ROBERT KOCH INSTITUT

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

06/05/2020 - UPDATED STATUS FOR GERMANY

Confirmed cases	Deaths	Deaths (%)	Recovered
164,807 (+947*)	**6,996** (+165*)	**4.2%**	**ca. 137,400****

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

**Change from previous day; **Estimate*

Summary (as of 06/05/2020, 12:00 AM)

- In total, 164,807 COVID-19 cases and 6,996 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 (332), Baden-Wuerttemberg (294), Saarland (265) and Hamburg (253).
- Most cases (66%) 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

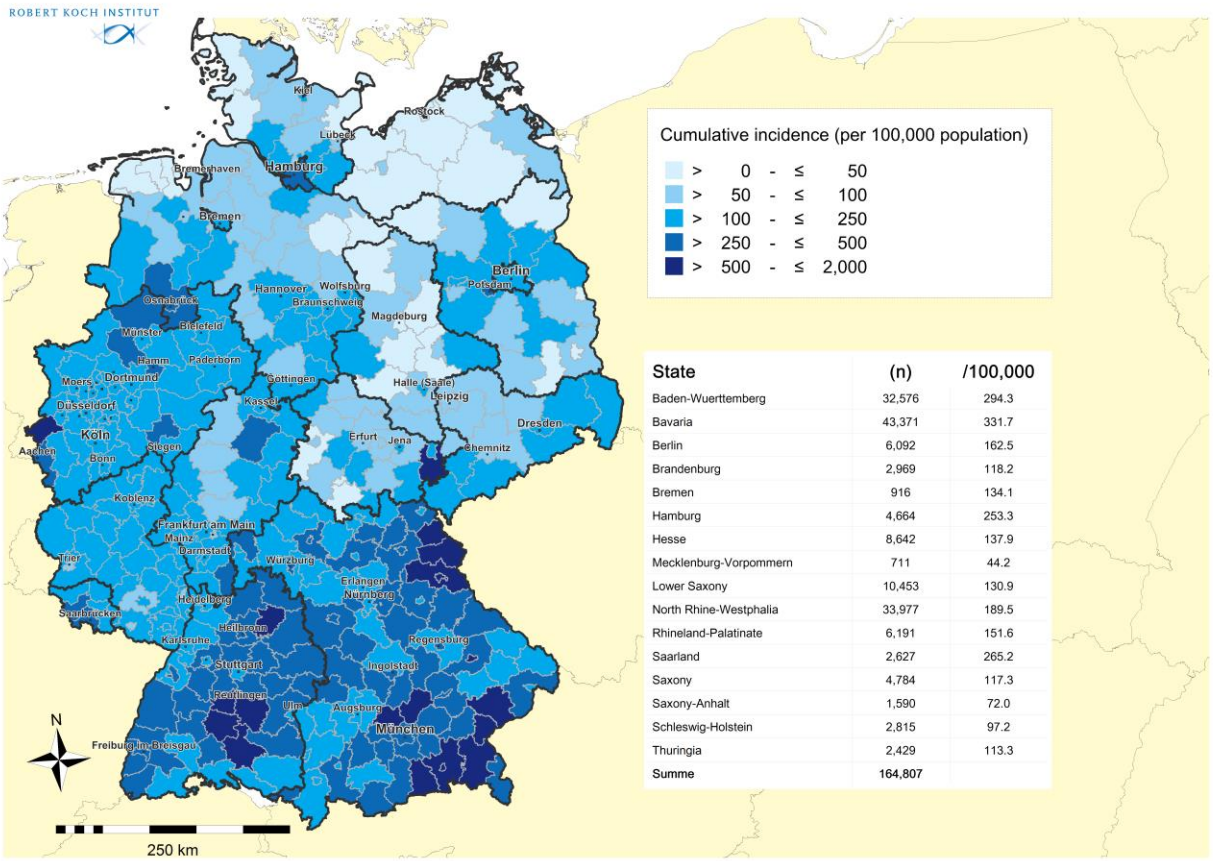
Geographical distribution of cases

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 164,807 (+947) laboratory-confirmed cases of coronavirus disease 2019 (COVID-19) have been electronically reported to and validated at the RKI, including 6,996 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 (06/05/2020, 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	32,576	94	294	1,481	13.4
Bavaria	43,371	209	332	2,001	15.3
Berlin	6,092	50	163	159	4.2
Brandenburg	2,969	29	118	127	5.1
Bremen	916	21	134	31	4.5
Hamburg	4,664	20	253	190	10.3
Hesse	8,642	57	138	386	6.2
