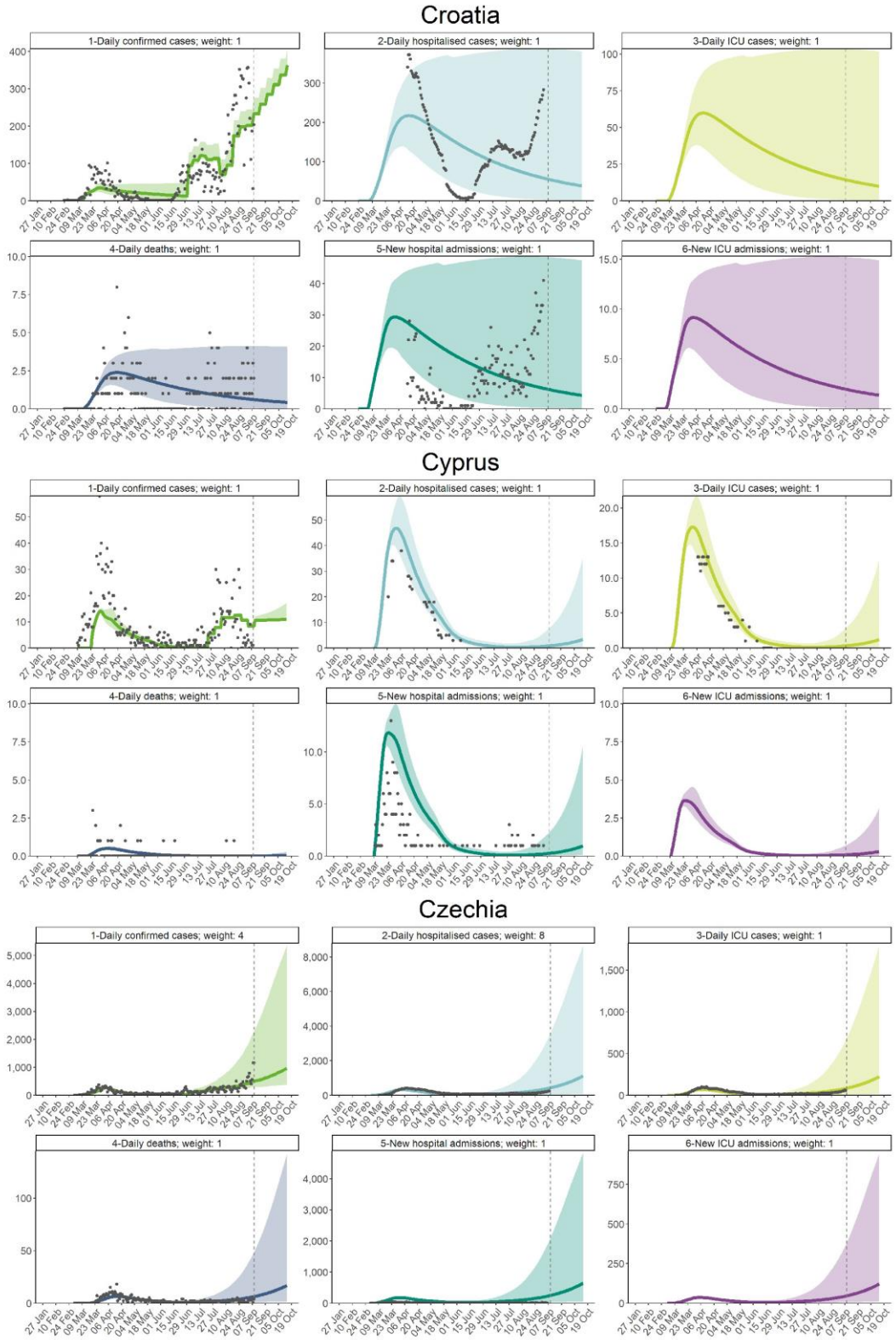
Annex 1. 30-day projections of confirmed COVID-19 cases, associated deaths and hospital (ICU) requirements in EU/EEA countries and the UK

Figure 3a. Number of observed and projected COVID-19 cases by time series type (new daily cases, new daily deaths, new daily admissions at hospital, daily number of hospitalised cases, daily new admission in intensive care units and daily number of cases hospitalised in intensive care units) in the EU/EEA and the UK between 27 January and 14 October 2020



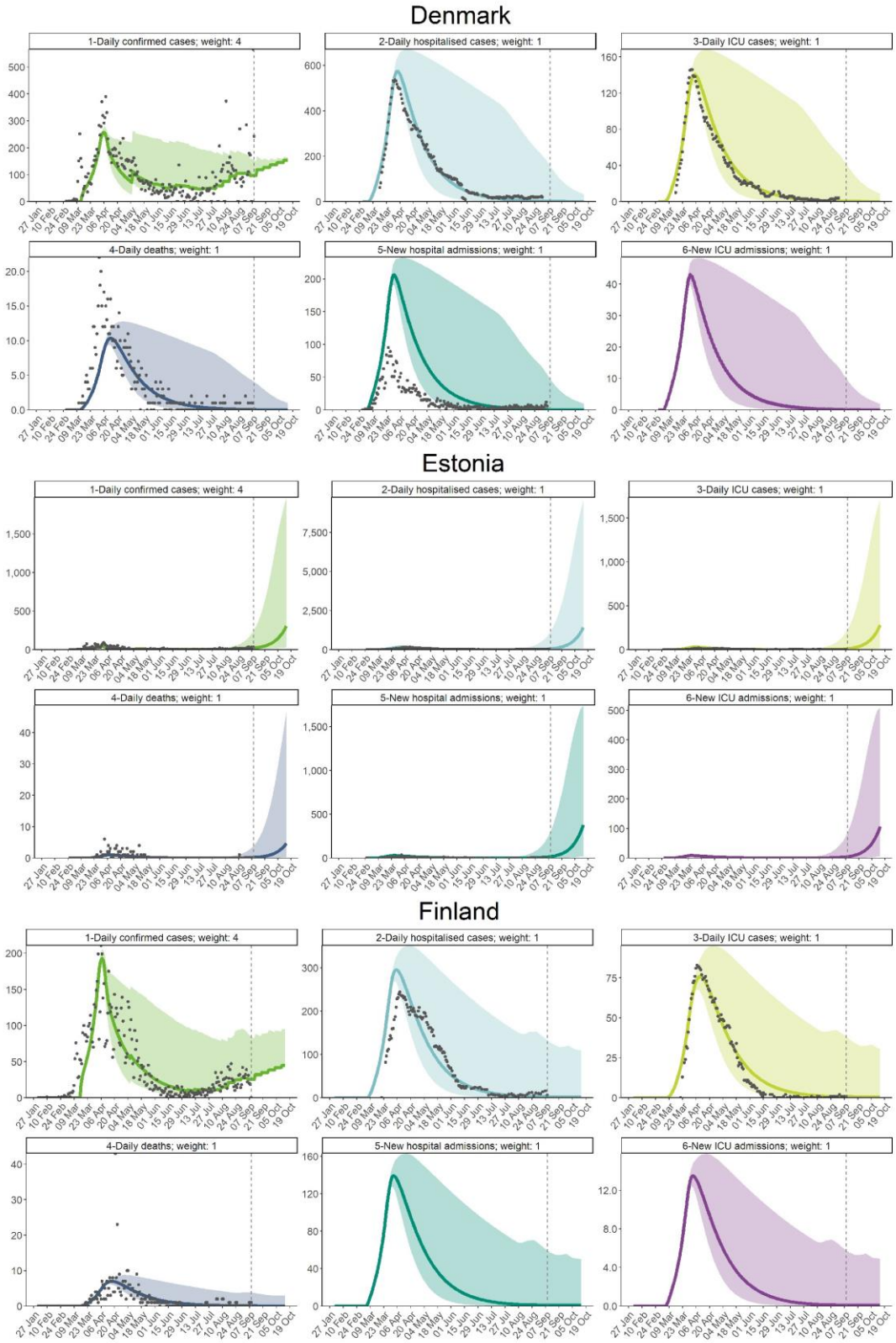
** No time series for hospitalised and ICU cases available. Due to missing country-specific values for indicators informing the graphs, projections are computed with model parameters based on EU/EEA and the UK averages as an approximation of the actual values. The ribbon surrounding the projections for cases and deaths represents a 95% uncertainty interval as obtained by MCMC calibration of the model.*

Figure 3b. Number of observed and projected COVID-19 cases by time-series type (new daily cases, new daily deaths, new daily admissions at hospital, daily number of hospitalised cases, daily new admission in intensive care units and daily number of cases hospitalised in intensive care units) in the EU/EEA and the UK between 27 January and 14 October 2020



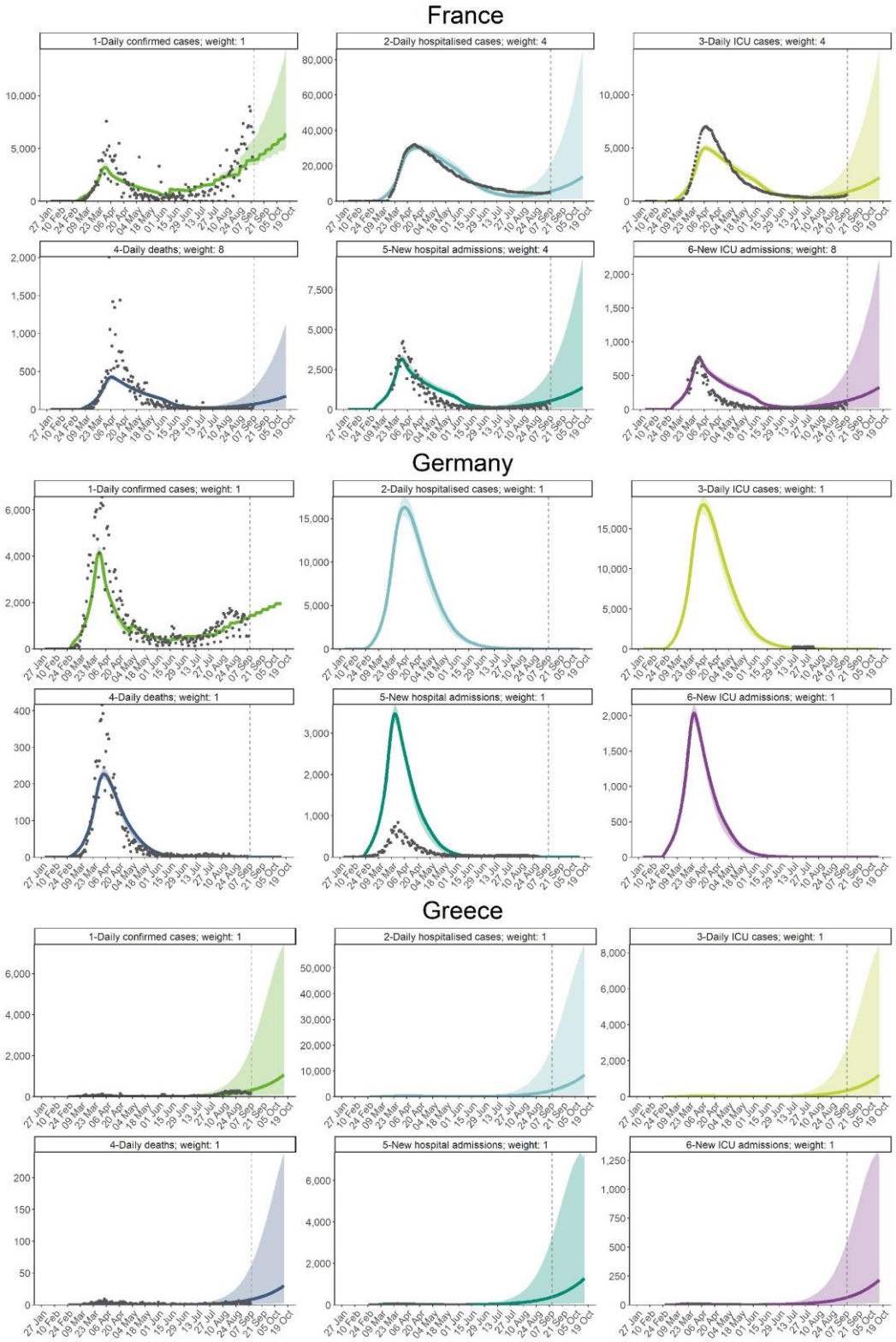
** No time series for hospitalised and ICU cases available. Due to missing country-specific values for indicators informing the graphs, projections are computed with model parameters based on European averages as an approximation of the actual values. The ribbon surrounding the projections for cases and deaths represents a 95% uncertainty interval as obtained by MCMC calibration of the model.*

