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

21/07/2020 - UPDATED STATUS FOR GERMANY

Confirmed cases	Deaths	Deaths (%)	Recovered
202,345 (+ 522*)	**9,090** (+ 4*)	**4.5%**	**ca. 188,100****

**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 21/07/2020 12:00 AM)

- The cumulative nationwide incidence over the past 7 days was 3.4 cases per 100,000 inhabitants and thus increased slightly at a low level. In total the overall cases reported to the RKI are still stable. A total of 103 districts transmitted zero cases. Moreover, in 227 districts the 7-day-incidence is below 5,0/100,000 inhabitants.
- In total, 202,345 laboratory-confirmed COVID-19 cases and 9,090 deaths due to COVID-19 have been electronically reported to the RKI in Germany.
- An accumulation of COVID-19 cases occurred in a meat processing plant in Lower Saxony
- Currently, COVID-19-related outbreaks are also continue to occur in various other settings, including facilities for asylum-seekers and refugees, nursing homes and hospitals as well as in context of families or religious events.

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

Epidemiological Situation in Germany

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 202,345 (+522) laboratory-confirmed cases of coronavirus disease 2019 (COVID-19) have been electronically reported to and validated by the RKI (see Table 1). A total of 103 districts reported no cases in the past 7 days. Information on laboratory-confirmed cases is also available on the RKI website at https://www.rki.de/DE/Content/InfAZ/N/Neuartiges_Coronavirus/Fallzahlen.html and https://corona.rki.de.

Table 1: Number and cumulative incidence (per 100,000 population) of laboratory-confirmed COVID-19 cases and deaths for each federal state electronically reported to RKI, Germany (21/07/2020, 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*	36,492	150	330	328	3.0	1,838	16.6
Bavaria	49,872	97	381	494	3.8	2,617	20.0
Berlin	8,802	23	235	125	3.3	221	5.9
Brandenburg	3,485	2	139	23	0.9	167	6.6
Bremen	1,721	1	252	30	4.4	55	8.1
Hamburg	5,241	1	285	14	0.8	261	14.2
Hesse	11,430	21	182	221	3.5	515	8.2
Mecklenburg-Western Pomerania	809	3	50	5	0.3	20	1.2
Lower Saxony	14,059	29	176	208	2.6	646	8.1
North Rhine-Westphalia	46,213	138	258	1,092	6.1	1,714	9.6
Rhineland-Palatinate	7,338	24	180	122	3.0	238	5.8
Saarland	2,832	2	286	11	1.1	174	17.6
Saxony*	5,501	13	135	23	0.6	225	5.5
Saxony-Anhalt	1,956	6	89	37	1.7	62	2.8
Schleswig-Holstein	3,271	10	113	50	1.7	155	5.4
Thuringia	3,323	2	155	26	1.2	182	8.5
Total	**202,345**	**522**	**243**	**2,809**	**3.4**	**9,090**	**10.9**

As part of quality checks and data cleaning by the health authorities and regional offices, corrections to cases previously transmitted (e.g. detection of duplicate reports) can occiasionally lead to negative values for the number of new cases.

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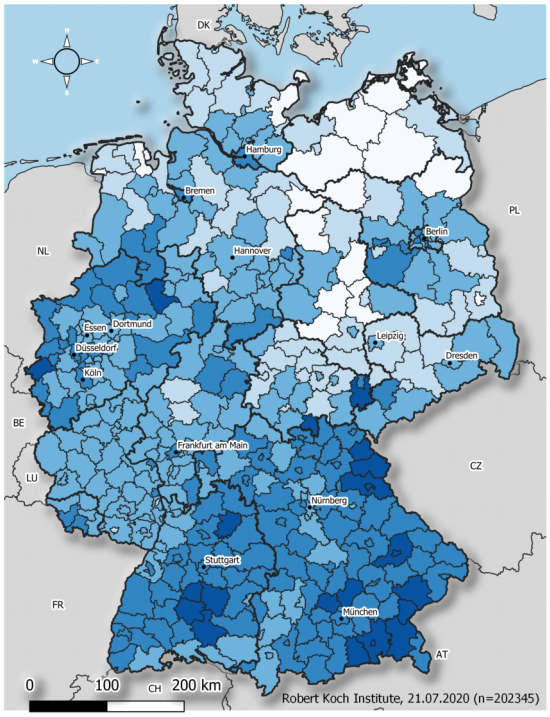

