



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

01/05/2020 - UPDATED STATUS FOR GERMANY

Confirmed cases	Deaths	Deaths (%)	Recovered
160,758 (+1,639*)	6,481 (+193*)	4.0%	ca. 126,900**

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

*Change from previous day; **Estimate

Summary (as of 01/05/2020, 12:00 AM)

- In total, **160,758** COVID-19 cases and **6,481** deaths due to COVID-19 have been electronically reported to the Robert Koch Institute in Germany.
- The incidence (cases per 100,000) of COVID-19 is highest in Bavaria (**325**), Baden-Wuerttemberg (**288**), Saarland (**261**) and Hamburg (**250**).
- 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 RKI according to the Protection Against Infection Law (Data closure: 12:00 AM daily).

Since January 2020, a total of **160,758 (+1,639)** laboratory-confirmed cases of coronavirus disease 2019 (COVID-19) have been electronically reported to and validated at the RKI, including **6,481** deaths (see Table 1 and Figure 1). Information on confirmed cases are 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 (01/05/2020, 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	31,919	310	288	1,385	12.5
Bavaria	42,489	409	325	1,850	14.1
Berlin	5,887	60	157	149	4.0
Brandenburg	2,872	41	114	120	4.8
Bremen	859	32	126	30	4.4
Hamburg	4,604	42	250	163	8.9
Hesse	8,376	72	134	360	5.7
Mecklenburg-Western Pomerania	693	3	43	18	1.1
Lower Saxony	10,141	74	127	429	5.4
North Rhine-Westphalia	33,058	371	184	1,261	7.0
Rhineland-Palatinate	6,086	57	149	172	4.2
Saarland	2,581	29	261	135	13.6
Saxony	4,592	31	113	162	4.0
Saxony-Anhalt	1,564	15	71	44	2.0
Schleswig-Holstein	2,714	24	94	110	3.8
Thuringia	2,323	69	108	93	4.3
Total	160,758	1,639	193	6,481	7.8