Mecklenburg-Western Pomerania	711	8	44	19	1.2
Lower Saxony	10,453	73	131	470	5.9
North Rhine-Westphalia	33,977	249	189	1,358	7.6
Rhineland-Palatinate	6,191	31	152	187	4.6
Saarland	2,627	9	265	141	14.2
Saxony	4,784	39	117	177	4.3
Saxony-Anhalt	1,590	5	72	46	2.1
Schleswig-Holstein	2,815	16	97	119	4.1
Thuringia	2,429	37	113	104	4.9
Total	**164,807**	**947**	**198**	**6,996**	**8.4**

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



State	(n)	/100,000
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Bavaria	43,371	331.7
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Thuringia	2,429	113.3
Summe	**164,807**	

Figure 1: Number and cumulative incidence (per 100,000 population) of the 164,807 electronically reported COVID-19 cases in Germany by county and federal state (06/05/2020, 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

COVID-19 cases were first notified in Germany in January 2020. In 54,924 cases, onset of symptoms is unknown and therefore date of reporting is shown (see Figure 2).

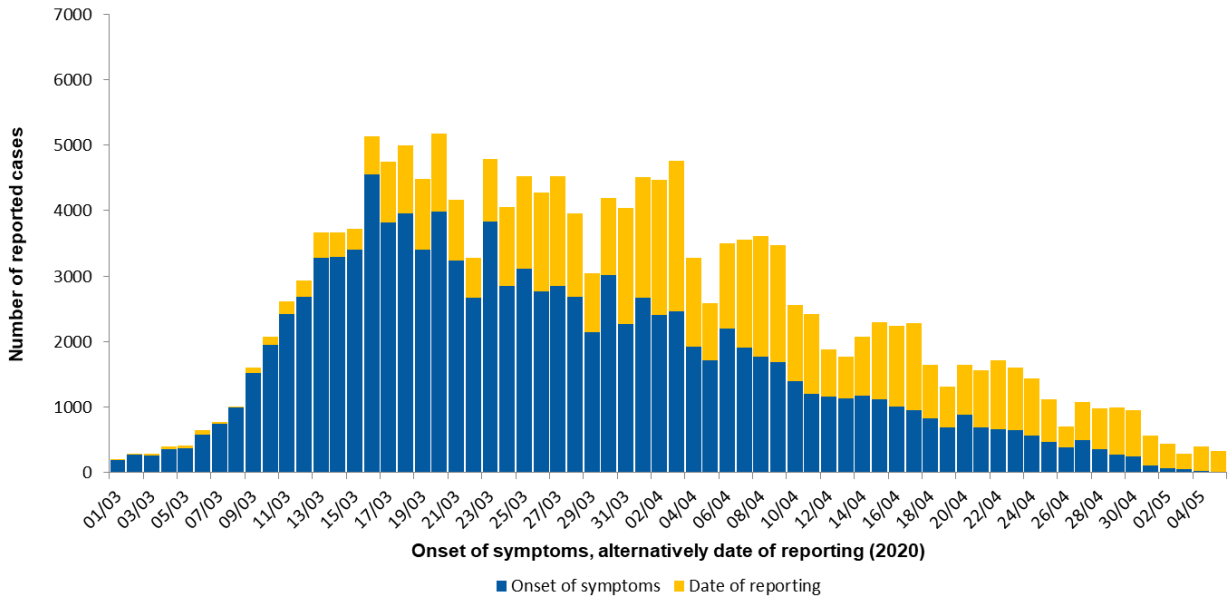

Figure 2: Number of electronically reported COVID-19 cases in Germany by date of symptom onset and alternatively by date of reporting from 01/03/2020 (06/05/2020, 12:00 AM).

