



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

05/05/2020 - UPDATED STATUS FOR GERMANY

Confirmed cases	Deaths	Deaths (%)	Recovered
163,860 (+685*)	6,831 (+139*)	4.2%	ca. 135,100**

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

*Change from previous day; **Estimate

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

- In total, **163,860** COVID-19 cases and **6,831** 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 thus far highest in Bavaria (**330**), Baden-Wuerttemberg (293), Saarland (**264**) and Hamburg (252).
- Most cases (67%) are between 15 and 59 years old; women (52%) and men (48%) are almost equally affected.
- 87% of deaths, but only 19% of all cases, occurred in persons aged 70 years or older.
- COVID-19 related outbreaks in nursing homes and hospitals continue to be reported. In some of these outbreaks, the number of deaths is relatively high.

Epidemiological Situation in Germany

Geographical distribution of cases

Epidemiological analyses are based on validated cases notified electronically to the Robert Koch Institute (RKI) according to the Protection Against Infection Law (Data closure: 12:00 AM daily). Since January 2020, a total of **163,860 (+685)** laboratory-confirmed cases of coronavirus disease 2019 (COVID-19) have been electronically reported to and validated at the RKI, including **6,831** deaths (see Table 1 and Figure 1). 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 per federal state, Germany (05/05/2020, 12:00 AM).

Federal State	Total Number of cases	Number of new cases	Cases/100,000 pop.	Number of deaths	Number of deaths/ 100,000 pop.
Baden-Wuerttemberg	32,482	71	293	1,452	13.1
Bavaria	43,162	165	330	1,949	14.9
Berlin	6,042	32	161	154	4.1
Brandenburg	2,940	26	117	123	4.9
Bremen	895	2	131	31	4.5
Hamburg	4,644	8	252	172	9.3
Hesse	8,585	36	137	381	6.1
Mecklenburg-Western Pomerania	703	4	44	19	1.2
Lower Saxony	10,380	55	130	463	5.8
North Rhine-Westphalia	33,728	168	188	1,332	7.4
Rhineland-Palatinate	6,160	10	151	182	4.5
Saarland	2,618	10	264	139	14.0
Saxony	4,745	43	116	171	4.2
Saxony-Anhalt	1,585	7	72	46	2.1
Schleswig-Holstein	2,799	11	97	118	4.1
Thuringia	2,392	37	112	99	4.6
Total	163,860	685	197	6,831	8.2

