ROBERT KOCH INSTITUT

Coronavirus Disease 2019 (COVID-19) Daily Situation Report of the Robert Koch Institute

29/07/2020 - UPDATED STATUS FOR GERMANY

Confirmed cases	Deaths	Deaths (%)	Recovered
206,926 (+ 684*)	**9,128** (+ 6*)	**4.4%**	**ca. 191.300****

**Change from previous day; **Estimate*

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.

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

Summary (as of 29/07/2020 12:00 AM)

- In the past few weeks, the number of districts that have not reported any COVID-19 cases over a period of 7 days has decreased clearly. In parallel, the COVID-19 incidence has risen in many federal states. This trend is concerning.
- The cumulative nationwide incidence over the past 7 days was 4.5 cases per 100,000 inhabitants and thus further increased slightly, albeit at a low level. A total of 96 districts transmitted zero cases over the past 7 days. Moreover, in 212 districts the 7-day-incidence is below 5.0/100,000 inhabitants.
- In total, 206,926 laboratory-confirmed COVID-19 cases and 9,128 deaths due to COVID-19 have been electronically reported to the RKI in Germany.
- In the Bavarian district of Dingolfing-Landau a COVID-19 related outbreak occurred with >150 cases among harvest workers of an agricultural company. The entire company with over 450 employees is under quarantine.
- Moreover, COVID-19-related outbreaks occur in various settings, including nursing homes and hospitals, facilities for asylum-seekers and refugees, as well as in context of religious or family events.

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

Epidemiological Situation in Germany

General current assessment

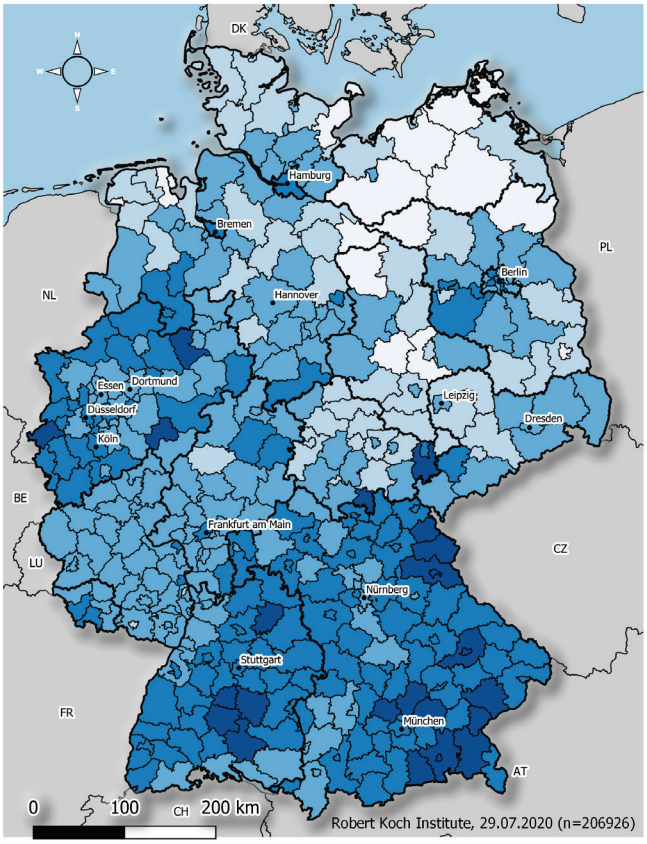
An increase in COVID-19 case numbers since last week occurred in many of the federal states, but was most marked in Bavaria and Northrhine Wetphalia.

Nationwide, there are many smaller case outbreaks in different administrative districts in various settings, such as larger family events, leisure activities, occupational settings, but also in community and health facilities. In addition, COVID-19 cases are increasingly being identified among people returning from travel abroad.

The number of new cases reported daily has been increasing since last week. This development is very concerning and will continue to be monitored very closely by the RKI. A further worsening of the situation must be avoided. This will only succeed if the entire population continues to be committed to decreasing transmission, e.g. by consistently observing rules of distance and hygiene - also in outdoor settings -, by airing indoor areas and, where necessary, wearing a community or face mask correctly.

