ROBERT KOCH INSTITUT

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

08/12/2020 - UPDATED STATUS FOR GERMANY

Confirmed cases		7-day incidence (7-di)		DIVI -Intensive care register
Total[1]	**Active cases**[2]	**Total population**	**No. of districts with 7-di > 50/100,000 pop**	**Cases currently in ICU**
+14,054 (1,197,709)	**-4,900** [ca. 296,600]	**147 cases/ 100,000 pop**	**-1** (383/412)	**+78** (4,257)
Recovered[3]	**Deaths**	**People ≥ 60 years**	**No. of districts with 7-di > 100/100,000 pop**	**Completed ICU treatment; thereof deceased [%]**
+18,600 [ca. 881,800]	**+423** [19,342]	**134 cases/ 100,000 pop**	**+12** (297/412)	**+607** 30%

Numbers in () brackets show cumulative values, numbers in [] brackets show current values.

[1] *The difference to the previous day relates to data entry at RKI; due to delay in data transmission former cases may be included.*

[2] *Active cases were calculated from the number of transmitted cases minus deaths and the estimated number of recovered cases.*

[3] *The algorithm for estimation of recovered cases considers information about disease onset and hospitalization but not for late effects because such data were not recorded regularly.*

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 08/12/2020, 12:00 AM)

- Currently, the number of transmissions in the population in Germany is high. Therefore, the entire population is strongly encouraged to commit itself to infection prevention and control.
- Since 04/12/2020, the case numbers are slightly increasing.
- The national 7-day incidence is 147 cases per 100,000 population. In Saxony it is markedly above, in Bavaria, Berlin and Thuringia moderately above and in Baden-Württemberg and Hesse marginally above the national average.
- Since the beginning of September, the proportion of cases in older age groups has been increasing again. The 7-day incidence of people ≥ 60 years is currently 134 cases/100,000 population.
- Almost all of the 412 districts have a high 7-day COVID-19 incidence. Only 8 districts transmitted an incidence of ≤25 cases/100,000 population. In comparison, 297 districts have an incidence of >100 cases/100,000 population and of these, 28 districts have an incidence of >250-500 cases/100,000 population and 3 districts of >500 cases/100,000 population.
- The high nationwide number of cases is caused by increasingly diffuse transmission, with numerous clusters especially in households and nursing and long-term care homes, but also in occupational settings, community facilities and related to religious events. For a large proportion of cases the transmission setting remains unclear.
- With 4,257 cases, the current number of COVID-19 cases treated in intensive care continues to increase (3,742 cases on 23/11/2020).
- On 07/12/2020, 14,054 new laboratory-confirmed COVID-19 cases and 423 new deaths associated with COVID-19 have been transmitted to the RKI in Germany.

Epidemiological Situation in Germany

In accordance with the international standards of WHO[1] and ECDC[2], RKI considers all laboratory confirmations of SARS-CoV-2, irrespective of the presence and severity of clinical symptoms, as COVID-19 cases. 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

After a temporary stabilisation of case numbers at a higher level in late August and early September, a steep increase in case numbers ensued in October in all federal states. The increase has leveled off since the second week of November. In November, the reported R-values have been fluctuating around 1. Since 04/12/2020, a slight increase in the number of cases has been observed, which is also reflected in increasing R-values. An R-value around 1 means that, on average, each person infected with SARS-CoV-2 infects another person. As the number of infected persons is currently very high in Germany, this results in a high number of new infections every day.

Outbreaks are being reported from various districts throughout Germany in various settings, particularly in households and increasingly in nursing and long-term care homes, but also in occupational and educational settings. Additionally, in many districts, there is an increasingly diffuse spread of SARS-CoV-2 without traceable transmission chains.

While the 7-day-incidence among younger age groups is stable or slightly decreasing, the incidence among older people is further increasing. As the latter more often have more severe illness due to COVID-19, the number of serious cases and deaths is also increasing. These can be avoided if all prevent the spread of the SARS-CoV-2 virus with the help of infection control measures.

It is therefore still necessary for the entire population to be committed to infection prevention and control, e.g. by consistently observing rules of distance and hygiene - also outdoors -, by ventilating indoor spaces and, where indicated, by wearing a community mask correctly. Crowds of people - especially indoors - should be avoided.

[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.

