



Coronavirus Disease 2019 (COVID-19)

Daily Situation Report of the Robert Koch Institute

10/09/2020 - UPDATED STATUS FOR GERMANY

Confirmed cases	Deaths	Deaths (%)	Recovered
255,366	9,341	3.7%	ca. 229,400**
(+ 1,892*)	(+ 3*)		

*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 10/09/2020 12:00 AM)

- After a high increase between calendar week 29 and 34, the 7-day-COVID-19 incidence has slightly decreased in 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 **9.9** cases per 100,000 inhabitants. A total of **26** districts transmitted zero cases over the past 7 days. In a further **131** districts the 7-day-incidence is below 5.0/100,000 inhabitants.
- In Baden-Wuerttemberg, Bavaria, Berlin, Hamburg and Hesse the 7-day incidence is higher than the national mean 7-day incidence, in some of these federal states considerably so.
- In total, **255,366** laboratory-confirmed COVID-19 cases and **9,341** 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.

Epidemiological Situation in Germany

In accordance with the international standards of the WHO¹ and the ECDC², the RKI evaluates all laboratory diagnostic evidence of SARS-CoV-2 as COVID-19 cases, regardless of the presence or severity of the clinical symptoms. In the following report, "COVID-19 cases" thus includes both acute SARS-CoV-2 infections and 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 **255,366 (+1,892)** laboratory-confirmed cases of COVID-19 have been electronically reported to and validated by the RKI (Figure 1 and Table 1). A total of **26** 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 https://www.who.int/publications/i/item/WHO-2019-nCoV-Surveillance_Case_Definition-2020.1

² <https://www.ecdc.europa.eu/en/covid-19/surveillance/case-definition>

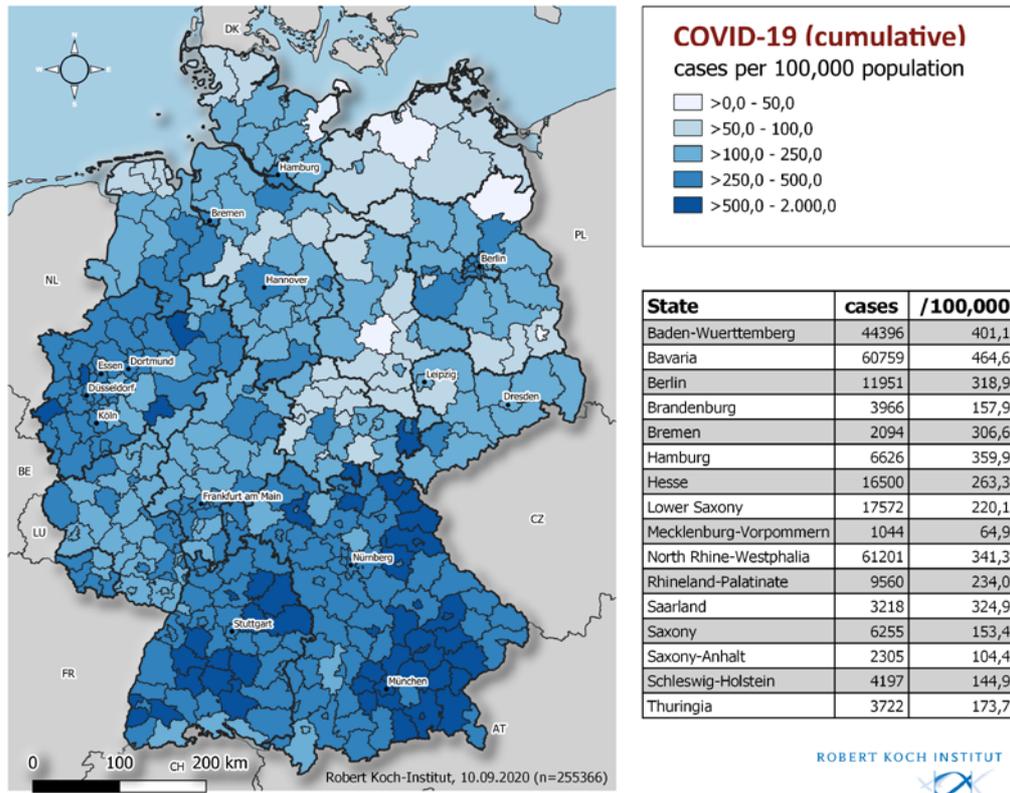


Figure 1: Number and cumulative incidence (per 100,000 population) of the 255,366 electronically reported COVID-19 cases in Germany by county and federal state (10/09/2020, 12:00 AM). Please see the COVID-19 dashboard (<https://corona.rki.de/>) for information on number of COVID-19 cases by district (local health authority).

