

Supplemental Table 1 Overview of definition and calculation of included variables

Variable	Definition	Calculation
# cases	Cumulative number of reported cases as confirmed by a PCR or antibody test.	"# cases"(t)
cumulative incidence /100.000	Cumulative number of reported cases with a positive test per 100,000 inhabitants of the respective country or region.	"# cases"(t)/POP*100,000
add # cases	Number of new reported cases with a positive test compared to the previous date of report.	"# cases"(t) - "# cases"(t-1)
new cases/ 100.000	Number of new reported cases with a positive test per 100,000 inhabitants of the respective country or region.	"add # cases"(t)/POP(2019)*100,000
# curr hosp	Number of cases with a positive test treated as inpatients in a hospital at the given date.	"# curr hosp"(t)
# hosp days/ case	Mean number of inpatient hospital days per case with a positive test.	SUM("# curr hosp"(t))/"# cases"(t)
add # curr hosp	Additional number of cases with a positive test, who are currently hospitalised as inpatients compared to the previous date.	"# curr hosp"(t) - "# curr hosp"(t-1)
curr hosp/ 100.000	Numbers of inpatient hospitalisations per 100.000 inhabitants	"# curr hosp"(t)/POP(2019)*100,000
# cum hosp	Cumulative number of cases with a positive test, that have ever been hospitalised up to the given date.	"# cum hosp"(t)
add # cum hosp	Number of newly hospitalised cases compared to the previous date of report.	"# cum hosp"(t) - "# cum hosp"(t-1)
% cum hosp of all cases	Share of hospitalised cases of all cases with a positive test.	"# cum hosp"(t)/"# cases"(t)
# curr ICU	Number of cases with a positive test treated as inpatients in an intensive care unit at the given date.	"# curr ICU"(t)
# ICU days/case	Mean number of intensive care unit days per case with a positive test.	SUM("# curr ICU"(t))/"# cases"(t)
add # curr ICU	Additional number of cases with a positive test, who are treated on an intensive care unit (ICU) compared to the previous date.	"# curr ICU"(t) - "# curr ICU"(t-1)
curr ICU/ 100.000	Number of cases treated on an intensive care unit per 100.000inhabitants	"# curr ICU"(t)/POP(2019)*100,000
% curr ICU of curr hosp cases	Percentage of cases treated on an intensive care unit among hospitalised COVID-19 cases.	"# curr ICU"(t)/"# curr hosp"(t)
# cum ICU	Cumulative number of cases with a positive test, who are or were treated in an intensive care unit up to the given date.	"# cum ICU"(t)
add # cum ICU	Additional number of cumulated cases with a positive test, who are or were treated in an intensive care unit (ICU) compared to the previous date.	"# cum ICU"(t) - "# cum ICU"(t-1)
% cum ICU of all cases	Percentage of cumulative number of cases treated in an intensive care unit among all cases with a positive test.	"# cum ICU"(t)/"# cases"(t)
% cum ICU of cum hosp cases	Percentage of cumulative number of cases treated in an intensive care unit among cumulative hospitalised COVID-19 cases.	"# cum ICU"(t)/"# cum hosp "(t)

Supplemental Table 2 Austria: Definition of variables and data collection

Variable	Definition - general	Reported unit	First time point of reporting	Last time point of reporting	Frequency of reporting (e.g. daily, no weekends)	Who reports data	Retrospective availability of public data	Particularities in in-team collection method (e. g. retrospective correction once a week)	Additional information
# cases	Cumulative number of reported cases as confirmed by a test.	people with a positive PCR test	25/02/2020	ongoing	daily	-	no	daily collection	Each person with laboratory diagnostic proof of SARS-CoV-2, irrespective of symptoms; Laboratory diagnostic criteria: Direct pathogen detection: Detection of SARS-CoV-2 specific nucleic acid in a clinical sample by PCR.
# curr hosp	Number of cases with a positive test treated as inpatients in a hospital at the given date.	patients	01/04/2020	ongoing	daily	regional sanitary directorates	no	daily collection	The number "hospitalised" is the total number of all COVID-19 patients in hospital (including patients in ICU) treatment in the respective federal state at the time of reporting. Data on hospitalisation and intensive care are regularly collected by the regional sanitary directorates and provided once a day.
# cum hosp	Cumulative number of cases with a positive test, that have ever been hospitalised up to the given date.	–	–	–	–	–	–	–	–
# curr ICU	Number of cases with a positive test treated as inpatients in an intensive care unit at the given date.	patients	01/04/2020	ongoing	daily	regional sanitary directorates	no	daily collection	Occupied ICU beds by COVID-19 patients. Data on hospitalisation and intensive care are regularly collected by the regional sanitary directorates and provided once a day.
# cum ICU	Cumulative number of cases with a positive test, who are or were treated in an intensive care unit up to the given date.	–	–	–	–	–	–	–	–

