



Coronavirus Disease 2019 (COVID-19)

Daily Situation Report of the Robert Koch Institute

28/02/2021 - UPDATED STATUS FOR GERMANY

Confirmed cases		7-day incidence (7-di)			Vaccination monitoring	DIVI-Intensive care register
Total ¹	Active cases ²	Total population	No. of districts with 7-di > 50/100,000 pop		No. of vaccinations reported in last 24h ⁴	Change to previous day for cases currently in ICU
+7,890 (2,442,336)	+2,500 [ca. 123,900]	64 cases/ 100,000 pop	-2 [252/412]		- -	+13 [2,840]
Recovered ³	Deaths	60-79 years	80+ years	No. of districts with 7-di > 100/100,000 pop	Total no. of vaccinated with one/two vaccine dose/s and share of population ⁴	Completed ICU treatment; thereof deceased [%]
+5,200 (ca. 2,248,400)	+157 (70,045)	47 cases/ 100,000 pop	65 cases/ 100,000 pop	-4 [56/412]	N1: 3,881,490 (4.7%) N2: 2,029,047 (2.4%)	+226 52%

Numbers in () brackets show cumulative values, numbers in [] brackets show current values. Footnotes can be found in the Annex.

COVID-19 cases are notified to the local public health department in the respective districts, in accordance with the German Protection against Infection Act (IfSG). The data are further transmitted through the respective federal state health authority to the Robert Koch Institute (RKI). This situation report presents the uniformly recorded nationwide data on laboratory-confirmed COVID-19 cases transmitted to RKI. An overview of the weekly schedule of topics is available at: www.rki.de/covid-19-en

– Changes since the last report are marked **blue** in the text –

Summary (as of 28/02/2021, 12:00 AM)

- Currently, the number of transmissions in the population in Germany remains high. RKI assesses the level of threat to the health of the general population to be **very high**.
- Yesterday, **7,890** new laboratory-confirmed COVID-19 cases as well as **157** new deaths associated with COVID-19 were transmitted to the RKI. The national 7-day incidence is **64** cases per 100,000 population. The incidence in Bremen, Hamburg, Saarland and Saxony is slightly, in Thuringia and Saxony-Anhalt considerably above the national incidence.
- In **252** of the 412 districts, the 7-day COVID-19 incidence is high (>50 cases/100,000 population). In **56** districts, the 7-day incidence is >100 cases/100,000 population and in **two** of these districts it is >250-500 cases/100,000 population.
- The 7-day incidence among people aged 60-79 years is currently **47** and among the age group ≥80 years **65** cases/100,000 pop.
- The high nationwide number of cases is caused by increasingly diffuse transmission, with numerous clusters especially in households, occupational settings as well as nursing and long-term care homes.
- On **28/02/2021 (12:15 PM)** **2,840** COVID-19 patients were in intensive care. In the preceding 24 hours, **+226** existing patients had been discharged (**52%** of whom had died) and **+239** patients were newly admitted. The resulting number of cases under treatment was **+13** more than the prior day.

Epidemiological Situation in Germany

In accordance with the international standards of WHO¹ and ECDC², the RKI classifies all cases of laboratory confirmation via SARS-CoV-2-nucleic acid based (e.g. PCR) detection or SARS-CoV-2 isolation as COVID-19 cases, regardless of the presence and severity of clinical symptoms. Thus, in the following report the term "COVID-19 cases" covers acute SARS-CoV-2 infections as well as cases of COVID-19 disease.

General current assessment

At the moment, there is a slight increase in the number of cases.

The 7-day R-value is currently around 1. Due to the occurrence of different virus variants (see below) there is an increased risk of a renewed stronger increase in the number of cases.

Outbreaks are being reported from various districts throughout Germany, currently particularly in nursing and long-term care homes, occupational settings, and households. Additionally, in many districts, there is an increasingly diffuse spread of SARS-CoV-2 without traceable transmission chains.