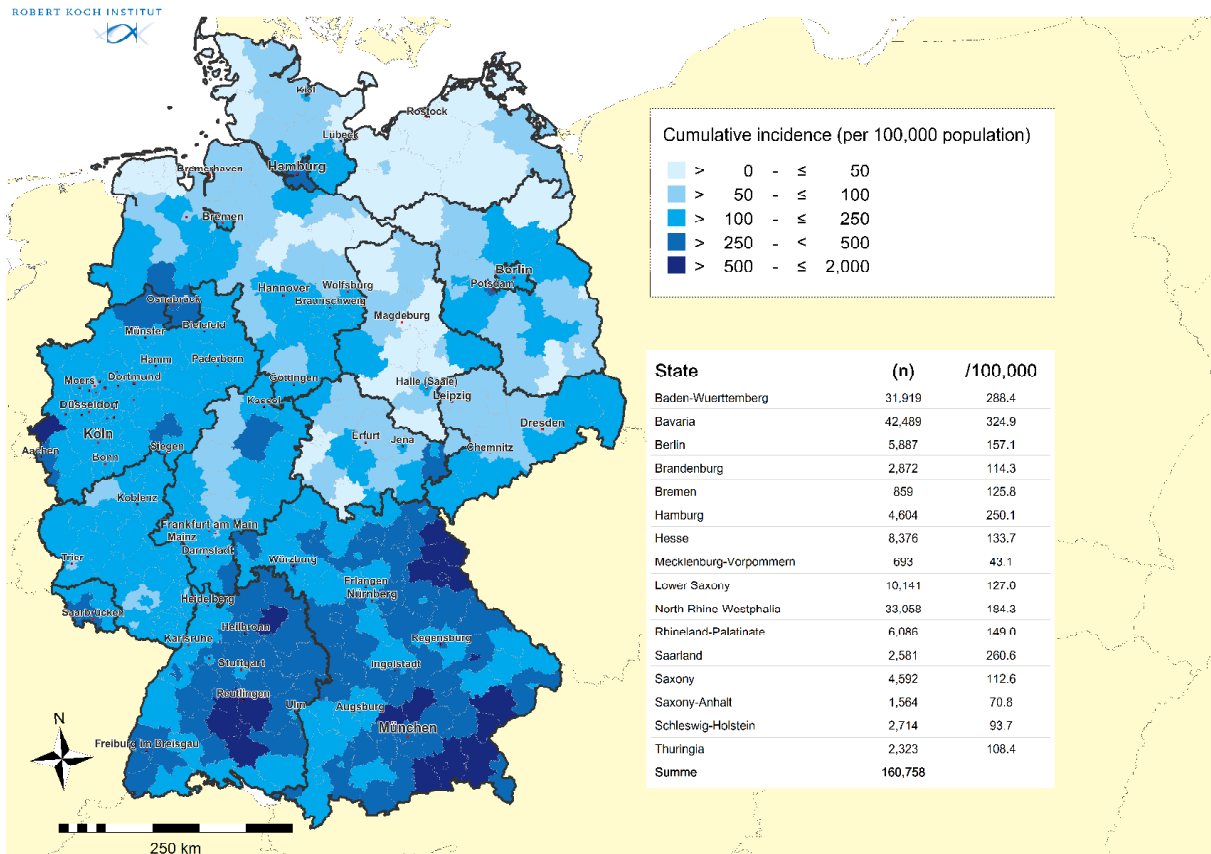


Figure 1: Number and cumulative incidence (per 100,000 population) of the 160,758 electronically reported COVID-19 cases in Germany by county and federal state (01/05/2020, 12:00 AM). Please see the COVID-19 dashboard (<https://corona.rki.de/>) for information on number of COVID-19 cases by county (local health authority).

Distribution of cases over time

COVID-19 cases were first notified in Germany in January 2020. In 54,363 cases, onset of symptoms is unknown and therefore date of reporting is shown (see Figure 2).

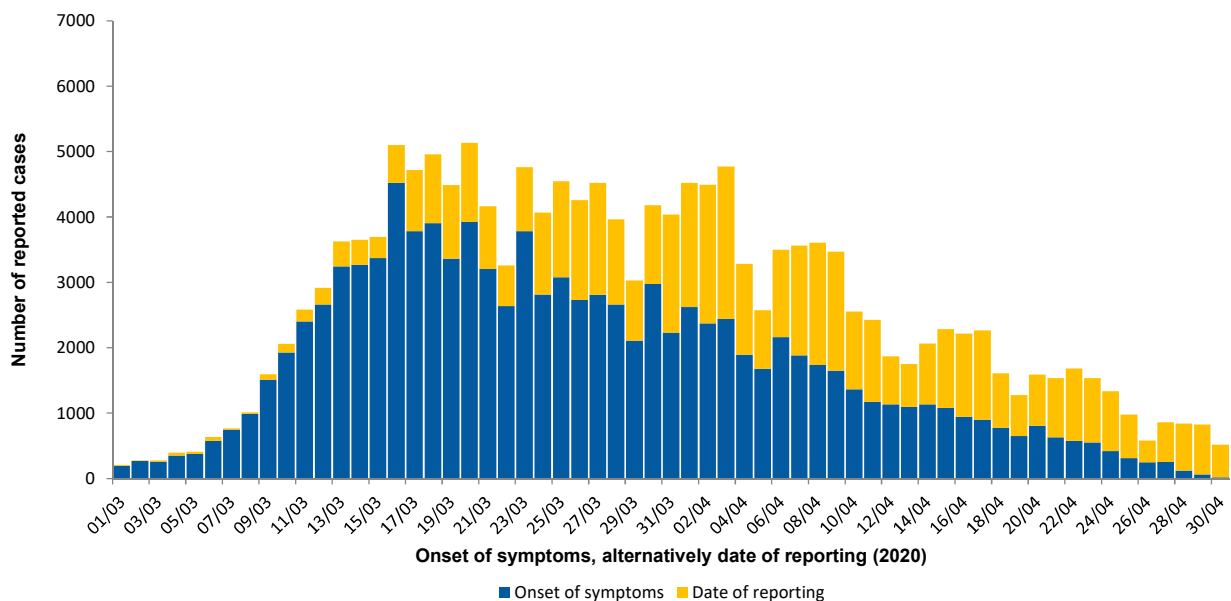


Figure 2: Number of electronically reported COVID-19 cases in Germany by date of symptom onset and alternatively by date of reporting from 01/03/2020 (01/05/2020, 12:00 AM).

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, 2,780 were children under 10 years of age (1.7%), 6,739 children and youth aged 10 to 19 years (4.2%), 68,891 persons aged 20 to 49 years (43%), 51,590 persons aged 50 to 69 years (32%), 26,023 persons aged 70 to 89 years (16%) and 4,543 persons aged 90 years and older (2.8%). The age of 191 notified cases is unknown. The mean and median age of cases are 50 years. The highest incidences are in the age groups above 90 years (see Figure 3).

