



Coronavirus Disease 2019 (COVID-19)

Daily Situation Report of the Robert Koch Institute

23/12/2020 - 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
+24,740 (1,554,920)	+400 [ca. 366,900]	195 cases / 100,000 pop	-4 [400/412]	+47 [5,243]
Recovered ³	Deaths	People ≥ 60 years	No. of districts with 7-di > 100/100,000 pop	Completed ICU treatment; thereof deceased [%]
+23,400 (ca. 1,160,100)	+962 (27,968)	197 cases / 100,000 pop	-8 [356/412]	+1,086 27%

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 23/12/2020, 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 even more dedicatedly than before.
- The national 7-day incidence is 195 cases per 100,000 population. In Saxony and Thuringia, it is considerably above the national incidence.
- 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 197 cases/100,000 population.
- Almost all of the 412 districts have a high 7-day COVID-19 incidence. 356 districts have an incidence of >100 cases/100,000 population and of these, 75 districts have an incidence of >250-500 cases/100,000 population and 7 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.
- Yesterday, 24,740 new laboratory-confirmed COVID-19 cases as well as 962 new deaths associated with COVID-19 have been transmitted to the RKI in Germany. With 5,243 cases, the number of COVID-19 cases treated in intensive care continues to increase.
- RKI now judges the level of threat to the health of the general population as **very high**.
- On 12/19/2020, a new virus variant was reported in the UK. The ECDC has published a Rapid Risk Assessment on 20/12/2020. To date, it is unknown how the new virus variant will affect the COVID-19 pandemic. So far, the new virus variant has not yet been detected in Germany.
- RKI will not publish any daily situation report on December 24 and January 1, 2021. Testing and notification activities may be lower during the festive season, possibly resulting in an incomplete picture of the epidemiological situation in Germany.

Epidemiological Situation in Germany

In accordance with the international standards of WHO¹ and ECDC², 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. Due to measures implemented at the beginning of November the rise in cases could be stopped, albeit no considerable reduction in case numbers ensued. Since 04/12/2020 case numbers have been sharply increasing again.

The R-value is currently around 1, with a slight tendency above 1 in the longer term **and recently a slight downward trend**. This means that, on average, each person infected with SARS-CoV-2 infects a little more than 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.

Currently, the 7-day incidence increases in all age groups, particularly in persons aged 80 years or over. 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.

Note: On 25/12/2020 and 01/01/2021 no Daily Situation Report will be published.

Reported COVID-19 cases should be interpreted with care during the festive season as there may be fewer medical consultations, less sampling and diagnostic testing during that time. This may lead to fewer notified cases at the local level and hence to fewer transmitted COVID-19 cases to the RKI.

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>

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 **1,554,920 (+24,740)** 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 (23/12/2020, 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.

Federal State	Cumulative cases			Last 7 days		Cumulative deaths	
	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	217,464	2,998	1,959	22,435	202	4,267	38.4
Bavaria	296,497	3,762	2,259	27,228	207	5,966	45.5
Berlin	89,519	1,490	2,440	7,577	206	1,066	29.1
Brandenburg	34,117	656	1,353	4,808	191	714	28.3
Bremen	12,765	123	1,874	909	133	175	25.7
Hamburg	33,308	582	1,803	2,755	149	561	30.4
Hesse	125,049	2,411	1,989	13,060	208	2,296	36.5
Mecklenburg-Western Pomerania	10,210	311	635	1,549	96	127	7.9
Lower Saxony	96,959	727	1,213	8,532	107	1,702	21.3
North Rhine-Westphalia	362,430	5,132	2,019	34,184	190	5,608	31.2
Rhineland-Palatinate	65,473	833	1,599	6,729	164	1,137	27.8
Saarland	18,184	207	1,843	1,610	163	377	38.2
Saxony	111,922	2,728	2,749	16,861	414	2,409	59.2
Saxony-Anhalt	24,249	685	1,105	4,185	191	458	20.9
Schleswig-Holstein	21,855	795	753	3,016	104	348	12.0
Thuringia	34,919	1,300	1,637	6,818	320	757	35.5
Total	1,554,920	24,740	1,870	162,256	195	27,968	33.6

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 859,388 cases (55%) thus their date of reporting is provided in Figure 1.