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 1,197,709 (+14,054) laboratory-confirmed cases of COVID-19 have been reported to and validated by the RKI (Table 1).

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 (08/12/2020, 12:00 AM). The number of new cases includes positive cases notified to the local health department at the same day, but also at previous days.

	Cumulative cases			Last 7 days		Cumulative deaths	
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	168,265	1,624	1,516	16,889	152	3,098	27.9
Bavaria	234,614	2,718	1,788	23,278	177	4,411	33.6
Berlin	72,082	640	1,964	6,217	169	699	19.0
Brandenburg	22,741	308	902	2,731	108	422	16.7
Bremen	10,859	41	1,594	778	114	139	20.4
Hamburg	27,081	231	1,466	1,938	105	425	23.0
Hesse	97,899	1,262	1,557	9,588	152	1,529	24.3
Mecklenburg-Western Pomerania	6,835	53	425	833	52	78	4.9
Lower Saxony	78,296	555	979	6,067	76	1,277	16.0
North Rhine-Westphalia	290,668	3,489	1,620	26,270	146	4,064	22.6
Rhineland-Palatinate	49,762	266	1,216	5,088	124	681	16.6
Saarland	14,173	286	1,436	1,335	135	276	28.0
Saxony	71,636	1,468	1,759	13,005	319	1,307	32.1
Saxony-Anhalt	15,396	471	701	2,681	122	215	9.8
Schleswig-Holstein	15,964	183	550	1,577	54	269	9.3
Thuringia	21,438	459	1,005	3,902	183	452	21.2
Total	**1,197,709**	**14,054**	**1,440**	**122,177**	**147**	**19,342**	**23.3**

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 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 648,342 cases (54%) thus their date of reporting is provided in Figure 1.

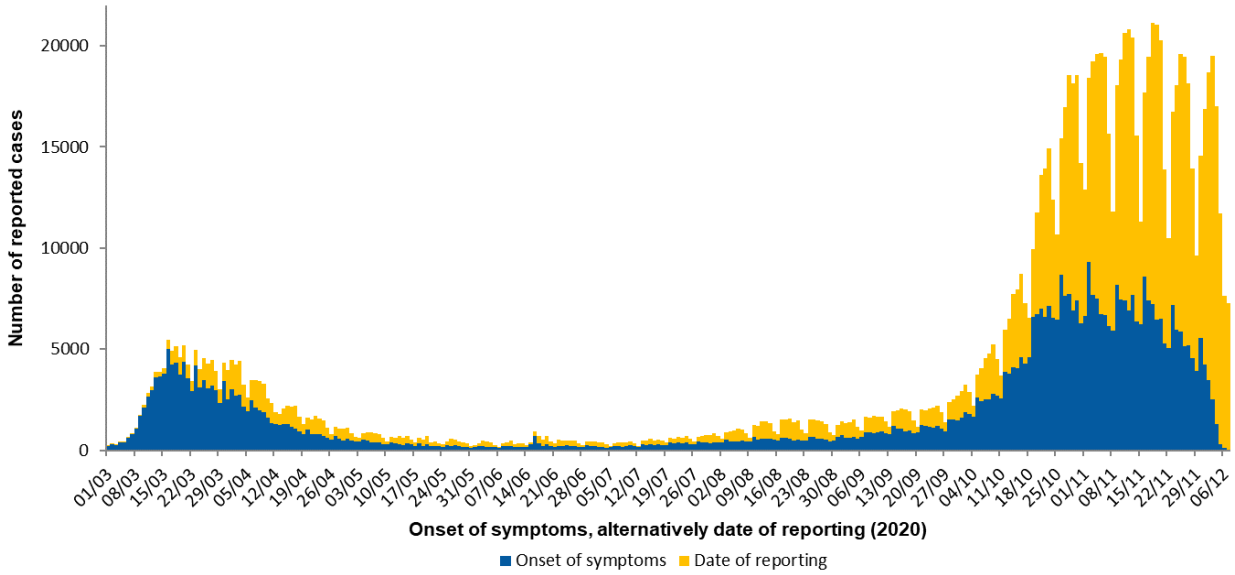

Figure 1: Number of COVID-19 cases in Germany electronically reported to the RKI by the date of symptoms onset or – if unknown – alternatively by date of reporting since 01/03/2020 (08/12/2020, 12:00 AM).