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

Demographic distribution of cases

Of reported cases, 52% are female and 48% are male. Among notified cases, 2,931 were children under 10 years of age (1.8%), 6,959 children and youth aged 10 to 19 years (4.2%), 70.671 persons aged 20 to 49 years (43%), 52,636 persons aged 50 to 69 years (32%), 26.746 persons aged 70 to 89 years (16%) and 4,689 persons aged 90 years and older (2.8%). The age of 174 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).

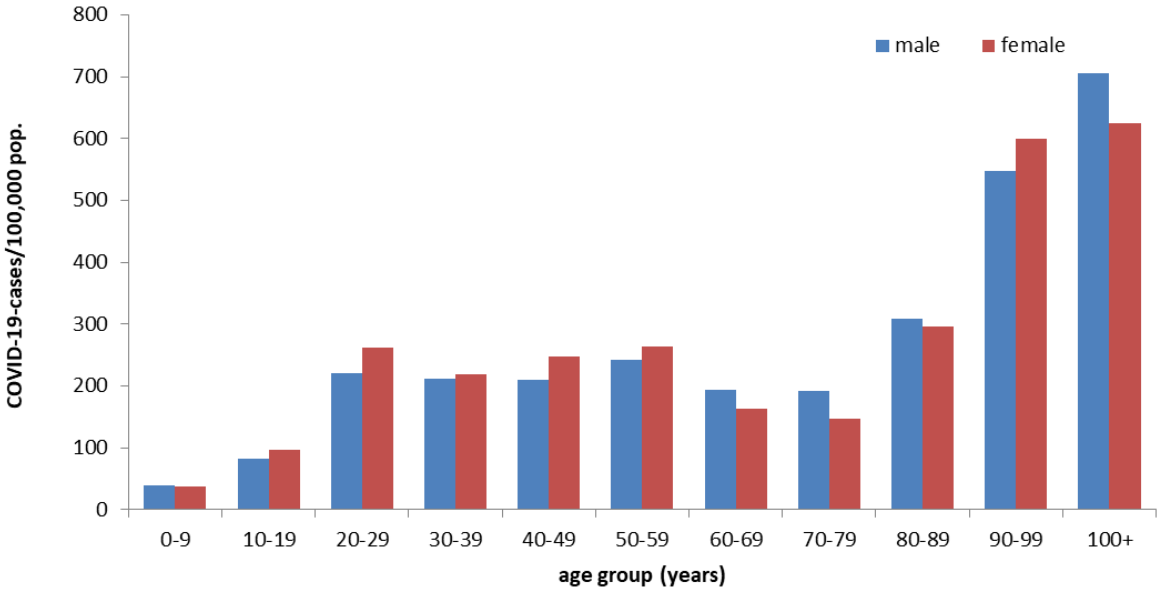

Figure 3: Electronically reported COVID-19 cases/100,000 population in Germany by age group and sex (n=164,220) for cases with information available (06/05/2020, 12:00 AM).

Clinical aspects

Information on symptoms is available for 134,728 (82%) of the notified cases. Common symptoms are cough (50%), fever (41%) and rhinorrhoea (21%). Pneumonia was reported in 3,786 cases (2.8%). Hospitalisation was reported for 23,634 (18%) of 134,073 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 667 of 4,408 cases recorded in the COVID-19 category with clinical information (15%).

Approximately 137,400 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 6,996 COVID-19 related deaths reported in Germany concerned 3,907 (56%) men and 3,084 (44%) women (sex was unknown in five cases, age was unknown in four cases) (see Table 2). The median age was 82 years. Of all deaths, 6,053 (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 2: Number of notified COVID-19 deaths by age group and sex (Data available for 6,826 of notified deaths; 06/05/2020, 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	5	11	37	176	466	1,073	1,681	452	4
Female	1		2	5	12	57	161	507	1,489	806	41
Total	**1**	**1**	**7**	**16**	**49**	**233**	**627**	**1,580**	**3,170**	**1,258**	**45**

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).

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.

Table 3: Notified COVID-19-cases according to possible occupation, accommodation or care in facilities relevant for transmission of infectious diseases (163,851 cases, no data available for 58,724 cases; 06/05/2020, 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	**2,303**	1,506	413	1,256
	Occupation in facility	**10,269**	450	17	9,227
§ 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	**1,682***	47	1	1,538
	Occupation in facility	**2,050**	105	7	1,906
§ 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	**12,756**	2,875	2,505	7,246
	Occupation in facility	**7,503**	306	30	6,439
§ 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	**1,416**	99	57	981
Neither cared for, accommodated in nor working in a facility		**67,158**	12,125	2,647	59,781

*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

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

Thus far, 10,269 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 4 shows the result of this analysis.

