ROBERT KOCH INSTITUT

Weekly status report of the RKI on coronavirus disease-2019 (COVID-19)

06/23/2022 – UPDATED STATUS FOR GERMANY

Suspected COVID-19 cases and illnesses as well as laboratory evidence of SARS-CoV-2 are reported to the health department in accordance with the Infection Protection Act (IfSG). This transmits the data to the Robert Koch Institute (RKI) via the competent state authority. In this management report, the data transmitted to the RKI for laboratory-confirmed data (nucleic acid detection or pathogen isolation) COVID-19 cases shown. Data from other surveillance systems and surveys are also presented.

The cases transmitted to the RKI are updated daily on the dashboard (https://corona.rki.de/) and as a daily situation report (www.rki.de/covid-19-situationsbericht) available. A weekly comparison with the current classification is presented in today's weekly report (always on Thursdays). Most of the results in this weekly report are for data up to Q24.
Calendar week 2022.

Under the link www.rki.de/inzidenzenstellen the RKI provides the daily updated number of cases and incidences (including the progression after the report date) by district and federal state. Trend reports of relevant indicators are updated every working day also available. Furthermore, SurvStat@RKI the possibility of individually querying transmitted COVID-19 cases as well as other cases of illness and evidence of pathogens that are notifiable under the Infection Protection Act (IfSG). The current version of the risk assessment can be found at https://www.rki.de/covid-19-risk-assessment.

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data basis

All reported SARS-CoV-2 laboratory-confirmed cases are recorded in the **reporting system** in accordance with the Infection Protection Act (Sections 1.1 to 1.4). This allows cases to be analyzed regionally according to the severity of the disease with high resolution and outbreaks to be identified and contained (Sections 1.5, 1.7). As with other notifiable infectious diseases, not all individual cases can be fully recorded.
The utilization behavior of those affected, the availability of PCR tests and the respective test strategy play an important role here. With a significant circulation of SARS-CoV-2 in the population, which only occurred in Germany during the omicron wave, it is neither possible nor necessary for all cases to be recorded in the reporting system. With **syndromic surveillance**
it was possible to estimate the number of symptomatic patients in the population as well as the number of doctor visits and hospital admissions over the entire course of the pandemic and also during the omicron wave (Section 1.6). With **virological and molecular surveillance ,** the circulating respiratory pathogens and, for SARS-CoV-2, the respective variants with the corresponding sublines are reliably detected (Sections 1.6.2 and 3). Detailed data are also available for the **exposure in the intensive care area** and for the **number of vaccinations administered** (Sections 1.7.3 and 2). The evaluation of this data enables a reliable assessment and evaluation of the overall development of the epidemiological situation of COVID-19 in Germany.

contents

1. Epidemiological situation in Germany

1.1. Summary assessment of the current situation

The nationwide 7-day incidence increased further in calendar week (KW) 24 compared to the previous week (+ 23%). The number of transmitted infections has increased by about 75,000 cases in the last week compared to the previous week.

The 7-day incidence increased in week 24 compared to the previous week in all age groups. The most significant increase was in the 70 to 79 age group at 32%. The number of outbreaks in old people's and nursing homes and in medical treatment facilities has increased compared to the previous week.

In Germany, the omicron variant has been dominating for the last five months with currently more than 99%. The proportion of the omicron subline BA.5 was 50% in week 23, it has become the dominant variant. The strong proportional increase of this variant together with BA.4 and BA.2.12.1 continues.

In the population, the rate of acute respiratory diseases (ARE rate) increased slightly in week 24/2022. It is still above the values of the pre-pandemic years, which indicates a stronger general infection rate in acute respiratory infections at this time of year compared to previous years. The ARE rate corresponds to a total of approx. 4.4 million acute respiratory diseases in the population in Germany. According to the results of the virological sentinel surveillance in week 24/2022, the ARE activity is due to the co-circulation of various respiratory pathogens (mainly SARS-CoV-2, but also rhino, parainfluenza and influenza viruses).

The development of the number of serious illnesses is important for assessing the situation in the current situation of the pandemic. In the systems of syndromic surveillance of acute respiratory diseases in the first four COVID-19 waves, there was a high number of severe disease courses in inpatients and especially in intensive care. In

During the fifth (omicron) wave, the number of severe illnesses due to COVID-19 was significantly lower, while the number of infections was high. The number of newly hospitalized patients with severe acute respiratory infections (SARI), which also includes COVID-19 diseases treated in hospital and intensive care, has decreased since week 14 and remains at a low level.

The burden on the health care system, especially in the intensive care area, rose again slightly in week 24. The number of people treated in an intensive care unit with a COVID-19 diagnosis has increased compared to the previous weeks and was 780 cases on June 22, 2022.

The lower proportion of serious illnesses and the lower number of those associated with COVID-19 Deaths during the omicron wave are due to increasing basic immunity in the population and a fundamentally lower proportion of serious illnesses in infections caused by the omicron variant.

The vaccination rate has now remained almost unchanged for several weeks, with 78% of the population having a one-off vaccination and 76% having a full vaccination as of 06/22/2022. Extrapolated around 7.3 million citizens (16%) in the age group 18 to 59 years and around 2.0 million (8%) in the age group over 60 years are not yet vaccinated. However, it must be assumed that the majority of these people have acquired a certain degree of immunity through a previous infection.

Even if the omicron variant is dominant, fully vaccinated people of all age groups – especially people with a booster vaccination – can still be assumed to have very good vaccination protection against severe COVID-19 disease. Furthermore, there is a significantly higher risk of a severe form of COVID-19 disease for unvaccinated people of all age groups.

Due to its high protective effect against a severe course, vaccination has not lost its importance in diseases caused by the omicron variant. In particular, risk groups and very old people over the age of 70 should also protect themselves against a serious illness with the 2nd booster vaccination recommended by the STIKO. Children from the age of 5 without previous illnesses can benefit from the one-off vaccination, as recommended by the STIKO.

If symptoms of a new respiratory disease such as a runny nose, sore throat or cough occur, it is strongly recommended - regardless of the vaccination status and also in the case of a negative COVID-19 antigen rapid test result - to avoid contact and, if necessary, to contact the family doctor's practice.

The further course of the pandemic depends not only on the emergence of new virus variants and the use of the vaccinations offered, but also on the behavior of the population. Against the background of increasing incidences due to the more widespread use of the Omikron sublines BA.4 and BA.5, the recommendations for infection prevention should continue to be observed.

The Robert Koch Institute estimates the risk of COVID-19 for the health of the population in Germany to be **high** overall .

1.2. demographic distribution

The age-group-specific incidence is shown in Figure 1 as a 7-day incidence per 100,000 inhabitants (pop.) in the respective age group by reporting week (MW). A total of 405,860 cases were reported in MW 24/2022.

Compared to the previous week, the incidences increased in all age groups, by a total of about 23%. The increase was strongest in the 70 to 79 age group with 30%, smallest in the age group of 20 to 29 year olds and the over 90 year olds with 17% and almost 20% respectively. The median age of all cases per reporting week has increased continuously since MW 03/2022 (median 29 years).
This increase has leveled off in recent weeks and has been at 40 years since MW 21/2022.

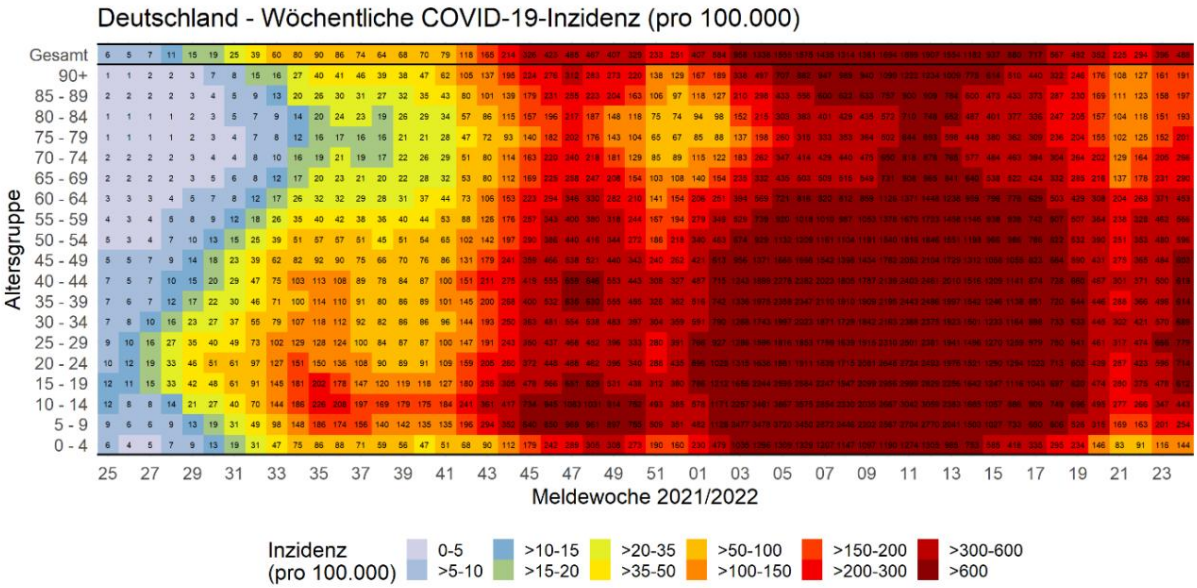

Figure 1. Representation of the 7-day incidence of COVID-19 cases in Germany by age group and reporting week (n= 23,524,048 cases with corresponding information in the reporting weeks 25/2021 to 24/2022; data as of June 22, 2022, 00: 00 o'clock).

1.3. time course

Figure 2 shows the number of COVID-19 cases reported to the RKI per reporting week since the beginning of the pandemic in Germany in MW 10/2020. In the right quarter of the figure, the delta wave (fourth wave) before the turn of the year 2021/2022 and the two-peak omicron wave (fifth wave) afterwards are clearly visible. Up until MW 21/2022, the number of cases fell for ten weeks in a row. The number of cases has been increasing again since MW 22/2022.

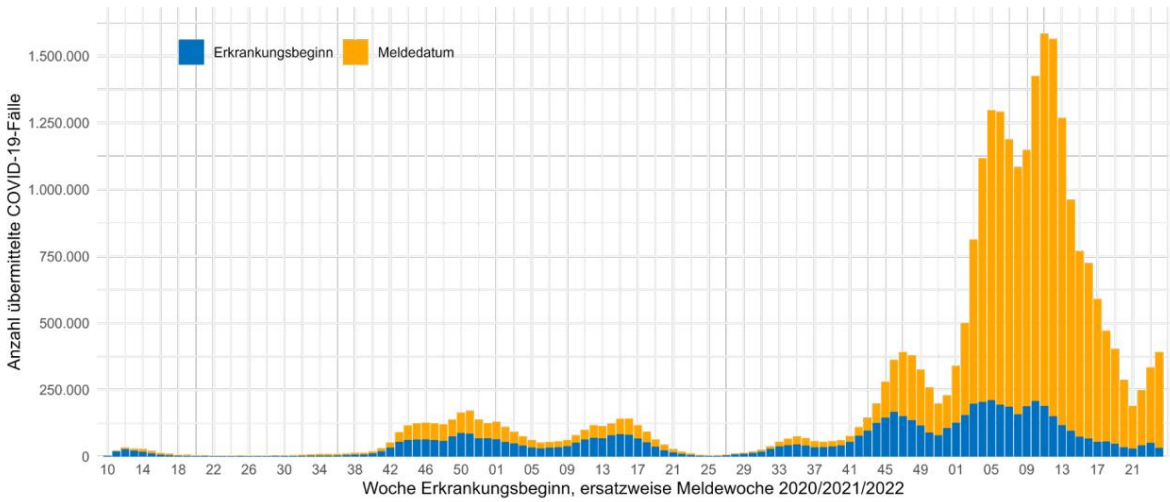

Figure 2: Number of COVID-19 cases reported to the RKI by week of onset of illness, alternatively by reporting week. Only cases with onset of illness or reporting week since MW 10/2020 are shown (data status June 22, 2022, 00:00).