Source: https://info.gesundheitsministerium.at/dashboard_Epidem.html?l=de

Supplemental Table 3 Belgium: Definition of variables and data collection

Variable	Definition - general	Reported unit	First time point of reporting	Last time point of reporting	Frequency of reporting (e.g. daily, no weekends)	Who reports data	Retrospective availability of public data	Particularities in in-team collection method (e. g. retrospective correction once a week)	Additional information
# cases	Cumulative number of reported cases as confirmed by a test.	people with a positive PCR test	01/03/2020	ongoing	daily		yes	daily collection	All reported cases by date of diagnosis, since 1 March 2020; Cumulative number of people tested positive for SARS-CoV-2 confirmed by PCR.
# curr hosp	Number of cases with a positive test treated as inpatients in a hospital at the given date.	admissions	15/03/2020	ongoing	daily		yes	daily collection	Confirmed COVID-19 patients, incl ICU; admission due to covid (excluding admission due to other pathologies & transfers from other hospitals).
# cum hosp	Cumulative number of cases with a positive test, that have ever been hospitalised up to the given date.	admissions	15/03/2020	ongoing	daily	time point of reporting by laboratory	yes	daily collection	Number of hospitalisations since 15 March 2020 (date from which > 99% of hospitals report) due to COVID-19 pathology, with laboratory confirmation at the time of reporting / reporting and who have not been referred by another hospital. Patients who have been admitted for another pathology and who have tested positive in a screening context are not included in this count.
# curr ICU	Number of cases with a positive test treated as inpatients in an intensive care unit at the given date.	patients	15/03/2020	ongoing	daily		yes	daily collection	Only confirmed COVID-19 patients are reported.
# cum ICU	Cumulative number of cases with a positive test, who are or were treated in an intensive care unit up to the given date.	-	-	-	-	-	-	-	-

Source: <https://covid-19.sciensano.be/fr/covid-19-situation-epidemiologique>

Supplemental Table 4 Denmark: Definition of variables and data collection

Variable	Definition - general	Reported unit	First time point of reporting	Last time point of reporting	Frequency of reporting (e.g. daily, no weekends)	Who reports data	Retrospective availability of public data	Particularities in in-team collection method (e. g. retrospective correction once a week)	Additional information
# cases	Cumulative number of reported cases as confirmed by a test.	people with a positive PCR test	12/03/2020	ongoing	daily	Sundhedsstyrelsen/ Statens Serum Institut	yes (graphically)	daily collection	Infected persons are persons who have been tested positive for SARS-CoV-2. Infected persons who have not completed a test are not included in the figure.
# curr hosp	Number of cases with a positive test treated as inpatients in a hospital at the given date.	patients	12/03/2020	ongoing	daily (since 20/06/2020 not reported on weekends)	Sundhedsstyrelsen	yes (graphically)	daily collection	Inpatients show in how many beds in intensive care units and in other wards in the regions, there are patients with laboratory-confirmed SARS-CoV-2 infection at 7 every morning, and who are admitted due to the SARS-CoV-2 infection or due to another disease . It can be different patients on different days. Generally, reservations are made for information regarding respirator.; As of 17 June 2020, the figures for admissions, intensive patients and patients in respirators have been calculated using a new method. COVID-19-related admissions are now defined as admissions that begin within 14 days of the sampling date of the first positive sample. In addition, the definition is updated so that a hospitalisation is delimited at 90 days after the sampling date for the first positive sample.
# cum hosp	Cumulative number of cases with a positive test, that have ever been hospitalised up to the given date.	patients	24/03/2020	ongoing	not on weekends; not regularly	Sundhedsstyrelsen	no	daily collection	Inpatients include patients who are or have been hospitalised for more than 12 hours. A relevant admission is defined as an admission within 14 days after the sampling date for a positive SARS-CoV-2 sample. There are some delays in the reports to the Land Patient Register. As of 30 June 2020, daily reports from the regions about the number of patients who are hospitalised are also included. As the COVID-19 monitoring must be as real-time as possible and used to monitor how many beds are occupied daily by COVID-19 patients, all patients who are admitted to a bed are included in the daily snapshots. I.e. that patients who later prove to have only been hospitalised for <12 hours are included.

Variable	Definition - general	Reported unit	First time point of reporting	Last time point of reporting	Frequency of reporting (e.g. daily, no weekends)	Who reports data	Retrospective availability of public data	Particularities in in-team collection method (e. g. retrospective correction once a week)	Additional information
# curr ICU	Number of cases with a positive test treated as inpatients in an intensive care unit at the given date.	patients	12/03/2020	ongoing	daily (since 20/06/2020 not reported on weekends)	Sundhedsstyrelsen	yes (graphically)	daily collection	see above
# cum ICU	Cumulative number of cases with a positive test, who are or were treated in an intensive care unit up to the given date.	patients	16/04/2020	ongoing	daily until 30/06/2020 (not reported on weekends); since 30/06/2020 weekly	Sundhedsstyrelsen	no	daily collection	see above

Source: <https://www.sst.dk/da/corona/tal-og-overvaagning>

Supplemental Table 5 Estonia: Definition of variables and data collection

Variable	Definition - general	Reported unit	First time point of reporting	Last time point of reporting	Frequency of reporting (e.g. daily, no weekends)	Who reports data	Retrospective availability of public data	Particularities in in-team collection method (e. g. retrospective correction once a week)	Additional information
# cases	Cumulative number of reported cases as confirmed by a test.	people with a positive PCR test	05/02/2020 (positively tested - Kokku positiivselt testitud)	ongoing	daily	Health Board (Terviseamet)	yes	daily collection	A case is considered to be a first positive or first negative test per person, i.e. repeat tests are not considered. Thus, there can be a maximum of 2 cases per person - one positive, one negative. Healthcare providers (including laboratories) can subsequently correct, amend and cancel documents. Documents can be modified, for example, to improve data quality. In this case, a new version of the document already sent to the health information system is sent from the laboratory information system and the previous version becomes invalid. Therefore, in the case of the total number of results, it is not always possible to perform the operation yesterday + the total number of results received in 24 hours, but in the time series the total number of results is calculated as the total sum of the currently valid results. This principle applies to both negative and positive results. In open data, up-to-date and daily updated data from the Health Information System (CIS) data is published.
# curr hosp	Number of cases with a positive test treated as inpatients in a hospital at the given date.	patients	31/03/2020 (google tab); 26/02/2020 (open data)	ongoing	daily	Health Board (Terviseamet)	yes	daily collection	Number of persons actively hospitalised - i.e. all who were within the day except those admitted on the same day (but not discharged by death).
# cum hosp	Cumulative number of cases with a positive test, that have ever been hospitalised up to the given date.	patients	31/03/2020 (google tab); 26/02/2020 (open data)	08.07.	daily	Health Board (Terviseamet)	yes	daily collection	Generated variable based on data of # curr hosp + Number of discharged (excluding deaths) + died in hospital.
# curr ICU	Number of cases with a positive test treated as inpatients in an intensive care unit at the given date.	patients	31/03/2020 (google tab); 26/02/2020 (open data); machine-readable data from 19/04/2020.	ongoing	daily	Health Board (Terviseamet)	yes	daily collection	Number of patients in intensive care on a specific day.