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 206,926 (+684) laboratory-confirmed cases of COVID-19 have been electronically reported to and validated by the RKI (see Table 1). A total of 96 districts reported no cases in the past 7 days. In the past few weeks, the number of districts that have not submitted any COVID-19 cases over a period of 7 days has decreased continuously; on 12th July still, the number of districts reporting zero cases was 125.



COVID-19 (cumulative)

cases per 100,000 population

- >0,0 - 50,0
- >50,0 - 100,0
- >100,0 - 250,0
- >250,0 - 500,0
- >500,0 - 2.000,0

State	cases (n)	/100,000
Baden-Wuerttemberg	37038	334,6
Bavaria	50696	387,7
Berlin	9071	242,0
Brandenburg	3531	140,6
Bremen	1758	257,4
Hamburg	5338	289,9
Hesse	11806	188,4
Lower Saxony	14305	179,2
Mecklenburg-Vorpommern	849	52,7
North Rhine-Westphalia	47965	267,5
Rhineland-Palatinate	7456	182,5
Saarland	2857	288,4
Saxony	5525	135,5
Saxony-Anhalt	1997	90,4
Schleswig-Holstein	3379	116,6
Thuringia	3355	156,5

ROBERT KOCH INSTITUT

Figure 1: Number and cumulative incidence (per 100,000 population) of the 206,926 electronically reported COVID-19 cases in Germany by county and federal state (27/07/20220, 12:00 AM). Please see the COVID-19 dashboard (https://corona.rki.de/) for information on number of COVID-19 cases by county (local health authority).

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

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 (29/07/2020, 12:00 AM). The number of new cases covers positive cases, which have been sent to the local health department at the same day, but also at previous days.

Federal State	Total number of cases	Number of new cases	Cases/ 100,000 pop.	Cases in the last 7 days	7-day incidence per 100,000 pop.	Number of deaths	Number of deaths/ 100,000 pop.
Baden-Wuerttemberg	37,038	121	335	435	3.9	1,843	16.6
Bavaria	50,696	107	388	676	5.2	2,621	20.0
Berlin	9,071	51	242	220	5.9	223	5.9
Brandenburg	3,531	4	141	22	0.9	168	6.7
Bremen	1,758	6	257	33	4.8	55	8.1
Hamburg	5,338	12	290	82	4.5	261	14.2
Hesse	11,806	63	188	336	5.4	518	8.3
Mecklenburg-Western Pomerania	849	4	53	38	2.4	20	1.2
Lower Saxony	14,305	17	179	170	2.1	649	8.1
North Rhine-Westphalia	47,965	225	267	1,470	8.2	1,730	9.6
Rhineland-Palatinate	7,456	14	183	89	2.2	239	5.9
Saarland	2,857	5	288	22	2.2	174	17.6
Saxony	5,525	7	135	22	0.5	225	5.5
Saxony-Anhalt	1,997	6	90	28	1.3	64	2.9
Schleswig-Holstein	3,379	38	117	101	3.5	156	5.4
Thuringia	3,355	4	157	29	1.4	182	8.5
Total	**206,926**	**684**	**249**	**3,773**	**4.5**	**9,128**	**11.0**

As part of quality checks and data cleaning by the health authorities and regional offices, corrections to cases previously transmitted (e.g. detection of duplicate reports) can occiasionally lead to negative values for the number of new cases.

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

Distribution of cases over time

The first COVID-19 cases in Germany were notified in January 2020. Figure 2 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 in 63,785 cases (31%), thus their date of reporting is provided in Figure 2.