Demographic distribution of cases

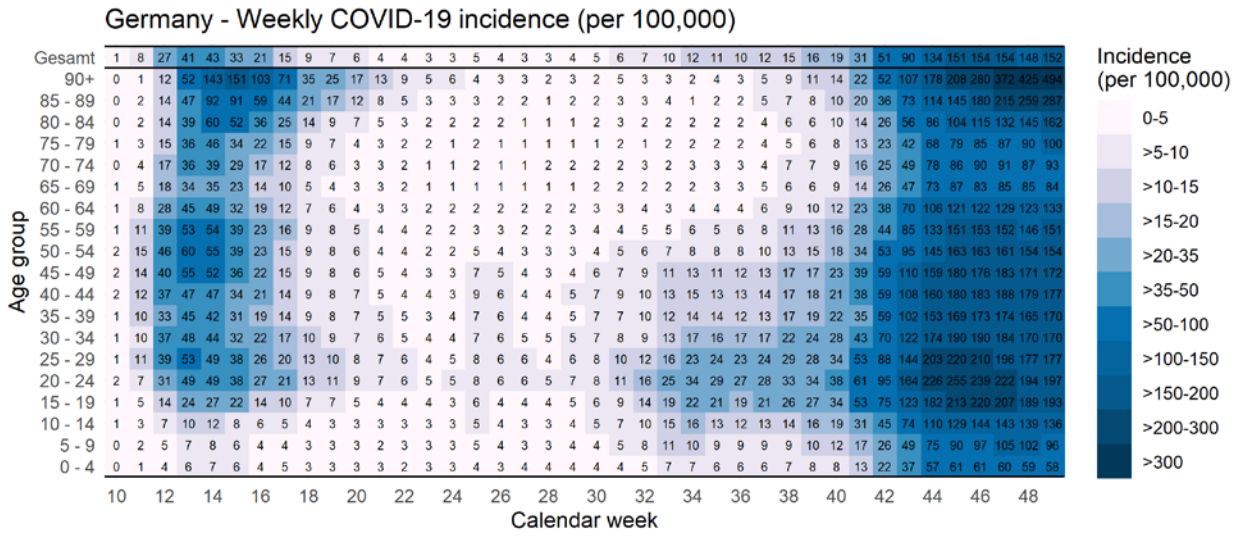

Figure 2: 7-day-incidence of notified COVID-19 cases by age group and reporting week (n=1,188,511 cases with respective data in the weeks 10 to 49 (08/12/2020, 12:00 AM).

The age-specific 7-day incidence is shown using a heat map (Figure 2). Age-specific case numbers and age-specific 7-day incidences can be accessed at: www.rki.de/covid-19-altersverteilung.

The first wave of the pandemic in Germany started in week 11 with a high 7-day incidence in 20-59-year-olds followed by a rising incidence in the over-80 years old until week 15, which fell again until week 24, Since reporting week 32, the nationwide 7-day incidence has increased steadily starting in younger age-groups, and since reporting week 41 also in older age groups. Since reporting week 46, a slight decrease in the weekly incidence can be seen among 15-29-year-olds. In the other age groups below 75 years, the

7-day incidence remains at a high level with only minimal fluctuations. Above 75 years the incidences have in parts considerably increased.

Clinical aspects

Information on symptoms is available for 747,900 (62%) of the notified COVID-19 cases. Table 2 shows the number and percentage of COVID-19 relevant or most common symptoms.

Clinical feature	N with information	N with clinical feature	% with clinical feature
cough	747,900	297,331	40%
fever	747,900	216,187	29%
rhinorrhoea	747,900	191,537	26%
sore throat	747,900	159,283	21%
pneumonia	747,900	10,436	1%
ageusia and anosmia*	603,113	128,825	21%

Table 2: Cases with COVID-19 relevant or most common symptoms (08/12/2020, 12:00 AM). *Ageusia and anosmia have been reported since week 17.