Figure 3c. Number of observed and projected COVID-19 cases by time series type (new daily cases, new daily deaths, new daily admissions at hospital, daily number of hospitalised cases, daily new admission in intensive care units and daily number of cases hospitalised in intensive care units) in the EU/EEA and the UK between 27 January and 14 October 2020



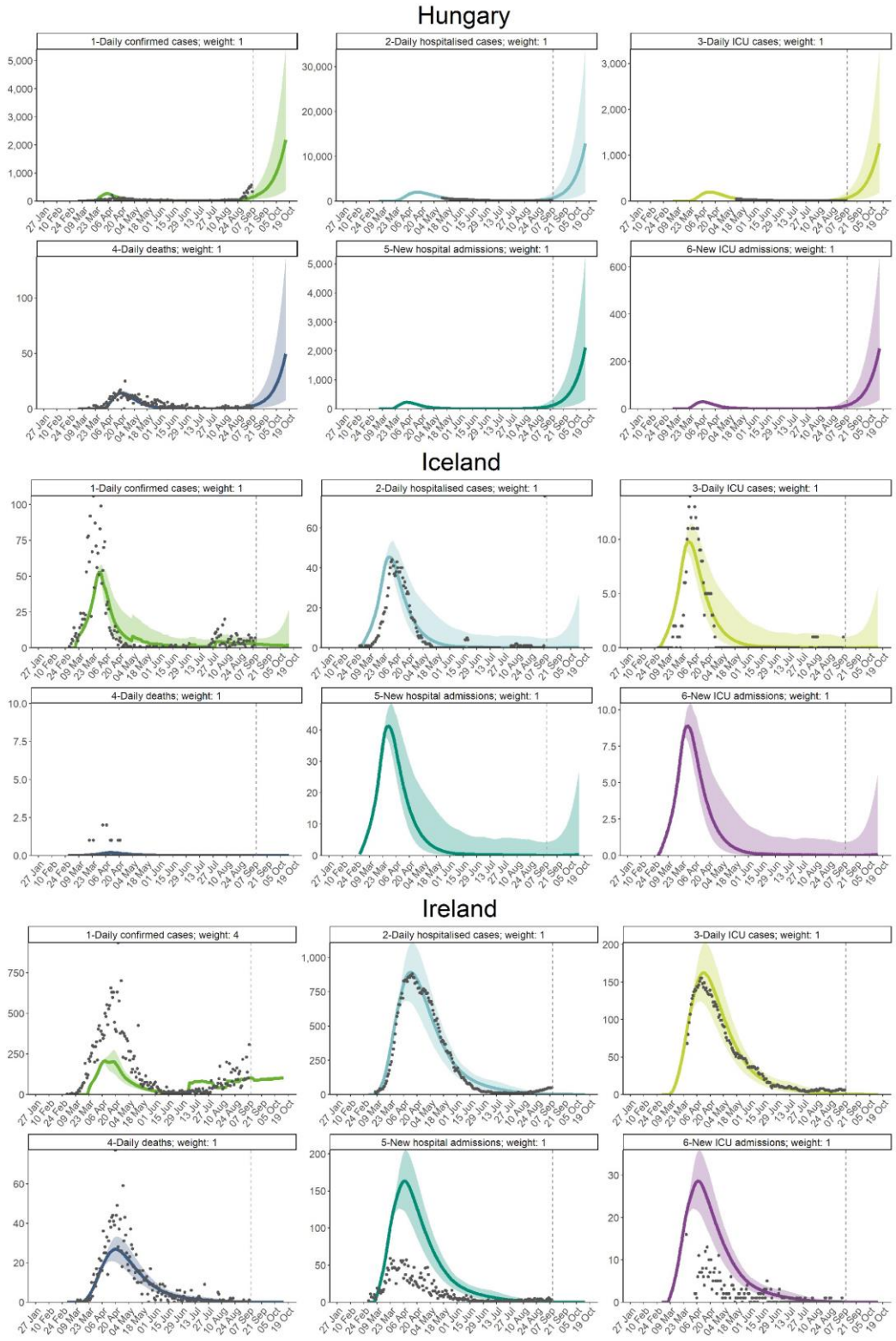
** No time series for hospitalised and ICU cases available. Due to missing country-specific values for indicators informing the graphs, projections are computed with model parameters based on European averages as an approximation of the actual values. The ribbon surrounding the projections for cases and deaths represents a 95% uncertainty interval as obtained by MCMC calibration of the model.*

Figure 3d. Number of observed and projected COVID-19 cases by time series type (new daily cases, new daily deaths, new daily admissions at hospital, daily number of hospitalised cases, daily new admission in intensive care units and daily number of cases hospitalised in intensive care units) in the EU/EEA and the UK between 27 January and 14 October 2020



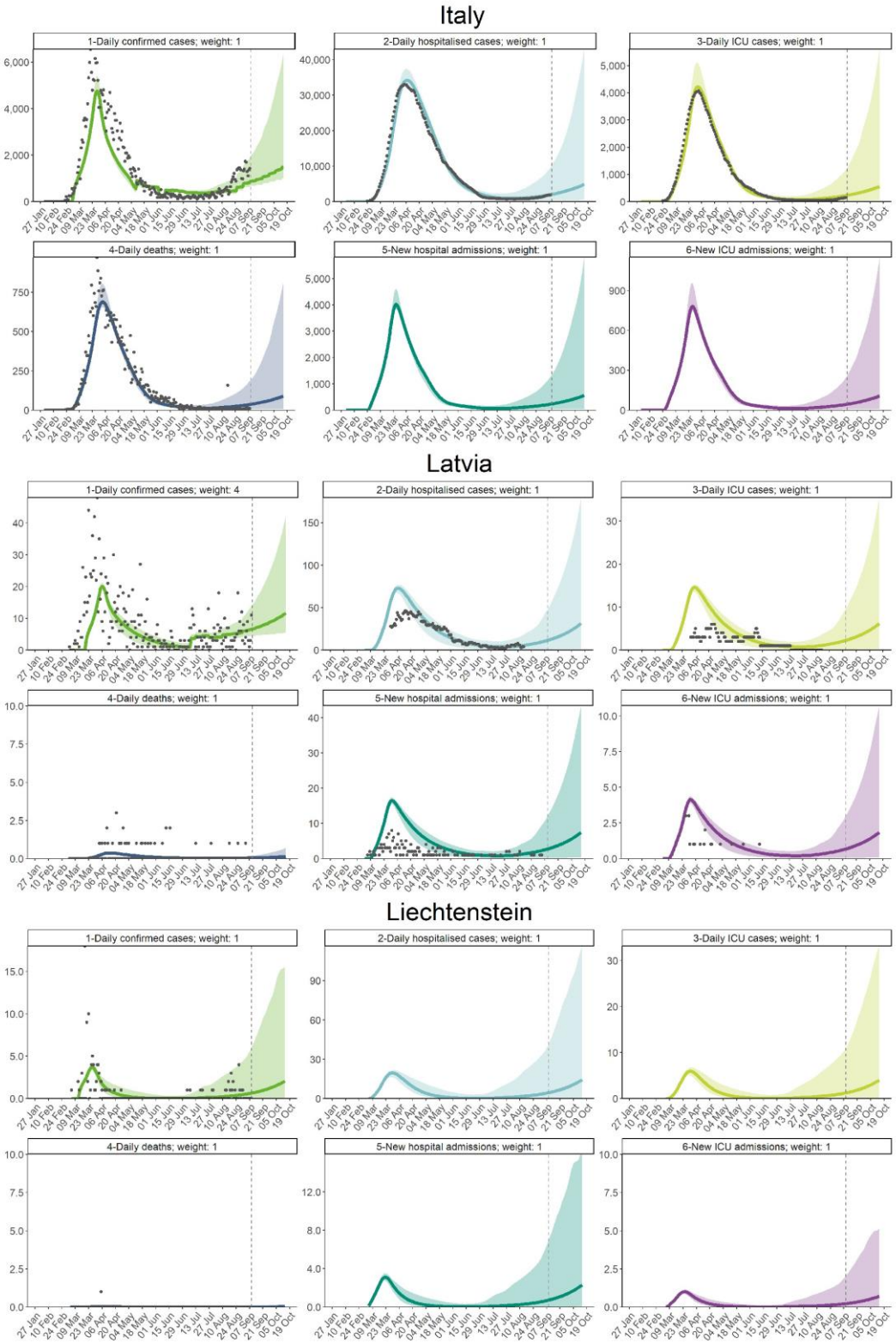
** No time series for hospitalised and ICU cases available. Due to missing country-specific values for indicators informing the graphs, projections are computed with model parameters based on European averages as an approximation of the actual values. The ribbon surrounding the projections for cases and deaths represents a 95% uncertainty interval as obtained by MCMC calibration of the model.*

Figure 3e. Number of observed and projected COVID-19 cases by time-series type (new daily cases, new daily deaths, new daily admissions at hospital, daily number of hospitalised cases, daily new admission in intensive care units and daily number of cases hospitalised in intensive care units) in the EU/EEA and the UK in the period up until 14 October 2020



