ROBERT KOCH INSTITUT

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

12/09/2020 - UPDATED STATUS FOR GERMANY

ABBREVIATED WEEKEND EDITION

Confirmed cases	Deaths	Deaths (%)	Recovered
258,480	**9,347**	**3.6%**	**ca. 231,400****
(+ 1,630*)	(+ 5*)		

**Change from previous day; **Estimate*

COVID-19 cases are notified to the local public health department in the respective districts, in accordance with the German Protection against Infection Act (IfSG). The data are further transmitted through the respective federal state health authority to the Robert Koch Institute (RKI). This situation report presents the uniformly recorded nationwide data on laboratory-confirmed COVID-19 cases transmitted to RKI.

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

Summary (as of 12/09/2020 12:00 AM)

- After a high increase between calendar week 29 and 34, the 7-day-COVID-19 incidence has stabilized since calendar week 35. Even if the number of new cases does not increase significantly at the moment, the situation must still be carefully monitored.
- The cumulative nationwide incidence over the past 7 days was 10.1 cases per 100,000 inhabitants. A total of 17 districts transmitted zero cases over the past 7 days. In a further 132 districts the 7-day-incidence is below 5.0/100,000 inhabitants.
- In Bavaria, Hamburg, Berlin and Baden-Wuerttemberg the 7-day incidence is considerably higher than the national mean 7-day incidence, while in Hesse it is slightly higher.
- In total, 258,480 laboratory-confirmed COVID-19 cases and 9,347 deaths associated with COVID-19 have been electronically reported to the RKI in Germany.
- Further COVID-19-related outbreaks are being reported in various settings, including nursing homes and hospitals, facilities for asylum-seekers and refugees, community facilities, various occupational settings, in the context of religious or family events and especially among travellers.

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

Epidemiological Situation in Germany

In accordance with the international standards of WHO[1] and ECDC[2], RKI considers all laboratory confirmed cases of SARS-CoV-2, irrespective of clinical symptoms and disease severity. Thus, in the following report the term "COVID-19 cases" covers acute SARS-CoV-2 infections as well as cases of COVID-19 disease.

General current assessment

The increase in the number of cases reported since mid-July has now stabilized at a slightly higher level. The R-value is currently around 1. It is noticeable that in the last few weeks more young people have become infected, thus the 7-day incidence is significantly higher in younger age groups than in older age groups.

There are outbreaks in various districts throughout Germany, which are associated with different situations, e.g. larger celebrations in the family and among friends. In addition, COVID-19 cases are identified to a large extent among travel returnees, especially in the younger age groups.

The current development must be further carefully monitored. The current decline in the proportion of deaths among the reported cases is mainly explained by the relatively high proportion of younger people among the newly diagnosed cases, of which relatively few fall seriously ill and die. A renewed increase in new infections must nevertheless be avoided. In particular, it is important to prevent a renewed increase among the elderly and vulnerable groups of the population, as was the case at the beginning of the pandemic. If more elderly and vulnerable people become infected again, a renewed increase in hospitalizations and deaths must be expected.

It is therefore still necessary for the entire population to be committed to infection control, e.g. by consistently observing rules of distance and hygiene - also outdoors -, by ventilating indoor spaces and, where necessary, by wearing a mouth-nose cover correctly. Crowds of people - especially indoors - should be avoided if possible and celebrations should be limited to the closest circle of family and friends.

Geographical distribution of cases

Epidemiological analyses are based on validated cases notified electronically to the RKI in line with the Protection Against Infection Law (Data closure: 12:00 AM daily). Since January 2020, a total of 258,480 (+1,630) laboratory-confirmed cases of COVID-19 have been electronically reported to and validated by the RKI (see Table 1). A total of 17 districts reported no cases in the past 7 days; however on 16/06/2020 the number of districts reporting zero cases still amounted to 139 districts.

[1] World Health Organization, https://www.who.int/publications/i/item/WHO-2019-nCoV-Surveillance_Case_Definition-2020.1

[2] European Centre for Disease Prevention and Control, https://www.ecdc.europa.eu/en/covid-19/surveillance/case-definition

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

Table 1: Number and cumulative incidence (per 100,000 population) of laboratory-confirmed COVID-19 cases and deaths for each federal state electronically reported to RKI, Germany (12/09/2020, 12:00 AM). The number of new cases covers positive cases, which have been sent to the local health department at the same day, but also at previous days.