Variable	Definition - general	Reported unit	First time point of reporting	Last time point of reporting	Frequency of reporting (e.g. daily, no weekends)	Who reports data	Retrospective availability of public data	Particularities in in-team collection method (e. g. retrospective correction once a week)	Additional information
# cum ICU	Cumulative number of cases with a positive test, who are or were treated in an intensive care unit up to the given date.	–	–	–	–	–	–	–	–
Source: https://www.terviseamet.ee/et/koroonaviirus/koroonakaart									

Supplemental Table 6 Finland: Definition of variables and data collection

Variable	Definition - general	Reported unit	First time point of reporting	Last time point of reporting	Frequency of reporting (e.g. daily, no weekends)	Who reports data	Retrospective availability of public data	Particularities in in-team collection method (e. g. retrospective correction once a week)	Additional information
# cases	Cumulative number of reported cases as confirmed by a test.	PCR tests	01/04/2020	ongoing	daily until week 24; from week 25 on weekends not reported	Finnish institute for health and welfare	no	daily collection	New cases are reported to the Infectious Diseases Register according to the sampling date.
# curr hosp	Number of cases with a positive test treated as inpatients in a hospital at the given date.	admissions	01/04/2020	ongoing	daily until week 24; from week 25 on weekends not reported	Finnish institute for health and welfare	no	daily collection	Hospital districts report disease-related deaths and the number of patients in hospital and intensive care three times a week on Mondays, Wednesdays, and Fridays.
# cum hosp	Cumulative number of cases with a positive test, that have ever been hospitalised up to the given date.	–	–	–	–	–	–	–	–
# curr ICU	Number of cases with a positive test treated as inpatients in an intensive care unit at the given date.	patients	01/04/2020	ongoing	daily until week 24; from week 25 on weekends not reported	Finnish institute for health and welfare	no	daily collection	Hospital districts report disease-related deaths and the number of COVID-19 patients in hospital and intensive care three times a week on Mondays, Wednesdays, and Fridays.
# cum ICU	Cumulative number of cases with a positive test, who are or were treated in an intensive care unit up to the given date.	patients	28/04/2020	11/06/2020	weekly	Kuopio University Hospital	no	daily collection	Patients transferred to other ICUs were counted multiple times.
Source: https://thl.fi/fi/web/infektiotaudit-ja-rokotukset/ajankohtaista/ajankohtaista-koronaviruksesta-covid-19/tilannekatsaus-koronaviruksesta https://www.psshp.fi/potilaat-ja-vierailijat/tietoa-koronaviruksesta									

Supplemental Table 7 France: Definition of variables and data collection

Variable	Definition - general	Reported unit	First time point of reporting	Last time point of reporting	Frequency of reporting (e.g. daily, no weekends)	Who reports data	Retrospective availability of public data	Particularities in in-team collection method (e. g. retrospective correction once a week)	Additional information
# cases	Cumulative number of reported cases as confirmed by a test.	people with a positive PCR test	24/01/2020	ongoing	no weekends	Système d'Information de Dépistage (SI-DEP)	yes	retrospective collection twice a week	The new screening information system (SI-DEP), in deployment since 13 May 2020, is a secure platform where the results of test laboratories (RT-PCR) carried out by all city laboratories and hospitals regarding SARS-CoV-2 are systematically recorded. The data are transmitted daily to Public Health France, with a certain delay between the date of sampling and the performance of the test.
# curr hosp	Number of cases with a positive test treated as inpatients in a hospital at the given date.	admissions	01/03/2020	ongoing	daily (until 26/06/2020), from 27/06 to 09/08 no weekends; since 13/08/2020 daily	SI-VIC	yes (since 13/08/2020)	retrospective collection twice a week	–
# cum hosp	Cumulative number of cases with a positive test, that have ever been hospitalised up to the given date.	admissions	01/03/2020	ongoing	daily (until 10/06/2020); since 11/06/2020 weekly	SI-VIC	yes	retrospective collection twice a week	–
# curr ICU	Number of cases with a positive test treated as inpatients in an intensive care unit at the given date.	admissions	04/03/2020	ongoing	daily (until 26/06/2020), since 27/06/2020 no weekends	SI-VIC	yes (since 13/08/2020)	retrospective collection twice a week	–
# cum ICU	Cumulative number of cases with a positive test, who are or were treated in an intensive care unit up to the given date.	–	–	–	–	–	–	–	–
<p>Source: https://www.gouvernement.fr/info-coronavirus/carte-et-donnees https://www.santepubliquefrance.fr/dossiers/coronavirus-covid-19/coronavirus-chiffres-cles-et-evolution-de-la-covid-19-en-france-et-dans-le-monde</p>									