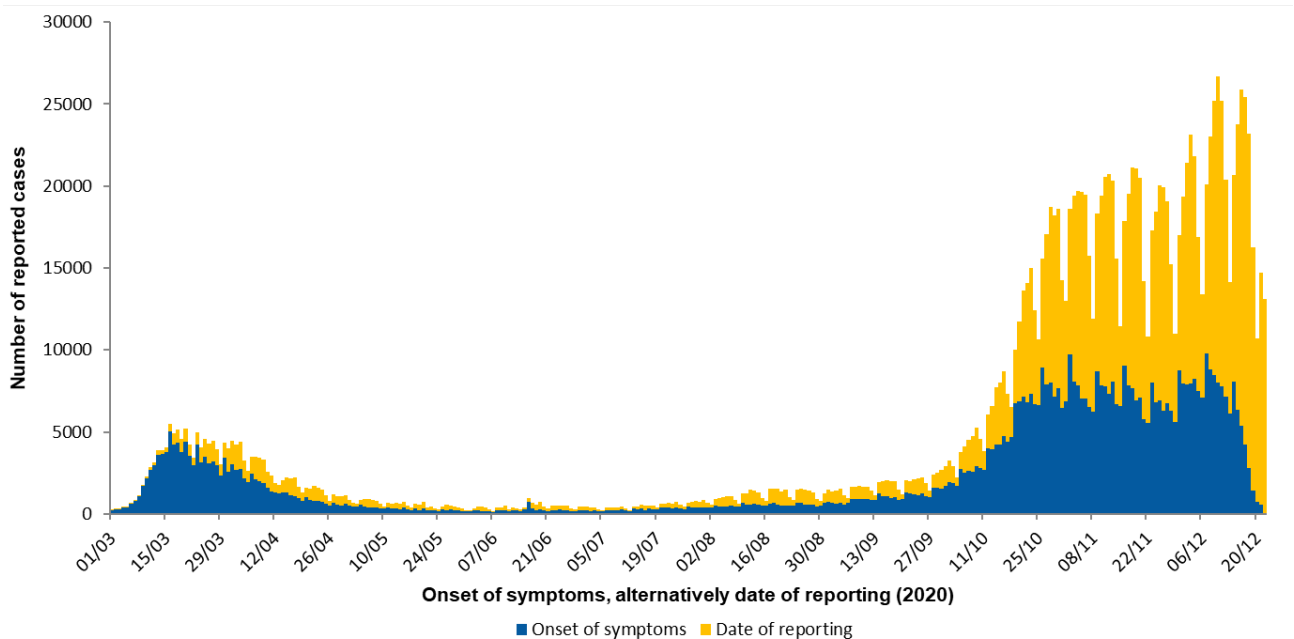


Figure 1: Number of COVID-19 cases in Germany electronically reported to the RKI by the date of symptoms onset or – if unknown – alternatively by date of reporting since 01/03/2020 (23/12/2020, 12:00 AM).

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.

Table 2: 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=204,655 cases; 23/12/2020, 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	12,677	8,921 / 70%	8,062	1,655	8,400
	Occupation in facility	40,882	3,143 / 8%	1,322	36	35,200
§ 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*	42,317	n.a.	470	3	37,700
	Occupation in facility	20,632	1,614 / 8%	461	16	18,000
§ 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	58,526	44,035 / 75%	9,465	8,034	37,300
	Occupation in facility	29,621	3,479 / 12%	850	77	24,800

*for care according to § 33 IfSG only cases under 18 years of age are considered, as other information may be assumed to be incorrect.

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

Due to changes in the variables, no notifications according to §42 are listed here.

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.

Outbreaks

An increased incidence of >25 cases in 7 days/100,000 population was reported for nearly every district (411/412). There are 75 districts with incidences of >250 to 500 cases/100,000 and 7 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
0.83	0.92
(95%-Prädiktionsintervall: 0.69 – 0.98)	(95%- Prädiktionsintervall: 0.83 – 0.99)

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.