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	44,903	285	406	1,440	13.0	1,867	16.9
Bavaria	61,561	403	471	2,415	18.5	2,645	20.2
Berlin	12,216	126	326	529	14.1	226	6.0
Brandenburg	4,003	19	159	66	2.6	169	6.7
Bremen	2,117	8	310	61	8.9	58	8.5
Hamburg	6,770	71	368	266	14.4	267	14.5
Hesse	16,714	111	267	663	10.6	538	8.6
Mecklenburg-Western Pomerania	1,055	9	66	30	1.9	20	1.2
Lower Saxony	17,783	138	223	524	6.6	667	8.4
North Rhine-Westphalia	61,820	315	345	1,619	9.0	1,828	10.2
Rhineland-Palatinate	9,649	26	236	323	7.9	246	6.0
Saarland	3,225	3	326	32	3.2	175	17.7
Saxony	6,351	69	156	202	5.0	226	5.5
Saxony-Anhalt	2,330	16	106	49	2.2	66	3.0
Schleswig-Holstein	4,218	11	146	99	3.4	161	5.6
Thuringia	3,765	20	176	79	3.7	188	8.8
Total	**258,480**	**1,630**	**311**	**8,397**	**10.1**	**9,347**	**11.2**

Quality checks and data cleaning by the health authorities and regional offices can lead to corrections to cases previously transmitted (e.g. detection of duplicate reports). This can occasionally lead to negative values for the number of new cases.

Distribution of cases over time

The first COVID-19 cases in Germany were notified in January 2020. Figure 1 shows COVID-19 cases transmitted to RKI according to date of illness onset from 01/03/2020 onwards. Of these cases, the onset of symptoms is unknown for 92,574 cases (36%), thus their date of reporting is provided.

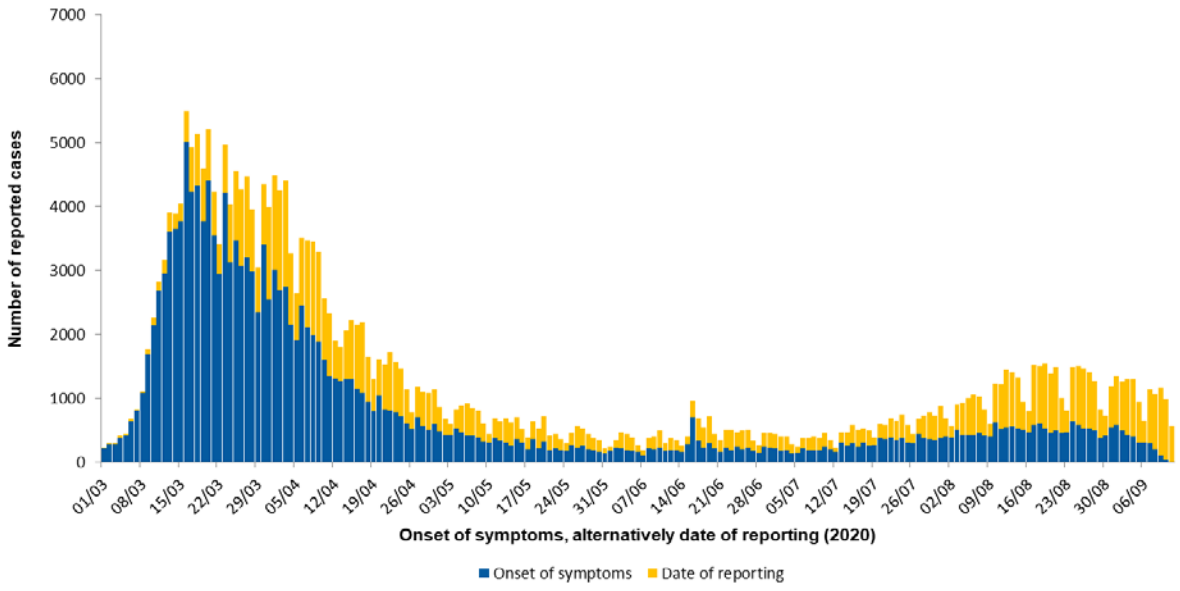

Figure 1: Number of COVID-19 cases in Germany electronically reported to the RKI by the date of symptoms onset or – if unknown – alternatively by date of reporting since 01/03/2020 (12/09/2020, 12:00 AM).

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

Clinical aspects

Approximately 231,400 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 this number.

A total of 9,347 COVID-19-related deaths have been reported in Germany (3.6% of all confirmed cases). Of these, 5,181 (55%) are men and 4,162 (45%) are women (Table 2), the gender is unknown in four cases. The mean age of COVID-19 cases reported to have died was 81 years (median: 82 years).

Of all deaths, 7,975 (85%) were in people aged 70 years or older, but only 15% of all cases were in this age group. So far, two deaths among COVID-19 cases younger than 20 years have been reported to the RKI. Pre-existing medical conditions were reported for both of them. The number of deaths may change after data validation is completed.