Supplemental Table 8 Germany: Definition of variables and data collection

Variable	Definition - general	Reported unit	First time point of reporting	Last time point of reporting	Frequency of reporting (e.g. daily, no weekends)	Who reports data	Retrospective availability of public data	Particularities in in-team collection method (e. g. retrospective correction once a week)	Additional information
# cases	Cumulative number of reported cases as confirmed by a test.	PCR tests	01/03/2020	ongoing	daily	RKI	yes	retrospective collection twice a week; retrospective corrections, if necessary, once a week	If a person is tested positive, the test-performing physician, hospital, or laboratory is obliged to report the case to the local health office within 24 hours. The report includes identifying data, such as name, address, date of birth etc. The local health office reports new cases to the federal health office within the next day. The federal health offices report new cases to the national institution RKI within the next day.
# curr hosp	Number of cases with a positive test treated as inpatients in a hospital at the given date.	–	–	–	–	–	–	–	–
# cum hosp	Cumulative number of cases with a positive test that have ever been hospitalised up to the given date.	number of cases	23/03/2020	ongoing	weekly	RKI	yes	retrospective collection twice a week	The local health offices report hospitalisations of cases to the federal health office. The federal health authorities report hospitalisations to the national institution RKI; hospitalised cases with a positive test of SARS-CoV-2.
# cum hosp	Cumulative number of cases with a positive test and finished hospitalisation up to the given date.	number of cases	01/01/2020	ongoing	once	InEK	no	retrospective collection twice a week	All hospitals are obliged to report inpatient hospital data once a year to InEK, a national institution which is in charge of developing and refining the reimbursement system for hospital services. According to a recent instruction (Zweites Gesetz zum Schutz der Bevölkerung bei einer epidemischen Lage von nationaler Tragweite), hospitals are obliged to submit mid-year data of all hospital episodes that are finished until 31 May 2020 (and again for those finished until 30 September 2020). Weekly numbers (by date of discharge) of finished inpatient episodes with an ICD-10-code of COVID-19 (U07.1) were obtained from the official InEK website. Hospitalised cases with a positive test of SARS-CoV-2.
# curr ICU	Number of cases with a positive test treated as inpatients in an intensive care unit at the given date.	number of cases	18/03/2020	ongoing	daily	DIVI	yes	retrospective collection twice a week	Hospitals with ICU are obliged by law (since 16 April 2020) to report the daily number of positively tested cases with ICU treatment. Before the law became effective, reporting was incomplete.

Variable	Definition - general	Reported unit	First time point of reporting	Last time point of reporting	Frequency of reporting (e.g. daily, no weekends)	Who reports data	Retrospective availability of public data	Particularities in in-team collection method (e. g. retrospective correction once a week)	Additional information
# cum ICU	Cumulative number of cases with a positive test and finished treatment in an intensive care unit up to the given date.	finished treatments	01/04/2020	-	daily	DIVI	yes	retrospective collection twice a week	Hospitals with ICU are obliged by law (since 16 April 2020) to report finished ICU treatments of positively tested cases. Before the law became effective, reporting was incomplete. The cumulative number of ICU treatments is calculated as sum of finished treatments and current treatments.
		admissions	01/01/2020	31/05/2020	once	InEK	no	retrospective collection twice a week	All hospitals are obliged to report inpatient hospital data once a year to InEK, a national institution which is in charge of developing and refining the reimbursement system for hospital services. According to a recent instruction (Zweites Gesetz zum Schutz der Bevölkerung bei einer epidemischen Lage von nationaler Tragweite), hospitals are obliged to submit mid-year data of all hospital episodes that are finished until 31 May 2020 (and again for those finished until 30 September 2020). Weekly numbers (by date of admission and date of discharge) of finished inpatient episodes with an ICD-10-code of COVID-19 (U07.1) and a procedure code of ICU treatment were obtained from the official InEK website.
curr # resp	Number of cases with a positive test, who are mechanically ventilated at the given date.	number of cases	26/03/2020	ongoing	daily	DIVI	yes	retrospective collection twice a week	Hospitals with ICU are obliged by law (since 16 April 2020) to report the daily number of positively tested cases who are mechanically ventilated. Before the law became effective, reporting was incomplete. Number of COVID-19 cases mechanically ventilated
Source: https://www.rki.de/DE/Content/InfAZ/N/Neuartiges_Coronavirus/Situationsberichte/Gesamt.html?nn=13490888 https://www.divi.de/register/tagesreport https://experience.arcgis.com/experience/478220a4c454480e823b17327b2bf1d4									

Supplemental Table 9 Greece: Definition of variables and data collection

Variable	Definition - general	Reported unit	First time point of reporting	Last time point of reporting	Frequency of reporting (e.g. daily, no weekends)	Who reports data	Retrospective availability of public data	Particularities in in-team collection method (e. g. retrospective correction once a week)	Additional information
# cases	Cumulative number of reported cases as confirmed by a test.	people with a positive PCR test	20/03/2020	ongoing	daily (with interruptions)	National Public Health Authority (EODY)	yes	retrospective collection once a week	Confirmed lab tests are reported to EODY.
# curr hosp	Number of cases with a positive test treated as inpatients in a hospital at the given date.	patients	20/03/2020	25/03/2020	daily	EODY	yes	–	–
# cum hosp	Cumulative number of cases with a positive test that have ever been hospitalised up to the given date.	patients	20/03/2020	25/03/2020	daily	EODY	yes	–	–
# curr ICU	Number of cases with a positive test treated as inpatients in an intensive care unit at the given date.	patients	20/03/2020	ongoing	daily (with interruptions)	EODY	yes	retrospective collection once a week	As of April 2020, only number of ventilated cases reported (we capture ventilated = in ICU, leading to conservative estimate of ICU patients).
# cum ICU	Cumulative number of cases with a positive test, who are or were treated in an intensive care unit up to the given date.	patients	20/03/2020	25/03/2020	daily	EODY	yes	–	As of April 2020, only number of ventilated cases reported (we capture ventilated = in ICU, leading to conservative estimate of ICU patients).
Source: https://eody.gov.gr/epidimiologika-statistika-dedomena/ektheseis-covid-19/									

