ROBERT KOCH INSTITUT

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

10/06/2020 - UPDATED STATUS FOR GERMANY

Confirmed cases	Deaths	Deaths (%)	Recovered
184,861 (+318*)	**8,729** (+18*)	**4.7%**	**ca. 170,700****

**Change from previous day; **Estimate*

COVID-19 cases are reported to the responsible public health department in accordance with the German Protection against Infection Act. This situation report presents the data on laboratory-confirmed COVID-19 cases that were reported to RKI.

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

Summary (as of 10/06/2020, 12:00 AM)

- In total, 184,861 COVID-19 cases and 8,729 deaths due to COVID-19 have been electronically reported to the Robert Koch Institute in Germany.
- The cumulative incidence (cases per 100,000) of COVID-19 is currently highest in Bavaria (363), Baden-Wuerttemberg (316), Saarland (279) and Hamburg (278).
- Most cases (67%) are between 15 and 59 years old. Women (52%) and men (48%) are almost equally affected. Slightly more men (55%) than women (45%) died.
- People aged 70 years or older account for 86% of deaths but only 19% of all cases.
- COVID-19 outbreaks continue to be reported in nursing homes and hospitals.
- Outbreaks of COVID-19 have been reported in several federal states (including in institutions for asylum seekers and refugees, in meat processing plants and logistics companies, and in connection with religious events and family gatherings.

Epidemiological Situation in Germany

Geographical distribution of cases

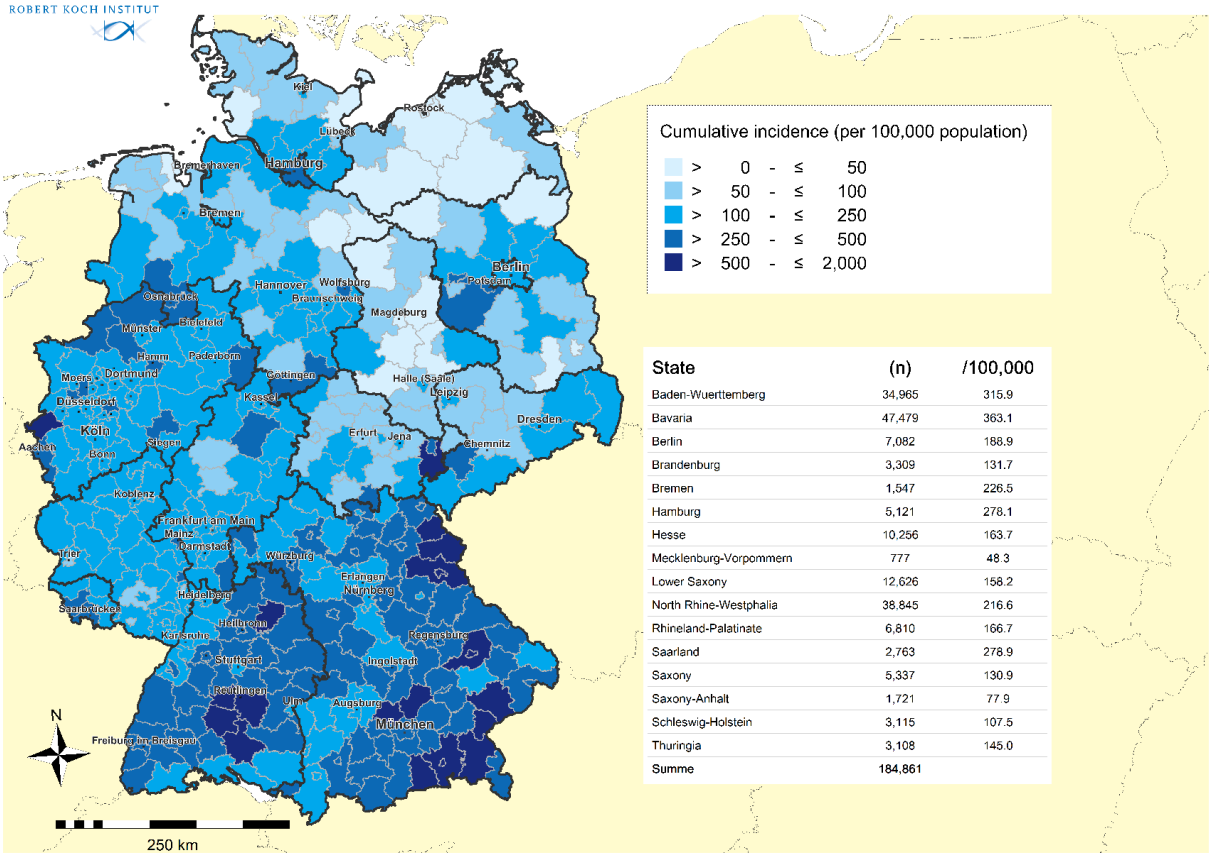
Epidemiological analyses are based on validated cases notified electronically to the Robert Koch Institute (RKI) in line with the Protection Against Infection Law (Data closure: 12:00 AM daily). Since January 2020, a total of 184,861 (+318) laboratory-confirmed cases of coronavirus disease 2019 (COVID-19) have been electronically reported to and validated by the RKI, including 8,729 deaths (see Table 1 and Figure 1). A total of 112 districts reported no cases in the past 7 days. Information on confirmed cases is also available on the RKI website at https://www.rki.de/DE/Content/InfAZ/N/Neuartiges_Coronavirus/Fallzahlen.html and https://corona.rki.de.