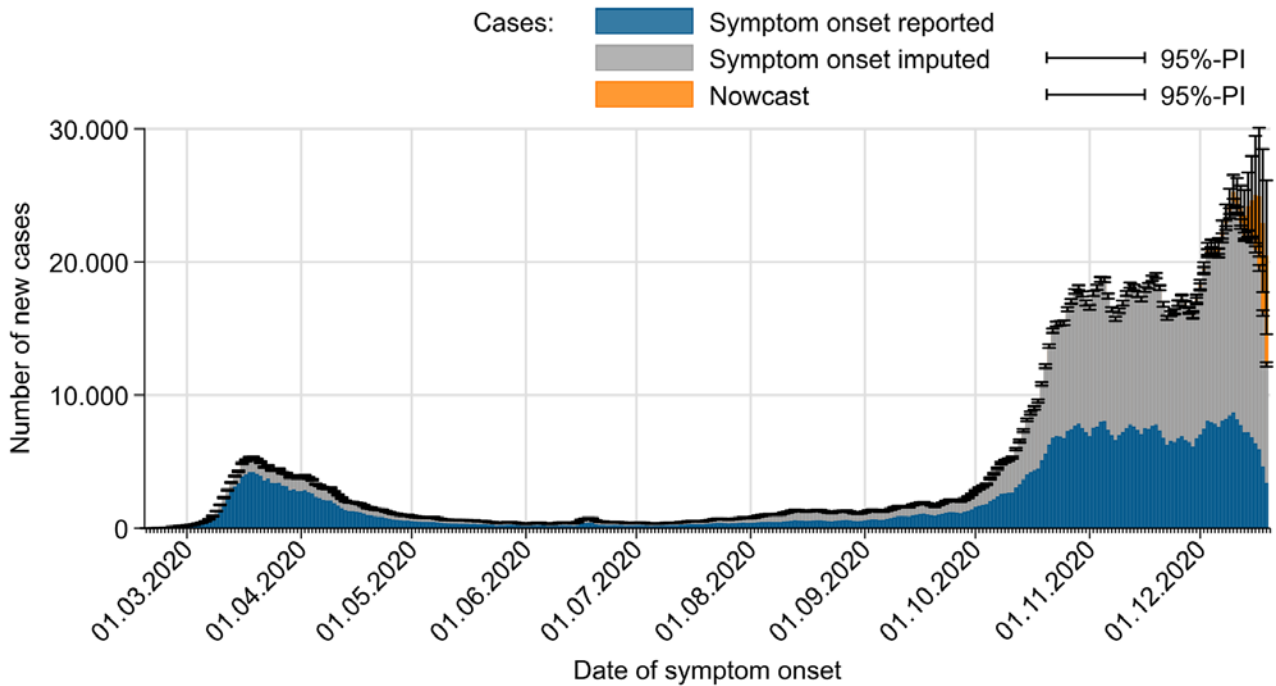


Figure 2: Number of notified COVID-19 cases with known date of illness onset (dark blue), estimated date of illness onset for cases without reported date of onset (grey) and estimated number of not yet notified cases according to illness onset electronically reported to RKI (orange) (as of 23/12/2020, 12 AM, considering cases up to 19/12/2020).