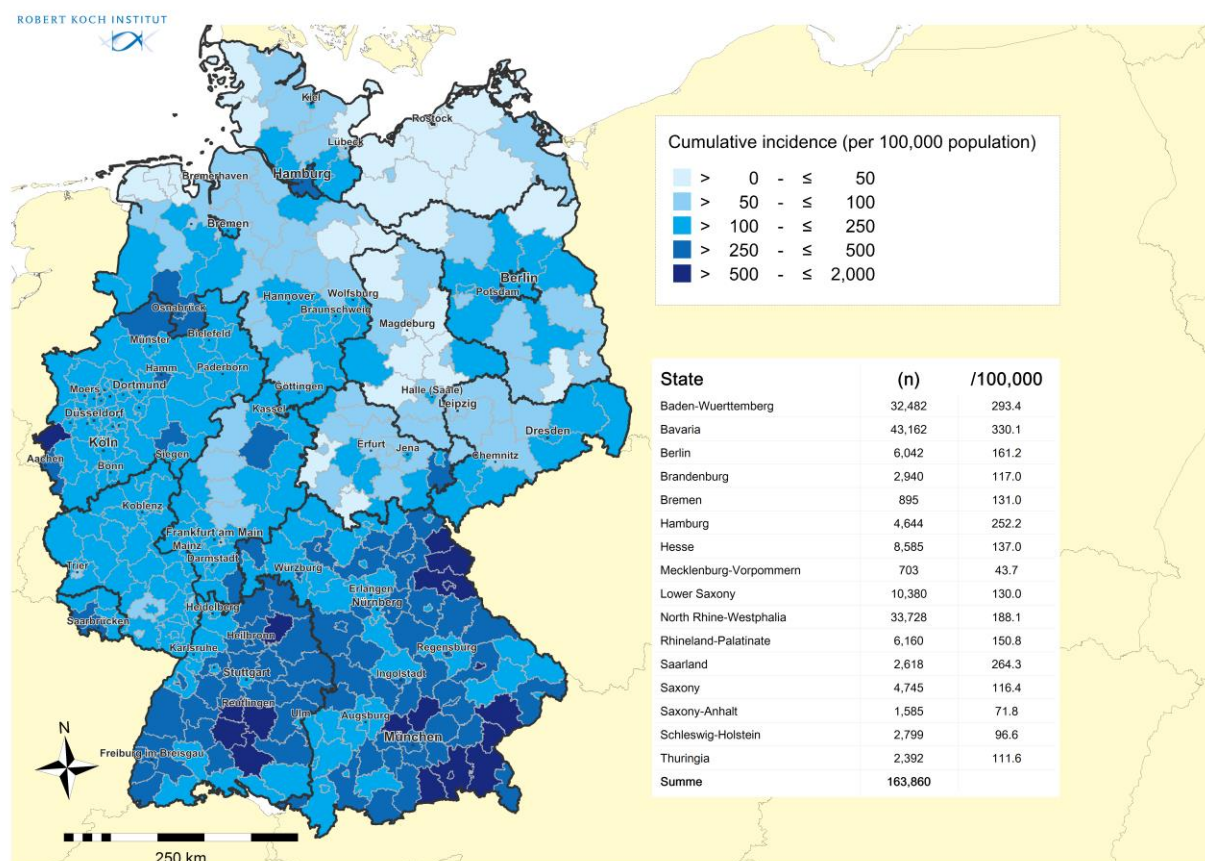


Figure 1: Number and cumulative incidence (per 100,000 population) of the 163,860 electronically reported COVID-19 cases in Germany by county and federal state (05/05/2020, 12:00 AM). Please see the COVID-19 dashboard (<https://corona.rki.de/>) for information on number of COVID-19 cases by county (local health authority).

Table 2: Number and incidence of notified laboratory-confirmed COVID-19 cases per federal state, Germany for the weeks 17 and 18 (05/05/2020, 12:00 AM).

Federal State	Week 18		Week 17		Change compared to previous week
	Number of cases	Incidence	Number of cases	Incidence	
Baden-Wuerttemberg	1,180	10.7	2,380	21.5	-50%
Bavaria	1,689	12.9	3,097	23.7	-45%
Berlin	345	9.2	434	11.6	-21%
Brandenburg	189	7.5	335	13.3	-44%
Bremen	141	20.6	159	23.3	-11%
Hamburg	117	6.4	286	15.5	-59%
Hesse	581	9.3	762	12.2	-24%
Mecklenburg-Western Pomerania	28	1.7	21	1.3	33%
Lower Saxony	425	5.3	809	10.1	-47%
North Rhine-Westphalia	1,609	9.0	2,577	14.4	-38%
Rhineland-Palatinate	238	5.8	363	8.9	-34%
Saarland	106	10.7	171	17.3	-38%
Saxony	177	4.3	253	6.2	-30%
Saxony-Anhalt	67	3.0	135	6.1	-50%
Schleswig-Holstein	147	5.1	201	6.9	-27%
Thuringia	242	11.3	327	15.3	-26%
Total	7,281	8.8	12,310	14.8	-41%

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

Distribution of cases over time

COVID-19 cases were first notified in Germany in January 2020. In 54,957 cases, onset of symptoms is unknown and therefore date of reporting is shown (see Figure 2).