Supplemental Table 10 Ireland: Definition of variables and data collection

Variable	Definition - general	Reported unit	First time point of reporting	Last time point of reporting	Frequency of reporting (e.g. daily, no weekends)	Who reports data	Retrospective availability of public data	Particularities in in-team collection method (e. g. retrospective correction once a week)	Additional information
# cases	Cumulative number of reported cases as confirmed by a test.	people with a positive PCR test	01/03/2020	ongoing	daily	Health Protection Surveillance Centre (HPSC) and the Health Service Executive (HSE)	yes	retrospective collection twice a week	Number and cumulative number of confirmed SARS-CoV-2 cases notified in Ireland by notification date to midnight; Between 05 April 2020 and 19 April 2020, the daily number of SARS-CoV-2 events notified in Ireland is inflated due to batch reporting of cases with specimen dates between from 19 March 2020 and 01 April 2020 in addition to real-time reporting of cases with contemporaneous specimen dates-
# curr hosp	Number of cases with a positive test treated as inpatients in a hospital at the given date.	patients	16/03/2020	ongoing	daily	HPSC & HSE	yes (graphically)	daily collection	–
# cum hosp	Cumulative number of cases with a positive test, that have ever been hospitalised up to the given date.	patients	16/03/2020	ongoing	daily (reported 2 days later)	HPSC & HSE	yes	retrospective collection twice a week	–
# curr ICU	Number of cases with a positive test treated as inpatients in an intensive care unit at the given date.	patients	16/03/2020	ongoing	daily	HPSC & HSE	yes (graphically)	daily collection	–
# cum ICU	Cumulative number of cases with a positive test, who are or were treated in an intensive care unit up to the given date.	patients	16/03/2020	ongoing	daily (reported 2 days later)	HPSC & HSE	yes	retrospective collection twice a week	–
Sources: https://covid19ireland-geohive.hub.arcgis.com/pages/hospitals-icu--testing https://covid19ireland-geohive.hub.arcgis.com/ https://www.gov.ie/en/publications/									

Supplemental Table 11 Italy (including Lombardy region): Definition of variables and data collection

Variable	Definition - general	Reported unit	First time point of reporting	Last time point of reporting	Frequency of reporting (e.g. daily, no weekends)	Who reports data	Retrospective availability of public data	Particularities in in-team collection method (e. g. retrospective correction once a week)	Additional information
# cases	Cumulative number of reported cases as confirmed by a test.	people with a positive PCR test	24/02/2020	ongoing	daily	Department of Civil Protection (Dipartimento della Protezione Civile) on behalf of Ministry of Health (Ministero della Salute)	yes	retrospective collection twice a week	–
# curr hosp	Number of cases with a positive test treated as inpatients in a hospital at the given date.	cases	24/02/2020	ongoing	daily	Department of Civil Protection (Dipartimento della Protezione Civile) on behalf of Ministry of Health (Ministero della Salute)	yes	retrospective collection twice a week	–
# cum hosp	Cumulative number of cases with a positive test, that have ever been hospitalised up to the given date.	–	–	–	–	–	–	–	–
# curr ICU	Number of cases with a positive test treated as inpatients in an intensive care unit at the given date.	cases	24/02/2020	ongoing	daily	Department of Civil Protection (Dipartimento della Protezione Civile) on behalf of Ministry of Health (Ministero della Salute)	yes	retrospective collection twice a week	–
# cum ICU	Cumulative number of cases with a positive test, who are or were treated in an intensive care unit up to the given date.	–	–	–	–	–	–	–	–
Source: https://covid19italy.crisidev.org/ https://github.com/pcm-dpc/COVID-19									

Supplemental Table 12 Luxembourg: Definition of variables and data collection

Variable	Definition - general	Reported unit	First time point of reporting	Last time point of reporting	Frequency of reporting (e.g. daily, no weekends)	Who reports data	Retrospective availability of public data	Particularities in in-team collection method (e. g. retrospective correction once a week)	Additional information
# cases	Cumulative number of reported cases as confirmed by a test.	people with a positive PCR test	24/02/2020	ongoing	daily	Ministry of Health	yes	retrospective collection twice a week	Accredited laboratories send information on tested persons (incl name, national identification number, address, test result) via the safe agency channel to the Directorate of Public Health; Cumulative number of people tested positive confirmed by PCR (including residents and non-residents).
# curr hosp	Number of cases with a positive test treated as inpatients in a hospital at the given date.	cases	24/02/2020	ongoing	not on weekend and public holidays	Ministry of Health	yes	retrospective collection twice a week	Number of COVID-19 cases and suspected cases treated as inpatients in a hospital including ICU at the given date.
# cum hosp	Cumulative number of cases with a positive test, that have ever been hospitalised up to the given date.	–	–	–	–	–	–	–	–
# curr ICU	Number of cases with a positive test treated as inpatients in an intensive care unit at the given date.	cases	24/02/2020	ongoing	not on weekend and public holidays	Ministry of Health	yes	retrospective collection twice a week	Number of COVID-19 cases and suspected cases treated as inpatients in in an intensive care at the given date (without patients from France's Grand Est region).
# cum ICU	Cumulative number of cases with a positive test, who are or were treated in an intensive care unit up to the given date.	–	–	–	–	–	–	–	–

Source: https://gouvernement.lu/en/dossiers.gouv_msan%2Ben%2Bdossiers%2B2020%2Bcorona-virus.html#bloub-0

Supplemental Table 13 The Netherlands: Definition of variables and data collection