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 (10/09/2020, 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	44,396	278	401	1,500	13.6	1,868	16.9
Bavaria	60,759	638	465	2,396	18.3	2,644	20.2
Berlin	11,951	72	319	459	12.2	226	6.0
Brandenburg	3,966	7	158	64	2.5	169	6.7
Bremen	2,094	9	307	58	8.5	58	8.5
Hamburg	6,626	99	360	213	11.6	267	14.5
Hesse	16,500	125	263	698	11.1	537	8.6
Mecklenburg-Western Pomerania	1,044	6	65	29	1.8	20	1.2
Lower Saxony	17,572	118	220	495	6.2	665	8.3
North Rhine-Westphalia	61,201	323	341	1,589	8.9	1,827	10.2
Rhineland-Palatinate	9,560	77	234	343	8.4	245	6.0
Saarland	3,218	10	325	48	4.8	175	17.7
Saxony	6,255	64	153	160	3.9	225	5.5
Saxony-Anhalt	2,305	15	104	42	1.9	66	3.0
Schleswig-Holstein	4,197	29	145	108	3.7	161	5.6
Thuringia	3,722	22	174	66	3.1	188	8.8
Total	255,366	1,892	307	8,268	9.9	9,341	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.

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

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. Of these cases, the onset of symptoms is unknown for 90,935 cases (36%), thus their date of reporting is provided.

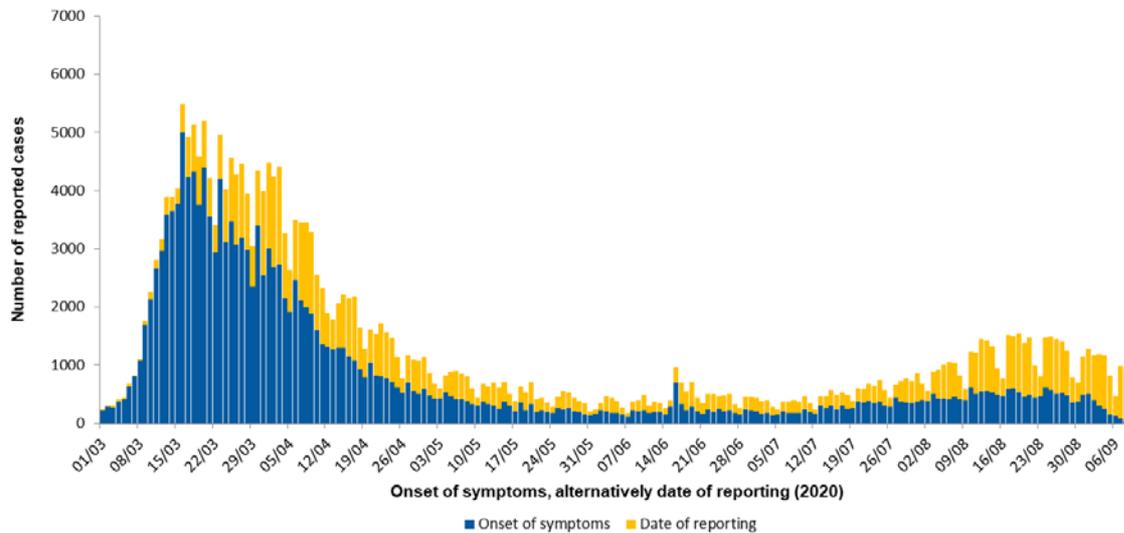


Figure 2: Number of COVID-19 cases in Germany electronically reported to the RKI by the date of symptoms onset or –if unknown- alternatively by date of reporting since 01/03/2020 (10/09/2020, 12:00 AM).

Demographic distribution of cases

Of all notified cases, 51% are female and 49% are male. Among all notified cases for whom data on age and gender were reported, 9,341 were children under 10 years of age (3.7%), 17,806 children and teenagers aged 10 to 19 years (7.0%), 120,403 persons aged 20 to 49 years (47%), 68,841 persons aged 50 to 69 years (27%), 32,556 persons aged 70 to 89 years (13%) and 5,608 persons aged 90 years and older (2.2%). Age and/or gender were unknown in 811 notified cases. Cases had a mean age of 45 years (median age 44 years). The highest incidences are seen in persons aged 90 years and older (Figure 3).