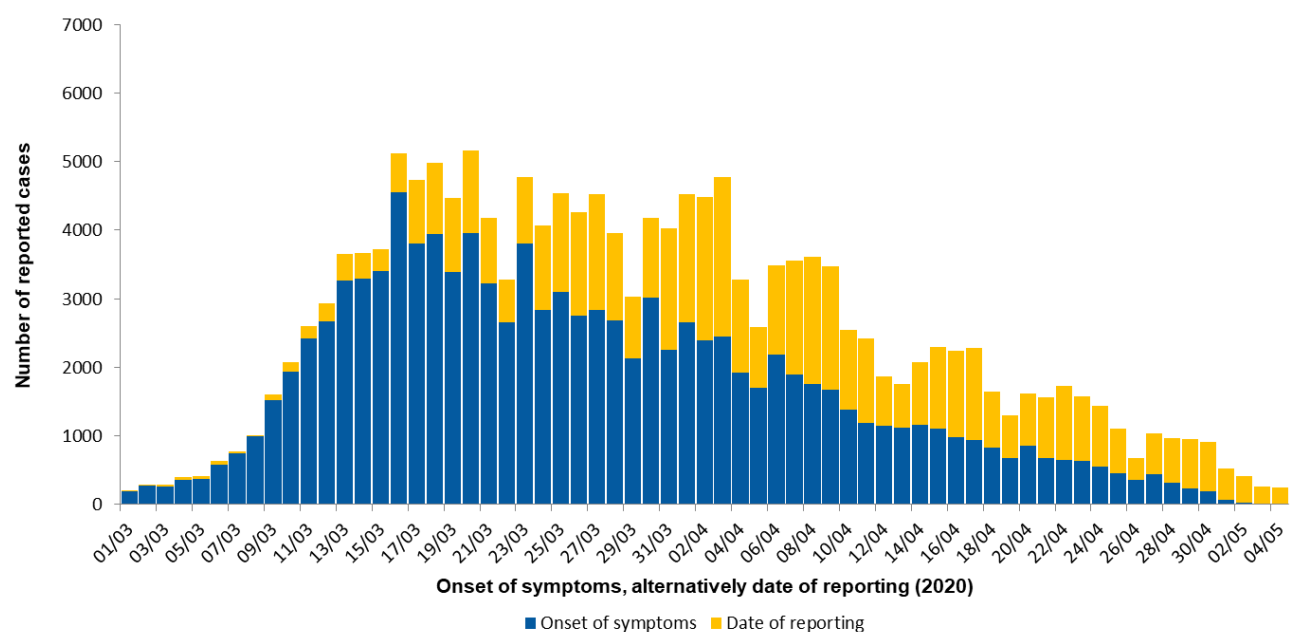


Figure 2: Number of electronically reported COVID-19 cases in Germany by date of symptom onset and alternatively by date of reporting from 01/03/2020 (05/05/2020, 12:00 AM).

Demographic distribution of cases

Of reported cases, 52% are female and 48% are male. Among notified cases, 2,896 were children under 10 years of age (1.8%), 6,916 children and youth aged 10 to 19 years (4.2%), 70,255 persons aged 20 to 49 years (43%), 52,362 persons aged 50 to 69 years (32%), 26,590 persons aged 70 to 89 years (16%) and 4,654 persons aged 90 years and older (2.8%). The age of 186 notified cases is unknown. The mean and median age of cases are both 50 years. The highest incidences are seen in persons 90 years and older (see Figure 3).