Variable	Definition - general	Reported unit	First time point of reporting	Last time point of reporting	Frequency of reporting (e.g. daily, no weekends)	Who reports data	Retrospective availability of public data	Particularities in in-team collection method (e. g. retrospective correction once a week)	Additional information
# cases	Cumulative number of reported cases as confirmed by a test.	people with a positive PCR test	13/03/2020	30/06/2020; after that date only new cases/day were reported	daily	until 30/06/2020: National Institute for Health and Environment (Rijksinstituut voor Volksgezondheid en Milieu, RIVM) after 30/06/2020: Central Government (Rijksoverheid)	no	daily collection	Information is obtained through a collaboration between doctors, laboratories and the GGDs collected from individuals (patients) with a positive SARS-CoV-2 test result.
# curr hosp	Number of cases with a positive test treated as inpatients in a hospital at the given date.	patients	27/02/2020	ongoing	daily	Nationale Intensive Care Evaluation (Nationale Intensive Care Evaluatie, NICE)	yes	daily collection; retrospective correction, if necessary	Total number of proven or suspected COVID-19 patients (including patients on ICU).
# cum hosp	Cumulative number of cases with a positive test, that have ever been hospitalised up to the given date.	admissions (until 30/06/2020); patients (since 30/06/2020)	13/03/2020	ongoing	daily	until 30/06/2020: RIVM after 30/06/2020: NICE	yes	daily collection; retrospective correction, if necessary	Since 30 June, 2020: total cumulative number of proven or suspected COVID-19 patients (unclear if including patients on the ICU).
# curr ICU	Number of cases with a positive test treated as inpatients in an intensive care unit at the given date.	patients	27/02/2020	ongoing	daily	National Intensive Care Evaluation (Nationale Intensive Care Evaluatie, NICE)	yes	daily collection; retrospective correction, if necessary	The NICE provides the continuous and complete registration of all available data from participating IC departments, with the aim of monitoring and optimizing the quality of IC care. Total number of proven or suspected Dutch COVID-19 patients in Dutch or German ICUs

Variable	Definition - general	Reported unit	First time point of reporting	Last time point of reporting	Frequency of reporting (e.g. daily, no weekends)	Who reports data	Retrospective availability of public data	Particularities in in-team collection method (e. g. retrospective correction once a week)	Additional information
# cum ICU	Cumulative number of cases with a positive test, who are or were treated in an intensive care unit up to the given date.	patients	27/02/2020	ongoing	daily	NICE	yes	daily collection; retrospective correction, if necessary	The National Intensive Care Evaluation provides the continuous and complete registration of all available data from participating IC departments, with the aim of monitoring and optimizing the quality of IC care. Total cumulative number of proven or suspected Dutch COVID-19 patients in Dutch or German ICUs
Sources: https://www.stichting-nice.nl/ https://coronadashboard.rijksoverheid.nl/ https://www.rivm.nl/coronavirus-covid-19/actueel https://www.stichting-nice.nl/covid-19-op-de-zkh.jsp									

Supplemental Table 14 Norway: Definition of variables and data collection

Variable	Definition - general	Reported unit	First time point of reporting	Last time point of reporting	Frequency of reporting (e.g. daily, no weekends)	Who reports data	Retrospective availability of public data	Particularities in in-team collection method (e. g. retrospective correction once a week)	Additional information
# cases	Cumulative number of reported cases as confirmed by a test.	people with a positive PCR test	21/02/2020	ongoing	daily	Meldingssystem for smittsomme sykdommer (MSIS)/ Infectious Disease Notification System & microbiological laboratories	yes	daily collection; retrospective corrections for last days when new cases are reported	The cases are registered by the date when the sample was taken. There is a 1-2-day delay in the time from diagnosis to registration in the Communicable Diseases Notification System (MSIS). The number of cases is therefore updated back in time when new messages arrive.
# curr hosp	Number of cases with a positive test treated as inpatients in a hospital at the given date.	patients	02/03/2020	ongoing	daily, since 05/05/2020 no reporting on weekends	Norwegian Directorate of Health a	yes	daily collection; retrospective corrections	Number of patients with positive test and COVID-19 as main reason for inpatient treatment, treated on the given date in hospital; The hospitals count the number of admitted patients with covid-19 at 8 am and report the figures to the Norwegian Directorate of Health, which publishes them at 1pm. Figures from Norsk Pandemi and Intensiv Registry (NiPAR) and the Norwegian Directorate of Health are collected in different ways, and are therefore not directly comparable.
# cum hosp	Cumulative number of cases with a positive test, that have ever been hospitalised up to the given date.	patients	02/03/2020	ongoing	daily	Norsk pandemiregister	yes	daily collection; retrospective corrections	Cumulative number of patients with positive test and COVID-19 as main reason for inpatient treatment, that have ever been hospitalised up to the given date; The hospitals count the number of admitted patients with COVID-19 at 8 a.m. and reports the figures to the Norwegian Directorate of Health, which publishes them at 1pm. Figures from Norsk Pandemi and Intensiv Registry (NiPAR) and the Norwegian Directorate of Health are collected in different ways, and are therefore not directly comparable.
# curr ICU	Number of cases with a positive test treated as inpatients in an intensive care unit at the given date.	patients	02/03/2020	19.06.2020	daily, since 22/04/2020 no reporting on weekends and other weekdays	Norsk intensivregister	no	daily collection; retrospective corrections	Number of patients with positive test and COVID-19 as main reason for inpatient treatment in an intensive care unit at the given date; The hospitals count the number of admitted patients with COVID-19 at 8 a.m. and reports the figures to the Norwegian Directorate of Health, which publishes them at 1pm. Figures from Norsk Pandemi and Intensiv Registry (NiPAR) and the Norwegian Directorate of Health are collected in different ways, and are therefore not directly comparable.