1.4. Geographic Distribution

The geographical distribution of the cases of the last week and the previous week up to 06/12/2022 is shown in Figure 3. As of June 22, 2022, the 7-day incidence was over 1,000/100,000 inhabitants in nine of 411 counties. It was over 500/100,000 inhabitants in 146 districts and below 100/100,000 inhabitants in one district.

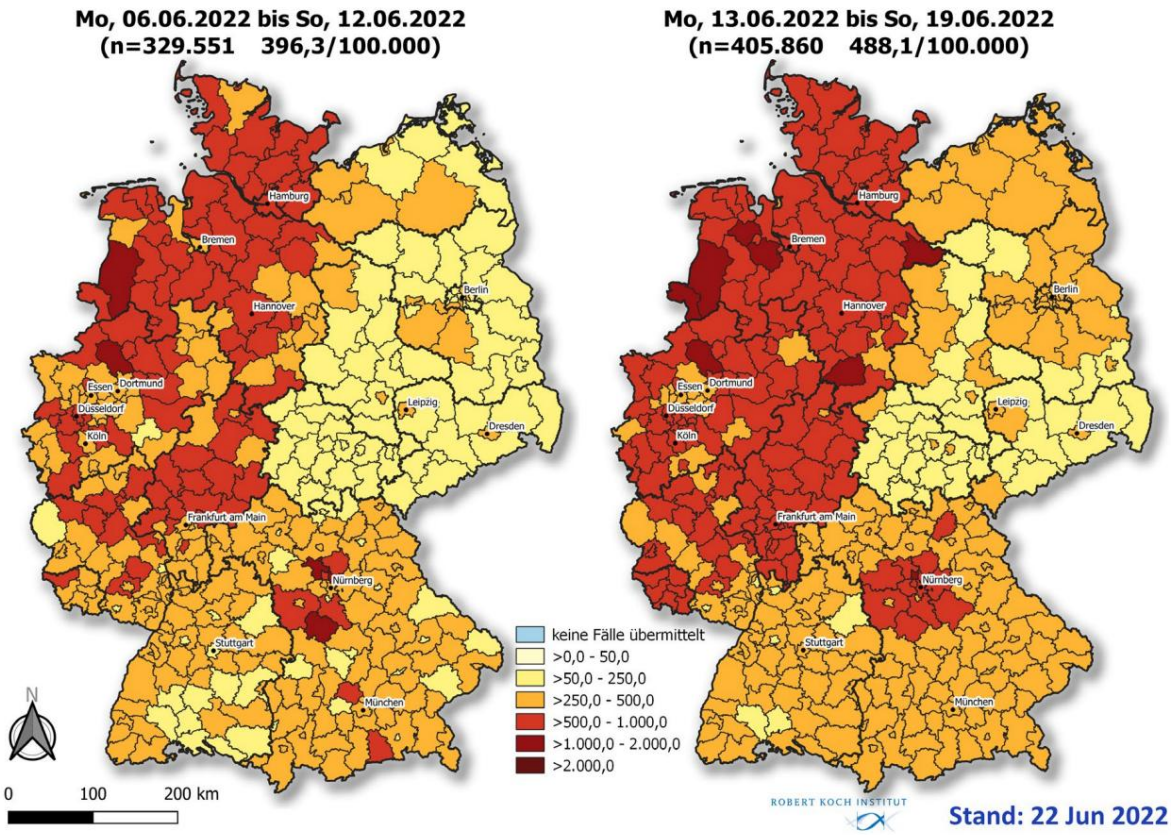

Figure 3: COVID-19 cases transmitted to the RKI with a reporting date within the last calendar week in Germany by district and federal state (n = 405,860, data status June 22, 2022, 00:00 a.m.) compared to the previous week. Cases are usually reported according to the district from which they were transmitted. This usually corresponds to the place of residence. place of residence and more likely Infection sites do not have to match.

1.4.1. Weekly comparison of the federal states

Table 1 shows the case numbers and incidences of the past two reporting weeks for the individual federal states. Compared to the previous week, the incidences in all federal states increased between 17% (Baden-Württemberg, Bavaria and Rhineland-Palatinate) and 59% (Saarland).

Table 1: Reported number of COVID-19 cases and 7-day incidence (cases/100,000 inhabitants) per federal state in Germany MW 23 and 24/2022 (data status June 22, 2022, 12:00 a.m.).

	Meldewoche 23		Meldewoche 24		change in comparison	
Federal State	number	7-Day incidence	number	7-Day incidence	number	Portion
Baden-Wuerttemberg	31.414	283	36.618	330	5.204	17%
Bayern	46.898	357	55.071	419	8.173	17%
Berlin	9.157	250	12.725	347	3.568	39%
Brandenburg	5.468	216	7.884	311	2.416	44%
Bremen	2.879	423	3.682	541	803	28%
Hamburg	9.903	535	11.501	621	1.598	16%
Hesse	32.833	522	40.290	640	7.457	23%
Mecklenburg Western Pomerania	4.253	264	5.374	334	1.121	26%
Lower Saxony	48.067	601	62.524	781	14.457	30%
North Rhine-Westphalia	83.988	469	99.537	555	15.549	19%
Rhineland-Palatinate	17.199	420	20.064	490	2.865	17%
Saarland	3.676	374	5.860	596	2.184	59%
Saxony	8.789	217	11.851	292	3.062	35%
Saxony-Anhalt	4.417	203	5.983	274	1.566	35%
Schleswig-Holstein	17.988	618	23.042	792	5.054	28%
Thuringia	2.622	124	3.854	182	1.232	47%
In total	329.551	396	405.860	488	76.309	23%

1.5. Outbreaks in medical treatment facilities and elderly and nursing homes

Active outbreaks, i.e. outbreaks for which a new case was reported in MW 24/2022, occur in 45 medical treatment facilities (previous week: 45) and in 119 old people's and nursing homes (previous week: 94). 294 new COVID-19 cases in MW 24/2022 in outbreaks in medical treatment facilities and 1,148 cases in outbreaks in old people's and nursing homes were reported to the RKI.

From the beginning of the pandemic until the end of MW 24/2022, 10,569 outbreaks in medical treatment facilities (Figure 4) and 13,298 outbreaks in retirement and nursing homes (Figure 5) were reported to the RKI with at least 2 cases per outbreak (data status June 21, 2022, 00:00). Watch).
Associated with these outbreaks were 90,375 COVID-19 cases (median: 4, range: 2-342 cases per outbreak) in medical treatment facilities and 283,021 COVID-19 cases (median: 13, range: 2-273 cases per outbreak) in elderly and nursing homes, of which 202,685 cases (71.6%) were in people aged 60 and over. **1**

[1] *The age group of those over 60, based on the outbreak cases, serves as an approximation for residents of the Nursing homes, since the status of residents or employees was not always documented in the registration data for each individual case and relatives and visitors are also assigned to the outbreaks*

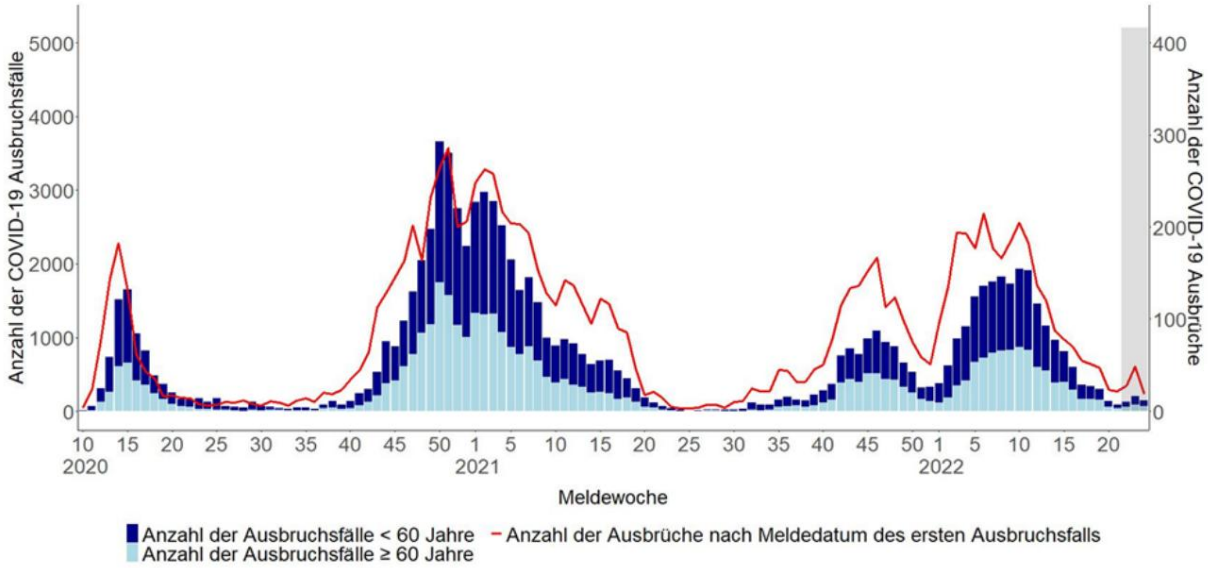

Figure 4: Reported COVID-19 outbreaks in medical treatment facilities with at least 2 cases according to the reporting date of the first outbreak since midweek 10/2020 (data status June 21, 2022, 00:00). Subsequent transmissions for outbreaks are to be expected especially for the last three reporting weeks (grey bars). The outbreak cases include not only patients, but also staff and visitors.

The cumulative number of deaths in these outbreaks up to MW 24/2022 was 7,208 (8.0% of outbreak cases) in medical treatment facilities (+ 14 deaths compared to the previous week) and 28,695 deaths (10.1% of outbreak cases) in elderly/ nursing homes (+ 50 deaths compared to the previous week). Outbreaks in old people's/nursing homes in the 60+ age group resulted in a total of 28,442 deaths (14.0% of outbreaks aged 60+).

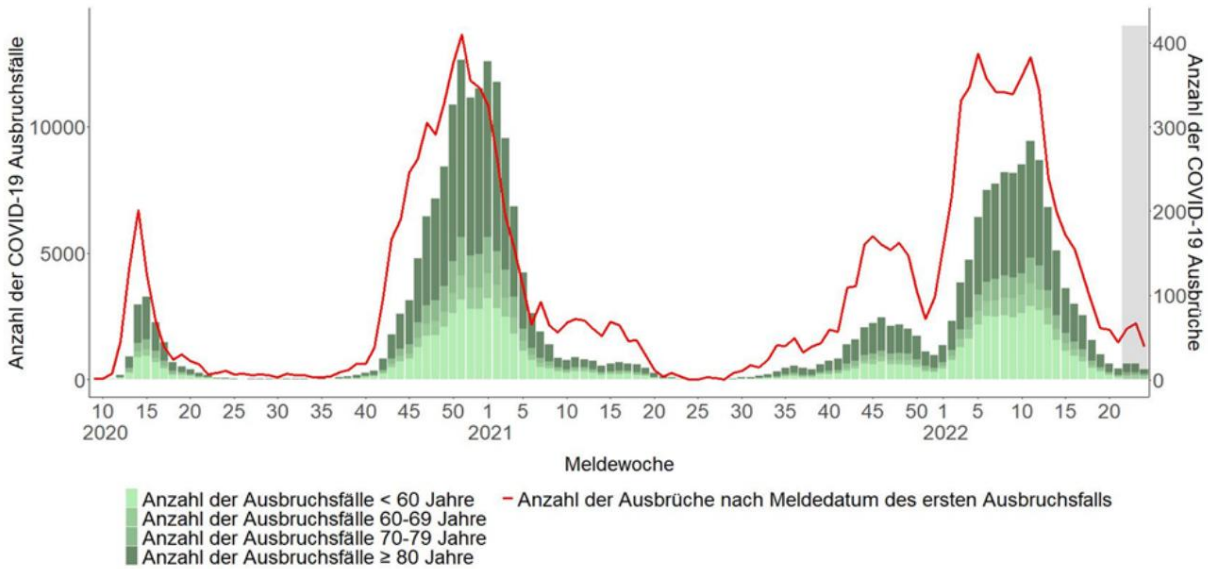

Figure 5: Reported COVID-19 outbreaks in old people's and nursing homes with at least 2 cases according to the reporting date of the first outbreak since midweek 10/2020 (data status June 21, 2022, 00:00). Subsequent transmissions for outbreaks are to be expected especially for the last three reporting weeks (grey bars). The cases of outbreaks with the specification <60 years also include visitors and employees of the facilities.