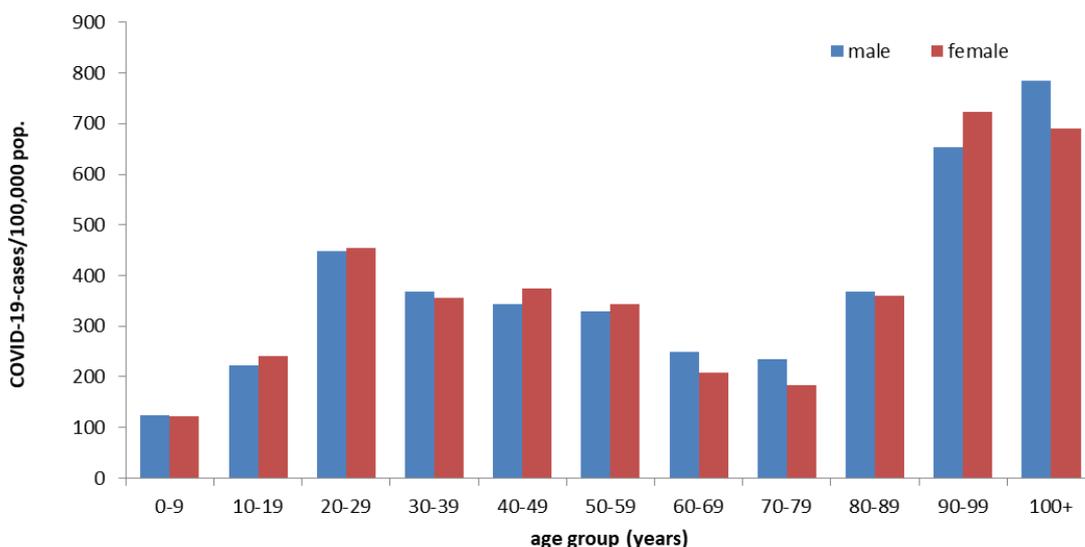


Figure 3: Electronically reported COVID-19 cases/100,000 population in Germany by age group and gender (n=254,549) for cases with information available (10/09/2020, 12:00 AM).

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

Clinical aspects

Information on symptoms is available for 211,147 (83%) of the notified cases. For 13% of these cases it was reported that no symptoms relevant for COVID-19 were present. Among those, for whom symptoms were reported, cough (44%), fever (37%), rhinorrhoea (20%) and sore throat (19%) were frequent. Pneumonia was reported in 5,549 cases (3%). Since calendar week 17, cases are reported to the RKI as a distinct COVID-19 surveillance category. Since then, ageusia and anosmia can also be entered as symptoms. At least one of these two symptoms was reported in 10,470 of 66,632 cases (16%).

Hospitalisation was reported for 32,959 (15%) of 220,230 COVID-19 cases with information on hospitalisation status.

Approximately 229,400 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 9,341 COVID-19-related deaths have been reported in Germany (3.7% of all confirmed cases). Of these, 5,178 (55%) are men and 4,159 (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, 7,971 (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 under 20 years of age 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 9,337 of notified deaths; 10/09/2020, 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	1,423	2,158	587	6
Female	1		3	7	22	92	239	683	1,959	1,107	46
Total	1	1	10	25	81	341	909	2.106	4.117	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 (253,734* cases, no data available for 64,243 cases; 10/09/2020, 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	3,989	2,815	680	3,200
	Occupation in facility	15,415	681	23	15,100
§ 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*	7,120	119	1	6,300
	Occupation in facility	3,711	171	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	19,434	4,325	3,677	15,500
	Occupation in facility	10,740	466	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	5,788	251	5	5,600
Neither cared for, accommodated in nor working in a facility		123,294	18,026	3,617	112,800

*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, Memmingen and Würzburg, 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 4 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.