Since patients in older age groups more often suffer from more severe illness due to COVID-19, the number of serious cases and deaths remains at a high level. These can only be avoided if all persons prevent the spread of the SARS-CoV-2 virus with the help of infection control measures.

It is therefore still necessary for the entire population to be committed to infection prevention and control, e.g. by consistently observing rules of distance and hygiene - also outdoors -, by ventilating indoor spaces and, where indicated, by correctly wearing a surgical mask or FFP2 mask (or N95 or KN95 respectively). Crowds of people - especially indoors - should be avoided.

Several variants of SARS-CoV-2 are currently being detected worldwide. Since mid-December 2020 there have been reports of the increasing spread of a new virus variant (B.1.1.7) in the United Kingdom. There is increasing clinical-diagnostic as well as epidemiological evidence of increased infectiousness of this variant. Additionally, there are initial indications from the United Kingdom that infections with variant B.1.1.7 may lead to more severe diseases. Moreover, in December 2020, an increased occurrence of a SARS-CoV-2 variant in South Africa (B.1.351) was reported, which has displaced other variants. Therefore, an increased infectiousness is conceivable. Preliminary laboratory studies indicate that the efficacy of the licensed mRNA vaccines is apparently not substantially affected by the variants B.1.1.7. and B.1.351. Additionally, a SARS-CoV-2 variant derived from line B.1.1.28 is circulating in the Brazilian state of Amazonas. Non-essential travel should be avoided – especially due to the circulation of variants of concern.

All three variants have already been detected in Germany. With increased sequencing and data acquisition in the German Electronic Sequence Data Hub (DESH – www.rki.de/covid-19-desh) the infection process is increasingly monitored through integrated molecular surveillance.

Geographical distribution of cases

Epidemiological analyses are based on validated cases notified electronically to the RKI in line with the Protection Against Infection Law (Data closure: 12:00 AM daily). Since January 2020, a total of **2,442.336 (+7,890)** laboratory-confirmed cases of COVID-19 have been reported to and validated by the RKI (Table 1).

¹ World Health Organization, https://www.who.int/publications/i/item/WHO-2019-nCoV-Surveillance_Case_Definition-2020.1

² European Centre for Disease Prevention and Control, <https://www.ecdc.europa.eu/en/covid-19/surveillance/case-definition>

Table 1: Number and cumulative incidence (per 100,000 population) of laboratory-confirmed COVID-19 cases and deaths for each federal state electronically reported to RKI, Germany (28/02/2021, 12:00 AM). The number of new cases includes positive cases notified to the local health department at the same day, but also at previous days.

Federal State	Cumulative cases			Last 7 days		Cumulative deaths	
	Total number of cases	Number of new cases	Cases/100,000 pop.	Cases in the last 7 days	7-day incidence/100,000 pop.	Number of deaths	Number of deaths/100,000 pop.
Baden-Wuerttemberg	316,560	988	2,852	5,551	50	8,068	72.7
Bavaria	436,465	1,241	3,326	8,116	62	12,381	94.3
Berlin	129,247	311	3,522	2,397	65	2,817	76.8
Brandenburg	76,475	251	3,032	1,597	63	2,996	118.8
Bremen	17,997	103	2,642	544	80	339	49.8
Hamburg	51,653	203	2,796	1,344	73	1,270	68.8
Hesse	188,380	589	2,996	3,988	63	5,824	92.6
Mecklenburg-Western Pomerania	24,488	175	1,523	1,048	65	739	46.0
Lower Saxony	164,437	843	2,057	5,066	63	4,296	53.7
North Rhine-Westphalia	532,344	1,641	2,966	11,512	64	13,044	72.7
Rhineland-Palatinate	101,996	173	2,491	1,996	49	3,092	75.5
Saarland	28,921	124	2,931	718	73	869	88.1
Saxony	194,165	458	4,768	3,167	78	7,755	190.4
Saxony-Anhalt	60,472	236	2,755	1,879	86	2,414	110.0
Schleswig-Holstein	42,445	210	1,462	1,470	51	1,282	44.1
Thuringia	76,291	344	3,576	2,699	127	2,859	134.0
Total	2,442,336	7,890	2,937	53,092	64	70,045	84.2

Quality checks and data cleaning by the health authorities and regional offices can lead to corrections to cases previously transmitted (e. g. detection of duplicate reports). This can occasionally lead to negative values for the number of new cases.

