ROBERT KOCH INSTITUT

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

30/05/2020 - UPDATED STATUS FOR GERMANY

Confirmed cases	Deaths	Deaths (%)	Recovered
181,196 (+ 738*)	**8,489** (+ 39*)	**4.7%**	**ca. 164,900****

*Change from previous day; **Estimate

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

Summary (as of 30/05/2020, 12:00 AM)

- In total, 181,196 COVID-19 cases and 8,489 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 (358), Baden-Wuerttemberg (314), Hamburg (276) and Saarland (275).
- 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 connection with a religious event or in meat processing plants).

Epidemiological Situation in Germany

Geographical distribution of cases

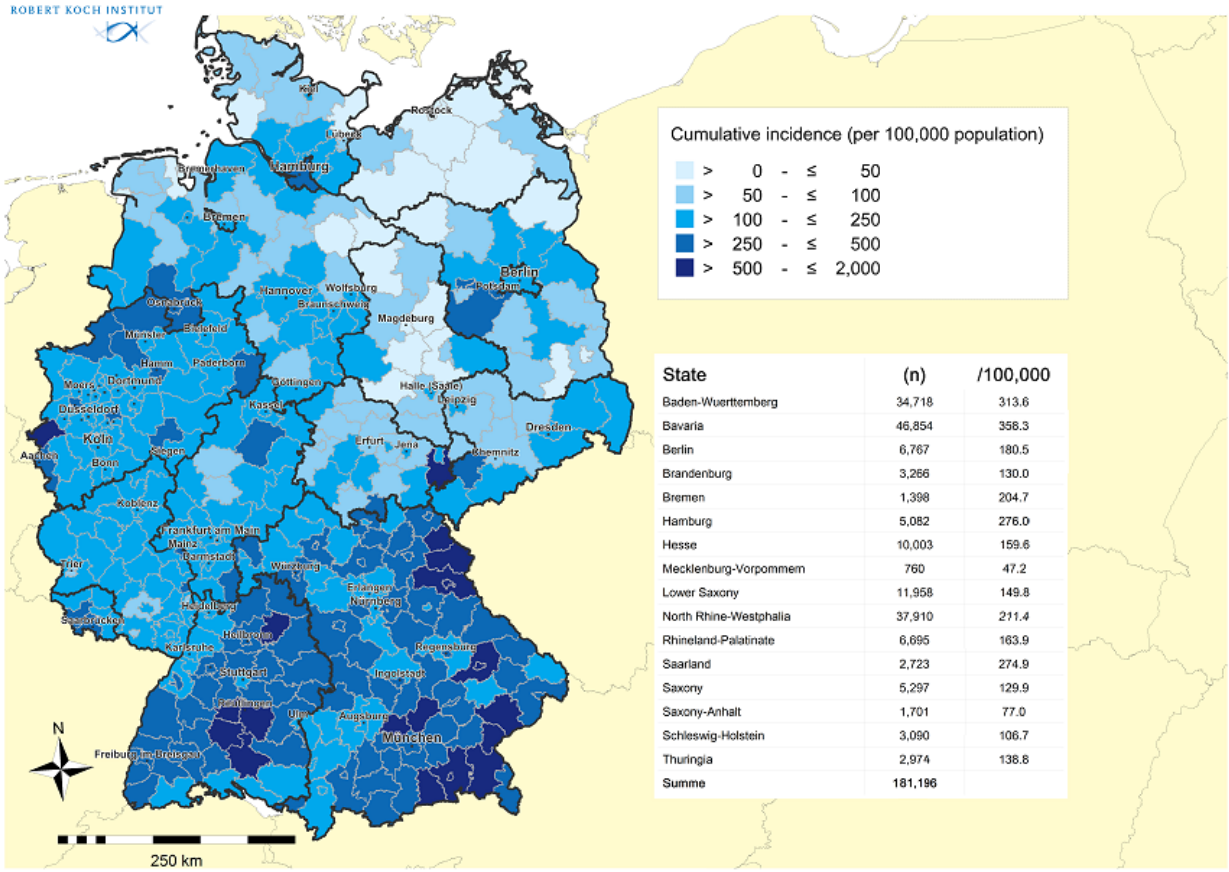
Epidemiological analyses are based on validated cases notified electronically to the Robert Koch Institute (RKI) in line with the Protection Against Infection Law (Data closure: 12:00 AM daily). Since January 2020, a total of 181,196 (+738) laboratory-confirmed cases of coronavirus disease 2019 (COVID-19) have been electronically reported to and validated by the RKI, including 8,489 deaths (see Table 1 and Figure 1). A total of 96 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 (30/05/2020, 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	34,718	239	314	288	2.6	1.748	15.8
Bavaria	46,854	45	358	635	4.9	2.450	18.7
Berlin	6,767	29	181	129	3.4	197	5.3
Brandenburg*	3,266	-5	130	32	1.3	155	6.2
Bremen	1,398	26	205	103	15.1	42	6,1
Hamburg	5,082	4	276	8	0.4	246	13.4
Hesse	10,003	41	160	289	4.6	476	7.6
Mecklenburg-Western Pomerania	760	1	47	2	0.1	20	1.2
Lower Saxony	11,958	126	150	376	4.7	593	7.4
North Rhine-Westphalia	37,910	107	211	713	4.0	1.595	8.9
Rhineland-Palatinate	6,695	22	164	103	2.5	230	5.6
Saarland	2,723	7	275	24	2.4	163	16.5
Saxony	5,297	67	130	66	1.6	213	5.2
Saxony-Anhalt	1,701	1	77	9	0.4	55	2.5
Schleswig-Holstein	3,090	12	107	23	0.8	145	5.0
Thuringia	2,974	16	139	126	5.9	161	7.5
Total	**181,196**	**738**	**218**	**2,926**	**3.5**	**8.489**	**10.2**