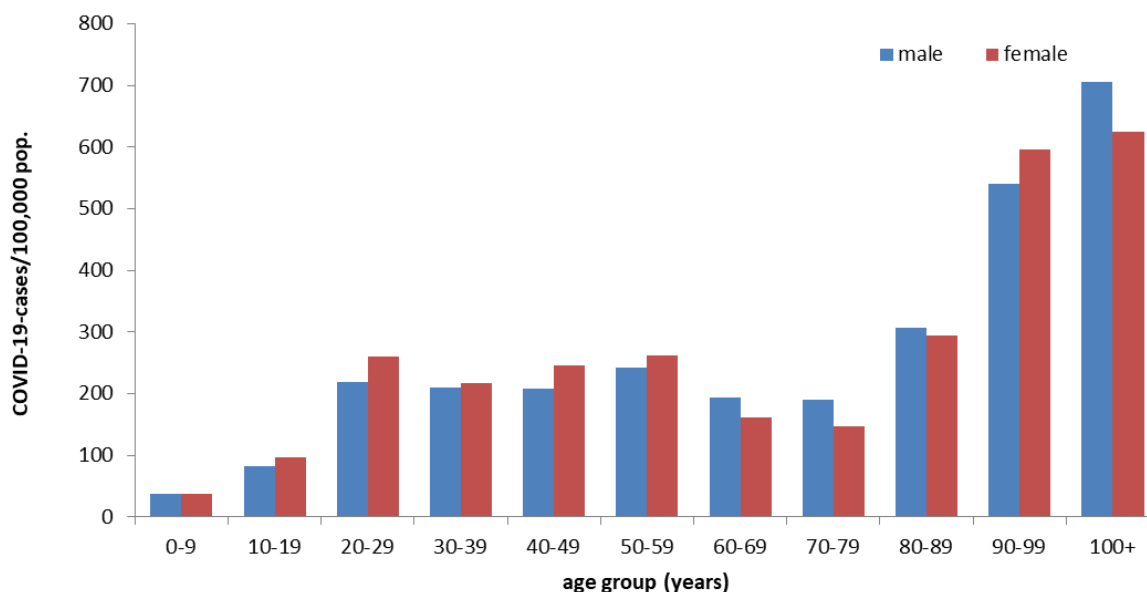


Figure 3: Electronically reported COVID-19 cases/100,000 population in Germany by age group and sex (n=163,254) for cases with information available (05/05/2020, 12:00 AM).

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

Distribution of cases across the weeks 10 to 18

Table 3: Reported COVID-19 cases according to gender as well as proportion of hospitalized and deceased across weeks 10-18 (05/05/2020 12 AM).

Week	10	11	12	13	14	15	16	17	18
Total cases	892	6.336	22.337	33.878	35.952	27.144	17.194	12.310	7.281
Mean age (years)	43	45	46	48	51	52	52	51	49
Men	53%	56%	55%	50%	45%	44%	45%	45%	48%
Women	47%	44%	45%	50%	55%	56%	55%	55%	52%
Hospitalized	19%	8%	9%	14%	16%	16%	17%	15%	14%
Deceased	1,2%	1,2%	2,0%	3,9%	5,5%	5,8%	5,2%	3,4%*	1,4%*

*Data not yet meaningful, as the outcome of cases is still unclear

Table 3 shows the mean age, the gender distribution, the proportion of hospitalized cases and case fatality rates across the weeks 10-18. The case fatality rates in weeks 17 and 18 are not yet meaningful, as the outcome of the cases reported in these weeks is still unclear.

The depiction of notified COVID-19 cases in Germany by proportion of cases according to age groups and week of reporting shows a noticeable increase in the proportion of cases among those over 70 years of age in weeks 12 to 15 (Figure 4: Display of the proportion of registered Covid-19 cases by age group and week (n=163,140 cases with respective data in the weeks 10 to 18 as of 05/05/2020 12 AM). Figure 4). The increase can be explained, among other things, by an increase of outbreaks in retirement residences, nursing homes and hospitals. Since week 15, the percentage in this age group has remained at a constant level.

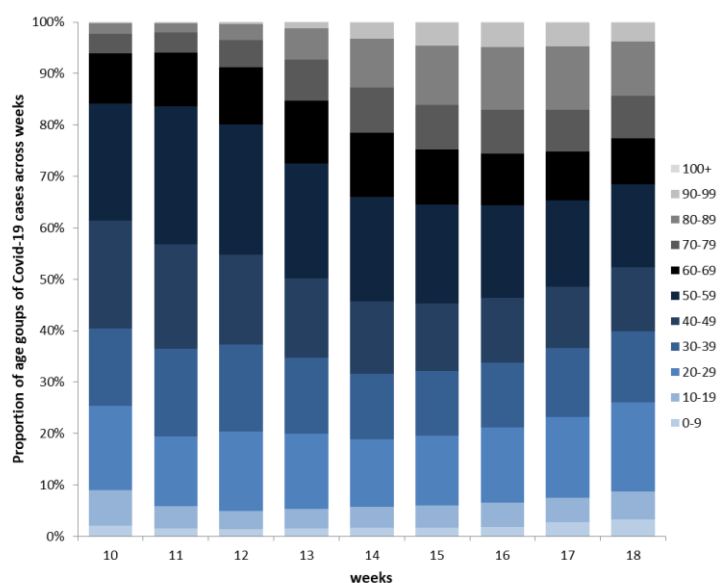


Figure 4: Display of the proportion of registered Covid-19 cases by age group and week (n=163,140 cases with respective data in the weeks 10 to 18 as of 05/05/2020 12 AM).