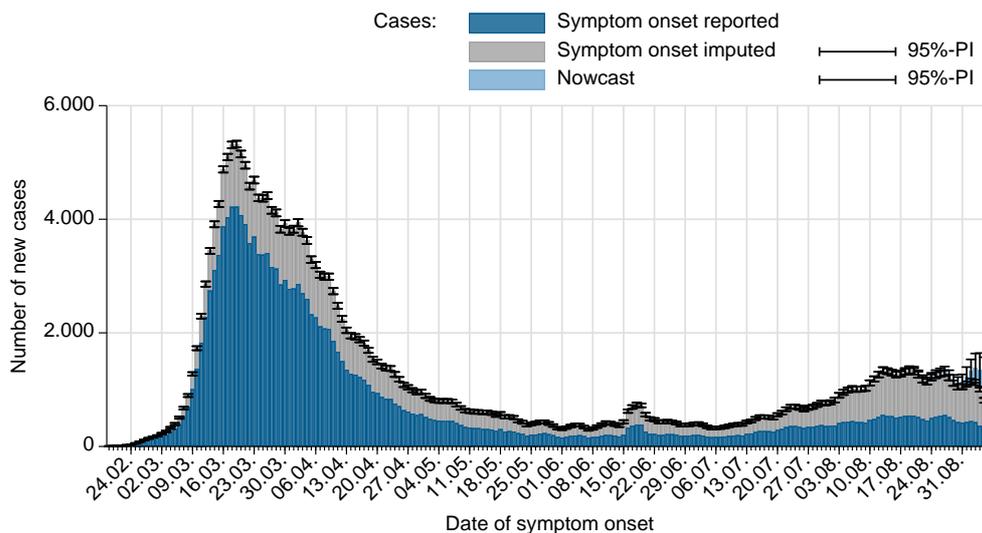


Figure 4: Number of notified COVID-19 cases with known date of illness onset (dark blue), estimated date of illness onset for cases without reported date of onset (grey) and estimated number of not yet notified cases according to illness onset electronically reported to RKI (light blue) (as of 10/09/2020, 12 AM, taking into account cases up to 06/09/2020).

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 **0.90** (95%-prediction interval: **0.72 – 1.06**) and is based on electronically notified cases as of 10/09/2020, 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 **1.04** (95% prediction interval: **0.93 – 1.13**) and is based on electronically notified cases as of 10/09/2020, 12:00 AM.

The reported R values have been above 1 since mid-July 2020. Since mid-August they are around 1 or below 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)

DIVI intensive care register

The German Interdisciplinary Association for Intensive and Emergency Medicine (DIVI) has in collaboration with RKI established a registry to document the number of available intensive care beds as well as the number of COVID-19 cases treated in participating hospitals on a daily basis. Since 16/04/2020, all hospitals with intensive care beds are required to report.

(<https://www.intensivregister.de/#/intensivregister>)

As of 10/09/2020, a total of 1,284 hospitals or departments reported to the DIVI registry. Overall, 30,731 intensive care beds were registered, of which 22,048 (72%) are occupied, and 8,683 (28%) 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 (09/09/2020, 12:15 PM).

	Number of patients	Percentage	Change to previous day*
Currently in ICU	233		6
- of these: mechanically ventilated	129	55%	-4
Discharged from ICU	16,893		49
- of these: deaths	4,063	24%	9

*The interpretation of these numbers must take into account the number of reporting hospitals and therefore the number of reported patients may change from day to day. On certain days, this can explain an occasionally important decrease or increase in the cumulative number of discharged patients or deaths compared with the day before.

Information from additional RKI based surveillance systems for acute respiratory illnesses

GrippeWeb ("FluWeb") is a web interface at RKI for monitoring the activity of acute respiratory illness (ARI), utilizing information from the population. In week 36, 2020, the rate of ARI ("ARI rate") increased. Further information can be found under <https://grippeweb.rki.de/>.

The Influenza Working Group (AGI) monitors ARI through a sentinel network of physicians in private practices. In week 36, 2020, the overall number of patient visits due to acute respiratory infections increased. The ARI incidence increased in all age groups. Overall, it remained at a similar level to that of previous seasons at this time of the year. Within the viral surveillance of the AGI, rhinovirus was detected in 20 of 35 sentinel samples (57%) in week 36, 2020. Since week 16, 2020, no SARS-COV-2 has been detected within the viral sentinel surveillance of the AGI. Further information can be found under <https://influenza.rki.de/>.

A third, ICD-10 code based system monitors severe acute respiratory illness (SARI) in hospitalized patients (ICD-10 codes J09 to J22: primary diagnoses influenza, pneumonia or other acute infections of the lower respiratory tract). In week 35, 2020, the total number of SARI cases remained stable compared to week 34. Of all reported SARI cases in week 35, 2020, 3% were diagnosed with COVID-19 (ICD-10 code U07.1!) (See Figure 5). Please note that due to data availability only patients with an ICD-10 Code for SARI as the main diagnosis and hospitalisation duration of up to one week were included in this analysis.