Variable	Definition - general	Reported unit	First time point of reporting	Last time point of reporting	Frequency of reporting (e.g. daily, no weekends)	Who reports data	Retrospective availability of public data	Particularities in in-team collection method (e. g. retrospective correction once a week)	Additional information
# cum ICU	Cumulative number of cases with a positive test, who are or were treated in an intensive care unit up to the given date.	patients	02/03/2020	ongoing	daily	Norsk intensivregister	yes	daily collection; retrospective corrections	Cumulative number of patients with positive test and COVID-19 as main reason for inpatient treatment in an intensive care unit at the given date; The hospitals count the number of admitted patients with COVID-19 at 8 a.m. and reports the figures to the Norwegian Directorate of Health, which publishes them at 1 p.m. Figures from Norsk Pandemi and Intensiv Registry (NiPAR) and the Norwegian Directorate of Health are collected in different ways, and are therefore not directly comparable.
Source: https://www.fhi.no/sv/smittsomme-sykdommer/corona/dags--og-ukerapporter/dags--og-ukerapporter-om-koronavirus/ https://www.helsedirektoratet.no/statistikk/antall-innlagte-pasienter-pa-sykehus-med-pavist-covid-19									

Supplemental Table 15 Portugal: Definition of variables and data collection

Variable	Definition - general	Reported unit	First time point of reporting	Last time point of reporting	Frequency of reporting (e.g. daily, no weekends)	Who reports data	Retrospective availability of public data	Particularities in in-team collection method (e. g. retrospective correction once a week)	Additional information
# cases	Cumulative number of reported cases as confirmed by a test.	people with a positive PCR test	02/03/2020	ongoing	daily	General Health Directorate (Direcao-Geral da Saude)	yes, in daily reports	retrospective collection twice a week	Recalculation carried out by reporting authorities on 1 May 2020, explains decrease in total case number.
# curr hosp	Number of cases with a positive test treated as inpatients in a hospital at the given date.	patient	13/03/2020	ongoing	daily	General Health Directorate (Direcao-Geral da Saude)	yes, in daily reports	retrospective collection twice a week	–
# cum hosp	Cumulative number of cases with a positive test, that have ever been hospitalised up to the given date.	–	–	–	–	–	–	–	–
# curr ICU	Number of cases with a positive test treated as inpatients in an intensive care unit at the given date.	patient	14/03/2020	ongoing	daily	General Health Directorate (Direcao-Geral da Saude)	Yes, in daily reports	retrospective collection twice a week	–
# cum ICU	Cumulative number of cases with a positive test, who are or were treated in an intensive care unit up to the given date.	–	–	–	–	–	–	–	–

Source: <https://covid19.min-saude.pt/relatorio-de-situacao/>

Supplemental Table 16 Sweden: Definition of variables and data collection

Variable	Definition - general	Reported unit	First time point of reporting	Last time point of reporting	Frequency of reporting (e.g. daily, no weekends)	Who reports data	Retrospective availability of public data	Particularities in in-team collection method (e. g. retrospective correction once a week)	Additional information
# cases	Cumulative number of reported cases as confirmed by a test.	people with a positive PCR test	15/03/2020	ongoing	daily until 18/6/20, after that date: no weekends	Public health authority (Folkhälsomyndigheten)	yes (in a graph)	daily collection	The number of cases reported in the statistics is based on laboratory-confirmed cases reported in accordance with the Swedish Communicable Diseases Act and is reported in accordance with the reporting date, including positive samples taken within the sentinel sampling.
# curr hosp	Number of cases with a positive test treated as inpatients in a hospital at the given date.	-	-	-	-	-	-	-	-
# cum hosp	Cumulative number of cases with a positive test, that have ever been hospitalised up to the given date.	-	-	-	-	-	-	-	-
# curr ICU	Number of cases with a positive test treated as inpatients in an intensive care unit at the given date.	patient	30/03/2020	ongoing	daily	Svenska Intensivvårdsregistret (SIR)	yes	daily collection	The report is based on the intensive care units' daily registration with SIR, with a request to register daily before 11:00 a.m.
# cum ICU	Cumulative number of cases with a positive test, who are or were treated in an intensive care unit up to the given date.	patient	20/03/2020	ongoing	daily until 18/6/20, after that date: no weekends	Public health authority (Folkhälsomyndigheten)	no	daily collection	Data on the number of intensive care units are obtained from the Swedish intensive care register's special reporting module SIRI and are reported according to the day when intensive care was started.
Source: https://www.folkhalsomyndigheten.se/smittskydd-beredskap/utbrott/aktuella-utbrott/covid-19/statistik-och-analyser/bekraftade-fall-i-sverige/ https://portal.icuregswe.org/siri/report/corona.covid-dagligen https://www.icuregswe.org/data--resultat/covid-19-i-svensk-intensivvard/									

Supplemental Table 17 England, Northern Ireland and Wales: Definition of variables and data collection