Distribution of cases over time

The first COVID-19 cases in Germany were notified in January 2020. Figure 1 shows COVID-19 cases transmitted to RKI according to date of illness onset from 01/03/2020 onwards. Of these cases, the onset of symptoms is unknown for 1,212,005 cases (50%) thus their date of reporting is provided in Figure 1.

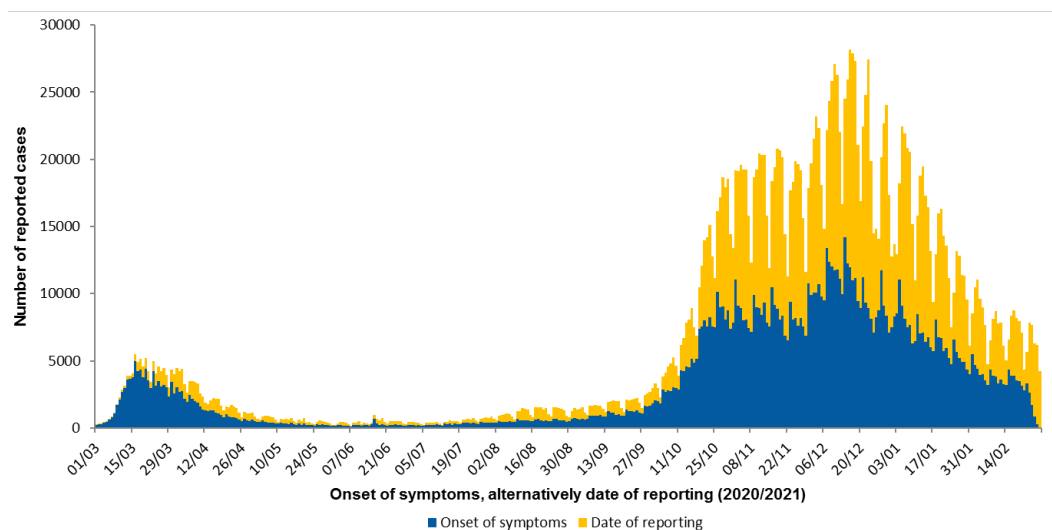


Figure 1: Number of COVID-19 cases in Germany electronically reported to the RKI by the date of symptoms onset or – if unknown – alternatively by date of reporting since 01/03/2020 (28/02/2021, 12:00 AM).

Estimation of the reproduction number (R)

The reproduction number, R , is defined as the mean number of people infected by one infected person. The estimation of the R -value is based on the so-called nowcasting (Figure 2), a statistical procedure that shows the development of the number of cases after the onset of the disease and also forecasts it for the last few days. This forecast is subject to uncertainty, which is also reflected in the prediction intervals given for the R -value. After further case reports have been received at the RKI, the R -value is adjusted for the past days and, if necessary, corrected upwards or downwards. In recent weeks, values reported at the beginning of a week were typically corrected slightly upwards. They had thus slightly underestimated the real COVID-19 events in Germany, while values estimated towards the end of a week were more stable. The currently estimated course of the R -value is shown in Figure 3.

4-day R-value	7-day R-value
1.15	1.08
(95%-prediction interval: 0.95 – 1.33)	(95%-prediction interval: 0.98 – 1.17)

Delays in reporting of case numbers at weekend days can lead to cyclical fluctuations of the 4-day R -value. The 7-day R -value is less affected because all week days are used to determine the value.