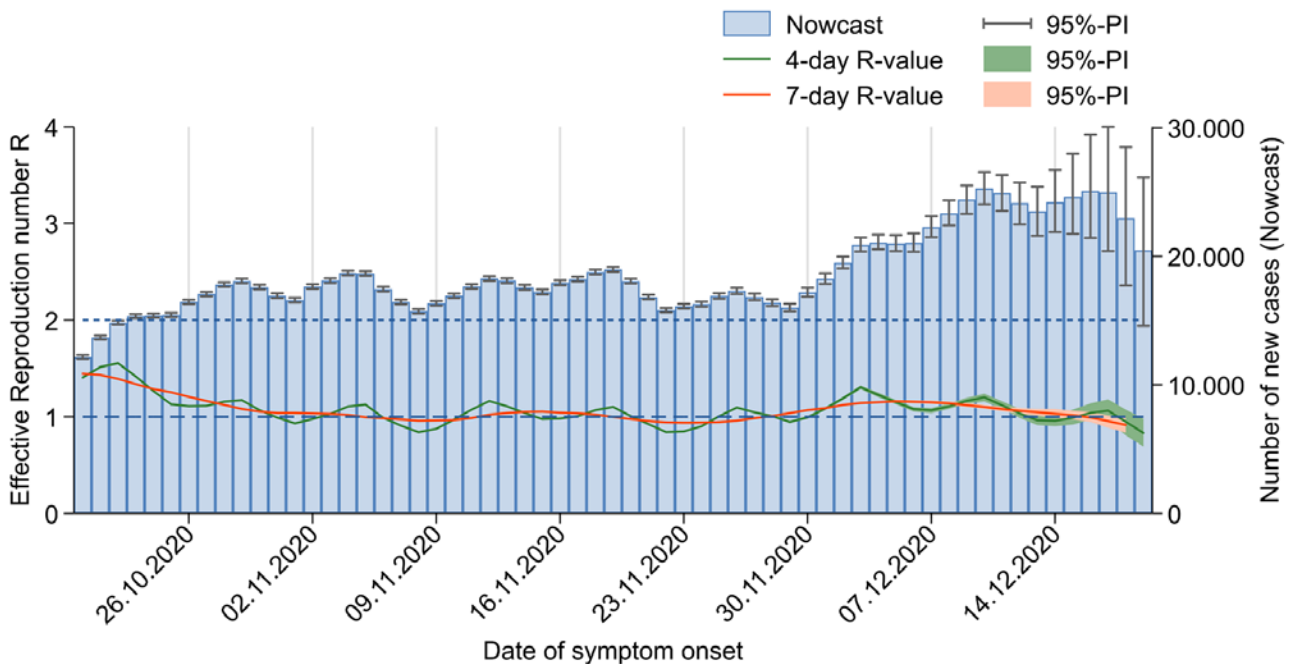


Figure 3: The estimated R-values (in green and orange) over the last 60 days, against the background of estimated number of COVID-19 cases according to illness onset (as of 23/12/2020, 12 AM, considering cases up to 19/12/2020).

The R-value is currently around 1, with a slight tendency above 1 in the longer term and recently a slight downward trend. This means that, on average, each person infected with SARS-CoV-2 infects a little more than 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.

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://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 23/12/2020, a total of **1,286** hospitals or departments reported to the DIVI registry. Overall, **26,742** intensive care beds were registered, of which **21,918** (82%) are occupied, and **4,824** (18%) are currently available. The number of COVID-19 cases treated in participating hospitals is shown in Table 5.

Table 3: COVID-19 patients requiring intensive care (ICU) recorded in the DIVI register (23/12/2020, 12:15 PM).

	Number of patients	Percentage	Change to previous day*
Currently in ICU	5,243		+27
- of these: with invasive mechanical ventilation	2,809	54%	+83
New admissions to ICU			+1,113
Discharged from ICU	44,837		+1,086
- of these: deaths	11,294	25%	+297

*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.

Surveys on SARS-CoV-2 laboratory tests in Germany

To assess the SARS-CoV-2 PCR test numbers, data from university hospitals, research institutions as well as clinical and outpatient laboratories throughout Germany are merged weekly at the RKI. These data are ascertained on a voluntary basis and are transmitted to RKI via an internet-based RKI test laboratory survey, via the network for respiratory viruses (RespVir), via the laboratory-based SARS-CoV-2 Surveillance established at the RKI (an extension of the Antibiotic Resistance Surveillance (ARS)) and via the enquiry of a professional association of laboratory medicine.

Since the beginning of testing in Germany up to and including week 51/2020, **33,708,381** PCR-laboratory tests have been recorded to date, **1,612,012** of which have tested positive for SARS-CoV-2.