Variable	Definition - general	Reported unit	First time point of reporting	Last time point of reporting	Frequency of reporting (e.g. daily, no weekends)	Who reports data	Retrospective availability of public data	Particularities in in-team collection method (e. g. retrospective correction once a week)	Additional information
# cases	Cumulative number of reported cases as confirmed by a test.	PCR test	31/01/2020 (incidence > 5 per 100,000 on 20/03/2020)	ongoing	daily	government	yes	retrospective collection twice a week	These figures include cases for the 4 nations identified through NHS, PHE and commercial partner testing. The UK total is not the sum of the 4 national totals as the cases identified from commercial partner testing are not included in the national totals for all parts of the UK - they are currently included for Wales, but not England, Northern Ireland or Scotland. More information can be found under the following link: https://coronavirus-staging.data.gov.uk/about-data#daily-and-cumulative-numbers-of-tests (accessed on 24 July 2020)..
# curr hosp	Number of cases with a positive test treated as inpatients in a hospital at the given date.	patients	18/03/2020	ongoing	daily	government	yes	retrospective collection twice a week	National data may not be directly comparable as data about COVID-19 patients in hospitals are collected differently across nations. More information can be found under the following link: https://coronavirus-staging.data.gov.uk/about-data#patients-in-hospital (accessed on 24 July 2020).
# cum hosp	Cumulative number of cases with a positive test, that have ever been hospitalised up to the given date.	patients	22/03/2020	15/07/2020	daily	government	yes	retrospective collection twice a week	National data may not be directly comparable as data about COVID-19 patients in hospitals are collected differently across nations. More information can be found under the following link: https://coronavirus-staging.data.gov.uk/about-data#daily-and-cumulative-numbers-of-tests (accessed on 24 July 2020).
# curr ICU	Number of cases with a positive test treated as inpatients in an intensive care unit at the given date.	patients	01/03/2020	ongoing	daily	government	yes	retrospective collection once a week	Data is reported from critical care units participating in the Case Mix Programme (the national clinical audit covering all NHS adult, general intensive care and combined intensive care/high dependency units in England, Wales and Northern Ireland, plus some additional specialist and non-NHS critical care units). Please note that adult critical care units in Scotland, pediatric intensive care units and neonatal intensive care units do not participate in the Case Mix Programme.
# cum ICU	Cumulative number of cases with a positive test, who are or were treated in an intensive care unit up to the given date.	patients	01/03/2020	ongoing	daily	government	yes	retrospective collection once a week	see above
<p>Note: On 24 July 2020 all data has been updated retrospectively based on data from https://coronavirus-staging.data.gov.uk/</p> <p>Source: https://coronavirus.data.gov.uk/details/cases https://coronavirus-staging.data.gov.uk/healthcare https://www.gov.uk/government/collections/slides-and-datasets-to-accompany-coronavirus-press-conferences</p>									

Supplemental Table 18 Scotland: Definition of variables and data collection

Variable	Definition - general	Reported unit	First time point of reporting	Last time point of reporting	Frequency of reporting (e.g. daily, no weekends)	Who reports data	Retrospective availability of public data	Particularities in in-team collection method (e. g. retrospective correction once a week)	Additional information
# cases	Cumulative number of reported cases as confirmed by a test.	–	–	–	–	–	–	–	–
# curr hosp	Number of cases with a positive test treated as inpatients in a hospital at the given date.	–	–	–	–	–	–	–	–
# cum hosp	Cumulative number of cases with a positive test, that have ever been hospitalised up to the given date.	–	–	–	–	–	–	–	–
# curr ICU	Number of cases with a positive test treated as inpatients in an intensive care unit at the given date.	patients	18/03/2020	ongoing	daily	Scottish government	yes	retrospective collection twice a week	The total number of patients in ICU with confirmed or suspected COVID-19 is reported differently from the different NHS Boards. Some only provide information on patients with a confirmed infection while others provide also information on patients with a suspected infection. More information can be found under the following link: https://www.gov.scot/publications/coronavirus-covid-19-data-definitions-and-sources/ (accessed on 24 July 2020).
# cum ICU	Cumulative number of cases with a positive test, who are or were treated in an intensive care unit up to the given date.	–	–	–	–	–	–	–	–
<p>Note: The Scottish Government also reports other data, e.g. on the number of cases or tests. The data presented here is the data used for the comparative database.</p> <p>Source: https://www.gov.scot/publications/trends-in-number-of-people-in-hospital-with-confirmed-or-suspected-covid-19/ https://www.gov.scot/publications/coronavirus-covid-19-daily-data-for-scotland/</p>									

Supplemental Table 19 Data availability on hospital resources, hospitalised COVID-19 patients (acute care and ICU) and indicators on hospital utilisation, by country

	Available data on hospital resources			Available data and indicators on hospital utilisation										
	Initial hospital capacity prior to COVID-19		ICU surge capacity during the first wave of COVID-19	Patients currently hospitalised (data available)		Cumulative hospital days per 100 000		Cumulative ICU treatment days per 100 000 as share of cumulative hospital days	Hospital days per SARS-CoV-2 case		% of all SARS-CoV-2 cases hospitalised		Mean length of hospital stay of COVID-19 patients	
	acute	ICU		acute	ICU	acute	ICU		acute	ICU	acute	ICU	acute	ICU
Austria	X	X	-	X	X	X	X	X	-	-	-	-	-	-
Belgium	X	X	X	X	X	X	X	X	X	-	X	-	X	-
Denmark	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Estonia	X	X	(X)	X	X	X	X	X	-	-	-	-	-	-
Finland	X	X	-	X	X	X	X	X	-	-	-	-	-	-
France	X	X	-	X	X	X	X	X	X		X		X	
Germany	X	X	X	-	X	X	X	X	X	X	X	X	X	X
Greece	X	X	X	-	X	-	X	-						
Ireland	X	X	X	-	X	X	X	X	X	X	X	X	X	X
Italy	X	X	X	X	X	X	X	X	-	-	-	-	-	-
<i>Lombardy</i>	X	X	X	X	X	X	X	X	-	-	-	-	-	-
Luxembourg	X	-	-	X	X	X	X	X	-	-	-	-	-	-
Netherlands	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Norway	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Portugal	X	X	-	X	X	X	X	X	-	-	-	-	-	-
Sweden	X	X	X	-	X	-	X	-	-	-	-	-	-	-
United Kingdom	-	-	-	-	X	X	X	X	X	X	X	X	X	X

Notes: x - data available and indicators; (x) - with uncertainties