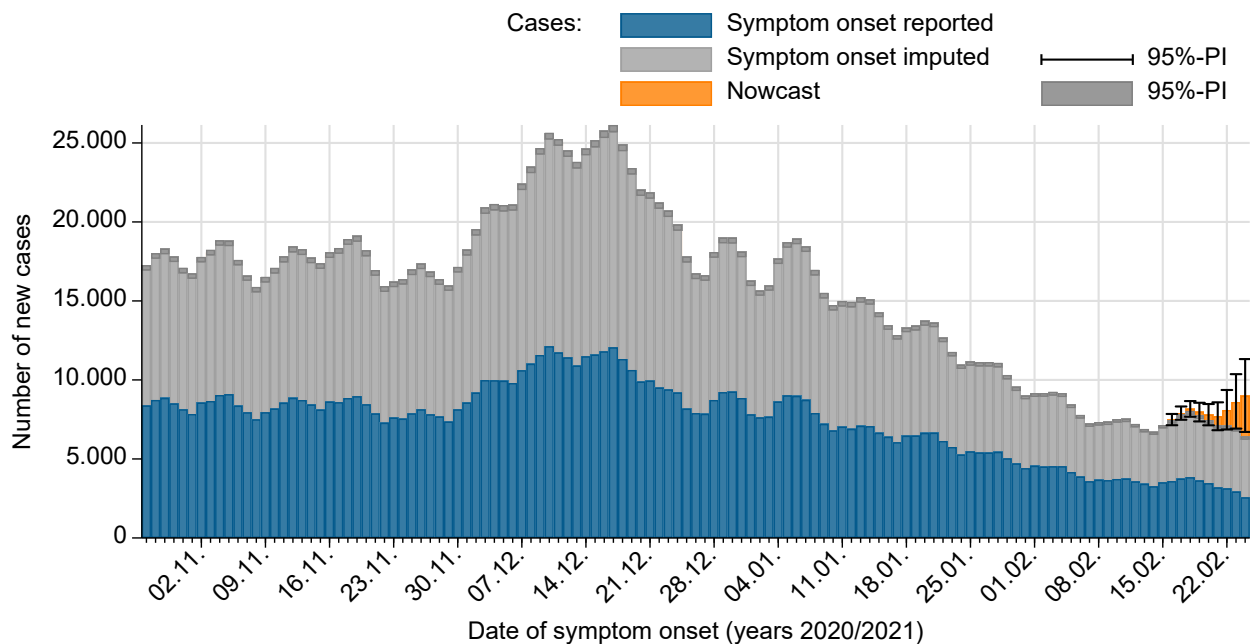


Figure 2: Number of notified COVID-19 cases with known date of illness onset (dark blue), estimated date of illness onset for cases without reported date of onset (grey) and estimated number of not yet notified cases according to illness onset electronically reported to RKI (orange) (as of 28/02/2021, 12 AM, considering cases up to 24/02/2021).