Table 1: Number and cumulative incidence (per 100,000 population) of notified laboratory-confirmed COVID-19 cases and deaths for each federal state, Germany (10/06/2020, 12:00 AM).

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	34,965	7	316	156	1.4	1.798	16.2
Bavaria	47,479	56	363	322	2.5	2.531	19.4
Berlin	7,082	40	189	200	5.3	206	5.5
Brandenburg	3,309	7	132	20	0.8	160	6.4
Bremen	1,547	15	227	100	14.6	43	6.3
Hamburg	5,121	4	278	24	1.3	254	13.8
Hesse	10,256	19	164	154	2.5	485	7.7
Mecklenburg-Western Pomerania	777	*-3	48	16	1.0	20	1.2
Lower Saxony	12,626	25	158	452	5.7	607	7.6
North Rhine-Westphalia	38,845	102	217	656	3.7	1.636	9.1
Rhineland-Palatinate	6,810	23	167	94	2.3	231	5.7
Saarland	2,763	9	279	29	2.9	167	16.9
Saxony	5,337	4	131	30	0.7	217	5.3
Saxony-Anhalt	1,721	1	78	10	0.5	56	2.5
Schleswig-Holstein	3,115	1	108	10	0.3	148	5.1
Thuringia	3,108	8	145	76	3.5	170	7.9
Total	**184,861**	**318**	**222**	**2,349**	**2.8**	**8,729**	**10.5**

*: negative because of correction to reported figure of the day before

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



State	(n)	/100,000
Baden-Wuerttemberg	34,965	315.9
Bavaria	47,479	363.1
Berlin	7,082	188.9
Brandenburg	3,309	131.7
Bremen	1,547	226.5
Hamburg	5,121	278.1
Hesse	10,256	163.7
Mecklenburg-Vorpommern	777	48.3
Lower Saxony	12,626	158.2
North Rhine-Westphalia	38,845	216.6
Rhineland-Palatinate	6,810	166.7
Saarland	2,763	278.9
Saxony	5,337	130.9
Saxony-Anhalt	1,721	77.9
Schleswig-Holstein	3,115	107.5
Thuringia	3,108	145.0
Summe	184,861	

Figure 1: Number and cumulative incidence (per 100,000 population) of the 184,861 electronically reported COVID-19 cases in Germany by county and federal state (10/06/2020, 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).