* Due to data correction, the total number of cases transmitted from Brandenburg was lower than yesterday.

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



State	(n)	/100,000
Baden-Wuerttemberg	34,718	313.6
Bavaria	46,854	358.3
Berlin	6,767	180.5
Brandenburg	3,266	130.0
Bremen	1,398	204.7
Hamburg	5,082	276.0
Hesse	10,003	159.6
Mecklenburg-Vorpommern	760	47.2
Lower Saxony	11,958	149.8
North Rhine-Westphalia	37,910	211.4
Rhineland-Palatinate	6,695	163.9
Saarland	2,723	274.9
Saxony	5,297	129.9
Saxony-Anhalt	1,701	77.0
Schleswig-Holstein	3,090	106.7
Thuringia	2,974	138.8
Summe	181,196	

Figure 1: Number and cumulative incidence (per 100,000 population) of the 181,196 electronically reported COVID-19 cases in Germany by county and federal state (30/05/2020, 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.

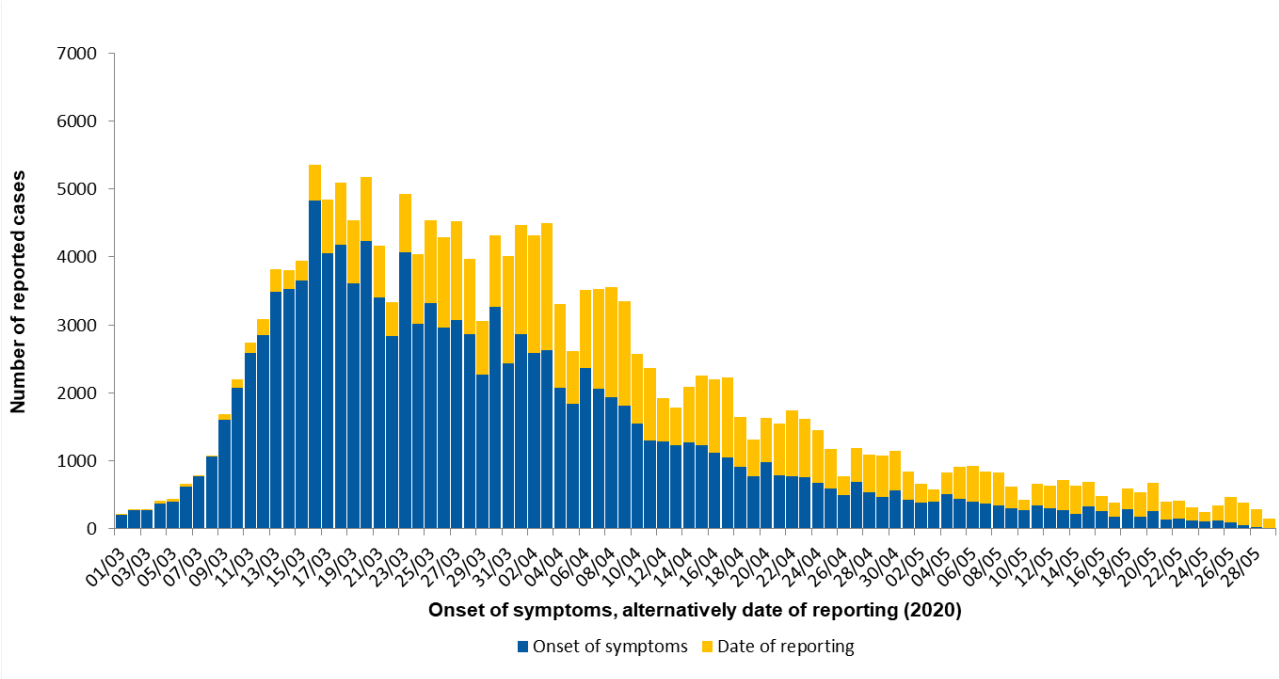