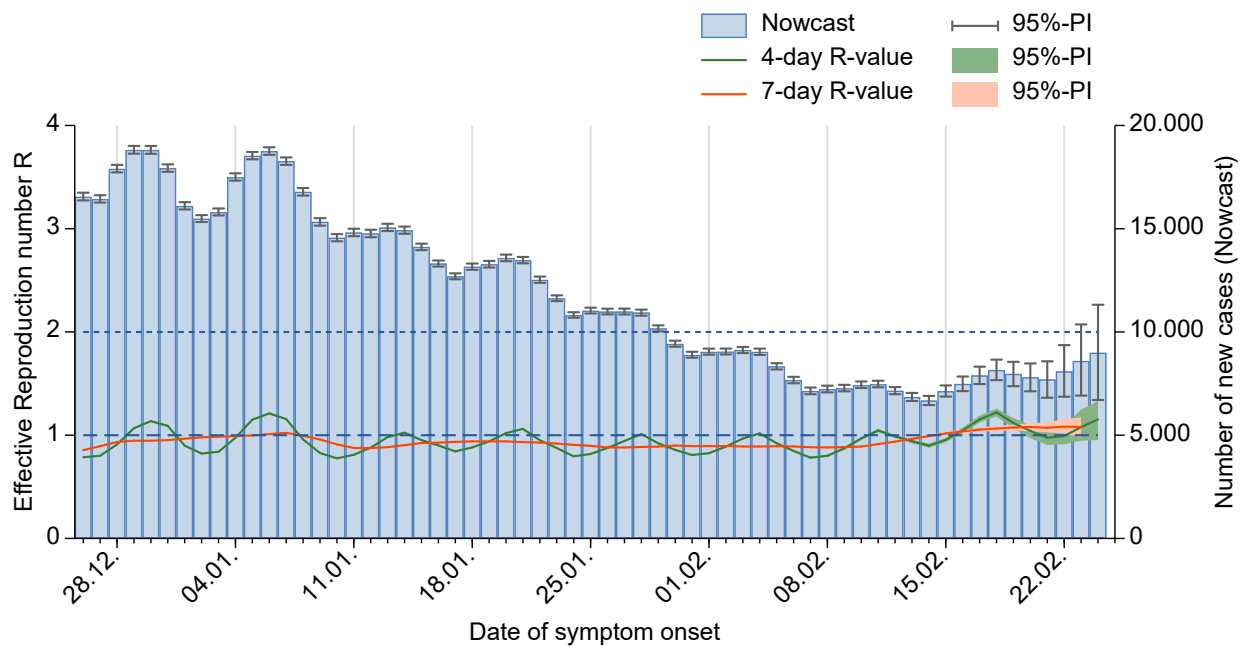


Figure 3: The estimated R-values (in green and orange) over the last 60 days, against the background of the estimated number of COVID-19 cases according to illness onset (as of 28/02/2021, 12 AM, considering cases up to 24/02/2021).

The 7-day R-value is currently around 1. Due to the occurrence of different virus variants (see below) there is an increased risk of a renewed stronger increase in the number of cases.

Sample calculations as well as an excel sheet presenting both R-values with daily updates can be found under <http://www.rki.de/covid-19-nowcasting>. A detailed description of the methodology is available at https://www.rki.de/DE/Content/Infekt/EpidBull/Archiv/2020/17/Art_02.html (Epid. Bull, 17 | 2020 from 23/04/2020).

DIVI intensive care register

The German Interdisciplinary Association for Intensive and Emergency Medicine (DIVI) has in collaboration with RKI established a registry to document the number of available intensive care beds as well as the number of COVID-19 cases treated in participating hospitals on a daily basis. Since 16/04/2020, all hospitals with intensive care beds are required to report (<https://www.intensivregister.de/#/index>).

As of 28/02/2021, a total of 1,279 hospitals reported to the DIVI registry. Overall, 26,618 intensive care beds were registered, of which 21,452 (81%) are occupied, and 5,166 (19%) beds are currently available. The number of COVID-19 cases treated in participating hospitals is shown in Table 2.

Table 2: COVID-19 patients requiring intensive care (ICU) recorded in the DIVI register (28/02/2021, 12:15 PM).

		Number of patients	Change to previous day*
Currently	Currently in ICU	2,840	+13
	- thereof with invasive ventilation	1,658 (58%)	+2
	New admissions to ICU		+239
Total	Discharged from ICU	76.485	+226
	- thereof deaths	21.849 (29%)	+117 (52%)

*The interpretation of these numbers must consider the number of reporting hospitals and therefore the number of reported patients may change from day to day. On certain days, this can explain an occasionally important decrease or increase in the cumulative number of discharged patients or deaths compared with the day before.

Risk Assessment by the RKI

In view of persistently high case numbers, the RKI currently assesses the threat to the health of the general population to be **very high**. The revised version highlights the ongoing community transmission of SARS-CoV-2 as well as the occurrence of outbreaks especially in nursing and senior care homes, households, and occupational settings.