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. With regard to all cases reported from 01.03.2020 onwards, the onset of symptoms is unknown in 55,380 cases (30%). When the the onset of symptoms is unknown, the date of reporting is provided in Figure 2.

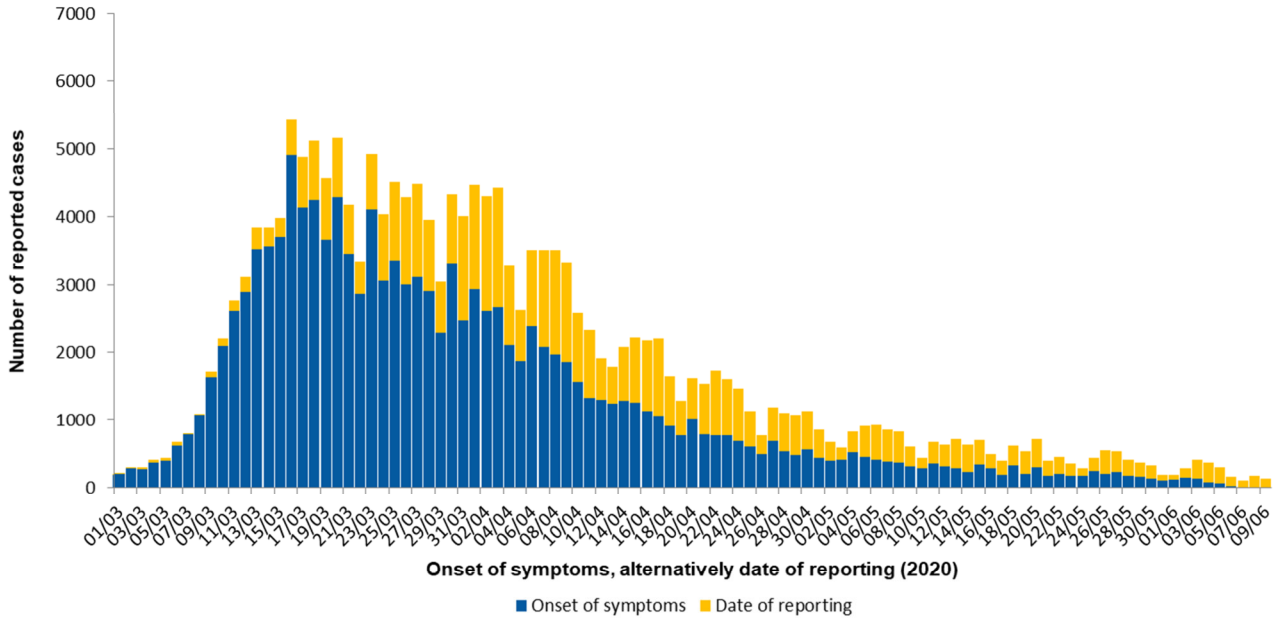


Figure 2: Number of electronically reported COVID-19 cases in Germany by date of symptom onset and by date of reporting from 01/03/2020 (10/06/2020, 12:00 AM).

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

Demographic distribution of cases

Of all reported cases, 52% are female and 48% are male. Among notified cases with data on gender, 3,994 were children under 10 years of age (2.2%), 8,424 children and teenagers aged 10 to 19 years (4.6%), 79.968 persons aged 20 to 49 years (43%), 57,278 persons aged 50 to 69 years (31%), 29,555 persons aged 70 to 89 years (16%) and 5,242 persons aged 90 years and older (2.8%). The age is unknown in 100 notified cases. The mean age of cases is 49 years (median age 49 years). The highest incidences are seen in persons aged 90 years and older (Figure 3).