Up to and including week 51, **257** laboratories have registered for the RKI test laboratory survey or in one of the other transmitting networks and transmit data upon reminder largely on a weekly basis. Since laboratories can register and correct the tests of the previous calendar weeks at a later date, it is possible that the ascertained numbers can increase retrospectively. It should be noted that the number of tests is not the same as the number of persons tested, as the data may include multiple tests of individual patients (Table 4 with data for the last 10 weeks – complete data since beginning of testing are available at <http://www.rki.de/covid-19-testzahlen> (in German)).

As testing criteria were adapted to the current situation of limited testing capacities in face of high case numbers and to take into account the common cold season, from week 46 onwards the proportion of positive tests cannot be compared directly to former weeks (Adapted testing criteria:

https://www.rki.de/DE/Content/InfAZ/N/Neuartiges_Coronavirus/Teststrategie/Testkriterien_Herbst_Winter.html in German).

Table 4: Number of SARS-CoV-2-laboratory tests in Germany (as of 15/12/2020 12:00 pm)

Calendar week 2020	Number of tests	Tested positive	Proportion positive (%)	Number of reporting laboratories
Up to & including week 41	19,174,941	376,642		
42	1,263,716	44,759	3.54	200
43	1,418,726	78,106	5.51	204
44	1,631,343	116,673	7.15	204
45	1,608,125	126,141	7.84	203
46*	1,422,301	126,181	8.87	201
47*	1,394,255	128,668	9.23	201
48*	1,373,055	125,752	9.16	204
49*	1,340,025	134,793	10.06	204
50*	1,503,685	170,141	11.31	200
51*	1,578,209	184,156	11.67	197
Total	33,708,381	1,612,012		

* Change of testing criteria on 03/11/2020 – Limited comparability to previous weeks

Information from additional RKI based surveillance systems for acute respiratory illnesses

An 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 50, 2020, the total number of SARI cases increased slightly. Over half of the hospitalised SARI cases in 72 sentinel hospitals were diagnosed with COVID-19. The proportion of COVID-19 infections among SARI cases increased slightly to 68% (s. Table 5).

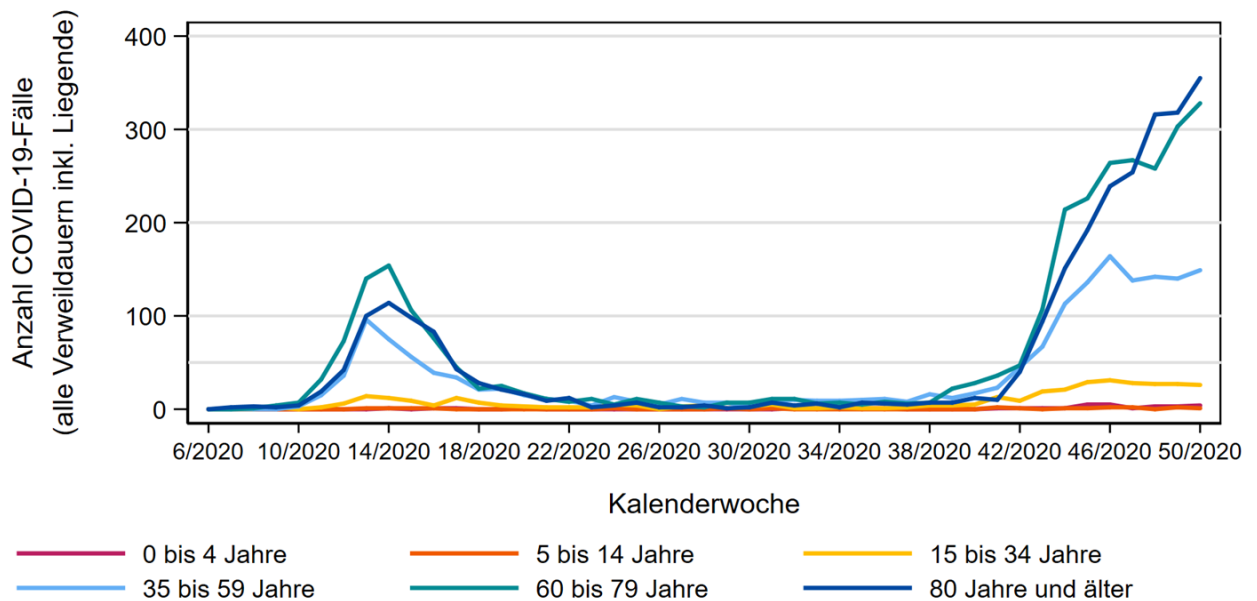
During the last weeks the number of hospitalised respiratory cases increased in cases above 60 years. The number of cases in the age group 35-59 years remained stable on a high level in week 50 (see Figure 4)