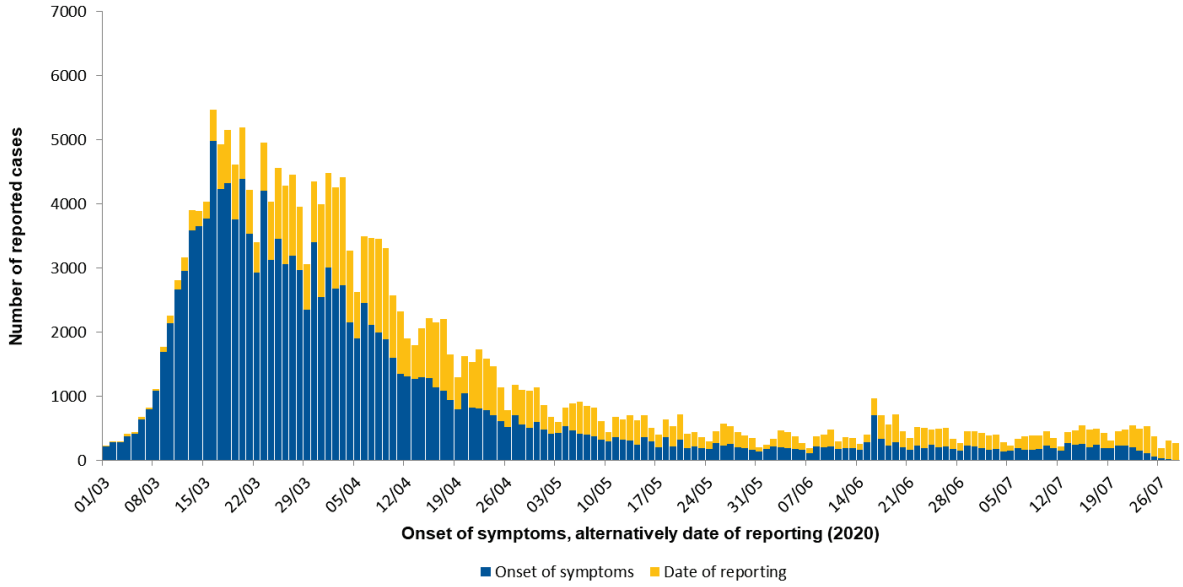


Figure 2: Number of Covid-19 cases in Germany electronically reported to the RKI by the date of symptoms onset or –if unknown- alternatively by date of reporting from 01/03/2020 (29/07/2020, 12:00 AM).

Demographic distribution of cases

Of all notified cases, 51% are female and 49% are male. Among all those notified cases, for which data on age and gender were reported, 5,942 were children under 10 years of age (2.9%), 10,708 children and teenagers aged 10 to 19 years (5.2%), 92,069 persons aged 20 to 49 years (44%), 61,471 persons aged 50 to 69 years (30%), 30,867 persons aged 70 to 89 years (15%) and 5,432 persons aged 90 years and older (2.6%). The age and/or gender is unknown in 437 notified cases. The mean age of cases is 48 years (median age 48 years). The highest incidences are seen in persons aged 90 years and older (Figure 3).