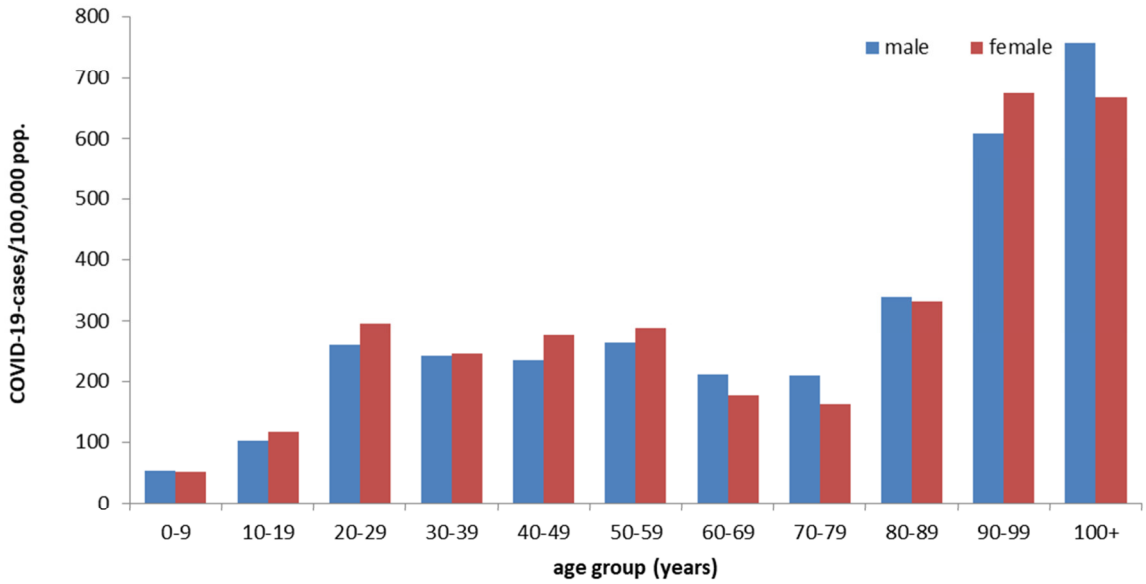


Figure 3: Electronically reported COVID-19 cases/100,000 population in Germany by age group and gender (n=184,456) for cases with information available (10/06/2020, 12:00 AM).

Clinical aspects

Information on symptoms is available for 157,852 (85%) of the notified cases. Common symptoms are cough (49%), fever (41%) and rhinorrhoea (21%). Pneumonia was reported in 4,755 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 2,465 of 16,344 cases (15%).

Hospitalisation was reported for 28.102 (18%) of 158,985 COVID-19 cases with information on hospitalisation status.

Approximately 170.700 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 the number of recovered cases.

In total, 8,729 COVID-19-related deaths have been reported in Germany (4.7% of all confirmed cases). Of these, 4,829 (55%) are men and 3,895 (45%) are women (see Table 2; gender was unknown in five cases). The median age was 82 years. Of all deaths, 7,498 (86%) were in people aged 70 years or older, but only 19% 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 (Data available for 8,724 of notified deaths; 10/06/2020, 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	15	49	223	612	1.319	2.048	550	5
Female	1		3	6	19	80	213	639	1.850	1.039	45
Total	**1**	**2**	**9**	**21**	**68**	**303**	**825**	**1958**	**3898**	**1589**	**50**

Occupation, accommodation or care in facilities

In accordance with the Protection Against Infection Law (IfSG), 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 27% 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.

So far, 13,228 cases with a SARS-CoV-2 infection have been notified among staff working in medical facilities as defined by Section 23 IfSG. Among the cases reported as working in medical facilities, 73% were female and 27% male. The median age was 41 years, 20 persons died.

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 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.