State	cases (n)	/100,000
Baden-Wuerttemberg	36492	329,7
Bavaria	49872	381,4
Berlin	8802	234,8
Brandenburg	3485	138,7
Bremen	1721	252,0
Hamburg	5241	284,7
Hesse	11430	182,4
Lower Saxony	14059	176,1
Mecklenburg-Vorpommern	809	50,3
North Rhine-Westphalia	46213	257,7
Rhineland-Palatinate	7338	179,6
Saarland	2832	285,9
Saxony	5501	134,9
Saxony-Anhalt	1956	88,6
Schleswig-Holstein	3271	112,9
Thuringia	3323	155,1

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Figure 1: Number and cumulative incidence (per 100,000 population) of the 202,345 electronically reported COVID-19 cases in Germany by county and federal state (21/07/20220, 12:00 AM). Please see the COVID-19 dashboard (https://corona.rki.de/) for information on number of COVID-19 cases by county (local health authority).

Distribution of cases over time

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 in 61,619 cases (30%), thus their date of reporting is provided in Figure 2.

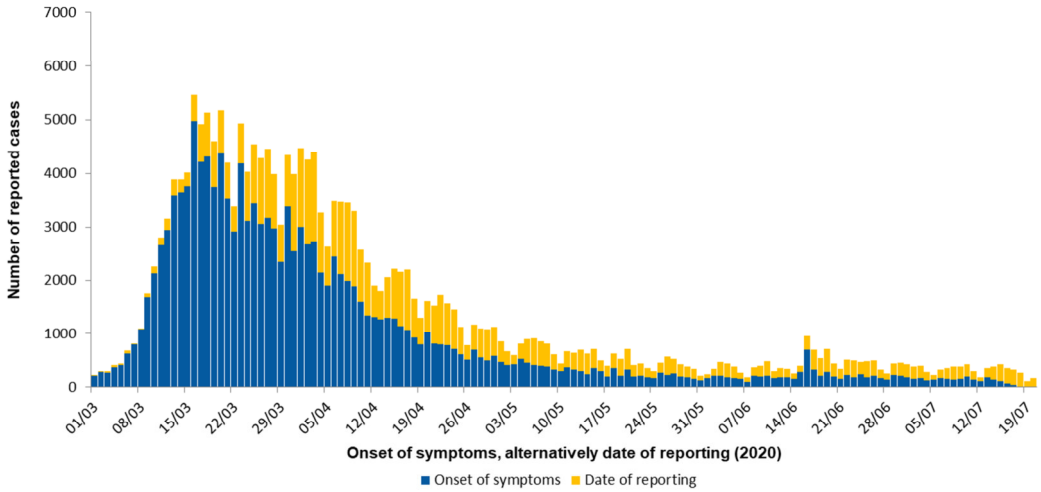

Figure 2: Number of Covid-19 cases in Germany electronically reported to the RKI by the date of symptoms onset or –if unknown- alternatively by date of reporting from 01/03/2020 (21/07/2020, 12:00 AM).

Demographic distribution of cases

Of all reported cases, 52% are female and 48% are male. Among all those notified cases, for which data on age and gender were reported, 5,584 were children under 10 years of age (2.7%), 10,191 children and teenagers aged 10 to 19 years (5,0%), 89.532 persons aged 20 to 49 years (44%), 60,568 persons aged 50 to 69 years (30%), 30,603 persons aged 70 to 89 years (15%) and 5,408 persons aged 90 years and older (2.7%). The age and/or gender is unknown in 459 notified cases. The mean age of cases is 48

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years (median age 48 years). The highest incidences are seen in persons aged 90 years and older (Figure 3).