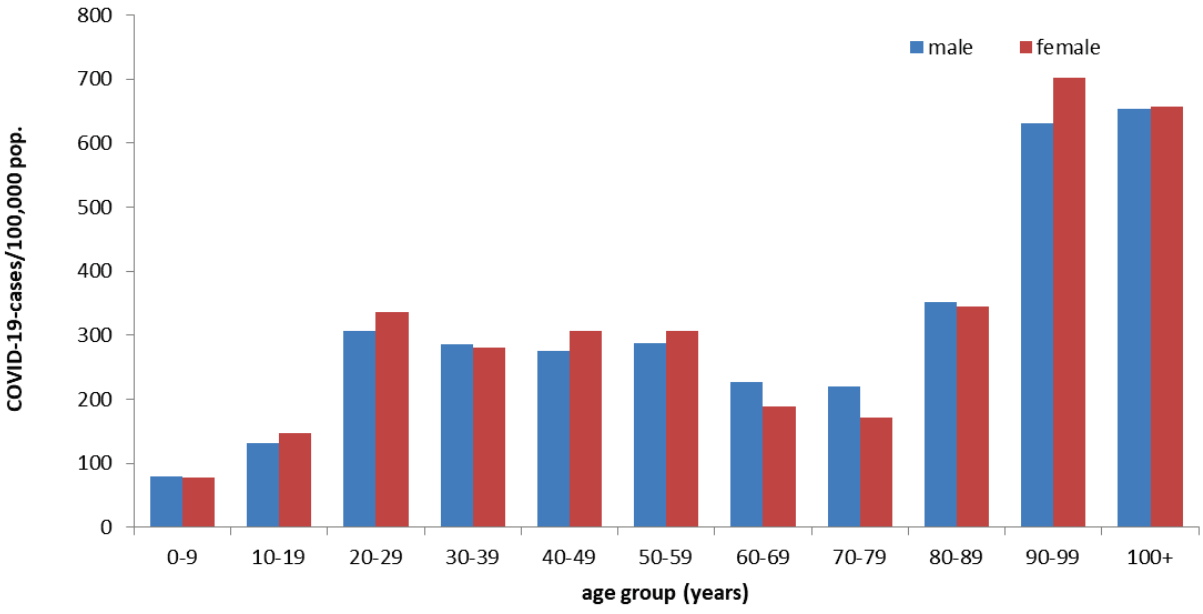


Figure 3: Electronically reported COVID-19 cases/100,000 population in Germany by age group and gender (n=206,489) for cases with information available (29/07/2020,12:00 AM).

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

Clinical aspects

Information on symptoms is available for 176,038 (85%) of the notified cases. Common symptoms are cough (48%), fever (40%) and rhinorrhoea (21%). Pneumonia was reported in 5,233 cases (3.0%). Since calendar week 17, cases are reported to the RKI as a distinct COVID-19 surveillance category. Since then, ageusia and anosmia can also be entered as symptoms. At least one of these two symptoms was reported in 4,795 of 32,129 cases (15%).

Hospitalisation was reported for 30,491 (17%) of 180,285 COVID-19 cases with information on hospitalisation status.

Approximately 191,300 people have recovered from their COVID-19 infection. Since the exact date of recovery is unknown in most cases, an algorithm was developed to estimate this number.

In total, 9,128 COVID-19-related deaths have been reported in Germany (4.4% of all confirmed cases). Of these, 5,048 (55%) are men and 4,075 (45%) are women (see Table 2), the gender was unknown in five cases.

The median age was 82 years. Of all deaths, 7,802 (85%) were in people aged 70 years or older, but only 18% of all cases were in this age group. So far, three deaths among COVID-19 cases under 20 years of age have been reported to the RKI. Pre-existing medical conditions were reported for all three.

Table 2: Number of notified COVID-19 deaths by age group and gender electronically reported to RKI (Data available for 9,123 of notified deaths; 29/07/2020, 12:00 AM)

Gender	Age group (in years)										
	0-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+
Male		2	6	17	57	241	648	1,382	2,117	572	6
Female	1		3	6	22	86	235	670	1,917	1,091	44
Total	**1**	**2**	**9**	**23**	**79**	**327**	**883**	**2,052**	**4,034**	**1,663**	**50**

Occupation, accommodation or care in facilities

In accordance with the Protection Against Infection Act, the RKI receives information on occupation, accommodation or care in a facility relevant for infection control for reported COVID-19 cases. Since information on occupation, accommodation or care in these facilities is missing in 25% of cases, the proportion of cases working, accommodated or cared for in these facilities reported here should be considered minimum values. Among the COVID-19 cases reported from the above mentioned facilities, the proportion of cases that actually acquired their infection in these facilities is unknown.

Table 3: Notified COVID-19-cases according to possible occupation, accommodation or care in facilities relevant for transmission of infectious diseases electronically reported to RKI (205,723* cases, no data available for 51,278 cases; 29/07/2020, 12:00 AM)

Facility according to		Total	Hospitalised	Deaths	Recovered (estimate)
§ 23 IfSG (e.g. hospitals, outpatient clinics and practices, dialysis clinics or outpatient nursing services)	Cared for / accommodated in facility	3,586	2,574	655	2,800
	Occupation in facility	14,313	656	22	14,100
§ 33 IfSG (e.g. day care facilities, kindergartens, facilities for after school care, schools or other educational facilities, children's homes, holiday camps)	Cared for / accommodated in facility*	4,025	81	1	3,700
	Occupation in facility	2,902	153	7	2,800
§ 36 IfSG (e.g. facilities for the care of older, disabled, or other persons in need of care, homeless shelters, community facilities for asylum-seekers, repatriates and refugees as well as other mass accommodation and prisons)	Cared for / accommodated in facility	18,499	4,171	3,615	14,700
	Occupation in facility	10,181	428	40	10,100
§ 42 IfSG (e.g. meat processing plants or kitchens in the catering trade, in inns, restaurants, canteens, cafés, or other establishments with or for communal catering)	Occupation in facility	5,023	213	5	4,800
Neither cared for, accommodated in nor working in a facility		95,916	16,556	3,494	89,700

*for care according to § 33 IfSG only cases under 18 years of age are taken into account, as other information may be assumed to be incorrect.