Table 3: Notified COVID-19-cases according to possible occupation, accommodation or care in facilities relevant for transmission of infectious diseases (183,872* cases, no data available for 49,533 cases; 10/06/2020, 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	3,105	2,209	588	2,400
	Occupation in facility	13,228	605	20	13,000
§ 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*	2,476	60	1	2,300
	Occupation in facility	2,545	128	7	2,500
§ 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	17.109	3881	3406	13,000
	Occupation in facility	9,565	404	49	9,400
§ 42 IfSG (e.g. kitchens in the catering trade, in inns, restaurants, canteens, cafés, or other establishments with or for communal catering)	Occupation in facility	2,484	160	7	2,400
Neither cared for, accommodated in nor working in a facility		83,827	15,112	3,309	78,800

*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

Outbreaks

A high 7-day incidence rate was observed in six cities or districts, primarily due to localised outbreaks: The city of Bremerhaven (Bremen), the districts of Sonneberg (Thuringia), Göttingen (Lower Saxony), Coburg (Bavaria), Cuxhaven (Lower Saxony) and Aichach-Friedberg (Bavaria).

In the city of Bremerhaven, an outbreak extending to other districts (e.g. Cuxhaven) occurred within a religious community. Another outbreak occurred following a large family gathering.

In addition an outbreak occurred in a nursing home for the elderly in the district of Sonneberg, in which both residents and employees were infected with SARS-CoV-2. In the neighbouring district of Coburg an increased number of SARS-CoV-2 infections occurred in nursing homes, some in conjunction with dialysis treatment.

A large Covid-19 outbreak occurred in the district of Göttingen related to family gatherings, for which a large number of contact persons has been identified. Due to a high number of affected children, numerous schools and day care institutions were temporarily closed.

In the district of Aichach-Friedberg an outbreak was reported amongst seasonal harvest workers, measures regarding quarantine and testing of cases and contact persons were readily administered.

Outbreaks continue to occur in meat-processing plants in several federal states, some of which have led to closures of plants.

Outbreaks in the context of religious communities have been reported from Berlin, Hessen and Mecklenburg-Western Pomerania.

In addition, several large outbreaks have occurred among workers at logistics companies, for instance in North Rhine-Westphalia and Lower Saxony.

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

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 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.