Table 2: Number of notified COVID-19 deaths by age group and gender electronically reported to RKI (Data available for 9,343 of notified deaths; 12/09/2020, 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		1	7	18	59	249	670	1.425	2.159	587	6
Female	1		3	7	23	92	240	683	1.960	1.107	46
Total	**1**	**1**	**10**	**25**	**82**	**341**	**910**	**2.108**	**4.119**	**1.694**	**52**

Occupation, accommodation or care in facilities

In accordance with the Protection Against Infection Act (Infektionsschutzgesetz, 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 25% 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.

The number of COVID-19 cases was highest among persons cared for or employed in care facilities according to §36 IfSG and among persons employed in medical facilities according to §23 IfSG (Table 3). The number of deaths was particularly high among persons cared for in these facilities.

Among the cases reported as working in medical facilities (§23 IfSG), 73% were female and 27% male. Their median age was 41 years. The high number of cases among people cared for or working in various care facilities (§36 IfSG) is consistent with numerous reported outbreaks, especially in nursing homes. The high number of cases among persons working in the food sector (§42 IfSG) is largely due to outbreaks in meat processing plants.

Table 3: Notified COVID-19-cases according to possible occupation, accommodation or care in facilities relevant for transmission of infectious diseases according to the Protection Against Infection Act (IfSG), reported to RKI (256,821* cases, no data available for 65,161 cases; 12/09/2020, 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	4,014	2,836	681	3,200
	Occupation in facility	15,502	684	23	15,200
§ 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*	7,286	121	1	6,400
	Occupation in facility	3,794	174	7	3,500
§ 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	19,501	4,342	3,678	15,600
	Occupation in facility	10,781	468	40	10,600
§ 42 IfSG (e.g. meat processing plants or kitchens in the catering trade, in inns, restaurants, canteens, cafés, or other establishments with or for communal catering)	Occupation in facility	5,842	253	5	5,600
Neither cared for, accommodated in nor working in a facility		124,940	18,093	3,618	114,000

*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.

Outbreaks

In 17 districts an increased incidence of >25 cases in 7 days/100,000 population was reported, including the urban districts of Rosenheim, Würzburg and Kaufbeuren in Bavaria, where the incidence is > 50 cases/100,000 population. Most affected districts are in the federal state of Bavaria. The increased incidence in the affected districts is mainly due to people returning home from vacations abroad, but also to transmission during family and other private events.

Further COVID-19-related outbreaks continue to be reported in nursing homes, hospitals, facilities for asylum seekers and refugees, community facilities, various occupational settings and in connection with religious events.

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 data transmission to the RKI varies greatly. Therefore, a nowcasting approach is applied to model the true temporal progression of COVID-19 cases according to illness onset. Figure 2 shows the result of this analysis.

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.

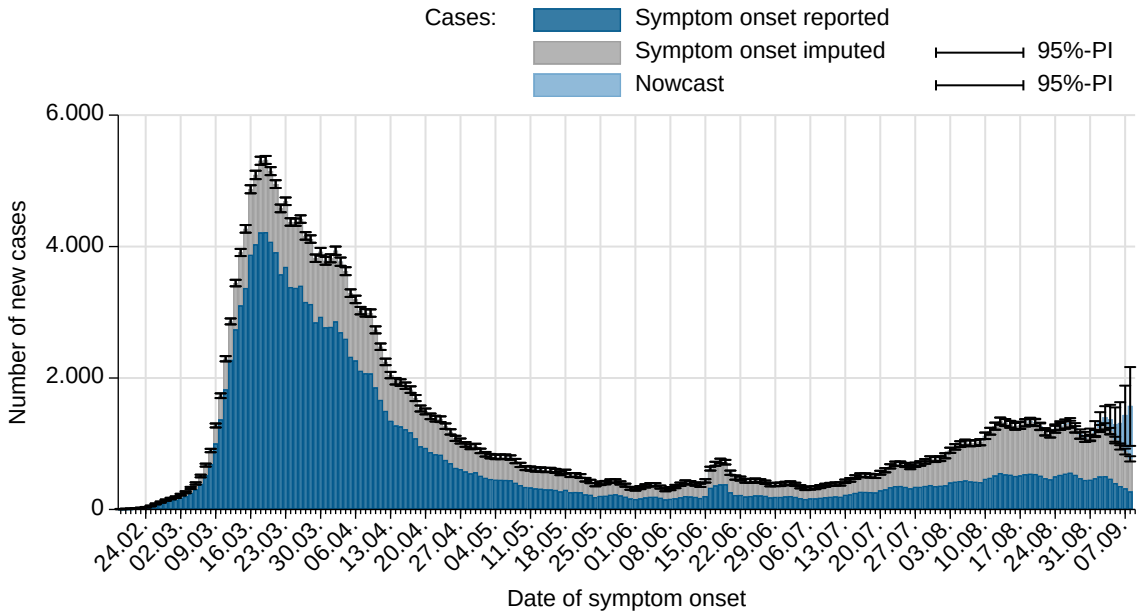

Figure 2: Number of notified COVID-19 cases with known date of illness onset (dark blue), estimated date of illness onset for cases without reported date of onset (grey) and estimated number of not yet notified cases according to illness onset electronically reported to RKI (light blue) (as of 12/09/2020, 12 AM, taking into account cases up to 08/09/2020).