Figure 2: Number of electronically reported COVID-19 cases in Germany by date of symptom onset and by date of reporting from 01/03/2020. For 55,481 cases the onset of symptoms is unknown and the date of reporting is provided in the figure (30/05/2020, 12:00 AM).

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, 3,681 were children under 10 years of age (2.0%), 8,056 children and teenagers aged 10 to 19 years (4.4%), 78,373 persons aged 20 to 49 years (43%), 56,590 persons aged 50 to 69 years (31%), 29,195 persons aged 70 to 89 years (16%) and 5,189 persons aged 90 years and older (2.9%). The age is unknown in 112 notified cases. The mean age of cases is 49 years (median age 50 years). The highest incidences are seen in persons aged 90 years and older (Figure 3).

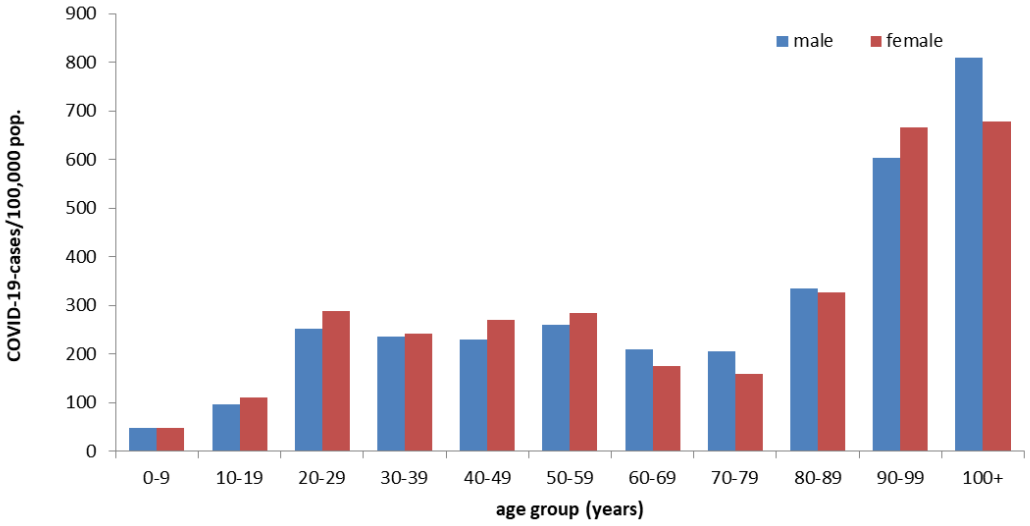


Figure 3: Electronically reported COVID-19 cases/100,000 population in Germany by age group and gender (n=180,765) for cases with information available (30/05/2020, 12:00 AM).