Against the background of rising occurrence of variants of concern (VOC) with higher infectiousness, a rigorous reduction of physical contacts, usage of protective measures as well as intensive efforts to contain outbreaks and chains of infections are necessary to reduce the number of new infections and to protect vulnerable persons.

On 26/02/2021, the risk assessment was updated with reference to the new SARS-CoV-2 variants. The current version can be found here: <http://www.rki.de/covid-19-risikobewertung> (*in German*).

Measures taken in Germany

- Epidemiological Profile of SARS-CoV-2 und COVID-19 (24/02/2021, *in German*)
https://www.rki.de/DE/Content/InfAZ/N/Neuartiges_Coronavirus/Steckbrief.html
- Report of SARS-CoV-2 variants in Germany, especially of VOC B.1.1.7 (Update 17/02/2021, *in German*)
www.rki.de/covid-19-voc-berichte
- Information on the designation of international risk areas
<http://www.rki.de/covid-19-risikogebiete>
- Seroepidemiological studies in Germany (04/02/2021)
www.rki.de/covid-19-serostudies-germany
- Entry restrictions to Germany for travelers from countries designated as regions with variants (30/01/2021; *in German*)
https://www.rki.de/DE/Content/InfAZ/N/Neuartiges_Coronavirus/Transport/CoronaSchV_Mutationen.pdf?blob=publicationFile
- German electronic Sequencing-Data-Hub (DESH, Deutscher elektronischer Sequenzdaten-Hub, 18.02.2021, *in German*)
www.rki.de/covid-19-desh
- Recommendations on COVID-19-vaccination (*in German*)
www.rki.de/covid-19-impfempfehlung

Note: The report is a snapshot and is continuously updated.

- Further governmental resolutions regarding additional containment measures (Lockdown, *in German*)
<https://www.bundesregierung.de/breg-de/themen/coronavirus/mpk-beschluss-corona-1834364>
- Vaccination started in Germany on the 26th of December 2020 (*in German*)
<http://www.rki.de/covid-19-impfquoten>
- Regulation to entry to Germany (13/01/2021, *in German*)
https://www.bundesgesundheitsministerium.de/fileadmin/Dateien/3_Downloads/C/Coronavirus/Verordnungen/Corona-Einreiseverordnung_BAnz.pdf
- National Testing Strategy – who will be tested for SARS-CoV-2 in Germany (*in German*)
www.rki.de/covid-19-teststrategie
- Important information and guidance on SARS-CoV-2 for returning travellers (*in German*)
www.rki.de/covid-19-reisende
- Selected and regularly updated information on COVID-19
<https://www.rki.de/covid-19-en>
- The ministry of health has published a record of all measures implemented in Germany since 27/01/2020 (*in German*)
<https://www.bundesgesundheitsministerium.de/coronavirus/chronik-coronavirus.html>
- Information from the Ministry of Health for travellers entering Germany: Frequently asked questions and answers (*in German*)
<https://www.bundesgesundheitsministerium.de/coronavirus-infos-reisende/faq-tests-einreisende.html>
- Corona-Warn-App
www.rki.de/covid-19-warnapp-en
- Information on additional regulations at the regional level regarding control measures such as physical distancing or quarantine regulations for persons entering from other countries can be accessed here (*in German*):
<https://www.bundesregierung.de/breg-de/themen/coronavirus/corona-bundeslaender-1745198>

Annex

- ¹ The difference to the previous day is based on the date cases are received at RKI. Due to delay in data transmission, cases from preceding days may be included.
- ² Active cases were calculated from the number of transmitted cases minus deaths and the estimated number of recovered cases.
- ³ The algorithm for estimation of recovered cases considers information on disease onset and hospitalization, but not for late effects, because such data are not recorded regularly.
- ⁴ Data on COVID-19 vaccinations are only updated on weekdays. On Sundays, updated figures are not reported.