1.6. Results from the surveillance systems on acute respiratory Diseases (ARE)

In addition to the data received via the legally mandatory reporting system in accordance with the IfSG, the RKI has other important sources of information about **acute respiratory diseases (ARE)** available. These are **syndromic** and **virological surveillance systems that** have been established at the RKI for several years. With the help of these additional surveillance systems, even in high-incidence situations, such as B. during the pandemic or the peak of seasonal waves of illness, the disease burden can be reliably recorded and different waves of illness can be compared with each other. The surveillance systems record the disease burden of acute respiratory infections at three levels: **A)** at the **population level (GrippeWeb),** B) in **outpatient care** (Working Group Influenza (AGI) with the Sentinel for electronic recording of diagnostic **codes (SEEDARE))** and **C)** in the **inpatient area** (ICD-10 code-based hospital surveillance **ICOSARI).**

In addition to the general disease burden of ARE, due to the properties of the systems, the disease burden of **ARE with COVID-19 (COVID-ARE)** in the population and in outpatient care and of **severe ARE with COVID-19 (COVID-SARI)** at the hospital level can also be calculated will. Although the data have a limited geographical resolution, they are robust and allow age-stratified statements on the total disease burden of acute respiratory infections and the predominant circulating respiratory pathogens. They are collected weekly and can be supplemented by late registrations. Furthermore, these systems are largely independent of test strategies, the testing behavior in the population and in the healthcare system and the availability of tests (further information with more detailed results from these surveillance systems can be found at https://grippeweb.rki.de, https:/ /influenza.rki.de/wochenberichte.aspx and at https://influenza.rki.de/Diagrams.aspx).

1.6.1. Recording of acute respiratory diseases at the population level

The web portal **GrippeWeb** has been monitoring the activity of acute respiratory diseases since 2011 with information directly from the population. In the population, the rate of acute respiratory diseases (ARE rate) in week 24/2022 increased slightly compared to the previous week and is still above the values of the pre-pandemic years (Figure 6). In week 24/2022, there was an increase in the ARE rate in the 0 to 14 age group, while the values in all other age groups fell or remained stable. The **total ARE rate** in week 24/2022 was 5.3% and thus approx. **5,300 ARE/ 100,000 inhabitants.** This corresponds to a total number of approx. 4.4 million acute respiratory diseases in the population in

Germany.

ARE with COVID-19: The incidence of ARE cases with COVID-19 (COVID-ARE) in the total population can be extrapolated from the results of the SEEDARE system and from GrippeWeb (https://www.eurosurveillance.org/content/ 10.2807/1560-7917.ES2014.19.4.20684).

For week 24/2022, it was calculated that around 0.2% to 0.3% of children and adolescents up to the age of 14 and 0.7% to 1.5% of the population aged 15 and over had COVID-19 with acute respiratory symptoms sick. This corresponds to a weekly **COVID-ARE incidence in the population** of around **600 to 1,300 patients/100,000 inhabitants** or, expressed as the number of patients, 500,000 to 1.1 million SARS-CoV-2 infected people with symptoms of an acute respiratory infection in week 24 /2022 in Germany.

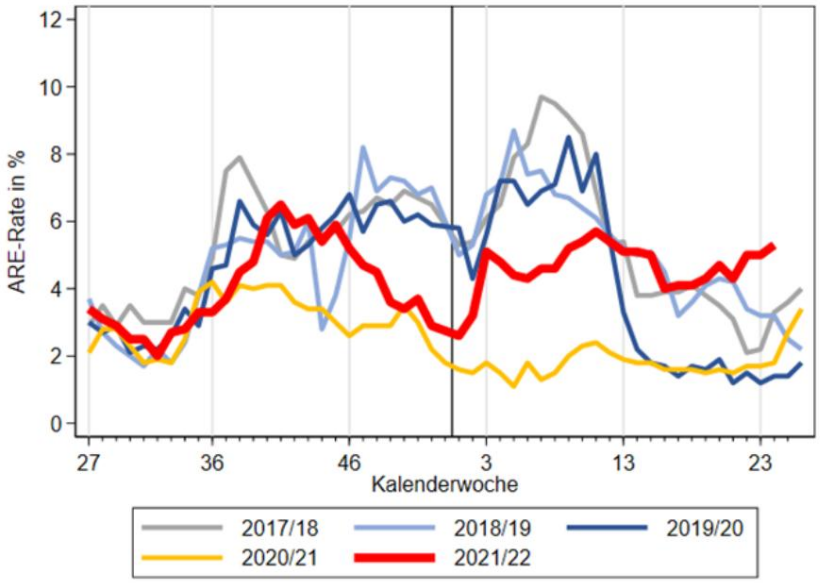

Figure 6: Comparison of the ARE rates estimated for the population in Germany (in percent) in the seasons 2017/18 to 2021/22, up to week 24/2022. The vertical line marks the turn of the year. For the last few weeks, late registrations can still changes arise.

1.6.2. Acute respiratory diseases in outpatient care

In week 24/2022, fewer doctor visits in the outpatient area due to acute respiratory diseases (ARE consultation incidence) were registered compared to the previous week. The number of consultations for ARE has fallen or remained stable in all age groups. The value (total) in week 24/2022 was approx. **1,000 doctor consultations for ARE/100,000 inhabitants.** Based on the population in Germany, this corresponds to a total of approx. 800,000 doctor visits for acute respiratory diseases. Currently, the number of doctor visits for ARE is above the pre-pandemic values at this time, especially among adults up to 59 years of age (Figure 7).

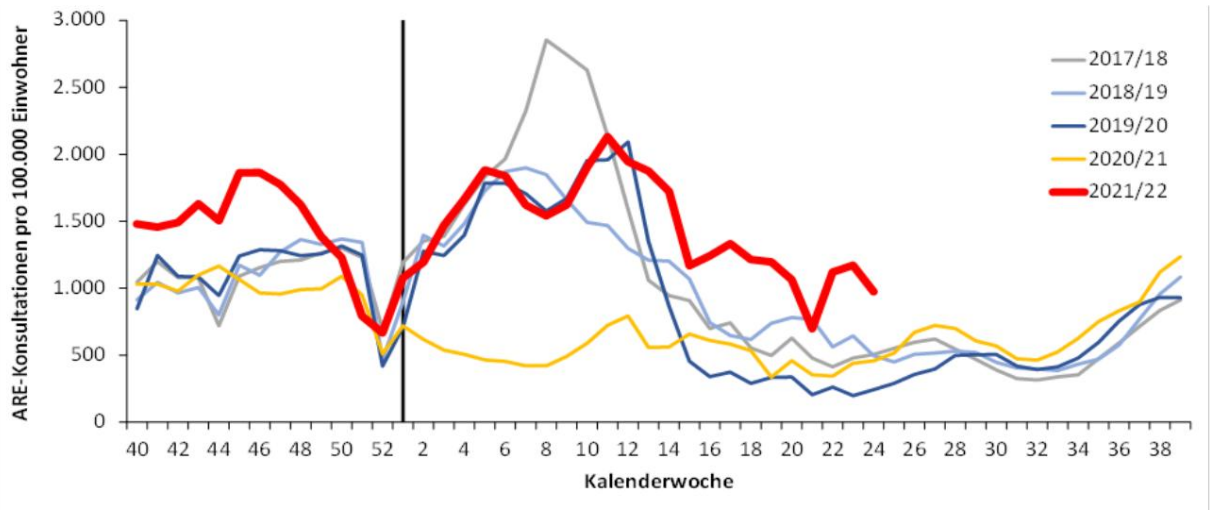

Figure 7: Weekly incidence of doctor consultations for a newly occurring ARE in the seasons 2017/18 to 2021/22, up to week 24/2022. Late registrations may result in changes for the last few weeks.

In the **virological surveillance of the AGI** in week 24/2022, respiratory viruses were identified in a total of 36 of 65 samples (55%) submitted. These included 14 samples with SARS-CoV-2 (22%), 9 with rhinoviruses (14%), 7 with parainfluenza viruses (11%), 5 with influenza viruses (8%) and 2 with human seasonal coronaviruses (hCoV) (3 %). The ARE activity is according to the

Virological results in week 24/2022 attributed to the co-circulation of various respiratory pathogens (mainly SARS-CoV-2 and rhino, parainfluenza and influenza viruses). The proportion of Omikron among the SARS-CoV-2 detections is still 100% (as of June 21, 2022).

Consultations for ARE with COVID-19: Using the ICD-10 code-based SEEDARE module from AGI, the incidence of consultations for a new-onset acute respiratory illness (ICD-10 Codes J00 - J22, J44.0, B34.9) with additional COVID-19 diagnosis (ICD-10 code U07.1) calculated (COVID-ARE physician consultations) (https://www.rki.de/DE/ Content/Infekt/EpidBull/Archive/2021/30/Art_01.html).

After the number of doctor consultations due to COVID-ARE had decreased since week 12/2022, an overall increase in the values can be observed since week 22/2022. In week 24/2022 there were approx. 250 COVID-ARE doctor consultations/100,000 inhabitants (Figure 8). This corresponds to a total of around 210,000 doctor consultations for COVID-ARE in Germany. The number of doctor consultations because of COVID-ARE fell in week 24/2022 among the 0 to 4 year olds and increased among the over 80 year olds, in all other age groups the values remained largely stable compared to the previous week.

With just over a quarter (26%) of the doctor visits for ARE with a COVID-19 diagnosis in all doctor visits for ARE (210,000 out of 800,000), this proportion is of a comparable order of magnitude to the proportion of SARS-CoV-2-positive samples (22%) on all samples analyzed as part of the AGI's virological sentinel surveillance from patients who were tested in the sentinel practices because of their respiratory symptoms.

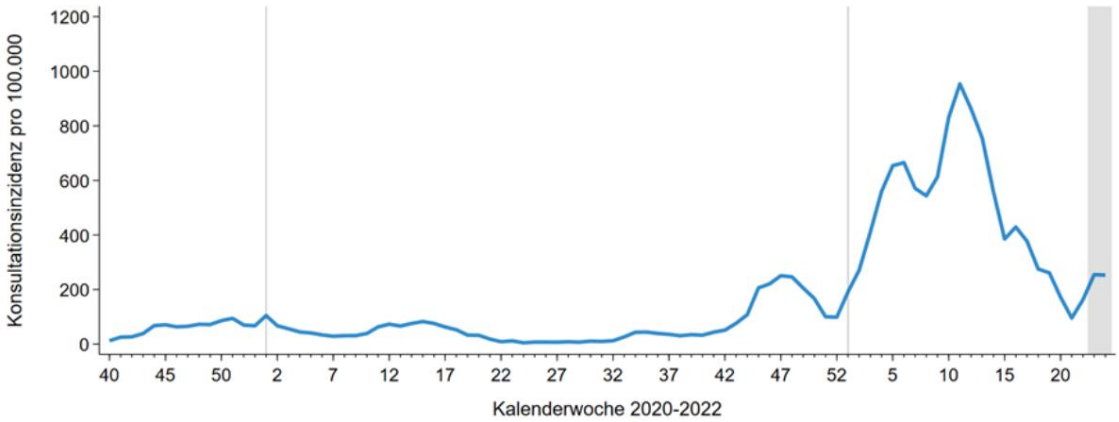

Figure 8: Weekly incidence of doctor consultations for newly occurring ARE (ICD-10 codes J00 - J22, J44.0, B34.9) with additional COVID-19 diagnosis (ICD-10 code U07.1!), from Week 40/2020 to week 24/2022. Late registrations may result in changes for the area marked in gray.