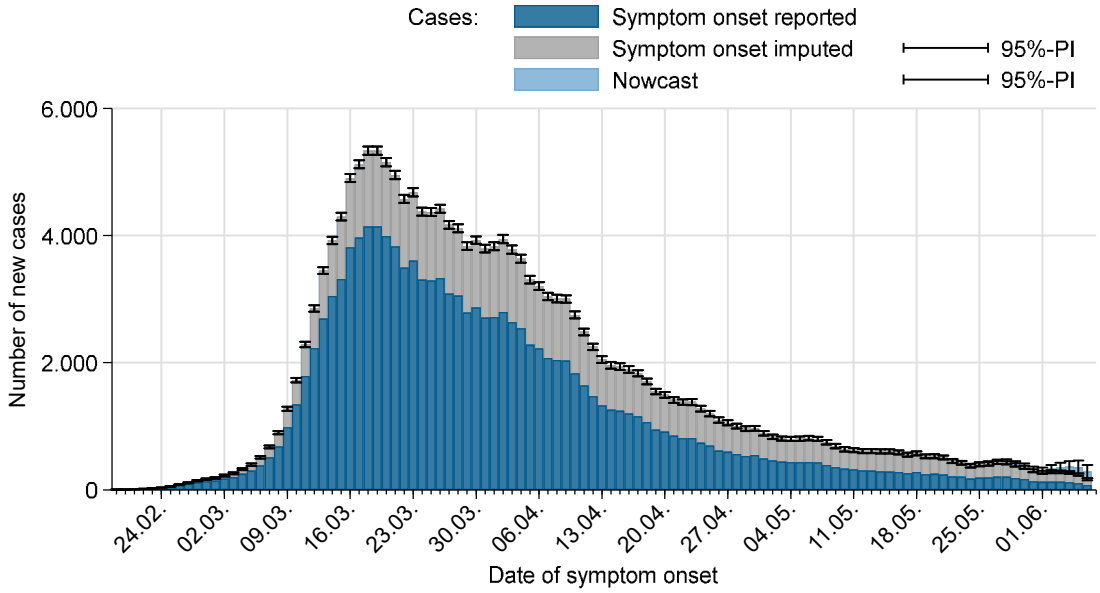


Figure 4: Number of notified COVID-19 cases with known date of illness onset (dark blue), estimated date of illness onset for cases without reported date of onset (grey) and estimated number of not yet notified cases according to illness onset (light blue) (as of 10/06/2020 12 AM, taking into account cases up to 05/06/2020).

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.

The R-value reported to date reflects the trend in the number of incident cases with a high degree of sensitivity. This value is thus sensitive to short-term changes in the number of cases - such as those caused by individual outbreaks - which can lead to relatively large fluctuations, especially if the total number of new cases is relatively low. In addition to this sensitive R-value, the RKI therefore now provides a second, more stable 7-day R-value, which is based on data from a longer time period and is therefore less subject to short-term fluctuations. Thus, it reflects trends more reliably, but is based on infections that occurred on average earlier than those on which the more sensitive R-value is based.

Both R-values are estimated on the basis of nowcasting. The nowcasting predicts the number of cases with illness onset up to the date of 4 days ago, as no reliable prediction can be made about the number of new cases in the last 3 days.

The sensitive R-value reported so far can be estimated using a moving 4-day average of the number of incidenct cases as estimated by nowcasting. It compares the 4-day mean of incident cases on one day with the corresponding mean 4 days before. Thus, taking into account that infection occurs four to six days before the onset of symptoms, the daily sensitive R-value represents the course of infection approximately one to two weeks ago. This value is sentitive to short-term changes, e.g. due to local outbreaks, especially, if the number of new cases is relatively low. The current estimate is R = 0.86 (95%-prediction interval: 0.71 – 1.04) and is based on electronically notified cases as of 10/06/2020, 12:00 AM.

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. The 7-day R-value then compares the 7-day average of

the new cases on one day with the 7-day average four days earlier. The 7-day R thus 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 0.86 (95% predictation interval: 0.76– 0.95) and is based on electronically notified cases as of 10/06/2020, 12:00 AM.

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 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 10/06/2020, a total of 1,275 hospitals or departments reported to the DIVI registry. Overall, 32,057 intensive care beds were registered, of which 20.785 (65%) are occupied, and 11.272 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 (10/06/2020, 9:15 AM).

	Number of patients	Percentage	Change to previous day
Currently in ICU	492		-41
- of these: mechanically ventilated	293	60%	-27
Discharged from ICU	13,971		-153
- of these: deaths	3,634	26%	-32

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 23/2020, 4,694,147 laboratory tests have been recorded to date, 217,680 of which have tested positive for SARS-CoV-2.

Up to and including week 23, 226 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 26/05/2020)

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	351,199	5,196	1.5	177
Week 22	403,617	4,308	1.1	177
Week 23	329,358	3,031	0.9	172
total	**4,694,147**	**217,680**	**4.6**	**90**

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 is decreasing. 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.

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.

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

Measures taken by Germany

- Since the number of new infections during the past seven days has risen to over 50 per 100,000 citizens in Sweden, in the district of Schleswig Holstein, paragraph 1 of the state order of May 17th is taking effect. Thus, a two week quarantine is required for all people travelling in- or out oft he country.
  https://schleswig-holstein.de/coronavirus-erlasse (*in German*)
- From 15 June, travel within Europe should be possible again – provided the COVID-19 activity in destination countries permits this. https://www.bundesregierung.de/breg-de/themen/coronavirus/reisen-wieder-moeglich-1757372 *(in German)*
- Information on additional regulations at the regional level regarding physical distancing can be found 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)*