Clinical aspects

Information on symptoms is available for 153,341 (85%) of the notified cases. Common symptoms are cough (49%), fever (41%) and rhinorrhoea (21%). Pneumonia was reported in 4,596 cases (3.0%). Since calendar week 17, cases are reported to the RKI as a distinct COVID-19 surveillance category. Since then, loss of smell and taste can also be entered as symptoms. At least one of these two symptoms was reported in 2,054 of 13,441 cases (15%).

Hospitalisation was reported for 27,341 (18%) of 154,038 COVID-19 cases with information on hospitalisation status.

Approximately 164,900 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.

Table 2: Number of notified COVID-19 deaths by age group and gender (Data available for 8,484 of notified deaths; 30/05/2020, 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	14	49	218	588	1,286	1,998	538	5
Female	1		3	6	18	71	211	615	1,803	1,007	45
Total	**1**	**2**	**9**	**20**	**67**	**289**	**799**	**1,901**	**3,801**	**1,545**	**50**

In total, 8,489 COVID-19-related deaths have been reported in Germany (4.7% of all confirmed cases). Of these, 4,704 (55%) are men and 3,780 (45%) are women (see Table 2; gender was unknown in five cases). The mean age was 81 years (median age 82 years). Of all deaths, 7,300 (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.

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 (Table 3).

Since information on care/attendance, accommodation and occupation in these facilities is missing in 28% of cases, the proportion of cases cared for, accommodated or working in these facilities shown here should be considered minimums values. Among the COVID-19 cases reported as being cared for/attending, accommodated in or working in all of the above mentioned facilities, the proportion of cases that actually acquired their infection in these settings is unknown.

Table 3: Notified COVID-19-cases according to possible occupation, accommodation or care in facilities relevant for transmission of infectious diseases (180,241* cases, no data available for 50,956 cases; 30/05/2020, 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	2,953	2,070	552	2,200
	Occupation in facility	12,813	584	20	12,400
§ 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*	2,212	58	1	2,100
	Occupation in facility	2,469	120	7	2,400
§ 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	16,390	3,693	3,237	12,000
	Occupation in facility	9,267	390	48	8,800
§ 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	2,413	154	51**	2,100
Neither cared for, accommodated in nor working in a facility		80,768	14,622	3,211	75,300

*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
*** incorrect high case number due to technical data transmission problems*

Until now, 12,813 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.

Outbreaks

A high 7-day incidence rates was observed in three cities or districts which is mainly due to localised outbreaks. Most of these are outbreaks in medical and care facilities. In most of these districts, we observe a downward trend.

In Regensburg (Bavaria) an outbreak was detected among the residents of a shared accommodation for asylum seekers.

Continuing COVID-19 outbreaks are found in the district of Leer, Lower Saxony, and in Frankfurt/Main, Hesse, and surrounding districts. In the district of Leer there was a cluster of COVID-19 cases among participants of a closed event in a reopened restaurant. According to investigations by the public health department, there are indications that contact restrictions were not observed. These are currently being further investigated.

In the context of the COVID-19 outbreak in the surroundings of a free Baptist congregation in Frankfurt/Main, Hesse, a testing of the identified contacts for SARS-CoV-2, which have been reported so far from Frankfurt and seven neighbouring city and county districts, has been arranged on site. The investigation into the circumstances of the outbreak is still ongoing.

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

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.