1.6.3. Registration of acute respiratory diseases in the inpatient area

In the ICD-10 code-based hospital surveillance (ICOSARI) of severe acute respiratory infections (SARI) (ICD-10 codes J09 to J22: influenza, pneumonia or other acute infections of the lower respiratory tract), newly admitted patients are registered and patients with an ICD-10 code for SARI in the DRG main diagnosis, including those still hospitalized.

The number of SARI cases fell slightly overall in week 24/2022, with the number of SARI cases falling or remaining stable in all age groups. A low level, which is usual for the summer months, is observed overall and in all age groups (Figure 9, red line). For the first time, there was no higher burden of disease from severe respiratory infections in the inpatient area during the fifth COVID-19 wave (Omicron variant) (Figure 9,

Red line). In contrast, the previous waves had each led to a significant increase in the number of cases in the inpatient area, despite the strict measures against COVID-19 (Figure 9, red and yellow lines).

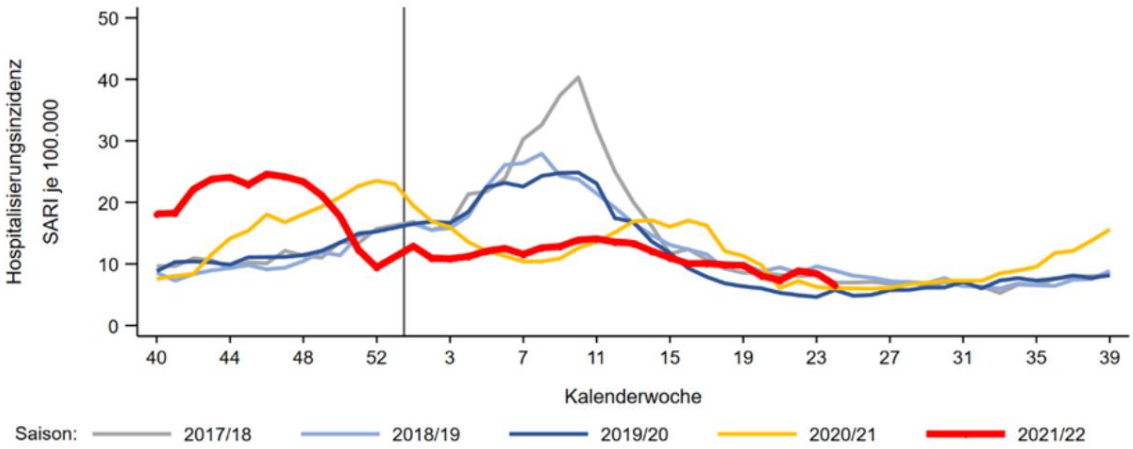

Figure 9: Weekly incidence of newly hospitalized SARI cases (ICD-10 codes J09-J22 in DRG main diagnosis), including patients who are still hospitalized, in the 2017/18 to 2021/22 seasons up to the KW 23/2022, data from 71 syndromic hospital surveillance clinics. The vertical line marks the turn of the year. In years with week 52, the value for week 53 is shown as the mean of week 52 and week 1. Late registrations may result in changes for the last few weeks.

The incidence values for SARI cases requiring intensive care are the first COVID-19 wave (dark blue line, peak in week 13/2020), the second and third waves (yellow line, peak in week 52/2020 and week 13 to 17/2021) and the fourth wave (red line, peak in week 48/2021) are clearly visible (Figure 10). The disease burden of SARI patients requiring intensive care was

especially in the second and fourth COVID-19 wave significantly higher than even in very strong flu waves before the pandemic (grey line, peak week 10/2018 during the flu wave 2017/18). In contrast, the overall incidence of SARI cases treated in intensive care during the fifth wave was mostly below the values of the previous seasons. Since week 17/2022, the number of SARI cases treated in intensive care has been at the low level that is usually observed during the summer months (Figure 10).

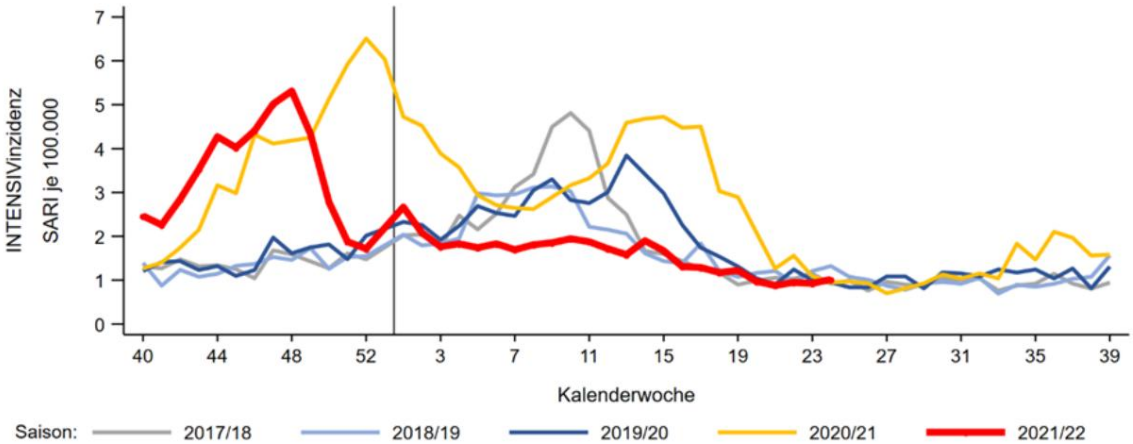

Figure 10: Weekly incidence of newly hospitalized SARI cases (ICD-10 codes J09-J22 in DRG main diagnosis) with intensive care, including patients still hospitalized, in the 2017/18 to 2021/22 seasons, to for week 24/2022, data from 71 syndromic hospital surveillance clinics. The vertical line marks the turn of the year.
In years with week 52, the value for week 53 is shown as the mean of week 52 and week 1. Late registrations may result in changes for the last few weeks.

SARI with COVID-19: The ICOSARI system is used to calculate the incidence of cases treated in hospital with severe acute respiratory infection and COVID-19 (COVID-SARI) (https://www.medrxiv.org/content/10.1101/2022.02.11.22269594v1). This estimate includes cases that received an ICD-10 code for SARI in the DRG primary or secondary diagnosis, as well as a COVID-19 diagnosis. Compared to the reporting system, higher values were determined in the high incidence phases - such as the second, third and fourth COVID-19 wave. In the fifth wave, the hospitalization incidence of the reported data exceeds the COVID SARI hospitalization incidence because the reported data increasingly also includes cases reported to the RKI in which the SARS-CoV-2 infection is not the cause of the hospital admission (see also Section 1.7 .4). Since week 21/2022 there has been no further decrease in new hospital admissions due to COVID-SARI. In week 24/2022 there were about 1.7 hospitalizations due to COVID-SARI/100,000 inhabitants (Figure 11). This corresponds to a total of around 1,400 new hospital admissions due to COVID-SARI in Germany.

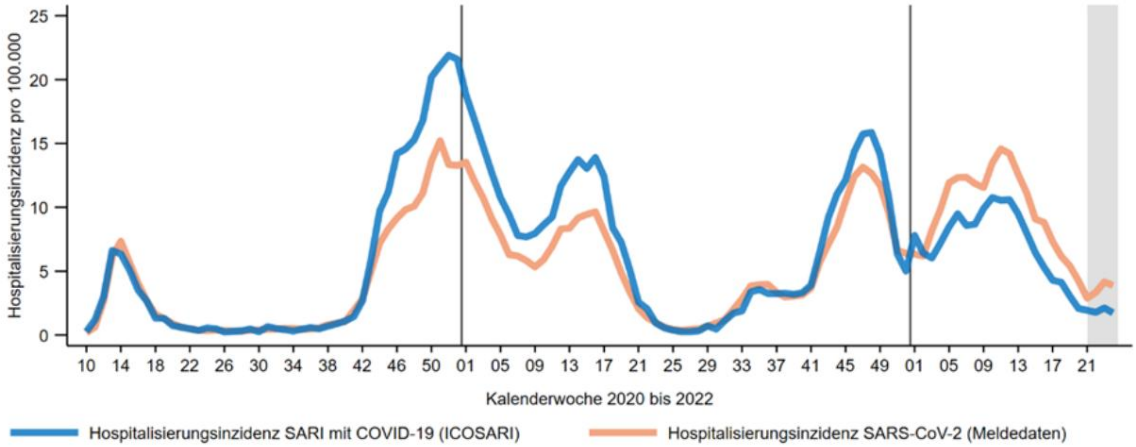

Figure 11: Weekly incidence of newly hospitalized SARI cases (ICD-10 codes J09-J22 in DRG main or secondary diagnosis) with an additional COVID-19 diagnosis (ICD-10 code U07.1!), including patients who are still hospitalized, from week 10/2020 to week 24/2022, data from 71 clinics of the syndromic hospital surveillance ICOSARI in comparison to the SARS-CoV-2 hospitalization incidence from the data of the reporting system. For the area marked in gray, changes in the number of cases are to be expected in the coming weeks.

After the constant decline in the COVID-SARI hospitalization incidence in recent weeks, the number of cases in week 24/2022 stagnated or increased slightly for all age groups (Figure 12). The course of the incidence in the under 15-year-olds should be interpreted with caution due to the very small number of cases. Those aged 80 and over continue to be most affected by severe illnesses that require hospital treatment. In week 24/2022 there were about 10 hospitalizations due to COVID-SARI/100,000 inhabitants in the age group over 80
Years.

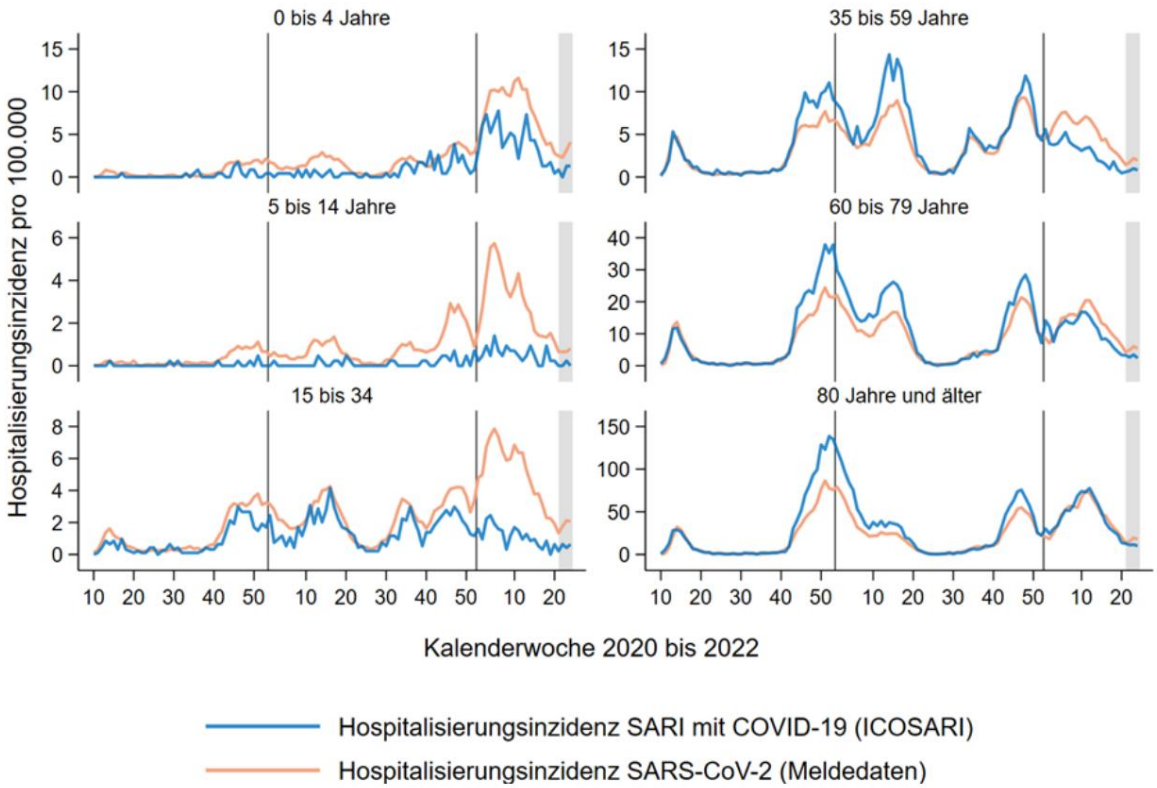

Figure 12: Weekly incidence by age group of newly hospitalized SARI cases (ICD-10 codes J09-J22 in DRG main or secondary diagnosis) with an additional COVID-19 diagnosis (ICD-10 code U07.1!), including patients who are still hospitalized, from week 10/2020 to week 24/2022, data from 71 clinics of the syndromic hospital surveillance ICOSARI in comparison to the SARS-CoV-2 hospitalization incidence from the data of the reporting system. For reasons of clarity, the y-axis is scaled differently for the age groups. For the area marked in gray, changes in the number of cases are to be expected in the coming weeks.