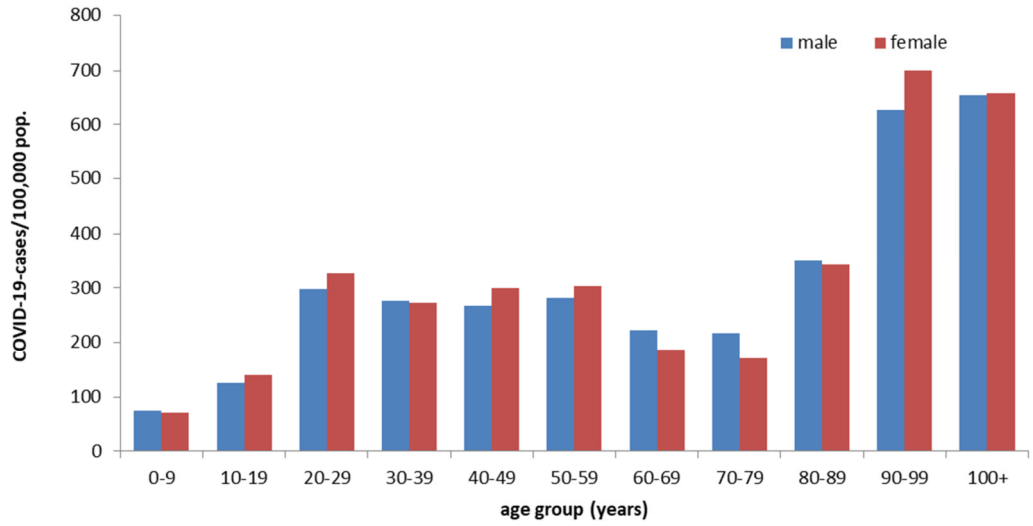

Figure 3: Electronically reported COVID-19 cases/100,000 population in Germany by age group and gender (n=201,880) for cases with information available (21/07/2020,12:00 AM).

Table 2 shows the mean age, gender distribution, percentage of hospitalized cases and deaths among cases reported in calendar weeks 10 to 29. The percentage of deaths in weeks 28 and 29 are not yet meaningful, as the outcome is not yet known for all cases.

Table 2: The COVID-19 cases reported to the RKI according to gender and the proportion of hospitalization and deceased for the reporting weeks 10 - 29 (21/07/2020, 12:00 AM).

Week	Total cases	Mean age (years)	Men	Women	Number information on hospitalisation	Number hospitalized	Percent hospitalized	Number of deaths	Percent deaths
10	891	43	54%	46%	798	161	20%	12	1.3%
11	6,420	45	56%	44%	5,605	519	9%	83	1.3%
12	22,462	46	55%	45%	19,313	2,188	11%	473	2.1%
13	34,037	48	50%	50%	29,305	5,055	17%	1,442	4.2%
14	36,099	51	45%	55%	31,409	6,009	19%	2,235	6.2%
15	27,179	52	44%	56%	23,966	4,662	19%	1,855	6.8%
16	17,339	52	45%	55%	15,411	3,326	22%	1,204	6.9%
17	12,372	51	45%	55%	10,888	2,200	20%	707	5.7%
18	7,441	49	48%	52%	6,563	1,340	20%	372	5.0%
19	6,224	47	48%	52%	5,535	1,047	19%	245	3.9%
20	4,721	46	49%	51%	4,141	721	17%	152	3.2%
21	3,606	44	50%	50%	3,068	502	16%	102	2.8%
22	3,193	42	51%	49%	2,717	407	15%	58	1.8%
23	2,346	39	51%	49%	2,044	303	15%	42	1.8%
24	2,331	38	54%	46%	2,041	278	14%	30	1.3%
25	4,105	37	59%	41%	3,695	303	8%	31	0.8%
26	3,199	37	55%	45%	2,801	278	10%	15	0.5%
27	2,681	37	52%	48%	2,416	245	10%	17	0.6%
28	2,408	36	56%	44%	2,082	232	11%	11*	0.5%
29	2.876	37	53%	47%	2.318	256	11%	3*	0,1%

* Data not yet meaningful, as outcome of the diseases in these weeks is still unclear