IfSG: Protection Against Infection Law

The number of COVID-19 cases was highest among persons cared for or employed in medical and other care facilites according to §23 and §36 IfSG (Table 3). The number of deaths was particularly high among persons cared for in these facilities.

Among the cases reported as working in medical facilities, 73% were female and 27% male. Their median age was 41 years. The high number of cases among people cared for or working in various care facilities (Section 36 IfSG) is consistent with numerous reported outbreaks, especially in nursing homes. The low number of cases among persons who attend or work in facilities providing child care or education (Section 33 IfSG) reflects the low incidence in children observed thus far. The increase in the number of cases among persons working in the food sector (§42) is largely due to outbreaks in meat processing plants.

Outbreaks

Three districts reported an increased incidence of >25 cases in 7 days/100.000 inhabitants: the districts of Dingolfing-Landau and Hof in Bavaria and the district of Weimar in Thuringia.

A high 7-day incidence with more than 100 cases per 100,000 inhabitants was observed In the district of Dingolfing-Landau. The increase is due to an outbreak among harvest workers of an agricultural company. Among more than 450 employees, >150 SARS-CoV-2-infections were identified. Quarantine was ordered for the entire company. The local population (3,300 inhabitants) has been offered voluntary testing.

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

A high 7-day incidence with more than 35 cases per 100,000 inhabitants was observed in the district of Hof (Bavaria). Several events are responsible for this increase. An outbreak in a large family has extended to several families in neighbouring communities. Another outbreak is related to a family event including individuals from Hof district as well as Weimar district in Thuringia. Together with another family-related outbreak, this explains the currently increased 7-day incidence of >25 cases per 100.000 inhabitants in Weimar district. Due to ongoing screening activites, further cases can be expected.

Further COVID-19 outbreaks continue to be reported in nursing homes and hospitals, refugee facilities, family events, child-day care facilities as well as religious communities.

Estimation of the reproduction number (R)

The presented case numbers do not fully reflect the temporal progression of incident COVID-19-cases, since the time intervals between actual onset of illness and diagnosis, reporting, as well as data transmission to the RKI vary greatly. Therefore, a nowcasting approach is applied to model the true temporal progression of COVID-19 cases according to illness onset. Figure 4 shows the result of this analysis.

The reproduction number, R, is defined as the mean number of people infected by one infected person. R can only be estimated based on statistical analyses such as nowcasting and not directly extracted from the notification system.