Clinical aspects

Information on symptoms is available for 133,615 (82%) of the notified cases. Common symptoms are cough (50%), fever (41%) and rhinorrhoea (21%). Pneumonia was reported in 3,733 cases (2.8%). Hospitalisation was reported for 23,335 (18%) of 132,912 COVID-19 cases with information on hospitalisation available. Since week 17, cases can be documented as a distinct surveillance category for COVID-19 in the reporting software from which they are transmitted to RKI, similar to other notifiable infectious diseases. Since then, loss of smell and taste can also be entered as symptoms. At least one of

these two symptoms was reported in 620 of 3,952 cases recorded in the COVID-19 category with clinical information (16%).

Approximately 135,100 persons have recovered from their COVID-19 infection. As the exact date of recovery is unknown in most cases, an algorithm was developed to estimate the number of recovered cases.

The 6,831 COVID-19 related deaths reported in Germany concerned 3,825 (56%) men and 3,001 (44%) women (sex was unknown in five cases, age was unknown in four cases) (see Table 4). The median age was 82 years. Of all deaths, 5,915 (87%) were in persons 70 years or older, but only 19% of all cases were in this age group. COVID-19 related outbreaks continue to be reported in nursing homes and hospitals. In some of these outbreaks, the number of deaths is relatively high.

Table 4: Number of notified COVID-19 deaths by age group and sex (Data available for 6,826 of notified deaths; 05/05/2020, 12:00 AM)

Sex	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	1*	1	5	10	37	172	454	1,052	1,645	443	4
Female	1		2	5	11	56	155	495	1,456	779	38
Total	2	1	7	15	48	228	609	1547	3,101	1,222	42

*Incorrect data entry suspected at local level regarding age of case

Occupation, accommodation or care in facilities

In accordance with the Protection Against Infection Law (IfSG), information on occupation, accommodation or care in a facility relevant for infection control is documented and electronically transmitted to RKI for notified COVID-19 cases (see Table 5).

Table 5: Notified COVID-19-cases according to possible occupation, accommodation or care in facilities relevant for transmission of infectious diseases (162,905 cases, no data available for 59,434 cases; 05/05/2020, 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	2,276	1,481	406	1,200
	Occupation in facility	10,101	442	16	9,000
§ 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	1,664*	48	1	1,500
	Occupation in facility	1,999	100	7	1,800
§ 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	12,675	2,809	2,473	7,000
	Occupation in facility	7,458	301	31	6,300
§ 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	1,225	88	11	900

Neither cared for, accommodated in nor working in a facility	66,073	11,901	2,603	57,800
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*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

Since information on care, accommodation and occupation in these facilities is missing in 36% of cases, the proportion of cases cared for, accommodated in or working in facilities should be considered as minimum values. Among the COVID-19 cases reported as being cared for, 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.

Thus far, 10,101 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 reportedly working in medical facilities, 72% were female and 28% male. The median age was 42 years.

The high number of cases among persons 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 attending or working in facilities concerned with child care or education (Section 33 IfSG) reflects the low incidence in children observed thus far.

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 5 shows the result of this analysis. 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)