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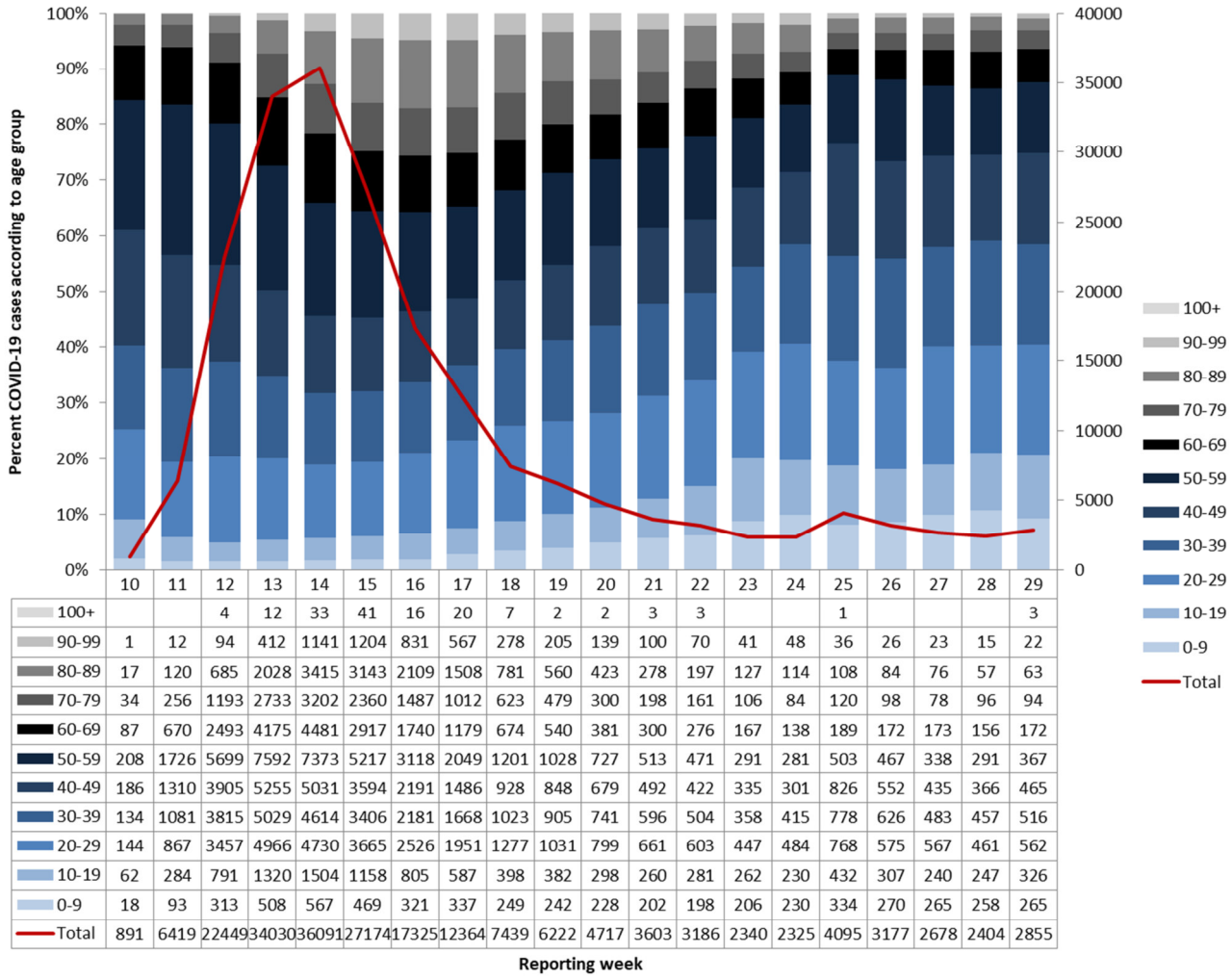
The depiction of notified COVID-19 cases in Germany according to the proportion of cases per age groups and reporting week (see Figure 4), shows a continuous and distinct decrease in the relative propoartion among the over 80 year olds from reporting week 17 to reporting week 24, accompanied by a decrease in absolute case numbers which continued in the ensuing weeks. In comparions, the proportion of cases in the younger age groups up to 29 years of age increased over the same period, only to move into a plateau phase with only small fluctuations.