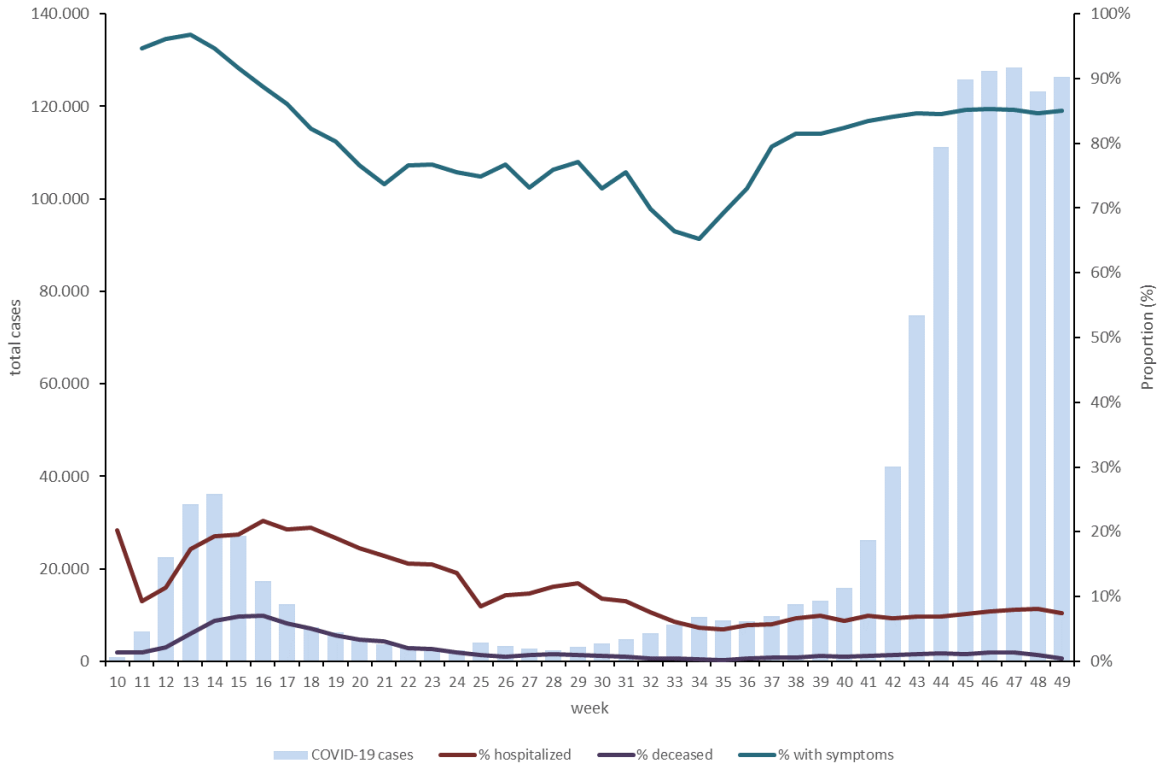

Figure 3: Depiction of the COVID-10 cases and proportion of deceased as well as proportion of hospitalized and COVID-19 cases with relevant symptoms, in relation to the respective number with corresponding data between week 10 – 49. See the underlying data table at www.rki.de/covid-19-tabelle-klinische-aspekte

Figure 3 the percentages of deceased, hospitalized and cases with COVID-19 relevant symptoms. The percentage of deaths among cases was less than 1% between week 30 and 41. An increasing trend is visible from week 36 onwards and the case fatality rate reached 1.4% in week 47. As deaths occur on average only 2-3 weeks after infection, further reports of deaths among currently reported cases are expected for weeks 47-49. The proportion of hospitalized COVID-19 cases stabilized at 6% to 8% since week 37. The percentage of cases with COVID-19 relevant symptoms increased from 79% in week 37 to 85% in week 49. During the summer (weeks 26-36) these proportions were lower at 65% and 77%.

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

During that time period returning travelers were increasingly tested, among whom asymptomatic infections were detected more frequently. The data on which the figure is based and that were published here on previous Tuesdays can be found at: www.rki.de/covid-19-tabelle-klinische-aspekte