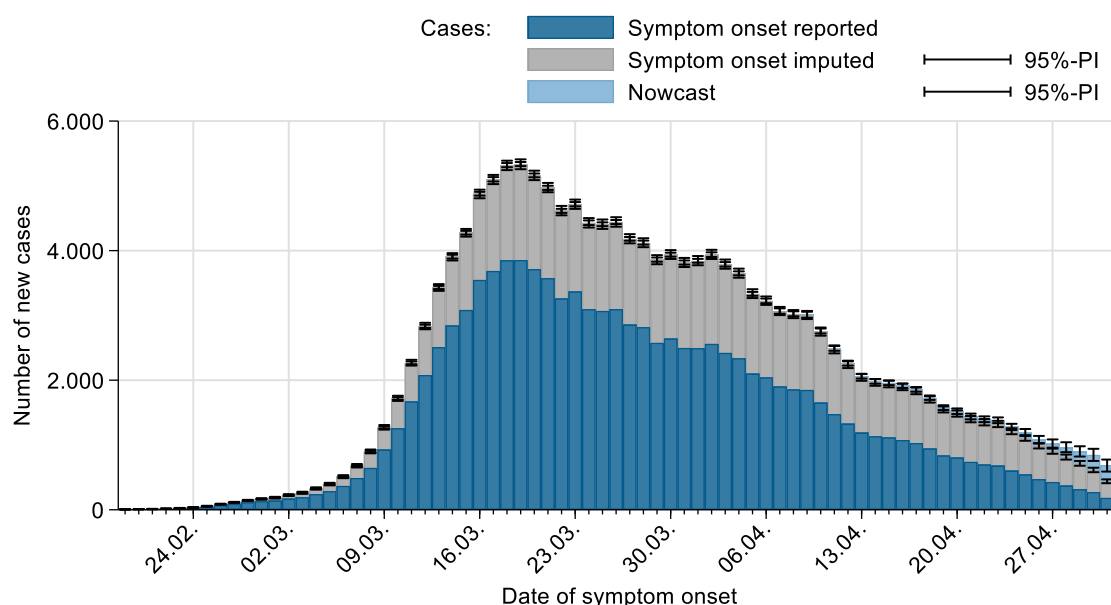


Figure 5: Display of cases with known onset of the disease (dark blue), estimated onset of the disease for cases where the onset of the disease has not been reported (grey) and estimated course of already symptomatic cases (light blue) (as of 05/05/2020 12 AM, taking into account cases up to 01/05/2020).

The reproduction number, R , is defined as the mean number of persons infected by a case. R can only be estimated based on statistical analyses such as nowcasting and not directly extracted from the notification system. The nowcasting analysis and the R -estimate are based on all COVID-19 cases

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transmitted to RKI with an illness onset up to 3 days before data closure. Cases with a more recent illness onset are excluded from this analysis as their as yet low number would lead to unstable estimates.

The number of incident cases estimated using the nowcasting approach is presented as a moving 4-day average to compensate for random effects of individual days (Fig. 5). With this approach, the point estimate of R for a given day is estimated as the quotient of the number of incident cases on this day divided by the number of incident cases four days earlier. The current estimate is $R = 0.71$ (95% prediction interval: $0.59-0.82$) and is based on electronically notified cases as of 05/05/2020, 12:00 AM.

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 the capacities for intensive care 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, reporting is compulsory for all hospital sites with intensive care beds.

As of 05/05/2020, a total of **1,218** hospitals or departments reported to the DIVI registry. Overall, **31,996** intensive care beds were registered, of which **19,180 (60%)** are occupied, and **12,816 beds (40%)** are currently available. The number of COVID-19 cases treated in participating hospitals are shown in Table 6.

Table 6: COVID-19 patients requiring intensive care (ICU) recorded in the DIVI register (05/05/2020, 9:15 AM).

	Number of patients	Percentage	Change to previous day
Currently in ICU	1,937		-12
- of these: mechanically ventilated	1,346	69%	-50
Discharged from ICU	10,174		+445
- of these: deaths	2,899	28%	+73

Assessment by the RKI

At the global and the national level, the situation is very dynamic and must be taken seriously. Severe and fatal courses occur in some cases. The number of newly transmitted cases, hospitalisations and fatalities in Germany 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. The probability of serious disease progression increases with increasing age and underlying illnesses. The risk of disease varies from region to region. The burden on the health care system depends on the geographical and age distribution of cases, health care capacity and initiation of containment measures (isolation, quarantine, physical distancing etc.), and may be very high in some geographical regions. This assessment may change on short notice as a result of new findings.

Measures taken by Germany

- The wearing of (non-medical) face masks in public transport and in shops is now obligatory 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.
- As of 23/03/2020, gatherings of more than 2 persons (with the exception of families and household members) are banned in all federal states. Restaurants and businesses concerned with body care were closed. In public spaces, all persons must maintain a distance of 1.5 metres to other individuals <https://www.bundesregierung.de/breg-de/themen/coronavirus/besprechung-der-bundestkanzlerin-mit-den-regierungschefinnen-und-regierungschefs-der-laender-1733248> (in German)
- 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 social distancing measures <https://www.bundesregierung.de/breg-de/themen/coronavirus/fahrplan-corona-pandemie-1744202> (in German)