The absolute number of cases increased in children and adolescents under 20 years of age up to week 15 and then decreased continuously until week 21. After a plateau phase until week 24, the number of cases increased significantly in almost all age groups in week 25, only to decrease again in the following weeks. The increase in week 25 is related to the larger outbreak in a meat processing plant. Since week 26, there has again been a plateau phase across all age groups, with a slight increase in week 29.



	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
100+			4	12	33	41	16	20	7	2	2	3	3			1				3
90-99	1	12	94	412	1141	1204	831	567	278	205	139	100	70	41	48	36	26	23	15	22
80-89	17	120	685	2028	3415	3143	2109	1508	781	560	423	278	197	127	114	108	84	76	57	63
70-79	34	256	1193	2733	3202	2360	1487	1012	623	479	300	198	161	106	84	120	98	78	96	94
60-69	87	670	2493	4175	4481	2917	1740	1179	674	540	381	300	276	167	138	189	172	173	156	172
50-59	208	1726	5699	7592	7373	5217	3118	2049	1201	1028	727	513	471	291	281	503	467	338	291	367
40-49	186	1310	3905	5255	5031	3594	2191	1486	928	848	679	492	422	335	301	826	552	435	366	465
30-39	134	1081	3815	5029	4614	3406	2181	1668	1023	905	741	596	504	358	415	778	626	483	457	516
20-29	144	867	3457	4966	4730	3665	2526	1951	1277	1031	799	661	603	447	484	768	575	567	461	562
10-19	62	284	791	1320	1504	1158	805	587	398	382	298	260	281	262	230	432	307	240	247	326
0-9	18	93	313	508	567	469	321	337	249	242	228	202	198	206	230	334	270	265	258	265
Total	891	6419	22449	34030	36091	27174	17325	12364	7439	6222	4717	3603	3186	2340	2325	4095	3177	2678	2404	2855

Figure 4: Percent of notified COVID-19 cases by age group and reporting week (n=201.784 cases with respective data in the weeks 10 to 29 (21/07/2020, 12:00 AM). The total number of weekly cases is depicted by the red line.

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

Clinical aspects

Information on symptoms is available for 172,510 (85%) of the notified cases. Common symptoms are cough (48%), fever (40%) and rhinorrhoea (21%). Pneumonia was reported in 5,171 cases (3.0%). 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 4,273 of 28,850 cases (15%).

Hospitalisation was reported for 30,105 (17%) of 176,443 COVID-19 cases with information on hospitalisation status.

Approximately 188,100 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.

In total, 9,090 COVID-19-related deaths have been reported in Germany (4.5% of all confirmed cases). Of these, 5,024 (55%) are men and 4,061 (45%) are women (see Table 2), the gender was unknown in five cases. The median age was 82 years. Of all deaths, 7,778 (86%) were in people aged 70 years or older, but only 18% of all cases were in this age group. So far, three deaths among COVID-19 cases under 20 years of age have been reported to the RKI. Pre-existing medical conditions were reported for all three.

Table 3: Number of notified COVID-19 deaths by age group and gender electronically reported to RKI (Data available for 9,085 of notified deaths; 21/07/2020, 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		2	6	17	54	237	645	1,378	2,112	567	6
Female	1		3	6	22	85	232	671	1,910	1,087	44
Total	**1**	**2**	**9**	**23**	**76**	**322**	**877**	**2,049**	**4,022**	**1,654**	**50**

Occupation, accommodation or care in facilities

In accordance with the Protection Against Infection Act, 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.

Table 4: Notified COVID-19-cases according to possible occupation, accommodation or care in facilities relevant for transmission of infectious diseases electronically reported to RKI (201,174* cases, no data available for 50,095 cases; 21/07/2020, 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	3,525	2,541	648	2,800
	Occupation in facility	14,173	648	21	14,000
§ 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*	3,764	78	1	3,500
	Occupation in facility	2,846	150	7	2,800
§ 36 IfSG (e.g. facilities for the care of older, disabled, or other persons in need of care, homeless shelters, community facilities for asylum-seekers, repatriates and refugees as well as other mass accommodation and prisons)	Cared for / accommodated in facility	18,368	4,142	3,598	14,500
	Occupation in facility	10,097	424	41	10,000
§ 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	4,858	209	5	4,700
Neither cared for, accommodated in nor working in a facility		93,448	16,333	3,479	87,800

*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.