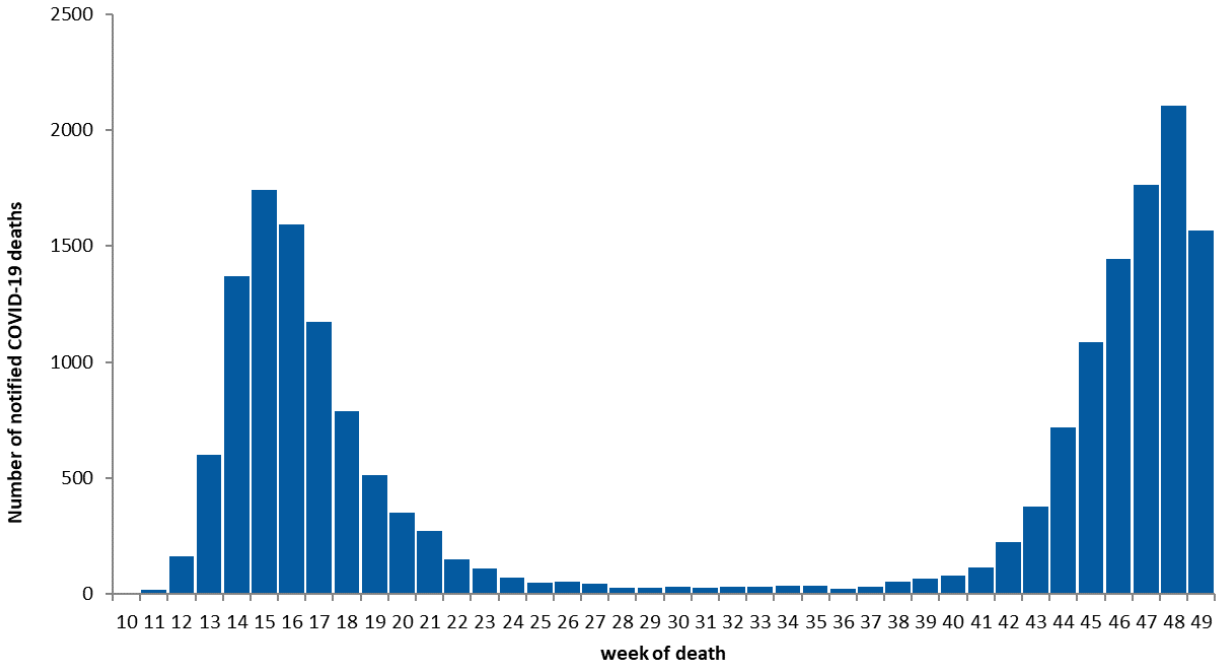

Figure 4: Number of notified COVID-19 deaths according to week of death for the reporting weeks 10 - 49 (08/12/2020, 12:00 AM).

The figures on the first page show the number of deaths reported daily according to date of entry at RKI. This may also include cases with a date of death several days in the past. Figure 4 shows the reported COVID-19 deaths by calendar week according to the date of death. For recent weeks, further reports of deaths among reported cases can be expected.

The increasing trend of the number of deaths continues since week 37. As of week 47, 16,851, (87%) of deaths were among people aged 70 years or older, with a median age of 83 years, while this age group accounts for only 13% of all cases (Table 3). Thus far, 10 deaths among COVID-19 cases under 20 years of age have been reported to the RKI, out of which three have been confirmed. Pre-existing medical conditions were reported for two of the cases.

Table 3: Number of notified COVID-19 deaths by age group and gender electronically reported to RKI (Data available for 16,612 notified deaths; 08/12/2020, 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+
Male	2	3	15	29	106	427	1,167	2,666	4,573	1,415
Female	5		9	17	47	168	468	1,381	4,165	2,651
Total	7*	3*	24	46	153	595	1,635	4,047	8,738	4,066

*Seven of these cases remain under validation.

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 many cases, the numbers 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, among persons employed in medical facilities according to § 23 IfSG and among persons cared for in educational facilities according to § 33 IfSG (Table 4). The number of deaths was particularly high among persons cared for in facilities according to §§ 23 and 36.

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.

Table 4: 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 (n=157,427 cases; 08/12/2020, 12:00

Facility according to		Total	≥60 years, number / prop.	Hospitalised	Deaths	Recovered (estimate)
§ 23 IfSG (e.g. hospitals, outpatient clinics and practices, dialysis clinics or outpatient nursing services)	Cared for / accommodated in facility	9,742	6,649 / 68%	6,213	1,293	6,700
	Occupation in facility	31,890	2,472 / 8%	1,103	29	28,400
§ 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*	34,410	n.a.	383	3	29,900
	Occupation in facility	16,063	1,231 / 8%	390	13	14,000
§ 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, prisons)	Cared for / accommodated in facility	42,790	30,811 / 72%	7,523	5,914	28,900
	Occupation in facility	22,532	2,613 / 12%	726	60	19,500

*for care according to § 33 IfSG only cases under 18 years of age are considered, as other information may be assumed to be incorrect. Due to changes in the variables, no notifications according to §42 are listed here.