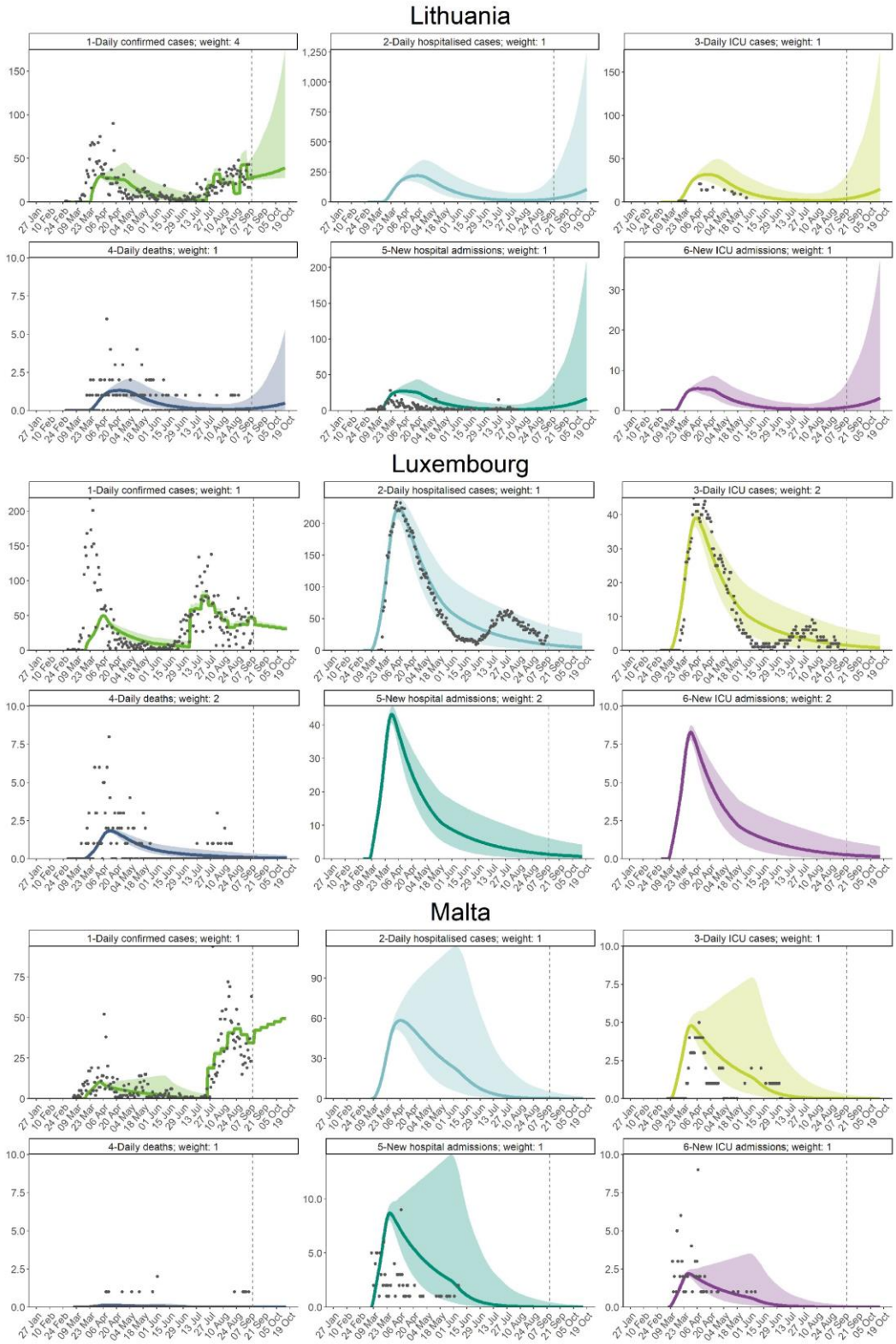
** No time series for hospitalised and ICU cases available. Due to missing country-specific values for indicators informing the graphs, projections are computed with model parameters based on European averages as an approximation of the actual values. The ribbon surrounding the projections for cases and deaths represents a 95% uncertainty interval as obtained by MCMC calibration of the model.*

Figure 3f. Number of observed and projected COVID-19 cases by time-series type (new daily cases, new daily deaths, new daily admissions at hospital, daily number of hospitalised cases, daily new admission in intensive care units and daily number of cases hospitalised in intensive care units) in the EU/EEA and the UK in the period up until 14 October 2020



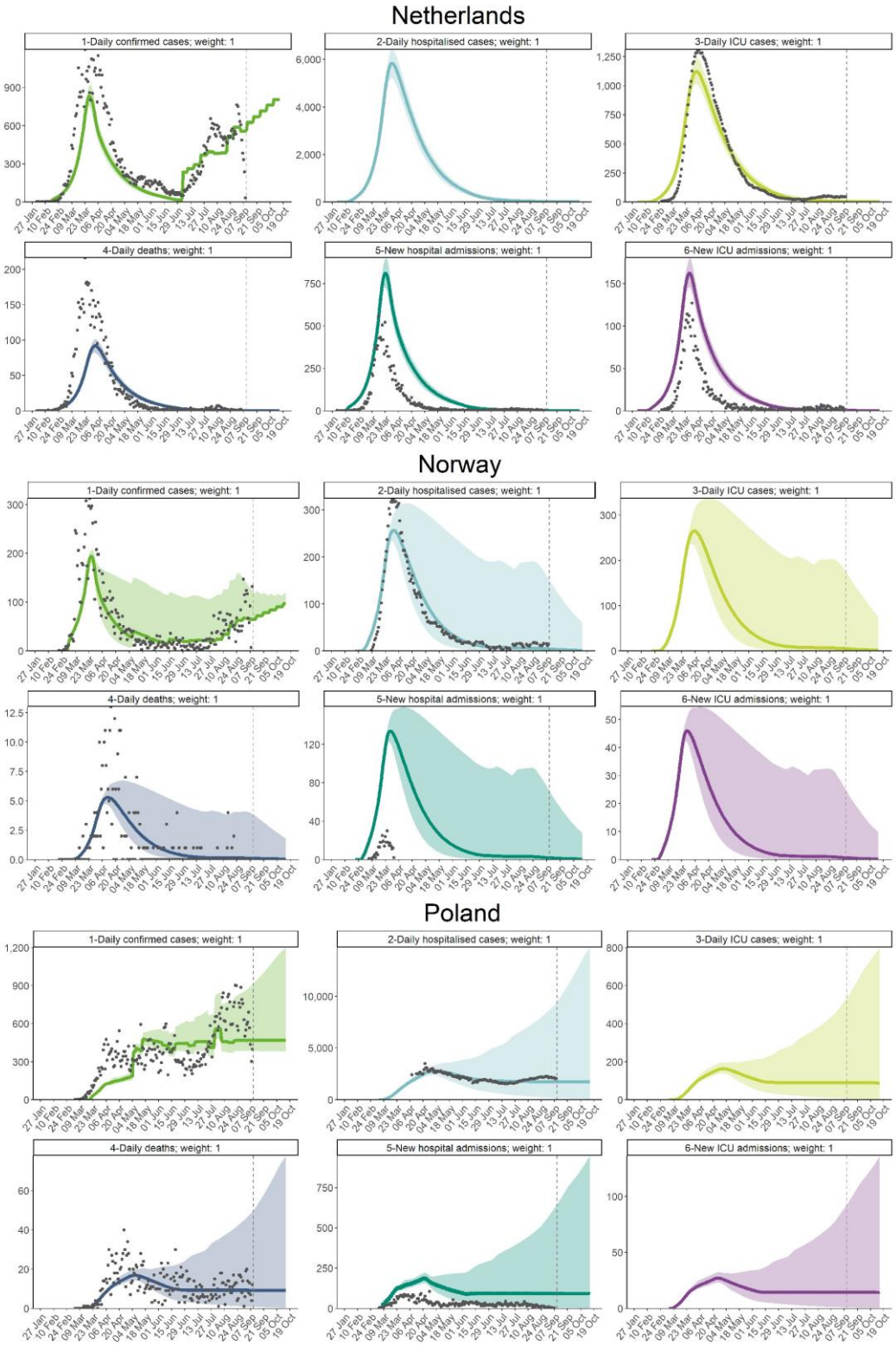
** No time series for hospitalised and ICU cases available. Due to missing country-specific values for indicators informing the graphs, projections are computed with model parameters based on European averages as an approximation of the actual values. The ribbon surrounding the projections for cases and deaths represents a 95% uncertainty interval as obtained by MCMC calibration of the model.*

Figure 3g. Number of observed and projected COVID-19 cases by time-series type (new daily cases, new daily deaths, new daily admissions at hospital, daily number of hospitalised cases, daily new admission in intensive care units and daily number of cases hospitalised in intensive care units) in the EU/EEA and the UK in the period up until 14 October 2020



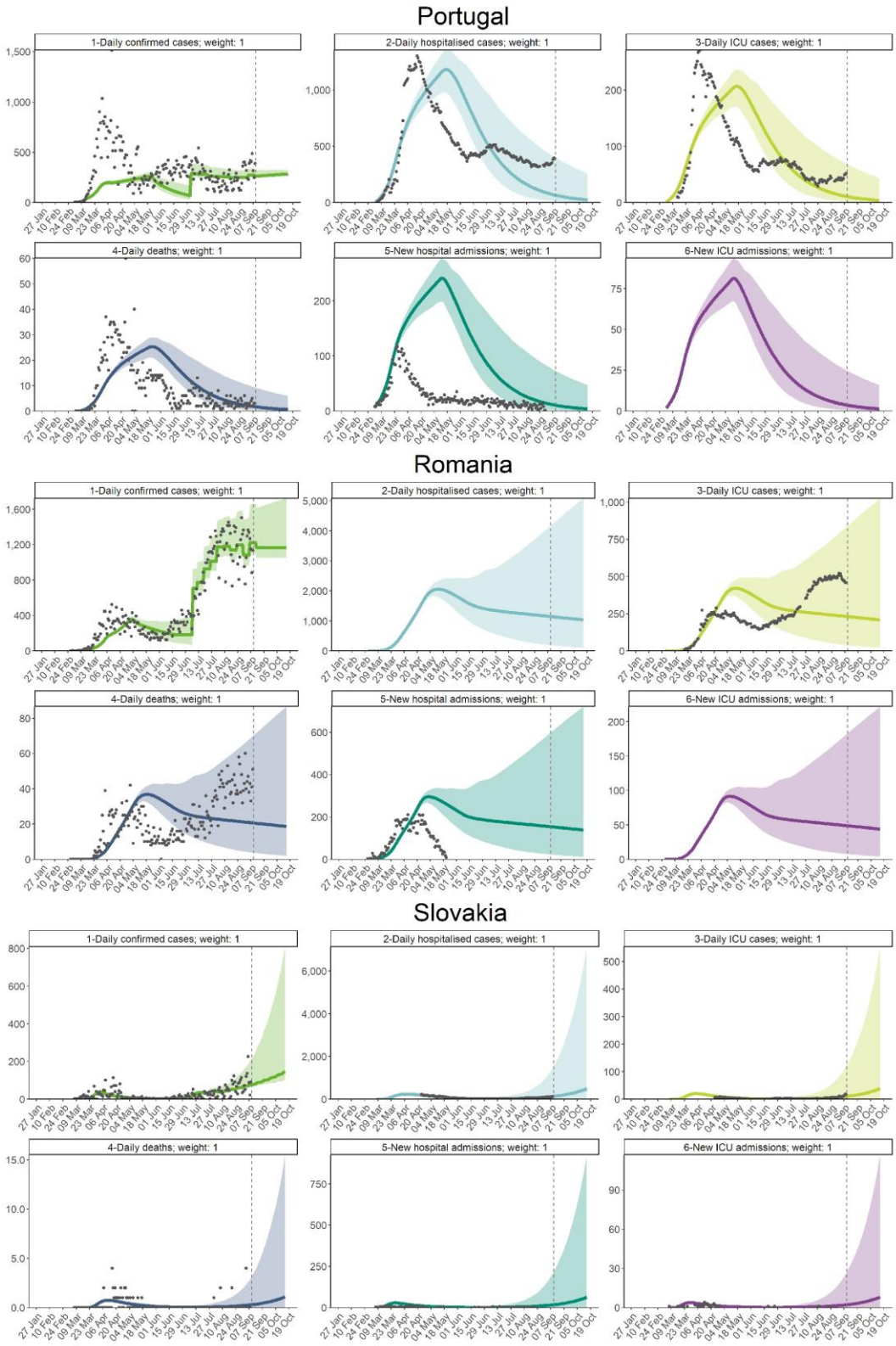
** No time series for hospitalised and ICU cases available. Due to missing country-specific values for indicators informing the graphs, projections are computed with model parameters based on European averages as an approximation of the actual values. The ribbon surrounding the projections for cases and deaths represents a 95% uncertainty interval as obtained by MCMC calibration of the model.*