IfSG: Protection Against Infection Law

The number of COVID-19 cases was highest among persons cared for or employed in medical and other care facilites according to §23 and §36 IfSG (Table 4). The number of deaths was particularly high among persons cared for in these facilities. Among the cases reported as working in medical facilities, 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 (Section 36 IfSG) is consistent with numerous reported outbreaks, especially in nursing homes. The low number of cases among persons who attend or work in facilities providing child care or education (Section 33 IfSG) reflects the low incidence in children observed thus far. The increase in the number of cases among persons working in the food sector (§42) is largely due to outbreaks in meat processing plants.

Countries of Exposure

Borders have begun to open since reporting week 25, initially in Europe. Since then, among the countries reported as the probable place of exposure, the proportion of countries other than Germany has increased. This proportion peaked at 46% (2,970 cases) in reporting week 11, after which it rapidly decreased in association with the implemented travel restrictions to 0.4% (19 cases) in week 20. As of week 21 there is a slight increase, which is now at 10% (285 cases) in week 29.

Table 4 lists the countries most frequently reported as the probable place of infection in weeks 25 to 29 (countries mentioned in at least 10 cases) from total 7,803 numbers mentioned

Tabelle 4: Countries of exposures reported for COVID-19 cases notified in weeks 26 to 29, 2020 (21/07/2020, 0:00 Uhr).

Country of exposure	Numbers mentioned
Germany	7,015
Serbia	224
Kosovo	147
Turkey	43
Bosnia-Herzegowina	42
Romania	28
Bulgaria	19
Croatia	18
Netherlands	17
Macedonia	15
Mexico	13
Latvia	13
Poland	13
USA	12
Austria	12
Iran	10
Kazachstan	10
Other	152
Total	7,803

Outbreaks

A high 7-day incidence with more than 25 cases per 100,000 inhabitants was observed in two districts: the district of Vechta (Lower Saxony) and the district of Bitburg-Prüm (Rhineland-Palatinate).

The increased COVID-19 incidence in the district of Bitburg-Pruem is related to cases initially detected in a rehabilitation clinic in the neighbouring district, with subsequent secondary transmission. Contact tracing has been intensified.

An outbreak of COVID-19 cases was detected in the district of Vechta as a result of serial testing on >1000 employees of a meat processing company. Neighbouring districts are also affected.

Further COVID-19 outbreaks continue to be reported in nursing homes and hospitals, refugee facilities, family events, child-day care facilities as well as religious communities.

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 vary greatly. Therefore, a nowcasting approach is applied to model the true temporal progression of COVID-19 cases according to illness onset. Figure 5 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.

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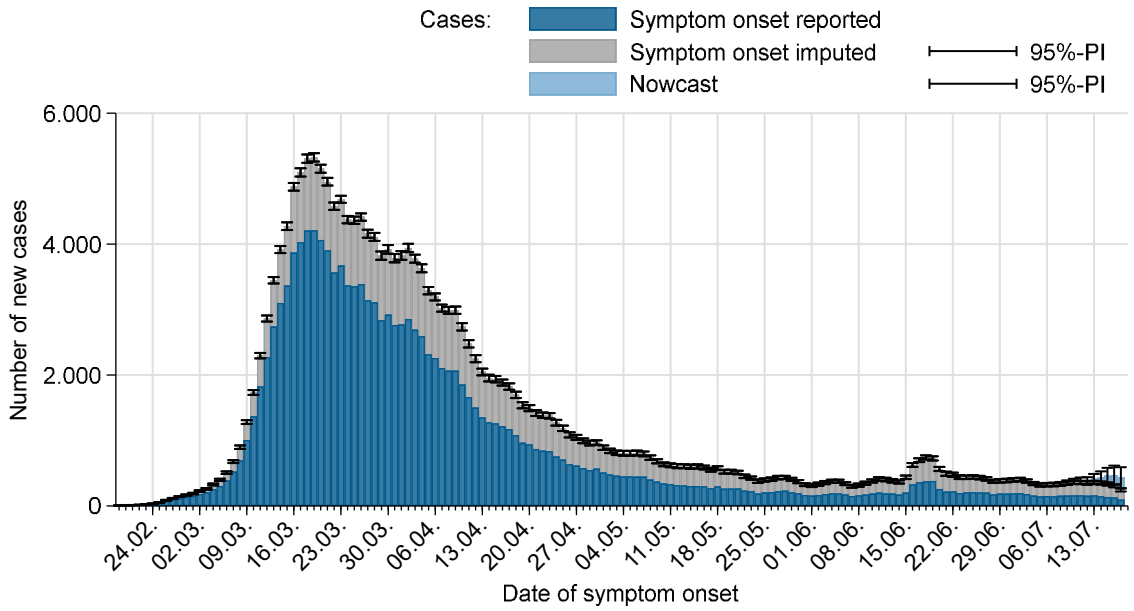