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

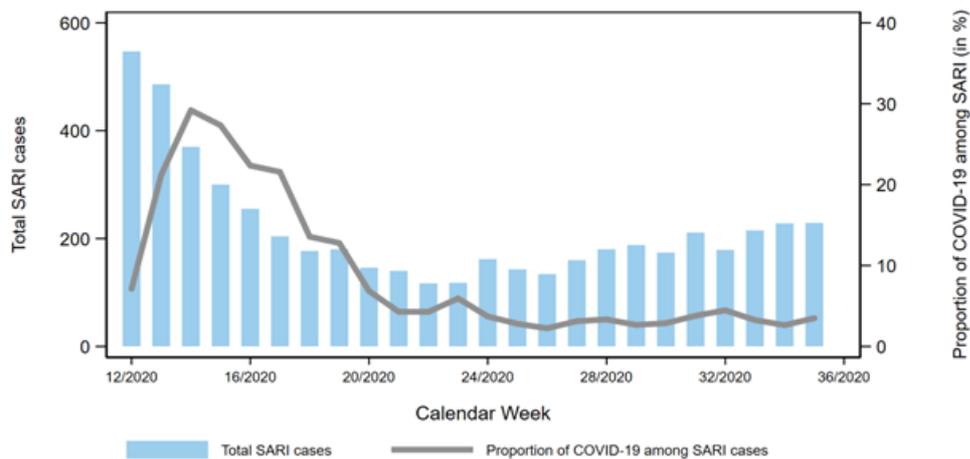


Figure 5: Weekly number of SARI cases (ICD-10 codes J09-J22) and proportion of cases with a diagnosis of COVID-19 (ICD-10 code U07.1!) among SARI cases with duration of hospitalisation of up to one week and with date of admission in weeks 12 to 35, 2020, from 70 sentinel hospitals

Data on emergency department utilisation

In collaboration with the National Emergency Department Register AKTIN (<https://www.aktin.org/en/>), the RKI analysed emergency department utilisation and prepared a weekly situation report: <https://www.rki.de/EN/Content/Institute/DepartmentsUnits/InfDiseaseEpidem/Div32/sumo/sumo.html>

As of 06 September 2020, data from 9 emergency departments have been taken into account. Between 1 November 2019 and 1 March 2020, an average of 6,356 emergency department admissions per week was recorded. From the middle to the end of March 2020, a 40% decrease in the number of admissions was observed, to 3,697 admissions in week 13, 2020. Similar declines were evident in comparable surveillance systems in the USA, England and Wales. In parallel to the decrease in daily admissions, public measures were taken to contain the COVID-19 pandemic in Germany. Subsequently, an increase in admissions has been observed. **In week 36 2020, 5,632 admissions were recorded. Therefore, the number of admissions is currently 11% below the average of November 2019 to February 2020** (see Figure 6).

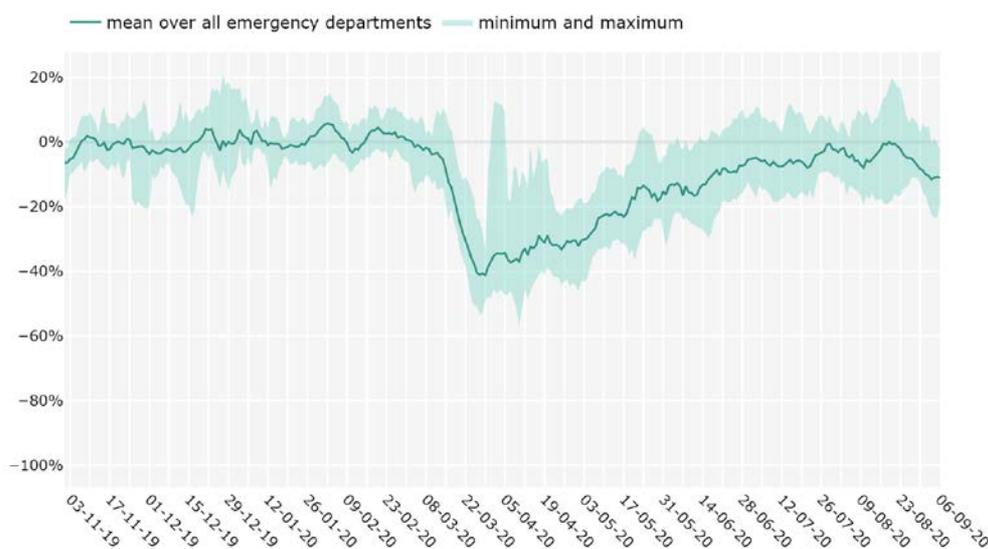


Figure 6: Number of emergency department attendances in Germany, from November 2019 to September 2020; 7-day moving average of 9 emergency departments; relative deviation to the reference period 1 November 2019 – 1 March 2020 (as of 06 September 2020)

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>

- 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)