Figure 3h. Number of observed and projected COVID-19 cases by time-series type (new daily cases, new daily deaths, new daily admissions at hospital, daily number of hospitalised cases, daily new admission in intensive care units and daily number of cases hospitalised in intensive care units) in the EU/EEA and the UK in the period up until 14 October 2020



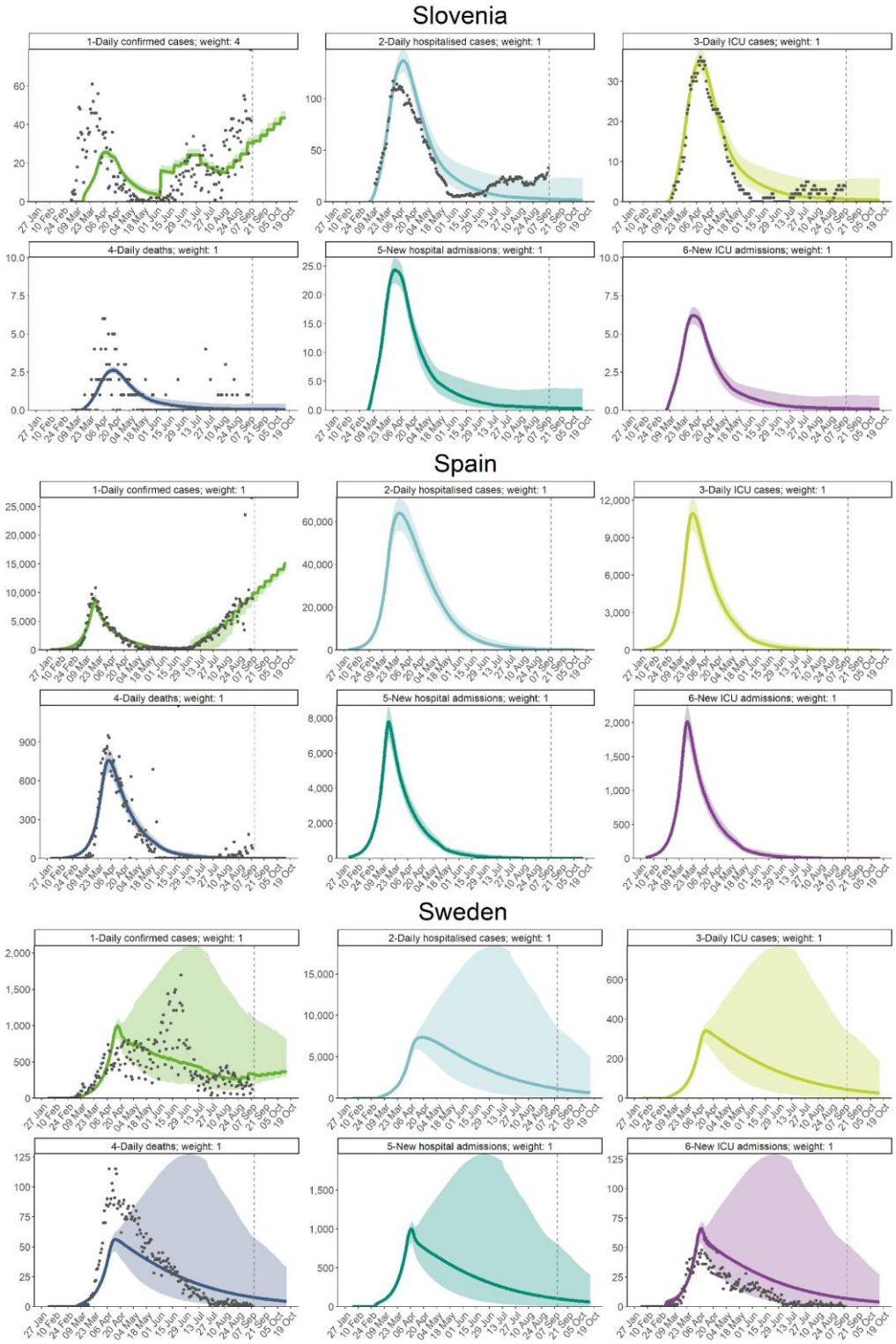
** No time series for hospitalised and ICU cases available. Due to missing country-specific values for indicators informing the graphs, projections are computed with model parameters based on European averages as an approximation of the actual values. The ribbon surrounding the projections for cases and deaths represents a 95% uncertainty interval as obtained by MCMC calibration of the model.*

Figure 3i. Number of observed and projected COVID-19 cases by time-series type (new daily cases, new daily deaths, new daily admissions at hospital, daily number of hospitalised cases, daily new admission in intensive care units and daily number of cases hospitalised in intensive care units) in the EU/EEA and the UK in the period up until 14 October 2020



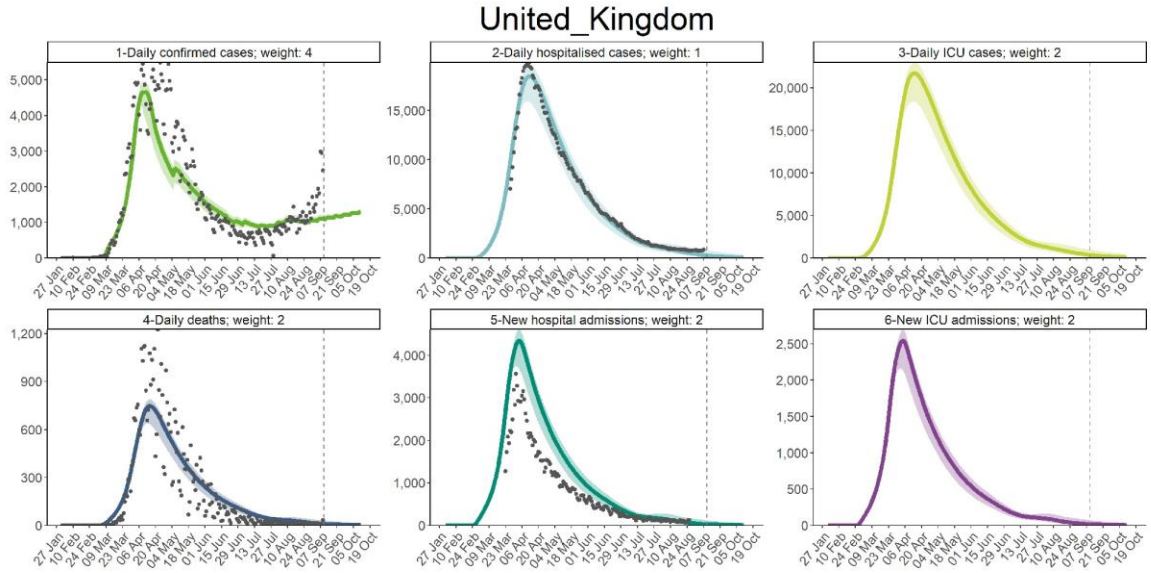
** No time series for hospitalised and ICU cases available. Due to missing country-specific values for indicators informing the graphs, projections are computed with model parameters based on European averages as an approximation of the actual values. The ribbon surrounding the projections for cases and deaths represents a 95% uncertainty interval as obtained by MCMC calibration of the model.*

Figure 3j. Number of observed and projected COVID-19 cases by time-series type (new daily cases, new daily deaths, new daily admissions at hospital, daily number of hospitalised cases, daily new admission in intensive care units and daily number of cases hospitalised in intensive care units) in the EU/EEA and the UK in the period up until 14 October 2020



** No time series for hospitalised and ICU cases available. Due to missing country-specific values for indicators informing the graphs, projections are computed with model parameters based on European averages as an approximation of the actual values. The ribbon surrounding the projections for cases and deaths represents a 95% uncertainty interval as obtained by MCMC calibration of the model.*

Figure 3k. Number of observed and projected COVID-19 cases by time-series type (new daily cases, new daily deaths, new daily admissions at hospital, daily number of hospitalised cases, daily new admission in intensive care units and daily number of cases hospitalised in intensive care units) in the EU/EEA and the UK in the period up until 14 October 2020



** No time series for hospitalised and ICU cases available. Due to missing country-specific values for indicators informing the graphs, projections are computed with model parameters based on European averages as an approximation of the actual values. The ribbon surrounding the projections for cases and deaths represents a 95% uncertainty interval as obtained by MCMC calibration of the model.*