Possible countries of exposure

In weeks 46 to 49, of the 505,810 reported COVID-19 cases, information regarding the country of exposure was missing in 268,292 (53%) cases.

In reporting week 11, the proportion of all cases was 46% for cases that had a possible foreign country as place of exposure. It then fell steadily to 0,4% in reporting week 19 as a result of travel restrictions. As of reporting week 25, borders reopened, initially in Europe, after which the proportion of cases reporting a probable country of infection abroad markedly increased. It peaked in week 34 at 49% and declined again since then.

The absolute number of cases with exposure abroad was stable after the end of the summer vacation period (week 38) to week 45 with an average of 1,700 cases per week. Since then, it has decreased to currently 352 cases in week 49. The proportion of all cases with a reported foreign place of exposure has decreased significantly to 0.3% in week 49 In weeks 46-49, 2,714 persons reported a possible site of infection abroad.

Travelers from a COVID-19 risk area within 14 days of entry into Germany must maintain a 10-day quarantine unless they have a negative test result from a test taken five days after arrival (see https://www.bundesgesundheitsministerium.de/coronavirus-infos-reisende).

Outbreaks

An increased incidence of >25 cases in 7 days/100,000 population was reported for almost every district (404 of 412). There are 28 districts with incidences of >250 to 500 cases/100,000 and 3 districts with an incidence of >500 cases/100,000 in the last 7 days. The dashboard (https://corona.rki.de) shows all affected districts.

In most districts, the transmission is diffuse, with several cases clustering in households. Many outbreaks particularly in households and retirement and nursing homes, but also in various occupational settings, hospitals and facilities for asylum seekers and refugees, community facilities such as kindergartens and schools, and in the context of religious gatherings continue to contribute to the elevated incidence.

Estimation of the reproduction number (R)

The reproduction number, R, is defined as the mean number of people infected by one infected person. The estimation of the R-value is based on the so-called nowcasting (Figure 5), a statistical procedure that shows the development of the number of cases after the onset of the disease and also forecasts it for the last few days. This forecast is subject to uncertainty, which is also reflected in the prediction intervals given for the R-value. After other case reports have been received at the RKI, the R-value is adjusted for the past days and, if necessary, corrected upwards or downwards. In recent weeks, values reported at the beginning of a week were typically corrected slightly upwards. They had thus slightly underestimated the real COVID-19 events in Germany, values estimated towards the end of a week were more stable. The currently estimated course of the R-value is shown in Figure 6.

4-day R-value	7-day R-value
1.03	1.02
(95%-prediction interval: 0.90 – 1.18)	(95%- prediction interval: 0.94 – 1.09)

Delays in reporting of case numbers at weekend days can lead to cyclical fluctuations of the 4-day R-value. The 7-day R-value is less affected because all week days are used to determine the value.