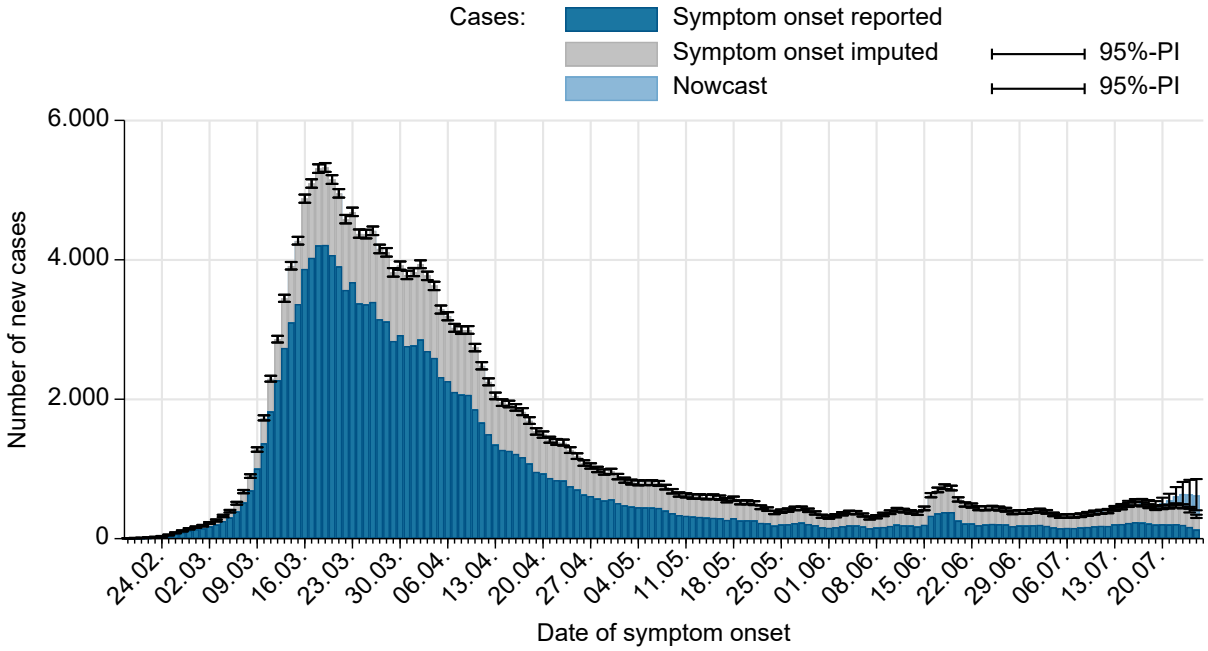


Figure 4: Number of notified COVID-19 cases with known date of illness onset (dark blue), estimated date of illness onset for cases without reported date of onset (grey) and estimated number of not yet notified cases according to illness onset electronically reported to RKI (light blue) (as of 29/07/2020, 12 AM, taking into account cases up to 25/07/2020).

A sensitive 4-day-R-value can be estimated by using a 4-day moving average of the number of new cases estimated by nowcasting. This 4-day value reflects the infection situation about one to two weeks ago. This value reacts sensitively to short-term changes in case numbers, such as those caused by individual outbreaks. Furthermore, outbreak dynamics may be influenced widespread testing performed among affected persons, leading to therapid detection of many additional COVID-19 cases. This can lead to relatively large fluctuations in the estimated R-value, especially if the total number of new cases is small.

The current estimate of the 4-day R-value is 1.14 (95%-prediction interval: 0,92 – 1.36) and is based on electronically notified cases as of 29/07/2020, 12:00 AM.

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

Similarly, the 7-day R-value is estimated by using a moving 7-day average of the nowcasting curve. This compensates for fluctuations more effectively, as this value represents a slightly later course of infection of about one to a little over two weeks ago. The 7-day R-value is estimated at 1.13 (95% prediction interval: 1,01 – 1.26) and is based on electronically notified cases as of 29/07/2020, 12:00 AM.

The reported 7-day R value has been around 1 or slightly above since mid-July 2020. This is due to a larger number of small outbreaks, but also case numbers in Germany overall, which have increased steadily in recent weeks since the relaxation of the measures.

See also the RKI's statement on high case numbers of 24/07/2020
https://www.rki.de/DE/Content/InfAZ/N/Neuartiges_Coronavirus/Gestiegene_Fallzahlen.html

Sample calculations as well as an excel sheet presenting both R-values with daily updates can be found under www.rki.de/covid-19-nowcasting. A detailed methodological explanation of the more stable 7day R-value is also available there. More general information and sample calculations for both R-values can also be found in our FAQs (http://www.rki.de/covid-19-faq).

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

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

As of 29/07/2020, a total of 1,280 hospitals reported to the DIVI registry. Overall, 33,220 intensive care beds were registered, of which 21,765 (66%) are occupied, and 11,455 beds (35%) are currently available. The number of COVID-19 cases treated in participating hospitals is shown in Table 4.

Table 4: COVID-19 patients requiring intensive care (ICU) recorded in the DIVI register (29/07/2020, 12:15 AM).

	Number of patients	Percentage	Change to previous day*
Currently in ICU	261		3
- of these: mechanically ventilated	130	50%	4
Discharged from ICU	15,392		22
- of these: deaths	3,786	25%	-4

*The interpretation of these numbers must take into account the 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.