Annex 2. Description of data sources

Table 4. Model parameters

Parameter	Description	Prior mean[1]	Lower bound	Upper bound	Global parameter[2]	Uses hyper parameter[3]	Selection of countries with specific calibration[4]	References
R0	Basic reproduction number defined as the average of the number of new cases from one infected case in a totally susceptible population	3	2	6	No	Yes	Calibrated: all countries. Fixed: none.	[3,21,22]
Beta	Probability of transmission in one contact between fully susceptible and fully infectious individual	0.05	0.01	0.1	Yes	NA	Calibrated: no. Fixed: yes.	
Beta reduction	Reduction in infectiousness of asymptomatic/mild cases relative to severe/critical cases	0	NA	NA	Yes	NA	Calibrated: no. Fixed: yes.	
Contacts reduction	Reduction in contacts of severe/critical cases relative to asymptomatic/mild cases due to assumed hospitalisation or isolation	0.9	0.5	0.99	Yes	NA	Calibrated: no. Fixed: yes.	
Susceptibility	Exponential decay in susceptibility for younger age groups relative to oldest age group	0	NA	NA	Yes	NA	Calibrated: no. Fixed: yes.	
Proportion asymptomatic	Proportion of all cases that are asymptomatic	0	NA	NA	Yes	NA	Calibrated: no. Fixed: yes.	
Latency days	Number of days in latency (infected but not infectious) state	4.6	3	7	Yes	NA	Calibrated: no. Fixed: yes.	[2,23,24]
Infectious days mild	Number of days for which mild and asymptomatic cases are infectious	6	3	7	Yes	NA	Calibrated: no. Fixed: yes.	[2]
Infectious days severe	Number of days for which severe and critical cases are infectious	22	14	30	Yes	NA	Calibrated: no. Fixed: yes.	
Isolation probability	Proportion of mild and asymptomatic cases that isolate after diagnosis	0	NA	NA	No	Yes	Calibrated: none. Fixed: all countries.	
Seek hospital	Proportion of severe cases that seek hospital care during course of severe disease	1	NA	NA	Yes	NA	Calibrated: no Fixed: all countries	
Onset to hospital days*	Number of days between severe onset of symptoms and hospitalisation	5.9	1	14	No	Yes	Calibrated: all Fixed: no	[25]
Confirmation delay hospital*	Number of days delay between onset of symptoms and diagnosis for those seeking hospital care	11.46	0.01	20	No	Yes	Calibrated: all countries Fixed: none	[25]
Confirmation delay home*	Number of days delay between onset of symptoms and diagnosis for those outside of the hospital setting	6.75	1	20	No	Yes	Calibrated: all countries Fixed: none	[25]
Home testing rate	Proportion of severe cases not seeking hospital care that get tested	0.05	NA	NA	Yes	No	Calibrated: none. Fixed: all countries.	
Hospital stay days	Number of days a severe non-critical case spends in hospital before discharge	10	1	30	No	Yes	Calibrated: all countries Fixed: none	
Hospital to ICU days	Number of days between hospital admission and ICU admission for cases that will become critical	2	1	10	No	Yes	Calibrated: all countries Fixed: none	

Parameter	Description	Prior mean[1]	Lower bound	Upper bound	Global parameter[2]	Uses hyper parameter[3]	Selection of countries with specific calibration[4]	References
ICU stay days	Number of days a critical case spends in ICU before discharge	7	1	14	No	Yes	Calibrated: all countries Fixed: none	
ICU death days	Number of days a critical case spends in ICU before death	6	1	14	Yes	NA	Calibrated: no. Fixed: yes.	[26]
Home death days	Number of days between symptom onset and death for those not seeking hospital care	10	7	14	Yes	NA	Calibrated: no. Fixed: yes.	
Death reporting delay*	Number of days delay between a COVID-19 death and that death being reported in the data	17	1	14	No	No	Calibrated: all countries Fixed: none	[25]
Severe factor	Calibration factor for proportion of symptomatic cases that are severe	1	0.2	2	No	No	Calibrated: none. Fixed: all countries.	
Critical factor	Calibration factor for proportion of severe cases requiring critical care in ICU	1	0.2	2	No	No	Calibrated: all countries. Fixed: none.	
Critical death ICU	Proportion of critical cases that die in ICU care (ventilators assumed to be available)	0.5	0.01	0.99	No	No	Calibrated: all countries Fixed: none	
Critical death non ICU	Proportion of critical cases that die when ICU not available or not sought	0.95	0.01	0.99	No	No	Calibrated: all countries Fixed: none	
First import	Number of days delay between first case importation and first confirmed case	7	NA	NA	Yes	No	Calibrated: no. Fixed: yes.	
Number import	Number of people initiated with infection at time first importation	100	0	100000	No	No	Calibrated: all countries Fixed: none	
Test per index case	Mean number of contacts to test cases per confirmed index case	0	NA	NA	No	No	Calibrated: none. Fixed: all countries.	
Efficacy contact all	Reduction in average number of contacts among all people when strongest non-targeted response is in place	0.95	0.5	2	No	No	Calibrated: all countries. Fixed: none.	
Relative efficacy mass gathering 50	Contact reduction efficacy of 'ban mass gatherings > 50 people' response relative to 'stay home enforced'	0.93	0.01	0.99	Yes	No	Calibrated: no. Fixed: yes.	
Relative efficacy closure public places any	Contact reduction efficacy of 'closing public spaces' response relative to 'stay home enforced'	0.83	0.01	0.99	No	No	Calibrated: Croatia, Greece, Luxembourg, Portugal, Romania Fixed: all other countries	
Relative efficacy stay home recommend	Contact reduction efficacy of 'stay home recommended' response relative to 'stay home enforced'	0.79	0.01	0.99	No	No	Calibrated: all countries Fixed: none	
Response delay	Time in days before full efficacy of response is realised following implementation – assumed to be consistent for all interventions	7	NA	NA	Yes	No	Calibrated: none. Fixed: all countries.	
Mask efficacy against infectiousness	The reduction in probability of an infected person infecting a susceptible during a close contact, given that they are wearing a face mask	0.4	NA	NA	Yes	No	Calibrated: none. Fixed: all countries	

Parameter	Description	Prior mean[1]	Lower bound	Upper bound	Global parameter[2]	Uses hyper parameter[3]	Selection of countries with specific calibration[4]	References
Mask efficacy against susceptibility	The reduction in probability of a susceptible person being infected by an infectious person during a close contact, given that they are wearing a face mask	0.1	NA	NA	Yes	No	Calibrated: none. Fixed: all countries	
Background mask use	The proportion of people who use face masks in the absence of government recommendation or mandate	0.01	NA	NA	Yes	No	Calibrated: none. Fixed: all countries	
Coverage of face masks	Proportion of close contacts where face masks are worn, given enforced government policy for use in some settings	0.8	NA	NA	Yes	No	Calibrated: none. Fixed: all countries	
Relative coverage of face masks, given voluntary government policy	The relative effectiveness of a government-led recommendation to wear face masks, compared with an enforced policy in the same setting	0.5	NA	NA	Yes	No	Calibrated: none. Fixed: all countries	
Ascertainment of mild cases	The proportion of tests conducted in people with mild symptoms that give a positive result for COVID-19	0.1	0	1	No	No	Calibrated: all countries Fixed: none	
Ascertainment of severe cases	The proportion of tests conducted in people with severe symptoms that give a positive result for COVID-19	0.5	0	1	No	No	Calibrated: all countries Fixed: none	

(*) The European Surveillance System (TESSy) [25]
NA: not applicable
(1) Prior mean of the parameter is used for all countries. For countries for which the parameter is not calibrated (i.e. fixed), the prior is used in the simulation (that is, the parameter is fixed for those countries). For countries for which the parameter is calibrated, the prior is used in the calibration process, but it is the parameter posterior that is used in analyses or simulations.
(2) If 'yes', the parameter is not a country-specific parameter. Global parameters may or may not be calibrated.
(3) If "yes', the parameter uses an informative hyper-prior mean and standard deviation to enable learning across countries during the calibration process. Only applicable for non-global parameters.
(4) Selection of countries for which the associated parameter is calibrated.

All data on the daily number of new cases and deaths in EU/EEA countries and the UK were obtained from ECDC's Epidemic Intelligence (EI) database, which is publicly available and can be accessed at: https://www.ecdc.europa.eu/en/publications-data/download-todays-data-geographic-distribution-covid-19-cases-worldwide

Table 5. Summary of the sources of epidemiological data by country

Country	Source number of cases	Source number of deaths	Source for current hospitalised	Source for new hospitalised	Source for current ICU cases	Source for new ICU cases	Source for testing data
Austria	https://info.gesundheitsministerium.at	Epidemic_Intelligence	https://info.gesundheitsministerium.at; https://www.sozialministerium.at/Informationen-zum-Coronavirus/Neuartiges-Coronavirus-(2019-nCov).html; https://info.gesundheitsministerium.at/dashboard_Epidem.html?l=de	NA	https://info.gesundheitsministerium.at; https://github.com/ec-jrc/COVID-19; https://www.sozialministerium.at/Informationen-zum-Coronavirus/Neuartiges-Coronavirus-(2019-nCov).html	NA	https://www.sozialministerium.at/Informationen-zum-Coronavirus/Neuartiges-Coronavirus-(2019-nCov).html; https://info.gesundheitsministerium.at
Belgium	https://epistat.wiv-isp.be/covid/	https://epistat.wiv-isp.be/covid/	https://epistat.wiv-isp.be/covid/	https://epistat.wiv-isp.be/covid/	https://epistat.wiv-isp.be/covid/	NA	https://epistat.wiv-isp.be/covid/
Bulgaria	https://coronavirus.bg/arcgis/apps/opsdashboard/index.html#/ecacd239ee7e4fba956f7948f586af93; Epidemic_Intelligence	Epidemic_Intelligence	https://github.com/COVID-19-Bulgaria/covid-database	NA	https://github.com/COVID-19-Bulgaria/covid-database	NA	TESSy
Croatia	https://www.koronavirus.hr/podaci/otvoreni-strojno-citljivi-podaci/526; Epidemic_Intelligence	https://www.hzjz.hr/aktualnosti/covid-19-izvjesce-hzjz-a/; Epidemic_Intelligence	https://www.hzjz.hr/aktualnosti/covid-19-izvjesce-hzjz-a/	https://www.hzjz.hr/aktualnosti/covid-19-izvjesce-hzjz-a/	NA	NA	TESSy
Cyprus	Epidemic_Intelligence	Epidemic_Intelligence	EWRS; https://covid19.ucy.ac.cy/; https://www.pio.gov.cy/coronavirus/press/4052020_10.pdf	NA	EWRS; https://covid19.ucy.ac.cy/; https://www.pio.gov.cy/coronavirus/press/4052020_10.pdf	NA	https://app.powerbi.com/view?r=eyJrIjoiM2MxY2RkMTQtOTA3Mi00MDIxLWE1NDktZjlmYTdlNDg0MTdkIiwidCI6IjhkZDFlNmI0LThkYWMtNDA4ZS04ZDhkLTY3NTNlOTgwMDUzMCIsImMiOjl9;
Czechia	https://onemocneni-aktualne.mzcr.cz/api/v2/covid-19; Epidemic_Intelligence	https://onemocneni-aktualne.mzcr.cz/api/v2/covid-19; Epidemic_Intelligence	https://onemocneni-aktualne.mzcr.cz/covid-19	TESSy	https://onemocneni-aktualne.mzcr.cz/covid-19	NA	TESSy
Denmark	Epidemic_Intelligence	https://www.ssi.dk/sygdomme-beredskab-og-forskning/sygdomsovervaagning/c/covid19-overvaagning; Epidemic_Intelligence	https://www.sst.dk/da/corona/tal-og-overvaagning; https://www.ssi.dk/aktuelt/sygdomsudbrud/coronavirus/covid-19-i-danmark-epidemiologisk-	https://www.ssi.dk/sygdomme-beredskab-og-forskning/sygdomsovervaagning/c/covid19-overvaagning	https://www.sst.dk/da/corona/tal-og-overvaagning; https://www.ssi.dk/aktuelt/sygdomsudbrud/coronavirus/covid-19-i-danmark-epidemiologisk-	NA	https://www.ssi.dk/sygdomme-beredskab-og-forskning/sygdomsovervaagning/c/covid19-overvaagning;