Figure 5: Number of notified COVID-19 cases with known date of illness onset (dark blue), estimated date of illness onset for cases without reported date of onset (grey) and estimated number of not yet notified cases according to illness onset electronically reported to RKI (light blue) (as of 21/07/2020, 12 AM, taking into account cases up to 17/07/2020).

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 therapid detection of many additional COVID-19 cases. This can lead to relatively large fluctuations in the estimated R-value, especially if – as is currently the case in Germany - the total number of new cases is small.

The current estimate of the 4-day R-value is 1.04 (95%-prediction interval: 0.83 – 1.27) and is based on electronically notified cases as of 21/07/2020, 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 1.08 (95% prediction interval: 0.97 – 1.20) and is based on electronically notified cases as of 21/07/2020, 12:00 AM.

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 7day 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

A registry of the German Interdisciplinary Association for Intensive and Emergency Medicine (DIVI), the RKI and the German Hospital Federation (DKG) was established to document intensive care capacity as well as the number of COVID-19 cases treated in participating hospitals (https://www.intensivregister.de/#/intensivregister). The DIVI intensive care register documents the number of available intensive care beds in the reporting hospitals on a daily basis. Since 16/04/2020, all hospitals with intensive care beds are required to report.

As of 21/07/2020, a total of 1,272 hospitals or departments reported to the DIVI registry. Overall, 32,637 intensive care beds were registered, of which 21,237 (65%) are occupied, and 11,400 beds (35%) are currently available. The number of COVID-19 cases treated in participating hospitals is shown in Table 5.

Table 5: COVID-19 patients requiring intensive care (ICU) recorded in the DIVI register (21/07/2020, 12:15 AM).

	Number of patients	Percentage	Change to previous day*
Currently in ICU	254		+8
- of these: mechanically ventilated	122	48%	+2
Discharged from ICU	15,289		57
- of these: deaths	3,788	25%	+9

*The interpretation of these numbers must take into account the slightly changing number of reporting hospitals (with large differences in their number of beds) from day to day. This can explain the observed decrease in the cumulative number of discharged

Risk Assessment by the RKI

General assessment

At the global and the national level, the situation is very dynamic and must be taken seriously. The number of newly reported cases has been declining since mid-March. Currently, many districts are transmitting very few or no cases to the RKI. The RKI currently assesses the risk to the health of the German population overall as **high** and as **very high** for risk groups. This assessment may change at short notice based on new insights.

Infection risk

The risk of infection depends heavily on the regional spread, living conditions and also on individual behaviour, including compliance with physical distancing, hygiene measures and community masks.

Disease severity

In most cases, the disease is mild. The probability of progression towards serious disease increases with increasing age and underlying illnesses.

Burden on health system

The burden on the health care system depends on the geographical distribution of cases, health care capacity and initiation of containment measures (isolation, quarantine, physical distancing etc.). The burden is currently low in many regions, but may be high in some locations.

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

Measures taken by Germany

- 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 in the daily situation reports and on the RKI dashboard:
  https://corona.rki.de/
- A distance of 1.5 metres to other indivduals 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)*