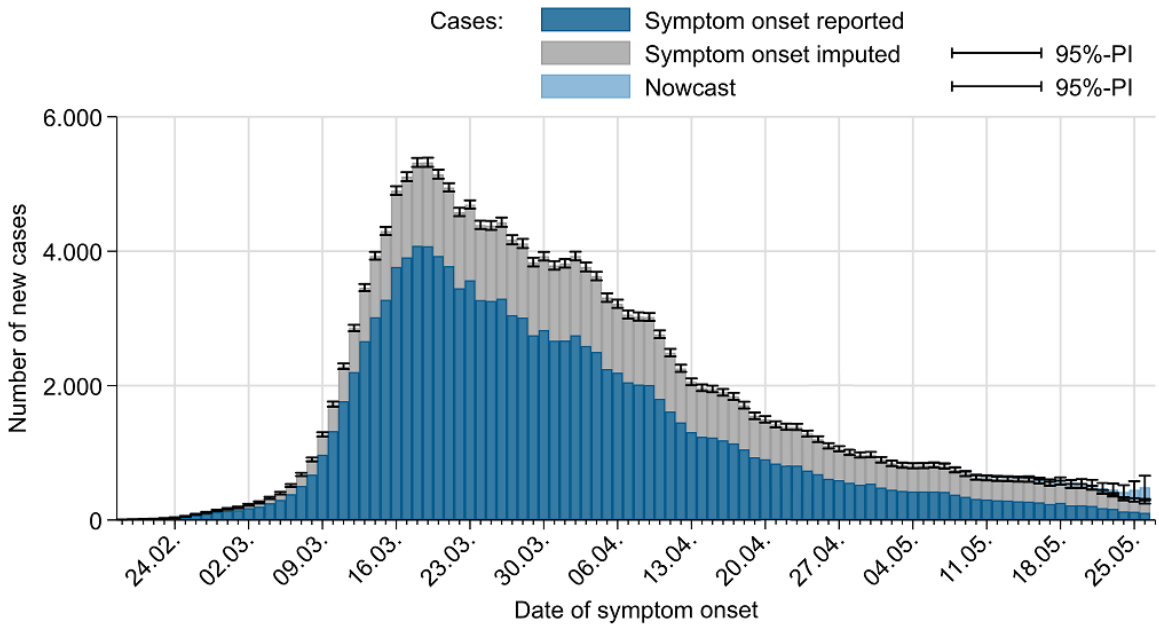


Figure 4: Display of cases with known onset of the disease (dark blue), estimated onset of the disease for cases where the onset of the disease has not beed reported (grey) and estimated course of already symptomatic cases (light blue) (as of 30/05/2020 12 AM, taking into account cases up to 26/05/2020).

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

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

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. As mentioned, 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= 1.03 (95% prediction interval: 0.84 – 1.21) and is based on electronically notified cases as of 30/05/2020, 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 0.95 (95% predictation interval: 0.86 – 1.04) and is based on electronically notified cases as of 30/05/2020, 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 (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 30/05/2020, a total of 1,273 hospitals or departments reported to the DIVI registry. Overall, 32,412 intensive care beds were registered, of which 20,553 (63%) are occupied, and 11,859 beds (37%) 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 (30/05/2020, 9:15 AM).

	Number of patients	Percentage	Change to previous day
Currently in ICU	720		-9
- of these: mechanically ventilated	421	58%	-5
Discharged from ICU	13,604		+56
- of these: deaths	3,577	26%	+13

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

- For persons entering Germany from EU countries, Schengen-associated countries or the UK the federal and state governments recommend quarantine if the country of origin has a high COVID-19 incidence (>50 cases/100,000 inhabitants in the past 7 days).
  https://www.rki.de/DE/Content/InfAZ/N/Neuartiges_Coronavirus/Quarantaene_Einreisen_Deutschland.html *(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/
- RKI teams are currently supporting outbreak containment measures with a focus on outbreaks in retirement and health care homes as well as hospitals in several federal states.
- 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)*
- German parliament passes second law to protect the population in the event of an epidemic situation of national importance on 14/05/2020 *(in German)*
  https://www.bundesgesundheitsministerium.de/presse/pressemitteilungen/2020/2-quartal/covid-19-bevoelkerungsschutz-2.html
- A new federal law was implemented on 28/03/2020 for the protection of the public in the event of epidemic situations, granting the federal government additional competencies for the control of epidemics:
  https://www.bundesgesundheitsministerium.de/presse/pressemitteilungen/2020/1-quartal/corona-gesetzespaket-im-bundesrat.html *(in German)*
- On 15/04/2020, the German government and the federal states agreed to gradually reduce physical distancing measures
  https://www.bundesregierung.de/breg-de/themen/coronavirus/fahrplan-corona-pandemie-1744202 (*in German*)