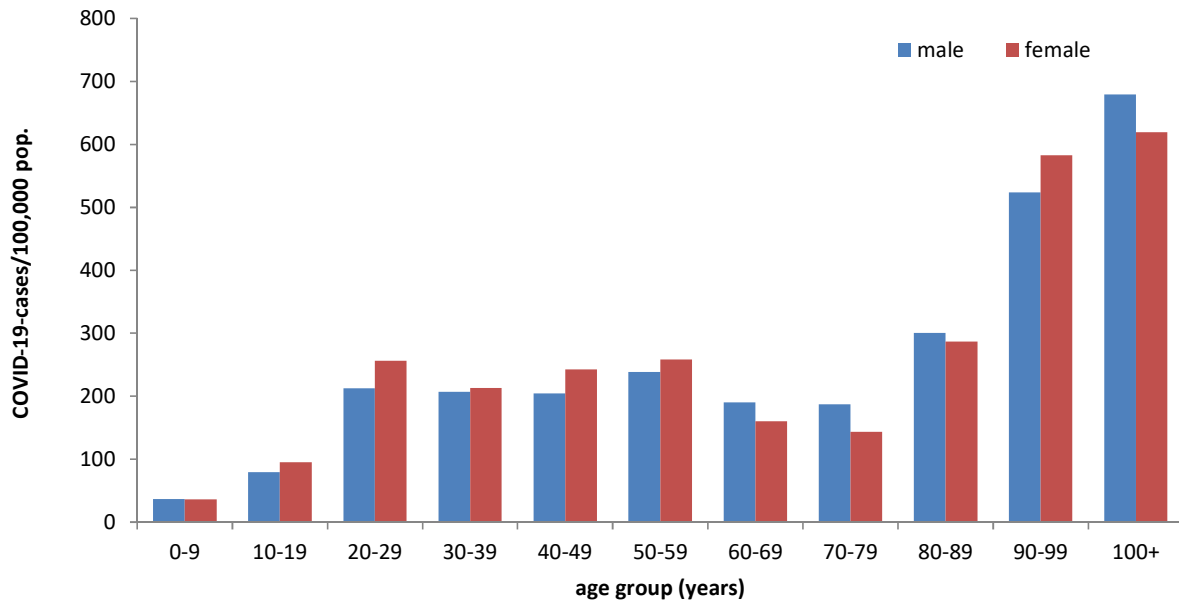


Figure 3: Electronically reported COVID-19 cases/100,000 population in Germany by age group and sex (n=160,137) for cases with information available (01/05/2020, 12:00 AM).

Clinical aspects

Information on symptoms is available for 130,440 (81%) of the notified cases. Common symptoms are cough (50%), fever (42%) and rhinorrhoea (21%). Pneumonia was reported in 3,630 cases (2.8%). Hospitalisation was reported for 22,686 (18%) of 129,689 COVID-19 cases with information on hospitalisation available. Since week 17, cases can be recorded in a separate transmission category for COVID-19. Since then, loss of smell and taste can also be entered as a symptom in the reporting software. In 422 of 2,765 new cases recorded in the COVID-19 category with clinical information (15%) this symptom was reported.

Approximately 126,900 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 6,481 COVID-19 related deaths reported in Germany concerned 3,647 (56%) men and 2,829 (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, 5,615 (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 6,472 of notified deaths; 01/05/2020, 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	4	9	36	161	435	1,001	1,570	425	4
Female	1		2	5	11	50	145	466	1,376	734	36
Total	1	1	6	14	47	211	580	1,467	2,946	1,159	40

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 3).

Table 3: Notified COVID-19-cases according to possible occupation, accommodation or care in facilities relevant for transmission of infectious diseases (159,845* cases, no data available for 59,374 cases; 01/05/2020, 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	2,144	1,402	369	1,100
	Occupation in facility	9,672	429	15	8,300
§ 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	1,624*	47	1	1,500
	Occupation in facility	1,944	97	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	12,062	2,635	2,326	6,000
	Occupation in facility	7,281	294	27	5,800
§ 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	1,083	74	6	800
Neither cared for, accommodated in nor working in a facility		64,661	11,607	2,505	55,900

*for care according to § 33 IfSG only cases below 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 37% 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, 9,672 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 41 years.

The high number of case 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 that children are not as affected.

Estimation of the reproduction number (R)

The case numbers presented do not fully reflect the progression of the number of cases of illness, as the time between actual onset of illness, diagnosis, reporting and transmission to the Robert Koch Institute varies greatly. Therefore, an attempt is being made to model the actual course of the number of COVID-19 cases that have already occurred by means of a so-called nowcasting. Figure 4 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)