1.7. Further data sources on the aspect of hospitalization

1.7.1. Hospitalizations in the registration data

Clinical information was available for 8,832,761 (32.2%) of the cases reported through the reporting system.

Due to the incomplete collection of clinical data, e.g. g. for hospitalization, the case numbers listed below represent a minimum figure. Since July 13, 2021 (MW 28/2021), doctors have also had to report the admission of COVID-19 cases to the hospital to the health department, not just the suspicion the illness and death in relation to COVID 19. The relevant data are available at www.rki.de/covid-19-tabelle-klnische- seriousness.

Figure 13 and Figure 14 show the course of the hospitalization incidence in the reporting data over time. Figure 13 shows the absolute number of newly hospitalized cases in the respective reporting week, stratified by age group. The data is reported according to the registration date, i.e. the date on which the health department electronically recorded the case, but not according to the hospitalization date. It should be noted that in all age groups cases are still hospitalized one to two weeks after the diagnosis and corresponding follow-up transfers must be expected. The increase in the number of hospitalized cases, which has been apparent in all age groups since MW 01/2022, but especially among the 60 to 79 and over 80 year olds, has passed the peak in MW 11/2022. Since then, a steady decline has been observed. Since MW 23, however, there have been signs of a renewed increase, subject to the slight reservation of the reporting delay. The median age of hospitalized cases, which had temporarily fallen to 56 years in MW 03/2022, was 73 years for several weeks and is now falling slightly again. In MW 24/2022 it was 70 years.

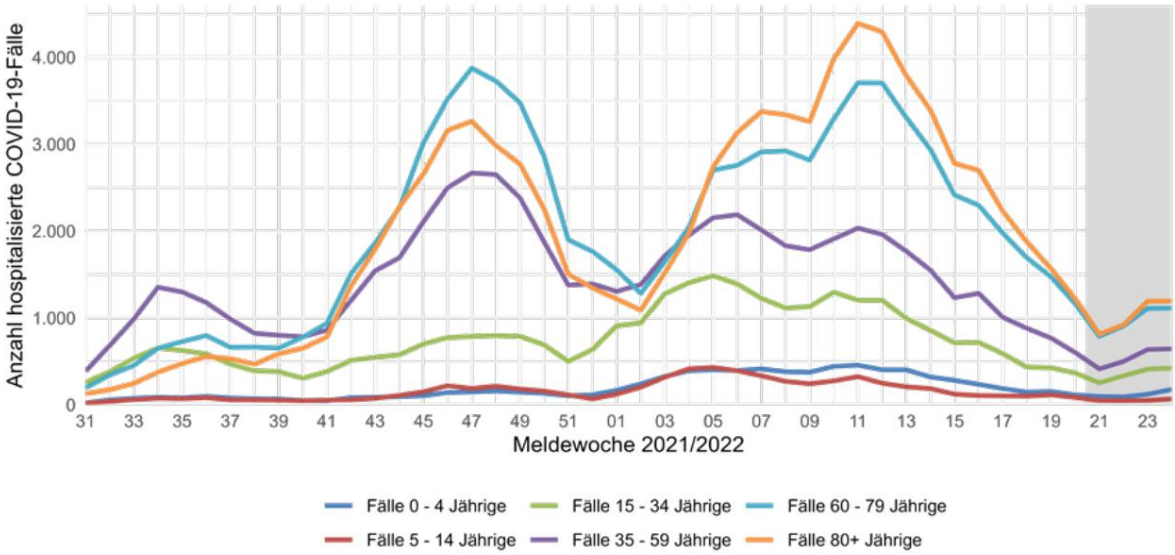

Figure 13: Representation of the number of newly hospitalized COVID-19 cases in Germany by age group from MW 31/2021 (data as of June 22, 2022, 00:00). For the area marked in gray there is still a considerable amount of post-transmissions and an increase in the number is to be expected.

Figure 14 shows the hospitalization incidence in the respective age group instead of the absolute number of hospitalized cases. An increase can also be observed here, which is also subject to a slight reservation of the reporting delay. This increase is strongest in the over 80 age group.

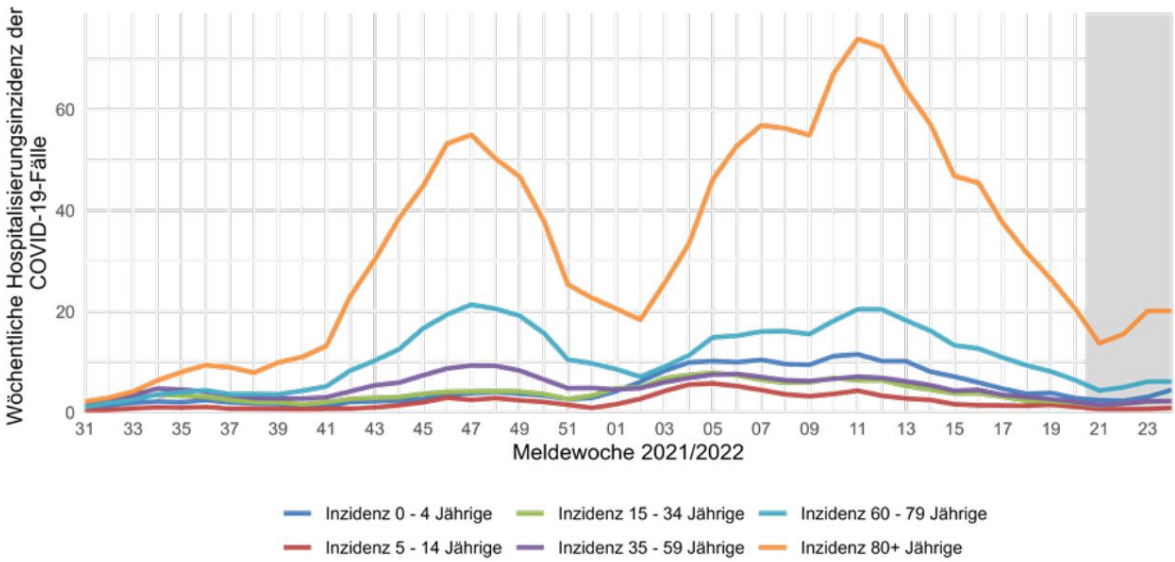

Figure 14: Weekly incidence of hospitalized COVID-19 cases in Germany by age group from MW 31/2021 (data as of June 22, 2022, 00:00). For the area marked in gray there is still a considerable amount of post-transmissions and an increase in incidence is to be expected

1.7.2. Adjusted 7-day hospitalization incidence

There is a delay between the start of the hospital stay of a COVID-19 case and the time at which this information is received by the RKI. In order to be able to better assess the trend in the number of hospitalizations and the 7-day hospitalization incidence, the reported hospitalization incidence is supplemented by an extrapolation of the expected number of hospitalizations reported with a delay (modified variant of the nowcasting calculation for the 7-

Day incidence, original calculation see here: https://www.rki.de/DE/
Content/InfAZ/N/Neuartigs_Coronavirus/Projekte_RKI/Nowcasting.html)2

In Figure 15, the blue line shows the course of the number of hospitalizations (fixed values) reported on a daily basis in the age groups 0 to 59 years and over 60 years. The gray line shows the course of all hospitalizations known to the RKI with the current data (updated values). The black dashed line with the orange area shows a
Extrapolation that contains the course including the information on further hospitalizations to be expected in the next few days (adjusted values). The associated value of the 7-day hospitalization incidence can be read on the second y-axis on the right. Both with the 0-
After the significant decrease in the adjusted hospitalization incidence at the end of April, a renewed increase was determined for both the 59-year-olds and the 60-year-olds and older, which was probably due to the late registrations after the Easter holidays, which can also be seen in the sharp increase in the fixed values. The adjusted incidence of hospitalization has been falling since the beginning of May and is now rising again after a short period of stagnation, still more strongly in the over 60 age group than in the 0 to 59 age group.

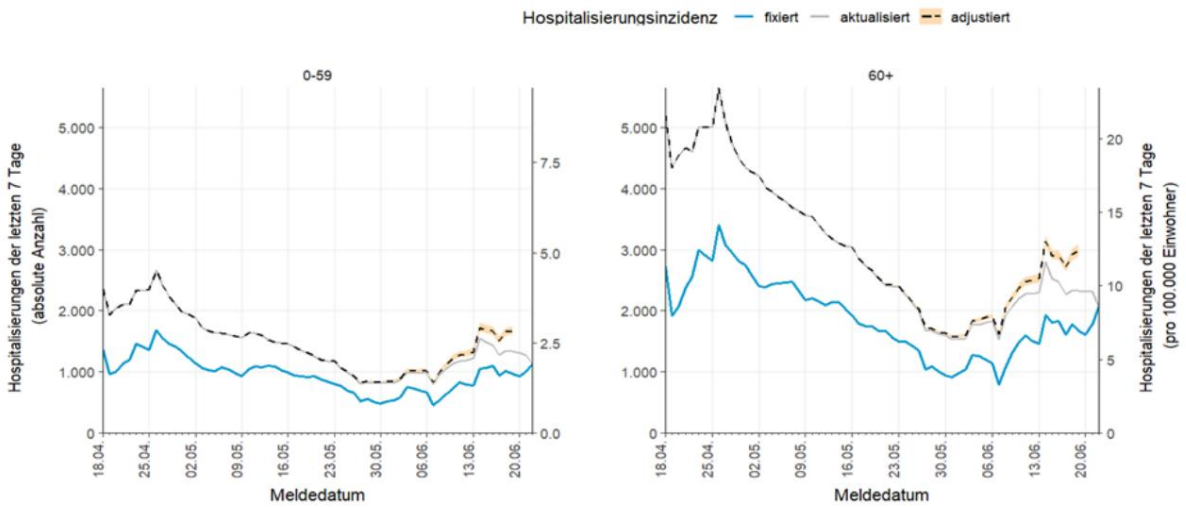

Figure 15: Reported 7-day hospitalization incidence (grey line) and estimate of the adjusted hospitalization incidence taking into account hospitalizations reported with a delay (black dashed line with the estimation range indicated in orange) for the age groups 0-59 years and over 60 years. The scales indicate the respective absolute number (y-axis, left) and the proportion per 100,000 inhabitants (y-axis, right). The daily reported hospitalization incidence is represented by the blue line (fixed values). (Data status 06/22/2022, 00:00)

1.7.3. Data from the intensive care register

The RKI operates the DIVI intensive care register (https://www.intensivregister.de) with advice from the German Interdisciplinary Association for Intensive Care and Emergency Medicine (DIVI). The register records the number of cases of COVID-19 patients treated in intensive care and
Treatment and bed capacities of around 1,300 acute care hospitals in Germany. The intensive care register thus enables bottlenecks in intensive care medical care to be identified in a regional and temporal comparison during the pandemic and beyond. It thus creates a valuable basis for reaction and data-supported action control

[2] *The results of this adjustment do not replace the daily reporting of the 7-day hospitalization incidence according to § 28a IfSG. Since December 2nd, 2021, they have also been reported Monday to Friday in the situation report and under COVID-19 Trends and data published at www.rki.de/ inzidenzen. The adjustment should allow a better classification of the current trend in the number of hospitalized and the 7-day hospitalization incidence. Our focus here is on the trend over the last few weeks, with daily fluctuations playing a subordinate role. The daily provision of the RKI-Nowcast is also available in addition to several different models for the adjusted hospitalization incidences on the comparison platform operated at the Karlsruhe Institute of Technology: https:// covid19nowcasthub.de/*

realtime. According to the Intensive Register Ordinance , since April 16, 2020 reporting is mandatory for all hospital locations with intensive care beds.