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 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= 0.65 (95% prediction interval: 0.53-0.77) and is based on electronically notified cases as of 06/05/2020, 12:00 AM.

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)

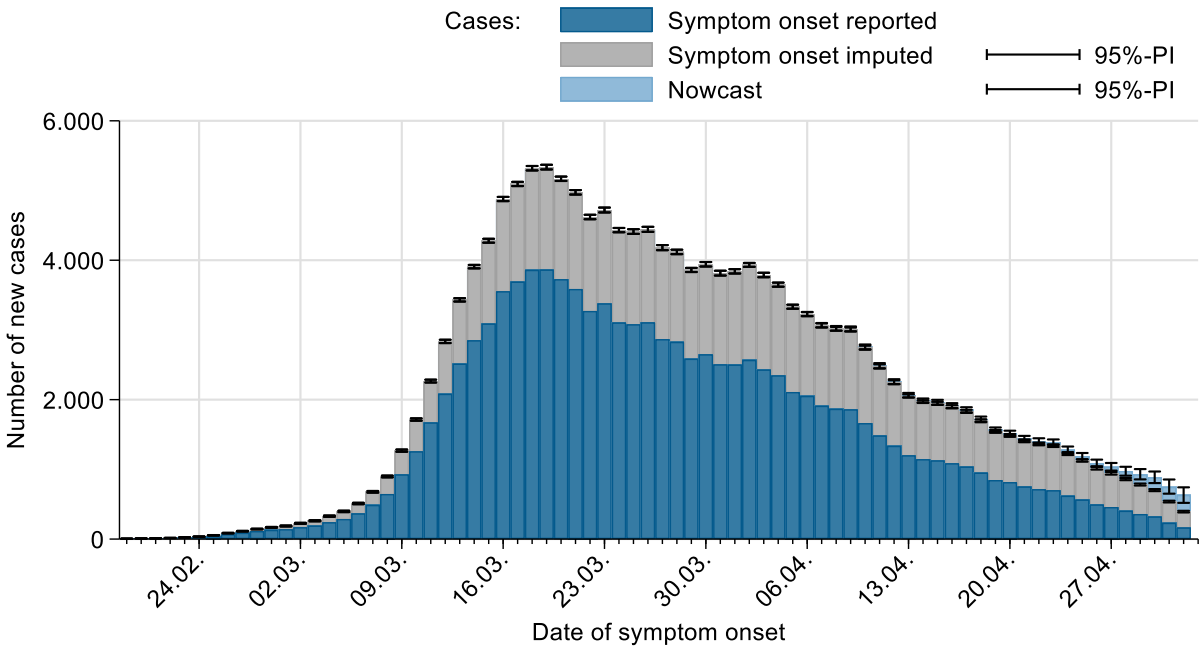

Figure 4: Display of cases with known onset of the disease (dark blue), estimated onset of the disease for cases where the onset of the disease has not beed reported (grey) and estimated course of already symptomatic cases (light blue) (as of 06/05/2020 12 AM, taking into account cases up to 02/05/2020).

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 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 06/05/2020, a total of 1,222 hospitals or departments reported to the DIVI registry. Overall, 31,893 intensive care beds were registered, of which 19,627 (62%) are occupied, and 12,266 beds (38%) are currently available. The number of COVID-19 cases treated in participating hospitals are shown in Table 4.

Table 4: COVID-19 patients requiring intensive care (ICU) recorded in the DIVI register (06/05/2020, 9:15 AM).

	Number of patients	Percentage	Change to previous day
Currently in ICU	1,884		-53
- of these: mechanically ventilated	1,311	70%	-35
Discharged from ICU	10,312		+138
- of these: deaths	2,923	28%	+24

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

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.
- In public spaces, all persons must maintain a distance of 1.5 metres to other indivduals https://www.bundesregierung.de/breg-de/themen/coronavirus/besprechung-der-bundeskanzlerin-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*)

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