Country	Source number of cases	Source number of deaths	Source for current hospitalised	Source for new hospitalised	Source for current ICU cases	Source for new ICU cases	Source for testing data
			overvaagningsrapport; https://www.sst.dk/da/corona/tal-og-overvaagning		overvaagningsrapport; https://www.sst.dk/da/corona/tal-og-overvaagning		https://www.ssi.dk/aktuelt/sygdomsudbrud/coronavirus
Estonia	https://www.terviseamet.ee/et/koroonaviirus/avaandmed; Epidemic_Intelligence	Epidemic_Intelligence	https://www.terviseamet.ee/et/koroonaviirus/avaandmed	TESSy	https://www.terviseamet.ee/et/koroonaviirus/avaandmed; https://koroonakaart.ee/en	NA	https://www.terviseamet.ee/et/koroonaviirus/avaandmed https://koroonakaart.ee/en https://www.terviseamet.ee/et/koroonaviirus/koroonakaart; TESSy
Finland	Epidemic_Intelligence; https://github.com/HS-Datadesk/koronavirus-avoindata#direct-interface-to-hs-data	Epidemic_Intelligence; https://github.com/HS-Datadesk/koronavirus-avoindata#direct-interface-to-hs-data	https://github.com/HS-Datadesk/koronavirus-avoindata#direct-interface-to-hs-data; https://thl.fi/fi/web/infektiotaudit-ja-rokotukset/ajankohtaista/ajankohtaista-koronaviruksesta-covid-19/tilannekatsaus-koronaviruksesta	NA	https://github.com/HS-Datadesk/koronavirus-avoindata#direct-interface-to-hs-data; EWRS; https://thl.fi/fi/web/infektiotaudit-ja-rokotukset/ajankohtaista/ajankohtaista-koronaviruksesta-covid-19/tilannekatsaus-koronaviruksesta	NA	https://thl.fi/fi/tilastot-ja-data/aineistot-ja-palvelut/avoin-data/varmistetut-koronatapaukset-suomessa-covid-19-; https://thl.fi/fi/web/infektiotaudit-ja-rokotukset/ajankohtaista/ajankohtaista-koronaviruksesta-covid-19/tilannekatsaus-koronaviruksesta https://experience.arcgis.com/experience/d40b2aaf08be4b9c8ec38de30b714f26; TESSy
France	Epidemic_Intelligence	Epidemic_Intelligence	https://www.data.gouv.fr/fr/datasets/donnees-hospitalieres-relatives-a-lepidemie-de-covid-19/; https://github.com/opencovid19-fr/data; https://github.com/ec-jrc/COVID-19	https://www.data.gouv.fr/fr/datasets/donnees-hospitalieres-relatives-a-lepidemie-de-covid-19/	https://www.data.gouv.fr/fr/datasets/donnees-hospitalieres-relatives-a-lepidemie-de-covid-19/; https://github.com/opencovid19-fr/data	https://www.data.gouv.fr/fr/datasets/donnees-hospitalieres-relatives-a-lepidemie-de-covid-19/	TESSy
Germany	https://www.esri.de/de-de/landingpages/corona-impact-2020/uebersicht	https://www.esri.de/de-de/landingpages/corona-impact-2020/uebersicht	NA	TESSy	https://www.esri.de/de-de/landingpages/corona-impact-2020/uebersicht; https://www.intensivregister.de/#/intensivregister	NA	TESSy

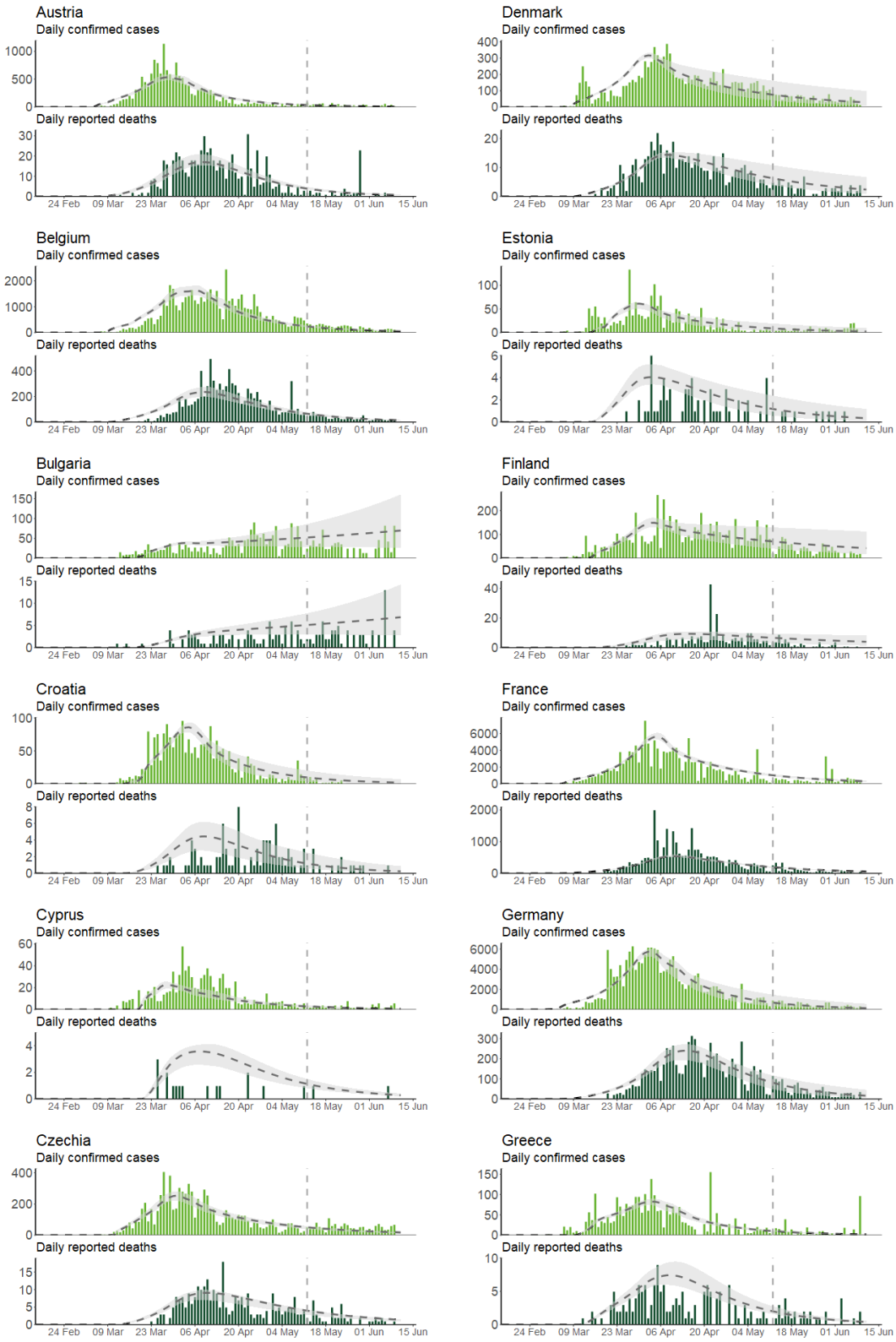
Country	Source number of cases	Source number of deaths	Source for current hospitalised	Source for new hospitalised	Source for current ICU cases	Source for new ICU cases	Source for testing data
Greece	Epidemic_Intelligence; https://github.com/Covid-19-Response-Greece/covid19-data-greece	Epidemic_Intelligence; https://github.com/Covid-19-Response-Greece/covid19-data-greece	NA	Data from Ministry of Health Greece	NA	Data from Ministry of Health Greece	TESSy
Hungary	Epidemic_Intelligence	Epidemic_Intelligence	https://github.com/ec-jrc/COVID-19	NA	https://github.com/ec-jrc/COVID-19	NA	TESSy
Iceland	https://www.covid.is/data; Epidemic_Intelligence	Epidemic_Intelligence	https://www.covid.is/data	NA	https://www.covid.is/data	NA	https://www.covid.is/data; https://www.landlaeknir.is/um-embaettid/greinar/grein/item38863/Stoduskyrslur---Status-reports-(2019-nCoV)
Ireland	https://data.gov.ie/dataset/covidstatisticsprofilehpscirelandopendata	https://data.gov.ie/dataset/covidstatisticsprofilehpscirelandopendata	https://data.gov.ie/dataset/covid19acutehospitalhistoricsummaryopendata	https://data.gov.ie/dataset/covid19acutehospitalhistoricsummaryopendata; TESSy	https://data.gov.ie/dataset/icubishistorictimelinepublicview	https://data.gov.ie/dataset/icubishistorictimelinepublicview ; TESSy	TESSy
Italy	https://github.com/pcm-dpc/COVID-19; Epidemic_Intelligence	Epidemic_Intelligence	https://github.com/pcm-dpc/COVID-19	NA	https://github.com/pcm-dpc/COVID-19	NA	https://github.com/pcm-dpc/COVID-19 http://www.salute.gov.it/portale/nuovocoronavirus/dettaglioContenutiNuovoCoronavirus.jsp?area=nuovoCoronavirus&id=5351&lingua=italiano&menu=vuoto; TESSy
Latvia	https://data.gov.lv/dati/lv/dataset/covid-19	https://data.gov.lv/dati/lv/dataset/covid-19	https://covid19.gov.lv/; https://spkc.gov.lv/lv/tavai-veselibai/aktualitate-par-jauno-koronavi/; https://infogram.com/covid-19-izplatiba-latvija-1hzj4ozwvnzo2pw;https://twitter.com/SPKCentrs	TESSy	https://twitter.com/SPKCentrs; https://spkc.gov.lv/lv/tavai-veselibai/aktualitate-par-jauno-koronavi/	TESSy	TESSy
Liechtenstein	Epidemic_Intelligence	Epidemic_Intelligence	NA	NA	NA	NA	NA
Lithuania	https://registrucentras.maps.arcgis.com/apps/opsdashboard/index.html#/becd01f2fade4149ba7a9e5baaddcd8d; Epidemic_Intelligence	https://registrucentras.maps.arcgis.com/apps/opsdashboard/index.html#/becd01f2fade4149ba7a9e5baaddcd8d; Epidemic_Intelligence	NA	TESSy	https://en.wikipedia.org/wiki/COVID-19_pandemic_in_Lithuania	NA	http://sam.lrv.lt/lt/naujienos/koronavirusas; TESSy