Figure 16 shows the absolute number of COVID-19 cases treated in intensive care medicine reported in the intensive care register as of the respective observation day. A daily report on the situation of intensive care bed capacity in Germany is published at https://www.intensivregister.de/#/aktuelle-lage/reports.

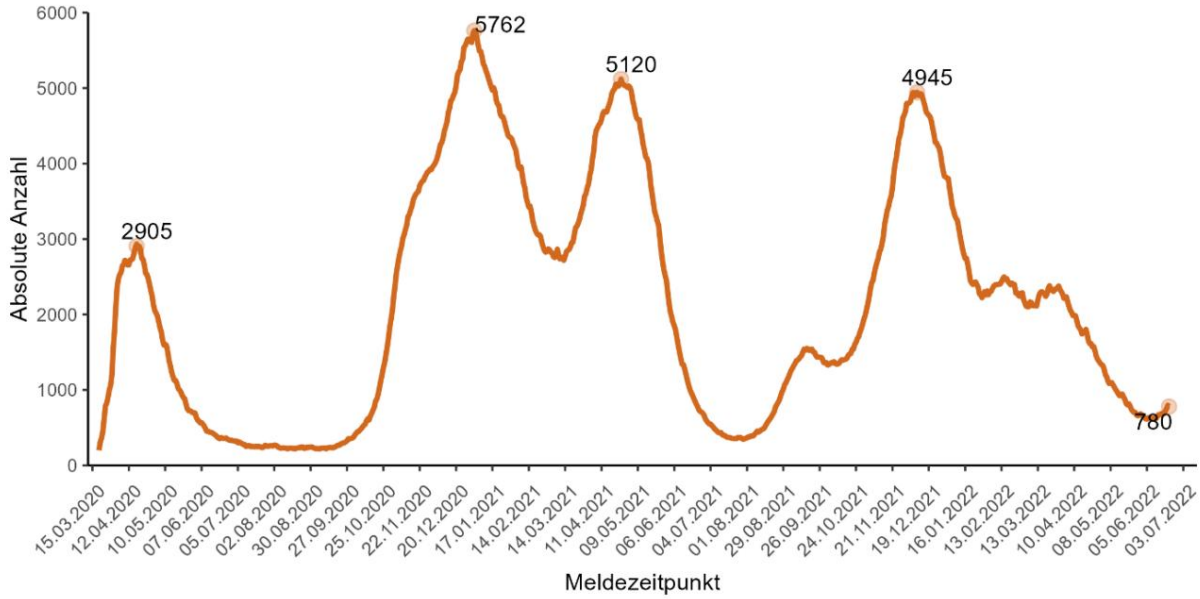

Figure 16: Number of COVID-19 cases treated in intensive care medicine reported in the intensive care register on the respective observation day (as of June 22, 2022, 00:00 a.m.). When interpreting the curve in March/April 2020, it should be noted that not all reporting areas have yet been registered in the register. In general, the underlying group of COVID-19 intensive care patients can change from day to day (transfers and new admissions), while the number of cases may remain the same.

After the fourth wave in October to December 2021, COVID-19 occupancy in intensive care units and free ICU bed capacity remained at a stable level for a long time during the fifth wave. Since April 2022, the COVID-19 occupancy in intensive care units has been steadily declining, and is now showing an increasing trend (Figure 17). The proportion of free ICU beds in the total number of ICU beds that can be operated should be above 10%, which is considered the limit of the hospitals' ability to react and which should not be undershot. This share has been stable since the beginning of the year and is currently around 15%.

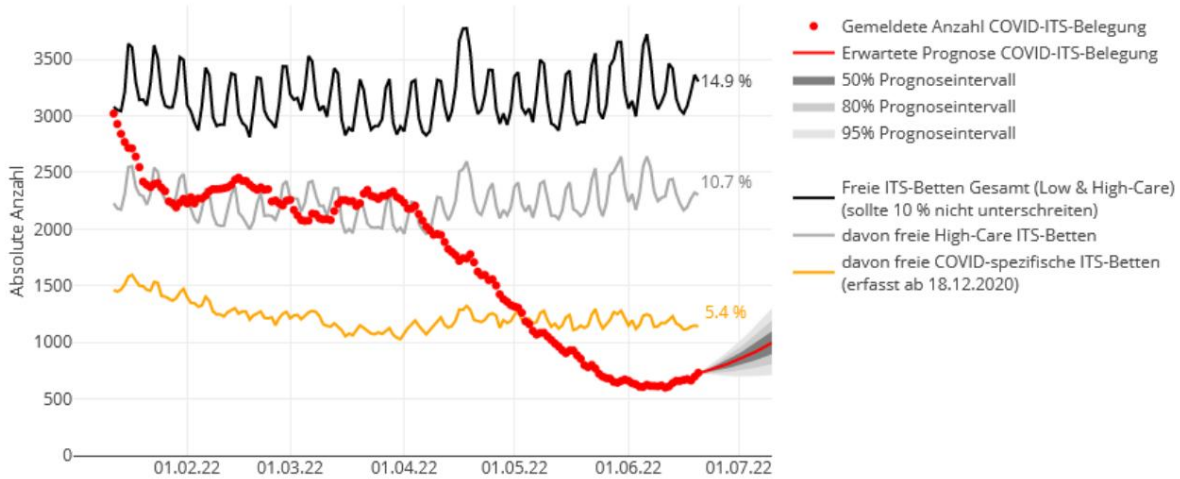

Figure 17: 20-day forecast of intensive care bed occupancy with COVID-19 patients with previous occupancy development (red dots) and history of the available free ICU bed capacity for all patients and patents (COVID and non-Covid, black line), as well of which free high-care beds (grey line) and free COVID-specific ICU beds (orange).

In the course of a change in the vaccination query in the intensive care register, the vaccination status of the COVID-19 Patients in the intensive care unit are temporarily not made available. As soon as enough data has been collected for a stable evaluation, the numbers from the new query will be reported here as usual.

1.7.4. Interpretation of the various aspects of disease severity and ICU burden

In order to assess the various aspects, the different perspectives of the individual survey systems must be taken into account. While in the hospitalization incidence based on the reported cases, all cases that are **newly admitted to the hospital** are considered and have a **laboratory-confirmed SARS-CoV-2 infection,** only the cases newly admitted in the respective week are considered in syndromic surveillance in which, in addition to the COVID-19 diagnosis, a **severe acute respiratory disease** was also diagnosed. In the intensive care register, the report shows in particular the **current occupancy** of the intensive care units with patients with COVID-19. Under the very high infection pressure during the omicron wave, the proportion of

Persons who had positive SARS-CoV-2 evidence but whose urgent inpatient or intensive care treatment became necessary due to another illness were higher, so that the SARS-CoV-2 infection was not necessarily the cause or the sole decisive factor for hospitalization. These cases were and are counted both in the hospitalization incidence of the notification data and in the occupancy of intensive care beds, but not in the syndromic surveillance ICOSARI. Figure 11 shows that, particularly in the age groups up to 59 years, the hospitalization incidence in the reporting data during the omicron wave was significantly higher than the incidence of COVID-SARI cases in syndromic surveillance. In contrast, in the older age groups, which make up the majority of hospitalized patients (please note the scaling), the COVID-SARI hospitalization incidence was at a comparable level to the hospitalization incidence of the reported cases.

In the overall view, the information on the incidence of hospitalization from the registration data, the COVID-SARI hospitalization incidence and the occupancy capacities in the intensive care register complement each other in order to be able to assess the situation in difficult cases and the utilization of capacities in the intensive care area. There is currently a renewed increase in hospitalized COVID-19 cases and an increase in COVID-19 occupancy in intensive care units. However, the number of new patients admitted to hospital due to an acute severe respiratory infection remains low. This may be an indication that the increased incidence of infection is also evident in hospital admissions and that patients with a SARS-CoV-2 infection as a secondary diagnosis are currently being hospitalized in addition to patients with a COVID-19 respiratory infection, especially in the Age groups below 80 years (Figure 12).

1.8. Deaths, mortality surveillance, EuroMomo

Figure 18 shows reported COVID-19 deaths by week of death.
Deaths usually do not occur until 2 to 3 weeks after infection. Deaths will be reported later for the 21st - 23rd week of 2022. In the fifth wave, despite the mostly comparatively mild course of the disease, there was an increase in deaths due to the high number of infections. Between 1,000 and 1,700 deaths with information on age were reported weekly in the 05 - 14/2022 calendar year. A steady decline has been observed since MW 12/2022, which is currently flattening out. The number of deaths with information on age was in MW 24/2022
at 126.

Among the reported deaths since week 10/2020, 118,703 (85%) people were 70 years and older, the median age in week 24/2020 was 83 years. In contrast, the proportion of those over 70 in the total number of reported COVID-19 cases is around 7%. The median age of the reported deaths has changed little in previous COVID-19 waves. It was 83 in the peak weeks of the first wave, 84 in the second wave in late 2020, 78 in the third wave in spring 2021, 81 in the fourth wave in late 2021, and 84 during the peak weeks of the fifth wave years.

Further information is available at:
https://www.rki.de/DE/Content/InfAZ/N/Neuartiges_Coronavirus/Projekte_RKI/COVID_19_Todesfaelle.html. Information on the mortality data in EuroMOMO and Destatis can be found here the footnote. **3**

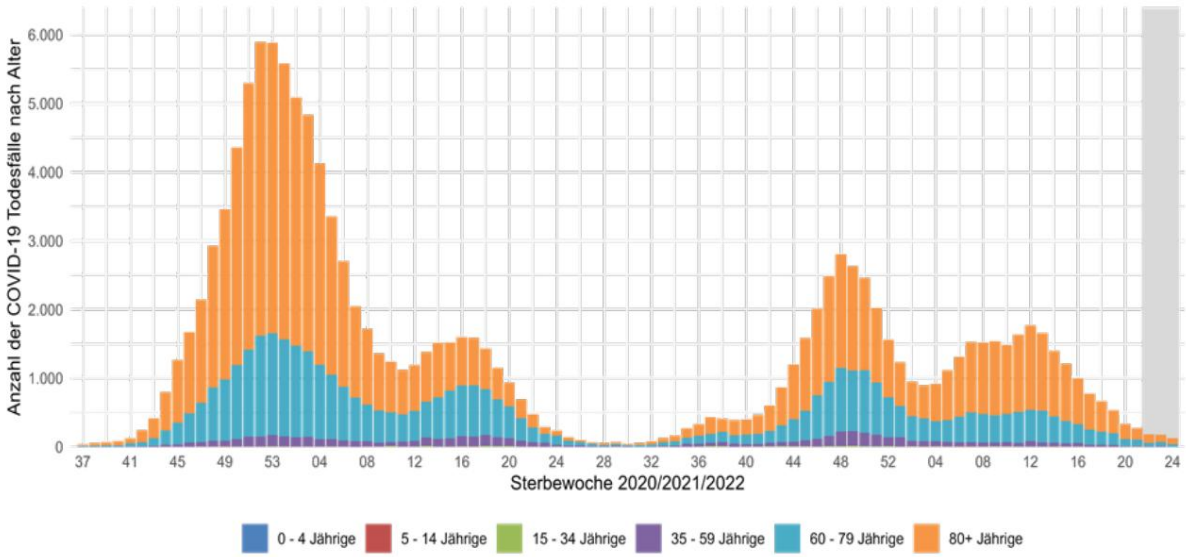

Figure 18: COVID-19 deaths reported to the RKI by week of death (week 37/2020 - week 24/2022: 129,826 COVID-19 Deaths with indication of the date of death, 06/22/2022, 0:00 a.m.). Subsequent transmissions are to be expected, particularly for the last three weeks.