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

Surveys on SARS-CoV-2 laboratory tests in Germany

In order to assess the SARS-CoV-2 test numbers, data from university hospitals, research institutions as well as clinical and outpatient laboratories throughout Germany are merged weekly at the RKI. These are transmitted via an internet-based RKI test laboratory survey, via the network for respiratory viruses (RespVir), via the laboratory-based SARS-CoV-2 Surveillance established at the RKI (an extension of the Antibiotic Resistance Surveillance (ARS)) and via the enquiry of a professional association of laboratory medicine.

Since the beginning of testing in Germany up to and including week 30/2020, 8.006.135 laboratory tests have been recorded to date, 243.590 of which have tested positive for SARS-CoV-2.

Up to and including week 30, 234 laboratories have registered for the RKI test laboratory survey or in one of the other transmitting networks and communicate mainly on a weekly basis. Since laboratories can register the tests of the previous calendar weeks at a later date, it is possible that the numbers determined will increase subsequently. It should be noted that the number of tests is not the same as the number of persons tested, as the data may include multiple tests of patients (see Table 5).

Table 5: Number of SARS-CoV-2-laboratory tests in Germany (as of 28/07/2020)

weeks* 2020	Number tests	Tested positiv	Proportion positive (%)	Number of reporting laboratories
Up until week 11	124,716	3,892	3.1	90
week 11	127,457	7,582	5.9	114
week 12	348,619	23,820	6.8	152
week 13	361,515	31,414	8.7	151
week 14	408,348	36,885	9.0	154
week 15	380,197	30,791	8.1	164
week 16	331,902	22,082	6.7	168
week 17	363,890	18,083	5.0	178
week 18	326,788	12,608	3.9	175
week 19	403,875	10,755	2.7	182
week 20	432,666	7,233	1.7	183
week 21	353,467	5,218	1.5	179
week 22	405,269	4,310	1.1	178
week 23	340,986	3,208	0.9	176
week 24	326,645	2,816	0.9	172
week 25	387,249	5,307	1.4	174
week 26	466,743	3,673	0.8	179
week 27	505,518	3,080	0.6	150
week 28	509,398	2,989	0.6	177
week 29	537,334	3,480	0.6	173
week 30	563,553	4,364	0.8	171
Summe	**8,006,135**	**243,590**		

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

Risk Assessment by the RKI

General assessment

At the global and the national level, the situation is very dynamic and must be taken seriously. The number of newly reported cases declined from mid-March until early July. Since then, case numbers have been steadily increasing. Some districts are transmitting very few or no cases to the RKI. However, reports of outbreaks in various settings are increasing again. The RKI currently assesses the risk to the health of the German population overall as **high** and as **very high** for risk groups. This assessment may change at short notice based on new insights.

Infection risk

The risk of infection depends heavily on the regional spread, living conditions and also on individual behaviour, including compliance with physical distancing, hygiene measures and community masks.

Disease severity

In most cases, the disease is mild. The probability of progression towards serious disease increases with increasing age and underlying illnesses.

Burden on health system

The burden on the health care system depends on the geographical distribution of cases, health care capacity and initiation of containment measures (isolation, quarantine, physical distancing etc.). The burden is currently low in many regions, but may be high in some locations.

Measures taken by Germany

- Corona-Warn-App https://www.rki.de/DE/Content/InfAZ/N/Neuartiges_Coronavirus/WarnApp/Warn_App.html
- Regulations for persons entering Germany in connection with the novel coronavirus SARS-CoV-2 (15.06.2020) https://www.rki.de/DE/Content/InfAZ/N/Neuartiges_Coronavirus/Transport/BMG_Merkblatt_Reisende_Tab.html
- 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: https://www.bundesregierung.de/breg-de/themen/coronavirus/corona-bundeslaender-1745198 *(in German)*
- (Non-medical) face masks must be worn on public transport and in shops in all federal states.
- Data on current disease activity can be found in the daily situation reports and on the RKI dashboard: https://corona.rki.de/
- A distance of 1.5 metres to other indivduals must be maintained in public spaces: https://www.bundesregierung.de/breg-de/themen/coronavirus/besprechung-der-bundeskanzlerin-mit-den-regierungschefinnen-und-regierungschefs-der-laender-1733248 *(in German)*

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