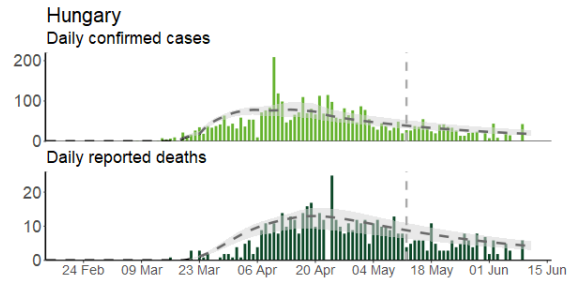
Country	Source number of cases	Source number of deaths	Source for current hospitalised	Source for new hospitalised	Source for current ICU cases	Source for new ICU cases	Source for testing data
Luxembourg	https://msan.gouvernement.lu/en/graphiques-evolution.html; Epidemic_Intelligence	Epidemic_Intelligence	https://msan.gouvernement.lu/en/graphiques-evolution.html	NA	https://msan.gouvernement.lu/en/graphiques-evolution.html	NA	TESSy
Malta	https://github.com/COVID19-Malta/COVID19-Cases	Epidemic_Intelligence	NA	TESSy	Data from Ministry of Health Malta; https://infogram.com/1p1xpwwgj1w3v2imxjzwjvv152b63z02dvv?live; https://covid19dashboard.gov.mt/	TESSy	https://github.com/COVID19-Malta/COVID19-Cases https://infogram.com/1p1xpwwgj1w3v2imxjzwjvv152b63z02dvv?live; https://covid19dashboard.gov.mt/; TESSy; Data from Ministry of Health Malta
Netherlands	https://data.rivm.nl/covid-19/	https://data.rivm.nl/covid-19/	NA	https://data.rivm.nl/covid-19/	https://nlcovid-19-esrinl-content.hub.arcgis.com/pages/kaarten	https://nlcovid-19-esrinl-content.hub.arcgis.com/pages/kaarten	TESSy
Norway	https://www.fhi.no/sv/smittsomme-sykdommer/corona/dags--og-ukerapporter/dags--og-ukerapporter-om-koronavirus/; Epidemic_Intelligence	Epidemic_Intelligence	https://utvikler.helsedirektoratet.no/	TESSy	NA	NA	TESSy
Poland	Epidemic_Intelligence	Epidemic_Intelligence	https://en.wikipedia.org/wiki/2020_coronavirus_pandemic_in_Poland; https://www.gov.pl/web/koronawirus/wykaz-zarazen-koronawirusem-sars-cov-2; https://twitter.com/MZ_GOV_PL	TESSy	NA	NA	https://twitter.com/MZ_GOV_PL; TESSy
Portugal	https://covid19.min-saude.pt/ponto-de-situacao-atual-em-portugal/; Epidemic_Intelligence	Epidemic_Intelligence	https://covid19.min-saude.pt/ponto-de-situacao-atual-em-portugal/; https://github.com/ec-jrc/COVID-19	TESSy	https://covid19.min-saude.pt/ponto-de-situacao-atual-em-portugal/; https://github.com/ec-jrc/COVID-19	NA	https://covid19.min-saude.pt/ponto-de-situacao-atual-em-portugal/; https://covid19.min-saude.pt/relatorio-de-situacao/
Romania	Epidemic_Intelligence	Epidemic_Intelligence	NA	TESSy	http://www.ms.ro/	NA	http://www.ms.ro/; TESSy

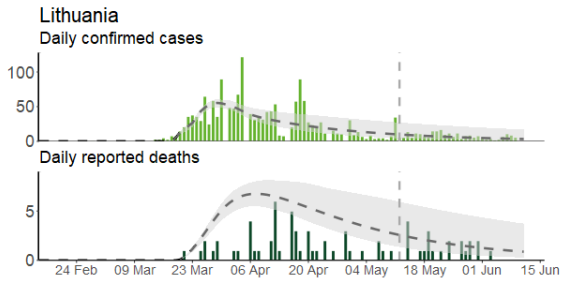
Country	Source number of cases	Source number of deaths	Source for current hospitalised	Source for new hospitalised	Source for current ICU cases	Source for new ICU cases	Source for testing data
Slovakia	Epidemic_Intelligence	Epidemic_Intelligence	https://github.com/ec-jrc/COVID-19	TESSy	https://github.com/ec-jrc/COVID-19	TESSy	https://korona.gov.sk/koronavirus-na-slovensku-v-cislach/; TESSy
Slovenia	https://github.com/sledilnik/data; Epidemic_Intelligence	Epidemic_Intelligence	https://github.com/sledilnik/data	NA	https://github.com/sledilnik/data	NA	TESSy
Spain	https://cnecovid.isciii.es/covid19/; Epidemic_Intelligence	Epidemic_Intelligence	NA	NA	NA	NA	https://github.com/datadista/datasets/tree/master/COVID%2019
Sweden	https://www.folkhalsomyndigheten.se/smittskydd-beredskap/utbrott/aktuella-utbrott/covid-19/bekraftade-fall-i-sverige	https://www.folkhalsomyndigheten.se/smittskydd-beredskap/utbrott/aktuella-utbrott/covid-19/bekraftade-fall-i-sverige	NA	NA	NA	https://www.folkhalsomyndigheten.se/smittskydd-beredskap/utbrott/aktuella-utbrott/covid-19/bekraftade-fall-i-sverige	https://www.folkhalsomyndigheten.se/smittskydd-beredskap/utbrott/aktuella-utbrott/covid-19/bekraftade-fall-i-sverige/; https://www.folkhalsomyndigheten.se/smittskydd-beredskap/utbrott/aktuella-utbrott/covid-19/statistik-och-analyser/genomforda-tester-for-covid-19/tidigare-data/; TESSy
United Kingdom	Epidemic_Intelligence	Epidemic_Intelligence	https://coronavirus-staging.data.gov.uk	https://coronavirus-staging.data.gov.uk	NA	NA	https://coronavirus-staging.data.gov.uk

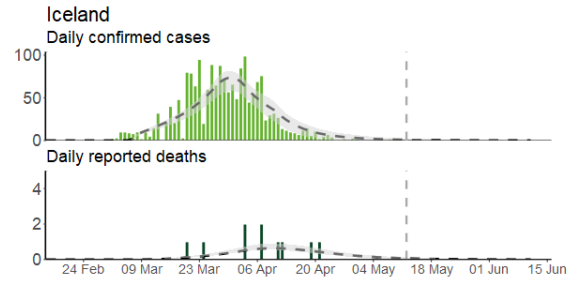
** Epidemic_Intelligence = ECDC epidemic intelligence data, available from: https://www.ecdc.europa.eu/en/publications-data/download-todays-data-geographic-distribution-covid-19-cases-worldwide; EWRS = Early Warning and Response System; TESSy = The European Surveillance System*
*** ICU cases for Greece and Norway refer to patients under mechanical ventilation. For Latvia, ICU cases refer to severe hospitalised cases*

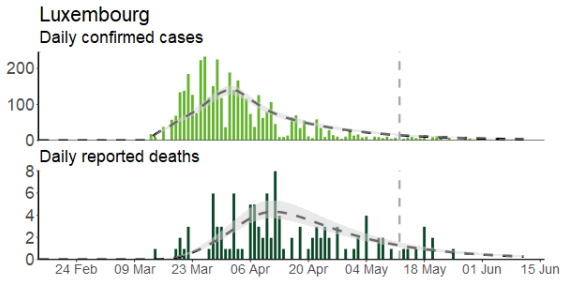
Annex 3. Comparison of ECDC projections 12 May 2020 with the observed epidemiological data until 9 June 2020

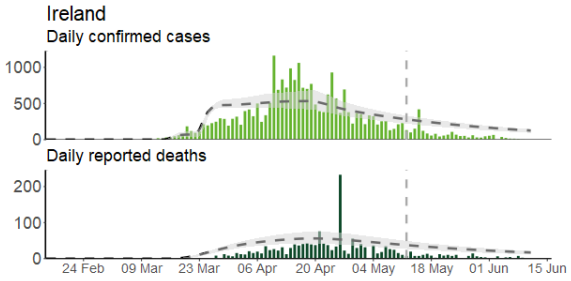


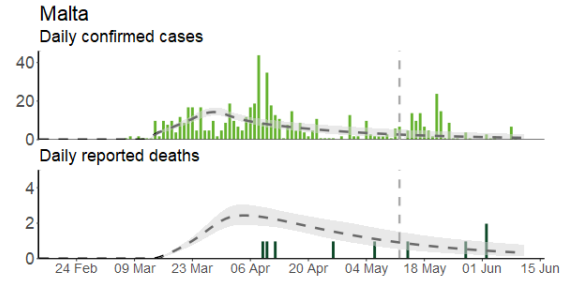

Hungary
Daily confirmed cases
200
100
0
Daily reported deaths
20
10
0
24 Feb 09 Mar 23 Mar 06 Apr 20 Apr 04 May 18 May 01 Jun 15 Jun

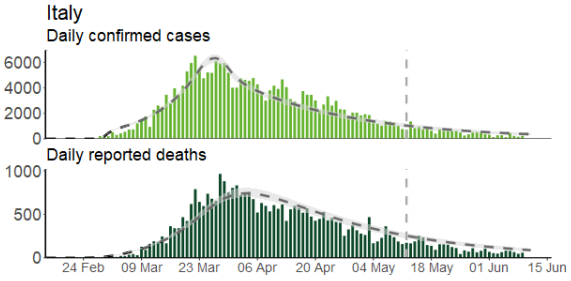

Lithuania
Daily confirmed cases
100
50
0
Daily reported deaths
5
0
24 Feb 09 Mar 23 Mar 06 Apr 20 Apr 04 May 18 May 01 Jun 15 Jun

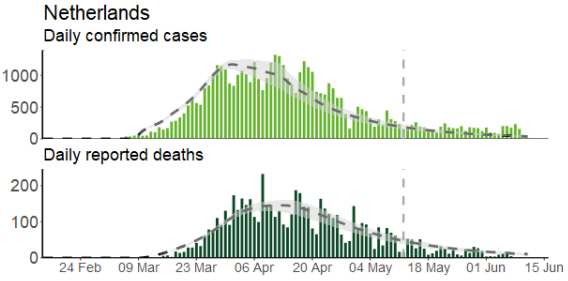

Iceland
Daily confirmed cases
100
50
0
Daily reported deaths
4
2
0
24 Feb 09 Mar 23 Mar 06 Apr 20 Apr 04 May 18 May 01 Jun 15 Jun

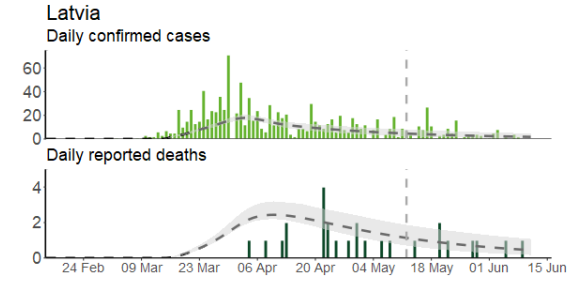

Luxembourg
Daily confirmed cases
200
100
0
Daily reported deaths
8
6
4
2
0
24 Feb 09 Mar 23 Mar 06 Apr 20 Apr 04 May 18 May 01 Jun 15 Jun

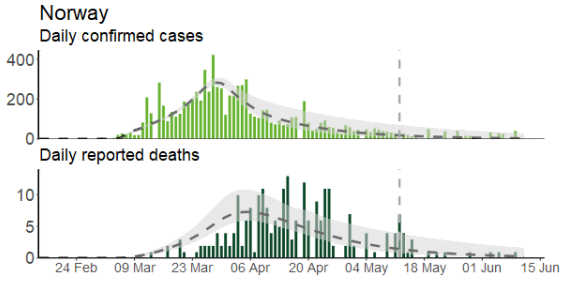

Ireland
Daily confirmed cases
1000
500
0
Daily reported deaths
200
100
0
24 Feb 09 Mar 23 Mar 06 Apr 20 Apr 04 May 18 May 01 Jun 15 Jun