[3] *EuroMOMO and Destatis: A total of 27 European countries or regions provide the European EuroMOMO project (European monitoring of excess mortality for public health action) with official mortality data on a weekly basis, so that on this basis the so-called excess mortality or excess mortality (regardless of the cause of death) recorded and tracked (https://www.euromomo.eu/). Since MW 15/2021, Germany has also been providing retrospective mortality data for all federal states. The representation takes place in the form of graphics and maps (https://www.euromomo.eu/graphs-and-maps/). The daily death figures are also registered on the website of the Federal Statistical Office: https://service.destatis.de/DE/bevoelkerung/sterbefallzahlen_bundeslaender.html. The delay in reporting deaths is compensated for by an estimate. There is a parallelism over time between the current increase in the number of reported COVID-19 deaths and the higher number of deaths*

2. Vaccination

2.1. Digital vaccination rate monitoring (DIM): Status of vaccination rates according to reporting data

Note: As of June 22, 2022, the RKI database for the calculation of the COVID-19 Vaccination quotas the following change: The vaccination data transmitted by the registered contract doctors by December 31, 2021 are due to the more complete KV billing data been replaced.

The reporting of all COVID-19 vaccinations to the RKI is required by law for all service providers in Section 4 of the Coronavirus Vaccination Ordinance. [4]

The following status results from the vaccination notification data: Up to the vaccination day June 21, 2022 (data status June 22, 2022), a total of 182,466,948 COVID-19 vaccinations were administered in Germany; 64,688,225 people (77.8% of the population) have been vaccinated at least once and 63,329,221 people (76.2%) have received primary immunization. In addition, 51,199,029 people (61.6%) have received a first booster dose and 5,544,582 (6.7%) people have received a second booster shot to date. After a maximum of 7.7 million vaccinations in week 50/2021, the number of vaccinations administered weekly decreased from week 2/2022 (around 4.5 million) to week 16 (around 386,000) and reached after one slight increase (week 17-18 and again in week 22) in week 23 the lowest level so far (around 177,000). In week 24, slightly more vaccinations were administered (around 187,000). Currently, the majority of vaccinations given are second boosters, while primary vaccinations are the least commonly given.

Table 2 gives an overview of the total number of vaccinations carried out by vaccination center nationwide and by federal state. According to the Vaccination Ordinance, dentists have also been able to be vaccinated against COVID19 since May 24th, 2022. To date, 530 vaccinations have been sent from dental practices.

With data as of June 22, 2022, the vaccination rates of the federal states differ by up to 25 percentage points for those who have been vaccinated at least once, by up to 23 percentage points for those who have had basic immunization, by up to 20 percentage points for those who have been vaccinated with the first booster vaccination and by up to 11 for those who have had the second booster vaccination. 2 percentage points. The highest rates for the two vaccinations of the basic immunization were achieved in Bremen and in Schleswig-Holstein for the first and second booster vaccination. For all four vaccinations, the lowest rates are in Saxony (www.rki.de/covid-19-impfquoten). [5]

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[4] *The vaccination process began in all federal states in vaccination centers, mobile teams and some hospitals on December 27th, 2020. The data is transmitted in different ways: Vaccination centres, health authorities, mobile vaccination teams, hospitals, pharmacies as well as companies and occupational medicine transmit pseudonymised individual vaccination data via the data collection system for digital vaccination rate monitoring (DIM) provided by the RKI in cooperation with Bundesdruckerei. The National Association of Statutory Health Insurance Physicians (KBV) has provided a reporting portal for all vaccinations of contract doctors since April 6th, 2021 and the private medical accounting offices (PVS) have provided a portal for all private doctors since June 7th, 2021, of which aggregated Data reach the RKI on a daily basis. The data transmitted via the KBV portal by 09/30/21 was replaced by the accounting data from 16 of the 17 associations of statutory health insurance physicians. It was only for Brandenburg that the data could not be exchanged, since unspecific billing numbers are used here in some cases, from which neither the vaccine nor the vaccine dose can be derived.*

[5] *Limitations: Only aggregated data with information on the postal code of the resident doctors is available Practice, about the vaccine, about the vaccine dose and only with the age classifications 5-11 years (from week 50), 12-17 years, 18-59 years and ÿ60 years (in the KBV but without vaccine reference). Therefore, the vaccination process can only be reported reliably in these aggregation levels (cf. daily table with the reported vaccination rates nationwide and by state). The vaccination progress in differentiated age groups and also a representation of vaccination rates according to districts cannot be shown with the available data. A consistent regional assignment is only possible according to the vaccination center, but not according to the place of residence of the vaccinated. This assignment must also be taken into account when interpreting the federal state vaccination rates. Since the vaccination data allocated regionally according to vaccination location for calculating the vaccination rate of a federal state is related to the respective resident population, proportions of >100% can also be calculated.*

Table 2: COVID-19 vaccinations submitted to the RKI by vaccination center per federal state (data as of June 8th, 2022).

Federal State	Vaccination Centers, Mobile Teams, hospitals, health authorities	medical practices (Contract doctors and private doctors)	company doctors	pharmacies
Baden-Wuerttemberg	10.571.538	12.431.609	566.533	8.897
Bayern	13.872.265	13.191.507	631.631	9.091
Berlin	3.767.136	4.237.481	135.830	10.256
Brandenburg	2.064.726	2.747.988	33.650	1.412
Bremen	1.060.293	610.038	45.512	503
Hamburg	1.844.922	2.417.145	184.054	3.476
Hesse	6.342.581	6.938.940	368.255	5.955
Mecklenburg-Vorpommern	1.571.639	1.840.115	21.948	976
Lower Saxony	7.983.200	10.016.015	368.999	12.931
North Rhine-Westphalia	17.128.280	23.443.477	1.008.971	51.984
Rhineland-Palatinate	4.004.401	4.838.265	235.369	6.520
Saarland	1.101.128	1.192.284	48.101	2.452
Saxony	3.528.149	3.696.933	99.889	3.946
Saxony-Anhalt	2.072.498	2.352.527	50.215	2.531
Schleswig-Holstein	3.138.964	3.750.850	127.733	4.161
Thuringia	2.357.026	1.734.538	31.657	412
In total	82.408.746	95.439.712	3.958.347	125.503

The proportions of those vaccinated vary according to age: in the age group over 60 years of age, the proportion of those who have been vaccinated at least once, those who have received basic immunization and those who have had one or two booster vaccinations is highest (table with the reported vaccination rates nationwide and by state). Around 78% (around 4.1 million people) of the 5 to 11 year olds and 26% (around 1.2 million people) of 12 to 17 year olds. In the 18-59 age group, 16% (around 7.3 million people) and in the 60+ age group around 8% (around 1.9 million humans) not yet vaccinated. In the age group from 60 years, an increasing use of the second booster vaccination has been observed since week 06/2022 (Figure 19).

There are five vaccines available, some of which have been recommended to different groups of people over time (see current recommendations of the Standing Vaccination Commission https://www.rki.de/DE/Content/Infekt/Impfen/ImpfungenAZ/COVID 19/ Impffehl-Zuserfassung.html). Of the vaccine doses delivered by the end of week 24/2022, a total of 89 **%6** had been vaccinated by June 22, 2022. For the respective vaccines, the proportion was 92% for Comirnaty (BioNTech/Pfizer), 87% for Spikevax (Moderna)6, 89% for Vaxzevria (AstraZeneca), 69% for Janssen (Johnson & Johnson) and 7% for Nuvaxovid (Novavax).

The RKI evaluates all vaccination data that is transmitted to it in accordance with Section 4 of the Vaccination Ordinance. As in other reporting systems, a certain under-recording of the vaccination rates recorded via the digital vaccination rate monitoring is assumed. The reported DIM notification data are therefore to be understood as minimum vaccination rates. Extrapolations were presented in previous weekly reports (see weekly report of 11/11/2021 and weekly report from

be calculated. Furthermore, vagueness in the allocation of vaccination data must be taken into account, in particular due to the different reporting channels used by company doctors: they can either use DIM under their own ID or report via vaccination centers with their ID, or they can also transmit their data via the KBV portal.

[6] *Booster vaccinations with Moderna were considered as whole vaccine doses.*

December 23, 2021). With the retrospective inclusion of the billing data of the health insurance companies (currently up to the data status of December 31, 2021), the completeness of the recording has increased.

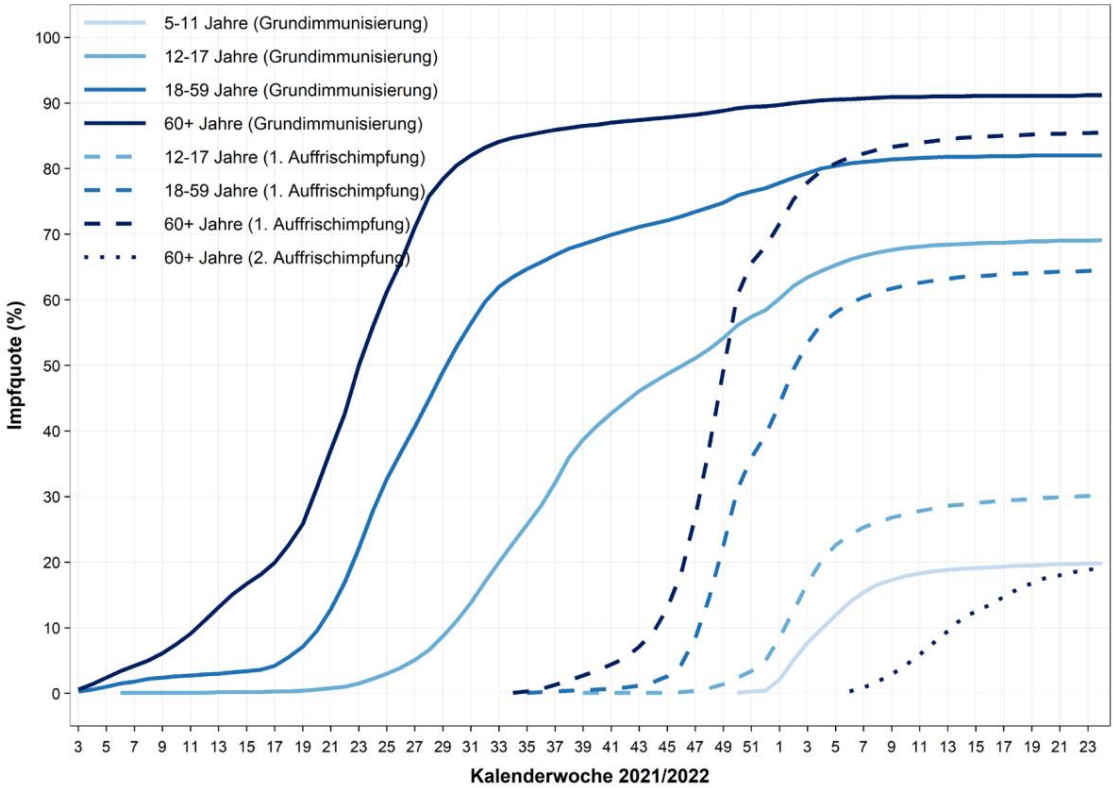

Figure 19: Vaccination rate (%) for primary immunization and for booster vaccinations by age group over time (data as of 06/22/2022).