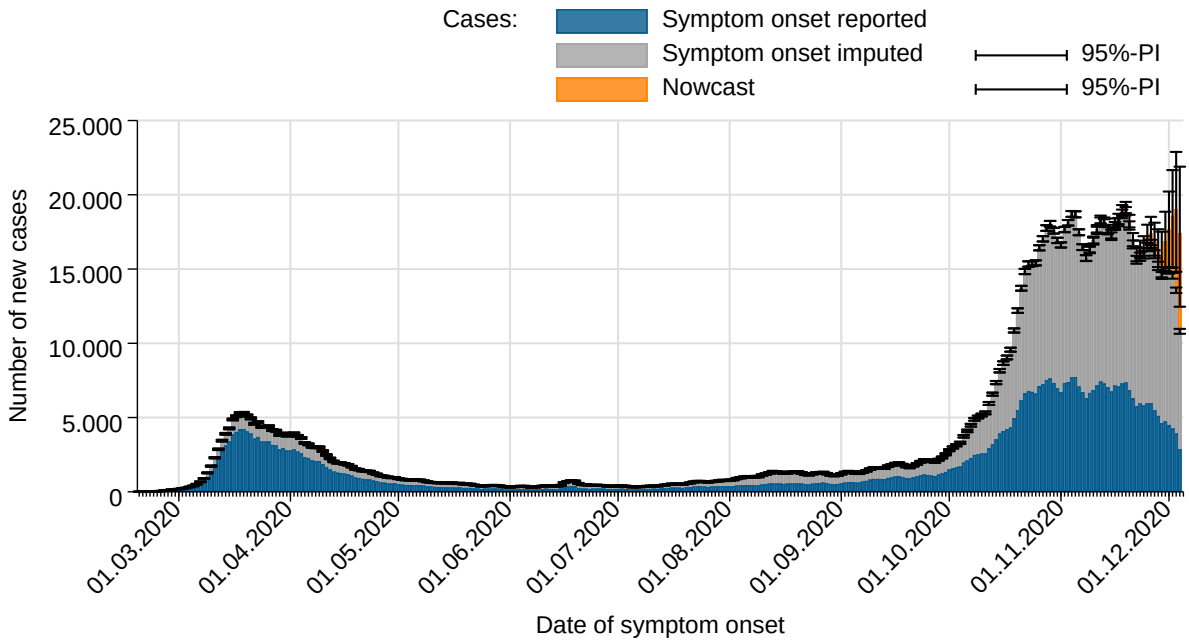

Figure 5: Number of notified COVID-19 cases with known date of illness onset (dark blue), estimated date of illness onset for cases without reported date of onset (grey) and estimated number of not yet notified cases according to illness onset electronically rep

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

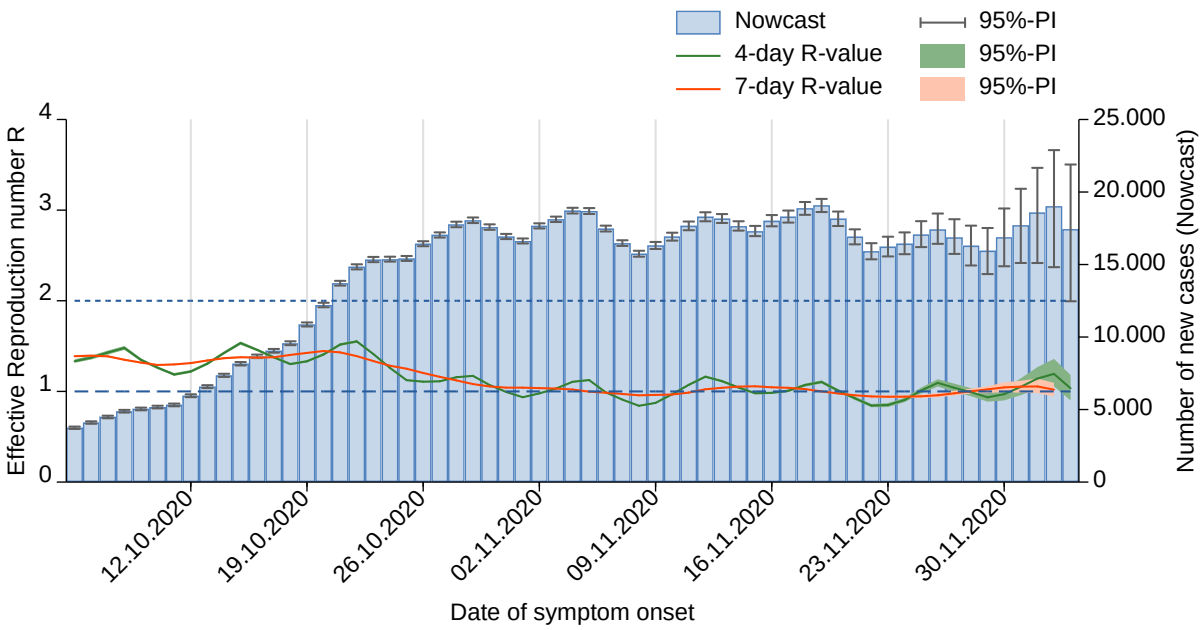

Figure 6: The estimated R-values (in green and orange) over the last 60 days, against the background of estimated number of COVID-19 cases according to illness onset (as of 08/12/2020, 12 AM, considering cases up to 04/12/2020).

The reported R-values have been fluctuating around 1 in November, with a rising trend during the last days. An R-value around 1 means that, on average, each person infected with SARS-CoV-2 infects another person. As the number of infected persons is currently very high in Germany, this means that there is still a high number of new infections every day.