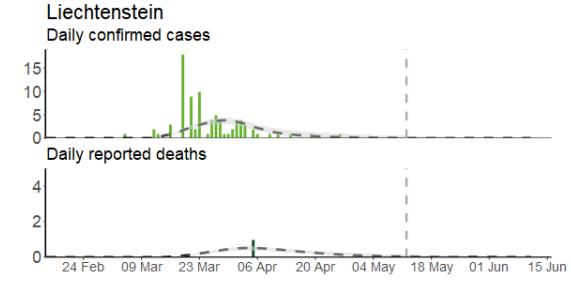

Malta
Daily confirmed cases
40
20
0
Daily reported deaths
4
2
0
24 Feb 09 Mar 23 Mar 06 Apr 20 Apr 04 May 18 May 01 Jun 15 Jun

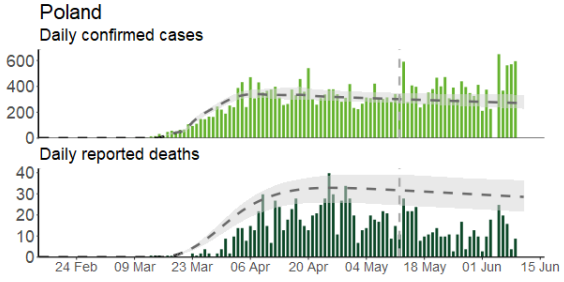

Italy
Daily confirmed cases
6000
4000
2000
0
Daily reported deaths
1000
500
0
24 Feb 09 Mar 23 Mar 06 Apr 20 Apr 04 May 18 May 01 Jun 15 Jun

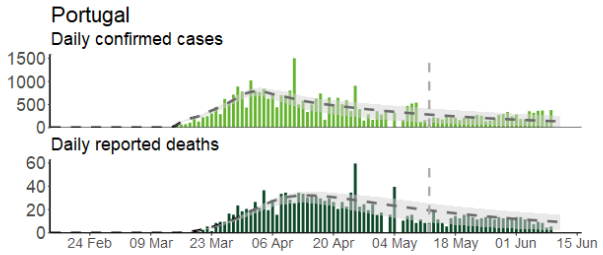

Netherlands
Daily confirmed cases
1000
500
0
Daily reported deaths
200
100
0
24 Feb 09 Mar 23 Mar 06 Apr 20 Apr 04 May 18 May 01 Jun 15 Jun

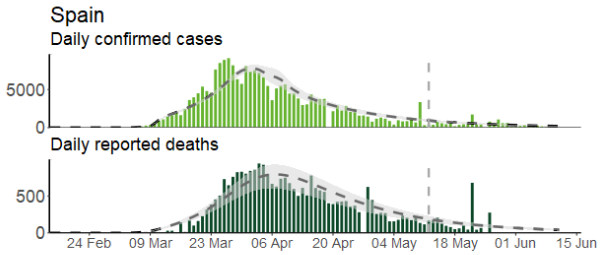

Latvia
Daily confirmed cases
60
40
20
0
Daily reported deaths
4
2
0
24 Feb 09 Mar 23 Mar 06 Apr 20 Apr 04 May 18 May 01 Jun 15 Jun

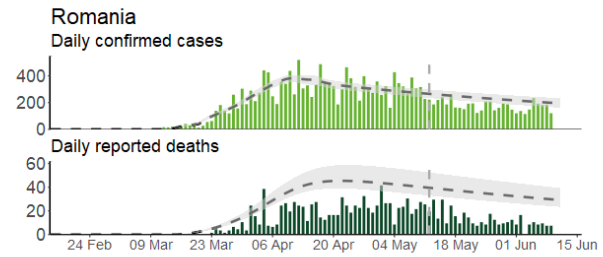

Norway
Daily confirmed cases
400
200
0
Daily reported deaths
10
5
0
24 Feb 09 Mar 23 Mar 06 Apr 20 Apr 04 May 18 May 01 Jun 15 Jun

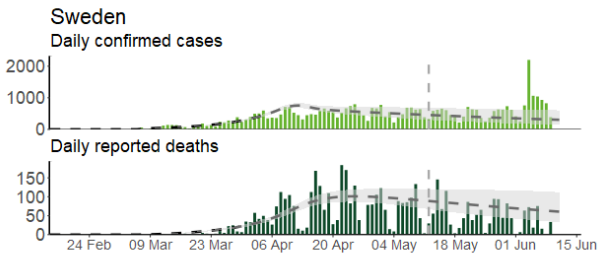

Liechtenstein
Daily confirmed cases
15
10
5
0
Daily reported deaths
4
2
0
24 Feb 09 Mar 23 Mar 06 Apr 20 Apr 04 May 18 May 01 Jun 15 Jun

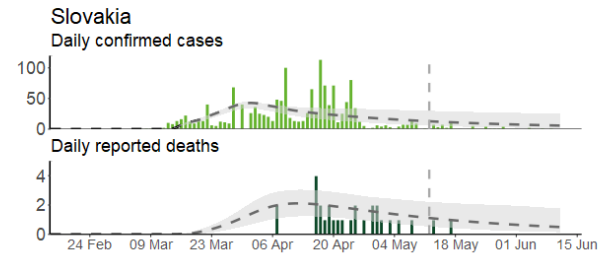

Poland
Daily confirmed cases
600
400
200
0
Daily reported deaths
40
30
20
10
0
24 Feb 09 Mar 23 Mar 06 Apr 20 Apr 04 May 18 May 01 Jun 15 Jun

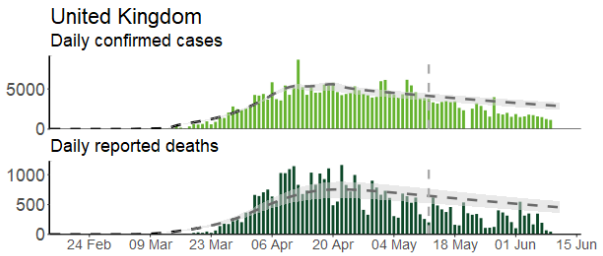

Portugal
Daily confirmed cases
1500
1000
500
0
Daily reported deaths
60
40
20
0
24 Feb 09 Mar 23 Mar 06 Apr 20 Apr 04 May 18 May 01 Jun 15 Jun

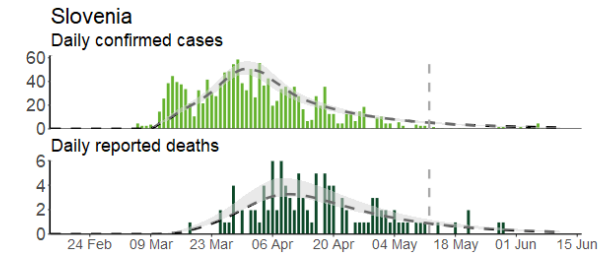

Spain
Daily confirmed cases
5000
0
Daily reported deaths
500
0
24 Feb 09 Mar 23 Mar 06 Apr 20 Apr 04 May 18 May 01 Jun 15 Jun


Romania
Daily confirmed cases
400
200
0
Daily reported deaths
60
40
20
0
24 Feb 09 Mar 23 Mar 06 Apr 20 Apr 04 May 18 May 01 Jun 15 Jun


Sweden
Daily confirmed cases
2000
1000
0
Daily reported deaths
150
100
50
0
24 Feb 09 Mar 23 Mar 06 Apr 20 Apr 04 May 18 May 01 Jun 15 Jun


Slovakia
Daily confirmed cases
100
50
0
Daily reported deaths
4
2
0
24 Feb 09 Mar 23 Mar 06 Apr 20 Apr 04 May 18 May 01 Jun 15 Jun


United Kingdom
Daily confirmed cases
5000
0
Daily reported deaths
1000
500
0
24 Feb 09 Mar 23 Mar 06 Apr 20 Apr 04 May 18 May 01 Jun 15 Jun


Slovenia
Daily confirmed cases
60
40
20
0
Daily reported deaths
6
4
2
0
24 Feb 09 Mar 23 Mar 06 Apr 20 Apr 04 May 18 May 01 Jun 15 Jun

Consulted experts

ECDC experts (in alphabetic order): Angelo D'Ambrosio, Mike Catchpole, Bruno Ciancio, Emilie Finch, Helen Johnson, Tommi Karki, Adrian Prodan, Emmanuel Robesyn, Bertrand Sudre.

Modelling experts for the development and fitting of the model:

Andrew Shattock (Swiss Tropical and Public Health Institute, Department of Epidemiology & Public Health, University of Basel, Switzerland); James Hay, Center for Communicable Disease Dynamics, Department of Epidemiology, Harvard T.H. Chan School of Public Health, Harvard University, Boston, Massachusetts, USA) and René Niehus (Center for Communicable Disease Dynamics, Department of Epidemiology, Harvard T.H. Chan School of Public Health, Harvard University, Boston, Massachusetts, USA).

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Contributors to ECDC's Response Measures Database: Ariana Wijermans, Aurea Oradini Alacreu, Barbara Albiger, Barbora Kinross, Bertrand Sudre, Brigitta Wohlgemuth-Zembski, Catarina Vitor, Csaba Kodmon, Dragoslav Domanovic, Emilie Finch, Emma Wiltshire, Emmanuel Robesyn, Ettore Severi, Favelle Lamb, Felix Lotsch, Grazina Mirinaviciute, Helena Simanova, Irina Ljungqvist, Jevgenijs Golovcuks, Joana Haussig, John Kinsman, Leonidas Alexakis, Lisa Ferland, Lorenzo Lionello, Luciana Muresan, Maria Tseroni, Natalia Alberska, Otilia Sfetcu, Rodrigo Filipe, Saara Kotila, Sabrina Nothdurfter, Scott Chiossi, Sebastian Deka, Silvia Funke, Svetla Tsolova, Tarik Derrough, Tjede Funk, Tommi Karki.

Disclaimer

ECDC issues this technical document based on request No 64 by the European Commission, Directorate-General for Health and Food Safety, Crisis Management and Preparedness in Health (SANTE.DDG1.C.3) and in accordance with Article 10 of Decision No 1082/13/EC and Article 7(1) of Regulation (EC) No 851/2004 establishing a European centre for disease prevention and control (ECDC).

In the framework of ECDC's mandate, the specific purpose of this technical report is to present short-term projections of the COVID-19 epidemic by EU/EEA countries and the UK to inform public health decisions on interventions to control the outbreak. The responsibility on the choice of which option to pursue and which actions to take, including the adoption of mandatory rules or guidelines, lies exclusively with the EU/EEA countries and the UK.

In its activities, ECDC strives to ensure its independence, high scientific quality, transparency and efficiency. This report was written with the coordination and assistance of the COVID-19 support public health emergency group at the European Centre for Disease Prevention and Control. All data published in this report are correct to the best of our knowledge at the time of publication. Maps and figures published do not represent a statement on the part of ECDC or its partners on the legal or border status of the countries and territories shown.

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