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.

Table 5: Total 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 by age groups for different time periods since week 12, 2020; only patients with duration of hospitalization of up to one week, data from 72 sentinel hospitals

Age group		week 12 - 20, 2020	week 21 - 39, 2020	week 40 - 49, 2020	week 50 2020
0 to 14 years	SARI cases (total)	322	869	389	36
	Proportion of COVID-19 (%)	0.3%	0.2%	3.0%	3.0%
15 to 34 years	SARI cases (total)	178	189	237	15
	Proportion of COVID-19 (%)	19%	13%	52%	67%
35 to 59 years	SARI cases (total)	534	511	799	94
	Proportion of COVID-19 (%)	31%	13%	63%	80%
60 years and older	SARI cases (total)	1,690	2,075	2,123	364
	Proportion of COVID-19 (%)	19%	2.5%	46%	71%
Overall	SARI cases (total)	2,724	3,644	3,548	509
	Proportion of COVID-19 (%)	19%	4.0%	46%	68%

Figure 4: Number of SARI cases (ICD-10 codes J09-J22) with a diagnosis of COVID-19 (ICD-10 code U07.1!) among SARI cases by age groups for different time periods since week 12, 2020; only patients with duration of hospitalization of up to one week, data from 72 sentinel hospitals (only available in German)



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

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 11/12/2020. The RKI now judges the threat to the health of the general population to be **very high**. 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

- General ruling: Ban on flights from the United Kingdom of Great Britain and Northern Ireland to the Federal Republic of Germany to protect against entry-related infection risks regarding novel mutations of the coronavirus SARS-CoV-2 (20/12/2020. *in German*)
<https://www.bmvi.de/SharedDocs/DE/Anlage/LF/allgemeinverfuegung-flugverbot-uk.pdf>
- Information on the designation of international risk areas (18/12/2020)
https://www.rki.de/DE/Content/InfAZ/N/Neuartiges_Coronavirus/Risikogebiete_neu.html
- Recommendations on COVID-19-vaccination (17.12.2020. *in German*)
<https://www.rki.de/DE/Content/Infekt/Impfen/ImpfungenAZ/COVID-19/Impfempfehlung-Zusfassung.html>
- 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-19-1p/drittes-bevoelkerungsschutzgesetz.html>
- Management of contact persons (14/12/2020. *in German*)
https://www.rki.de/DE/Content/InfAZ/N/Neuartiges_Coronavirus/Kontaktperson/Management.html
- Further governmental resolutions regarding additional containment measures (Lockdown, 13/12/2020. *in German*) <https://www.bundesregierung.de/breg-de/themen/coronavirus/merkel-beschluss-weihnachten-1827396>
- National Testing Strategy – who will be tested for SARS-CoV-2 in Germany (30/11/2020. *in German*)
https://www.rki.de/DE/Content/InfAZ/N/Neuartiges_Coronavirus/Teststrategie/Nat-Teststrat.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
- Important information and guidance on the novel coronavirus SARS-CoV-2 for returning travellers (08/11/2020)
https://www.rki.de/DE/Content/InfAZ/N/Neuartiges_Coronavirus/Transport/BMG_Merkblatt_Reisende_Tab.html
- 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>
- 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-bundestkanzlerin-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.