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 description of the methodology is available at https://ww.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 08/12/2020, a total of 1,289 hospitals or departments reported to the DIVI registry. Overall, 27,271 intensive care beds were registered, of which 22,314 (82%) are occupied, and 4,957 (18%) are currently available. The number of COVID-19 cases treated in participating hospitals is shown in Table 5.

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

Table 5: COVID-19 patients requiring intensive care (ICU) recorded in the DIVI register (08/12/2020, 12:15 PM).

	Number of patients	Percentage	Change to previous day*
Currently in ICU	4,257		+78
- of these: with invasive mechanical ventilation	2,535	60%	+22
New admissions to ICU	685		
Discharged from ICU	35,839		+607
- of these: deaths	8,550	24%	+181

*The interpretation of these numbers must consider 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.

Risk Assessment by the RKI

In view of persistently high case numbers the risk assessment of the RKI was adapted to the current situation on 01/12/2020. The revised version highlights the increasingly diffuse SARS-CoV-2 transmission as well as the occurrence of outbreaks especially in households, occupational settings and nursing and senior care homes. Therefore, more rigorous case finding and contact tracing as well as better protection of vulnerable groups is essential. Vulnerable persons can only be reliably protected if the number of new infections can be substantially reduced. The current version can be found here: https://www.rki.de/DE/Content/InfAZ/N/Neuartiges_Coronavirus/Risikobewertung.html (*in German*)

Measures taken in Germany

- Third law on protection of the population in the event of an epidemic of national concern (18/11/2020, *in German*) https://www.bundesgesundheitsministerium.de/service/gesetze-und-verordnungen/guv-19-lp/drittes-bevoelkerungsschutzgesetz.html
- Management of contact persons (04/12/2020*, in German*) https://www.rki.de/DE/Content/InfAZ/N/Neuartiges_Coronavirus/Kontaktperson/Management.html
- Updated Testing Criteria for autumn and winter season (11/11/2020, *in German*) https://www.rki.de/DE/Content/InfAZ/N/Neuartiges_Coronavirus/Teststrategie/Testkriterien_Herbst_Winter.html
- Information on the designation of international risk areas (4/12/2020) https://www.rki.de/DE/Content/InfAZ/N/Neuartiges_Coronavirus/Transport/Archiv_Risikogebiete/Risikogebiete_04122020_en.pdf?__blob=publicationFile
- Recommendations on distribution of COVID-19-vaccines by The Standing Committee on Immunisation (STIKO). The German Ethics Council and German National Academy of Sciences Leopoldina (09/11/2020, *in German*) https://www.ethikrat.org/fileadmin/Publikationen/Ad-hoc-Empfehlungen/deutsch/gemeinsames-positionspapier-stiko-der-leopoldina-impfstoffpriorisierung.pdf
- National Testing Strategy – who will be tested for SARS-CoV-2 in Germany (14/10/2020, *in German)* https://www.rki.de/DE/Content/InfAZ/N/Neuartiges_Coronavirus/Teststrategie/Nat-Teststrat.html

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

- SARS-CoV-2 test criteria for schools during the COVID 19 pandemic (12/10/2020, *in German)* https://www.rki.de/DE/Content/InfAZ/N/Neuartiges_Coronavirus/Teststrategie/Testkriterien-Schulen.pdf
- Preventive measures in schools during the COVID 19 pandemic (12/10/2020) *(in German)* https://www.rki.de/DE/Content/InfAZ/N/Neuartiges_Coronavirus/Praevention-Schulen.pdf
- Selected and regularly updated information on COVID-19 https://www.rki.de/EN/Content/infections/epidemiology/outbreaks/COVID-19/COVID19.html
- 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 *(in German)* 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/EN/Content/infections/epidemiology/outbreaks/COVID-19/CWA/CWA.html
- Orders concerning travel after the determination of an epidemic situation of national significance by the German Bundestag (29/09/2020) 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: *(in German)* https://www.bundesregierung.de/breg-de/themen/coronavirus/corona-bundeslaender-1745198
- 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: *(in German)* https://www.bundesregierung.de/breg-de/themen/coronavirus/besprechung-der-bundeskanzlerin-mit-den-regierungschefinnen-und-regierungschefs-der-laender-1733248
- (Non-medical) face masks must be worn on public transport and in shops in all federal states.