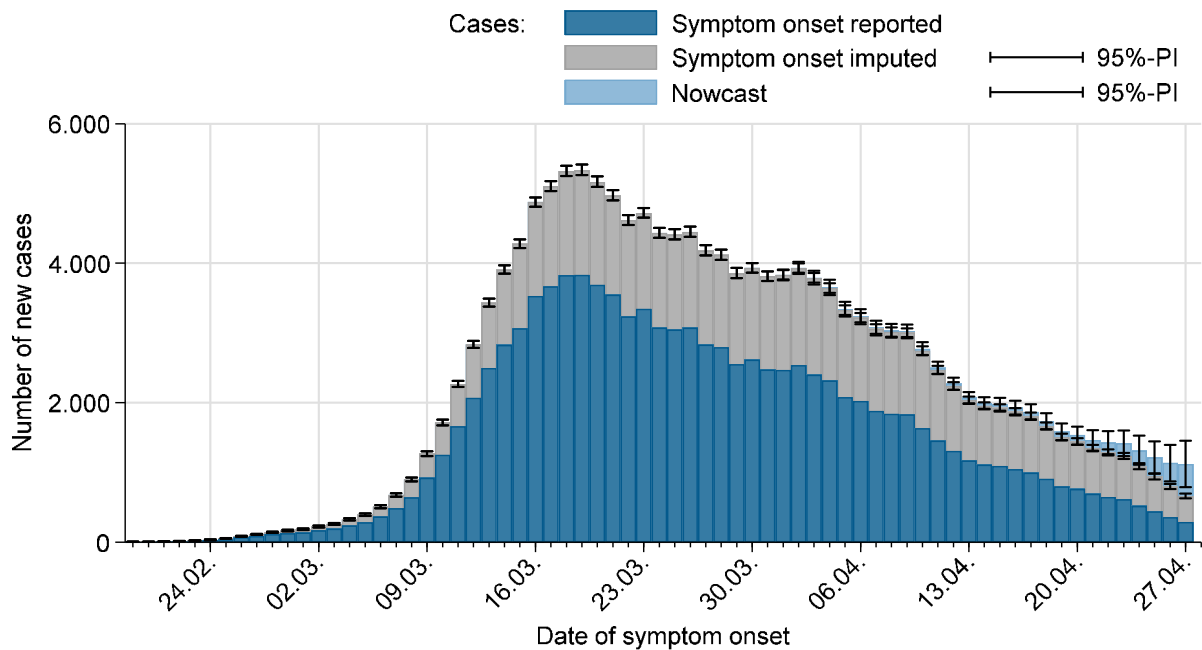


Figure 4: Display of cases with known onset of the disease (dark blue), estimated onset of the disease for cases where the onset of the disease has not been reported (grey) and estimated course of already symptomatic cases (light blue) (as of 01/05/2020 12 AM, taking into account cases up to 27/04/2020).

The reproduction number, R , is the mean number of persons infected by a case. R can only be estimated based on the nowcasting and not directly extracted from the notification system. The nowcasting and the R -estimate include all transmitted cases with onset of disease up to 3 days before data status. Cases with a more recent onset of the disease were not taken into account as they had not yet been transmitted in sufficient numbers and would lead to unstable estimates.

The number of new cases estimated during the nowcasting process was previously presented as a moving 3-day average to compensate for random effects of individual days. Since April 29, 2020, the RKI has been using a 4-day average, which smooths the course of the bar chart to a certain extent. Figure 4 shows the current result of the nowcasting. The result of the R -estimate does not change thereby. Due to the smoothed course of the nowcasting, the calculation of the point estimator of R can be performed

in fewer steps. For a given day, this value is now calculated as a simple quotient of the number of new cases for this day divided by the number of new cases 4 days before.

The current estimate is $R = 0.79$ (95% prediction interval: $0.66-0.90$) and is based on current electronically notified cases (01/05/2020, 12:00 A.M.).

Mortality surveillance

A total of 24 European countries provide the European EuroMOMO project (European monitoring of excess mortality for public health action) with official mortality data on a weekly basis. This allows for the recording and monitoring of excess mortality (regardless of the cause of death) (<https://www.euromomo.eu/>). In Germany, only regional systems have been established so far (since 2007 in Berlin and Hesse). It is planned to set up a nationwide monitoring system from 2021 onwards. Daily mortality figures are also recorded on the website of the Federal Statistical Office, albeit with a certain time lag (data status 30/04/2020). A special evaluation on excess mortality is updated every two weeks: <https://www.destatis.de/DE/Themen/Querschnitt/Corona/Gesellschaft/bevoelkerung-sterbefaelle.html> (in German)

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 01/05/2020, a total of 1,262 hospitals or departments reported to the DIVI registry. Overall, 32,044 intensive care beds were registered, of which 19,484 (61%) are occupied, and 12,560 beds (39%) 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 (01/05/2020, 9:15 AM).

	Number of patients	Percentage	Change to previous day
Currently in ICU	2,189		-91
- of these: mechanically ventilated	1,549	71%	-56
Discharged from ICU	9,300		+106
- of these: deaths	2,695	29%	+40

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 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

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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-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-gesetzpaket-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)*