A sensitive 4-day-R-value can be estimated by using a 4-day moving average of the number of new cases estimated by nowcasting. This 4-day value reflects the infection situation about one to two weeks ago. This value reacts sensitively to short-term changes in case numbers, such as those caused by individual outbreaks. Furthermore, outbreak dynamics may be influenced widespread testing performed among affected persons, leading to the rapid detection of many additional COVID-19 cases. This can lead to relatively large fluctuations in the estimated R-value, especially if the total number of new cases is small.

The current estimate of the 4-day R-value is 1.15 (95%-prediction interval: 0.89 - 1.40) and is based on electronically notified cases as of 12/09/2020, 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, as this value 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 1.16 (95% prediction interval: 1.01 - 1.32) and is based on electronically notified cases as of 12/09/2020, 12:00 AM.

The reported R values have been above 1 since mid-July 2020. Since mid-August they are below or around 1. The increased R-values can be attributed in large part to increasing cases among travellers, particularly returning after trips during the summer vacations, but also to a still existing larger number of smaller outbreaks.

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 7-day 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)

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

Risk Assessment by the RKI

General assessment

At the global and the national level, the situation is dynamic and must be taken seriously. This is a dynamic and serious situation worldwide and in Germany. The number of cases continues to increase worldwide. The number of newly reported cases in Germany declined from about mid-March to the beginning of July, since then the number of cases has increased but has stabilized over the past week. Large and small outbreaks continue to occur throughout Germany, particularly in connection with celebrations with family and friends and at group events. Travel returnees, especially in the younger age groups, have also contributed to the increase in case numbers in July and August. There are still no approved vaccines and the treatment of severe disease courses is complex and lengthy.

The Robert Koch Institute still estimates the risk to the health of the German population to be high, and very high for risk groups. This assessment may change in the short term due to new findings.

Infection risk

SARS-CoV-2 can be transmitted easily from person to person. The risk of infection depends heavily on the regional spread, living conditions and also on individual behaviour (physical distancing, hygiene measures and community masks). Here, contacts in risk situations (such as long face-to-face contact) play a special role. Aerosol emission increases sharply when speaking loudly, singing or laughing. In indoor rooms, this significantly increases the risk of transmission, even if a distance of more than 1.5 m is maintained. If the minimum distance of 1.5 m without covering the mouth and nose is not maintained, e.g. when groups of people sit at a table or in large gatherings, there is also an increased risk of transmission outdoors.

Disease severity

In most cases, the disease is mild. The probability of progression towards serious disease increases with increasing age and underlying illnesses. Individual long-term consequences cannot be estimated yet. The individual risk cannot be derived from epidemiological/statistical data. Thus, even without known previous illnesses and in young people, the course of the disease can be severe or even life-threatening. Long-term consequences, even after slight progressions, cannot yet be assessed.

Burden on health system

The burden on the health care system depends largely on the geographical distribution of cases, the main population groups affected, the health care capacity and initiation of containment measures (isolation, quarantine, physical distancing etc.). In large parts of Germany it is currently low, but it can rapidly increase locally and affect the public health system in particular as well as medical care facilities.

Measures taken in Germany

- Information on the designation of international risk areas https://www.rki.de/DE/Content/InfAZ/N/Neuartiges_Coronavirus/Risikogebiete_neu.html
- The ministry of health has published a record of all measures implemented in Germany since 27/01/2020 https://www.bundesgesundheitsministerium.de/coronavirus/chronik-coronavirus.html
- Information from the Ministry of Health for travellers entering Germany: Frequently asked questions and answers (in German) https://www.bundesgesundheitsministerium.de/coronavirus-infos-reisende/faq-tests-einreisende.html

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

- Corona-Warn-App https://www.rki.de/DE/Content/InfAZ/N/Neuartiges_Coronavirus/WarnApp/Warn_App.html
- Regulations for persons entering Germany in connection with the novel coronavirus SARS-CoV-2 (15.06.2020) https://www.rki.de/DE/Content/InfAZ/N/Neuartiges_Coronavirus/Transport/BMG_Merkblatt_Reisende_Tab.html
- Information on additional regulations at the regional level regarding control measures such as physical distancing or quarantine regulations for persons entering from other countries can be accessed 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 on the RKI dashboard: https://corona.rki.de/
- A distance of 1.5 metres to other individuals 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)*

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