2.2. Effectiveness of the COVID-19 vaccination

Since May 5th, 2022, the COVID-19 weekly report of the RKI no longer reports regular information on the effectiveness of the COVID-19 vaccination. Likewise, the underlying tables under

https://www.rki.de/DE/Content/InfAZ/N/Neuartiges_Coronavirus/Daten/Impfeffektivitaet.html no longer updated weekly. Instead, a separate report on the subject of COVID-19 vaccination/vaccination effectiveness will be published shortly, which will allow a more detailed consideration of individual aspects than is possible in the weekly report.

3. SARS-CoV-2 Laboratory Testing and Variants of Concern (VOC)

Since week 13/2022, the test numbers have been reported every 14 days and thus again in the next week.

3.1. SARS-CoV-2 Variants of Concern

Since the beginning of the pandemic, various SARS-CoV 2 variants have been observed both worldwide and in Germany, including the variants of concern (VOC)
Alpha (B.1.1.7), Beta (B.1.351), Gamma (P.1), Delta (B.1.617.2) and since the end of November 2021 Omicron (B.1.1.529). The definition as a VOC occurs when there are indications of increased transmissibility, a more severe course of the disease and/or an immune vasive effect. In addition to the VOC, there is also the group of variants under observation (Variant of Interest; VOI). These have characteristic mutations associated with increased transmissibility, virulence and/or altered immune response. The RKI follows the WHO when evaluating virus variants (VOC, VOI). On the RKI website for basic virological data and virus variants you will find more information about the SARS-CoV-2 variants and
their sublines7, the nomenclature and case numbers from various data sources in Germany.

3.1.1. data sources

The RKI has expanded the nationwide Integrated Molecular Surveillance (IMS) systems in order to obtain a detailed overview of the occurrence and spread of specific SARS-CoV-2 mutations. In this way, new virus variants and their spread are detected at an early stage. The IMS consists of two components: (1) the whole genome sequencing of the SARS-CoV-2-positive samples and (2) the linking of the sequence data obtained with the clinical-epidemiological data, which are already forwarded to the RKI via the health authorities. As part of the IMS, the RKI evaluates the Germany-wide pooled sequence data together with the clinical-epidemiological data.

The analysis of the genome sequences includes data from the whole genome sequencing, which is carried out directly at the RKI, as well as data that is transmitted to the RKI as part of the Coronavirus Surveillance Ordinance (CorSurV). The transmitted sequence data can in turn be assigned to two groups. **(A) Sequencing that was carried out due to a specific clinical-epidemiological or laboratory diagnostic suspicion of peculiarities, and (B) sequencing that was randomly selected from the total occurrence of SARS-CoV-2
positive samples were selected in the laboratories. Group A** contains the **event-related samples8, group B** forms the so-called **random sample.**

For *about half* of the whole genome sequences submitted, additional clinical epidemiological information is available from the reporting system, as it can be assigned to specific cases. The SARS-CoV-2 variant genome sequence data section
The evaluation shown is based on the above sample.

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[7] *As part of the internationally used pangolin nomenclature for SARS-CoV-2 virus variants, a number defined for individual sub-lines, including for VOC and VOI. The division into sublineages enables a more differentiated monitoring of their spread and is based on genomic changes as well as on a significant geographical accumulation. Sublines have been introduced for different virus variants, e.g. B. for the VOCs alpha (B.1.1.7; Q lines), delta (B.1.617.2; AY lines) and omicron (B.1.1.529; BA lines).*

[8] *e.g. B. if there are indications of the presence of a VOC based on the travel history or laboratory diagnostics, reinfection, Vaccine breakthrough or evidence of an outbreak*

In total, the RKI currently has (data status June 20, 2022) 970,716 SARS-CoV-2 Whole genome sequences available from Germany since January 1st, 2021. For week 23/20229 Based on the number of available genome sequences and known laboratory-confirmed infections in Germany, the proportion of SARS-CoV-2 infections that have been examined using whole genome sequencing positive samples from a total of 1.8%. Half of this – 0.9% – is accounted for by the above sample.

In order to be able to quickly and accurately identify changes in the pathogen genome and the spread of the SARS-CoV-2 variants, a high proportion of SARS-CoV-2-positive samples should be sequenced. Integrated Molecular Surveillance (IMS) enables the early detection of new variants, but also of changes in the distribution of known variants. In particular, a high proportion of randomly selected samples that are included in the above random sample is of great importance. The random samples should be selected for the whole genome sequencing without prior suspicion of the presence of a specific variant or other peculiarities, such as clinical characteristics. Figure 20 shows the proportion of sequenced samples in the sample since January 2021, with the number of samples in each of the past few weeks amounting to several thousand.

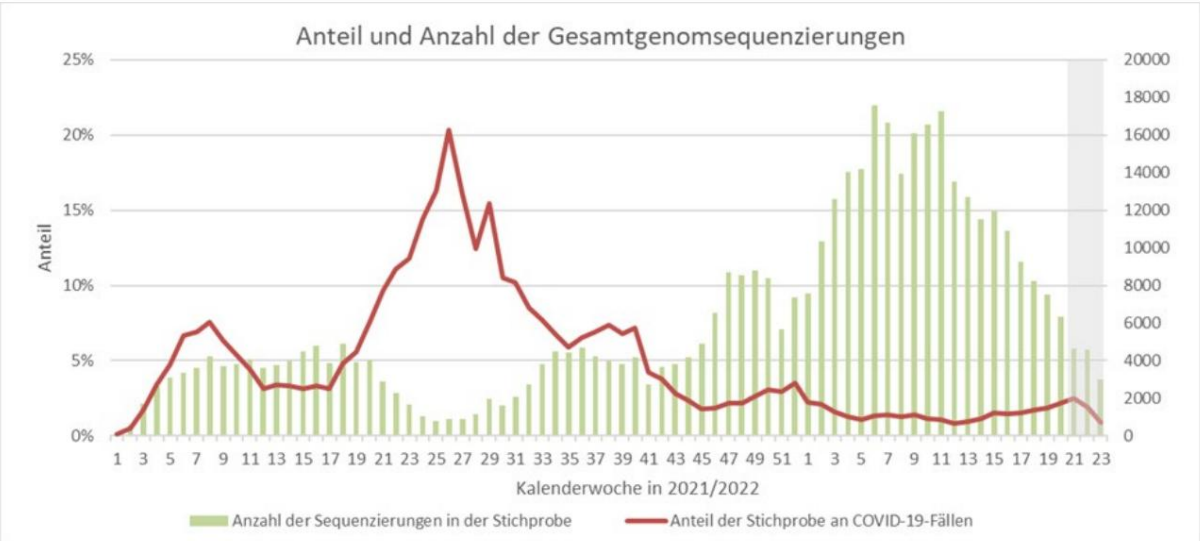

Figure 20: Number (green bars) and proportion (red line) of the randomly selected SARS-CoV-2 positive samples for sequencing in the COVID-19 cases of the respective calendar week in 2021/2022 (see Figure 2). For the area with a gray background, changes are to be expected due to late registrations (data status: 06/20/2022).

Both the **genome sequence data on SARS-CoV-2 variants,** i.e. **event-related samples and spot checks,** and suspected cases of VOC, which were determined and transmitted using variant-specific PCR, are included in the IfSG notification data, where they are linked to the associated clinical epidemiological data will. A large part of the genome sequence data is thus included in the IfSG reporting data.

[9] *Due to the process-related long time it takes for the sequencing results to be transmitted to the RKI (e.g. Sending the samples to sequencing laboratories, sequencing of the samples, genome analysis) reports on the genome sequence data from the week before last. For the reporting period, those sequences are selected whose associated sampling took place in the reported week. The date of sampling corresponds approximately to the reporting date.*

3.2. SARS-CoV-2 variants distribution in Germany

The Variant of Concern (VOC) Omikron is currently the dominant SARS-CoV-2 virus in Germany. Variant. Other variants, such as the VOC Delta and before that the VOC Alpha, have been almost completely suppressed and are currently only very rarely detected.

3.2.1. Genome sequence data on SARS-CoV-2 variants

The genome sequence data in this section refer to the period up to and including week 23/2022. The lines of the currently dominant VOC Omicron show different amino acid differences within the spike protein (and other virus proteins) and are recorded as BA lines. Lines BA.1 to BA.5 are shown as parent lines in Table 3

listed. A complete table from week 01/2021, in which all VOC and sub-lines are included, can be found at: www.rki.de/DE/Content/InfAZ/N/Neuartiges_Coronavirus/Daten/VOC_VOI_Table.html

Table 3: Percentages of sequenced VOC Delta Omicron BA.1 to BA.5 (incl. the respective sub-lines) (data status June 20, 2022).

KW 2022	Omikron				
	BA.1	BA.2	BA.3	BA.4	BA.5
14	4,9 %	94,6 %	< 0,1 %	< 0,1 %	0,1 %
15	2,8 %	96,7 %	< 0,1 %	< 0,1 %	0,2 %
16	1,6 %	97,6 %	< 0,1 %	0,1 %	0,2 %
17	1,1 %	97,7 %	0 %	0,1 %	0,7 %
18	0,5 %	97,0 %	0 %	0,3 %	1,7 %
19	0,3 %	95,5 %	< 0,1 %	0,7 %	3,0 %
20	0,2 %	91,2 %	< 0,1 %	1,3 %	6,8 %
21	0,2 %	82,5 %	< 0,1 %	2,7 %	14,3 %
22	< 0,1 %	62,8 %	0 %	4,6 %	32,3 %
23	0 %	44,1 %	0 %	5,8 %	49,7%

Table 3 lists the Omicron lines BA.1 to BA.5 including the respective sub-lines. The individual representation of all omicron sublines in Figure 21 shows the strong increase in the proportion of BA.5, which is the dominant variant in Germany with 50% in week 23/2022. The proportion of BA.2 has continued to decrease and was 24% in week 23/2022, the proportion of subline BA.2.9 was 8%. The shares of the sub-lines BA.2.12.1 and BA.4 each increased to 6%.

Since week 23/2022, BA.5 has accounted for the majority of evidence by means of genome sequencing in the sample. Thus the strong proportional increase of this variant has continued together with BA.4 and BA.2.12.1. What these three variants have in common is that, compared to BA.1 or BA.2, they have an amino acid exchange in the spike protein at position L452 and show increased transferability. Simultaneously with the increasing spread of these variants, a renewed increase in the number of infections has been observed since week 21/2022. The epidemiological data available to date do not indicate that infections with BA.2.12.1, BA.4 or BA.5 cause more severe disease progressions or proportionally more deaths

than infections with BA.1 and BA.2.

In addition to the omicron sublines, recombinants of different virus variants also occur sporadically. A recombination produces a virus whose genetic material is made up of genome information from at least two different virus variants that have infected a host cell at the same time. So z. B. the recombinant virus line XD, the spike gene sequence is from omicron (BA.1), while the rest of the genome is from delta (AY.4). Other lines are due to recombination between BA.1 and BA.2 (e.g. XE, XG) or BA.1.1 and BA.2 (e.g. XM). Since

From week 23/2022, when determining the virus lines, sequences will be automatically assigned to recombinant lineages. The low total number of recombinant sequences in the sample10 shows that recombinants still only account for a very small proportion of infections in Germany. So far, XD (1 time), XE (36 times), XG (31-
times), XH (1 time), XJ (1 time), XN (2 times), XV (1 time), XW (33 times) and XM (323 times) detected (data status 06/20/2022). The recombinant lines are under observation, so far there are no epidemiological indications of a change in transmissibility, virulence and/or altered immune response compared to the original variants.

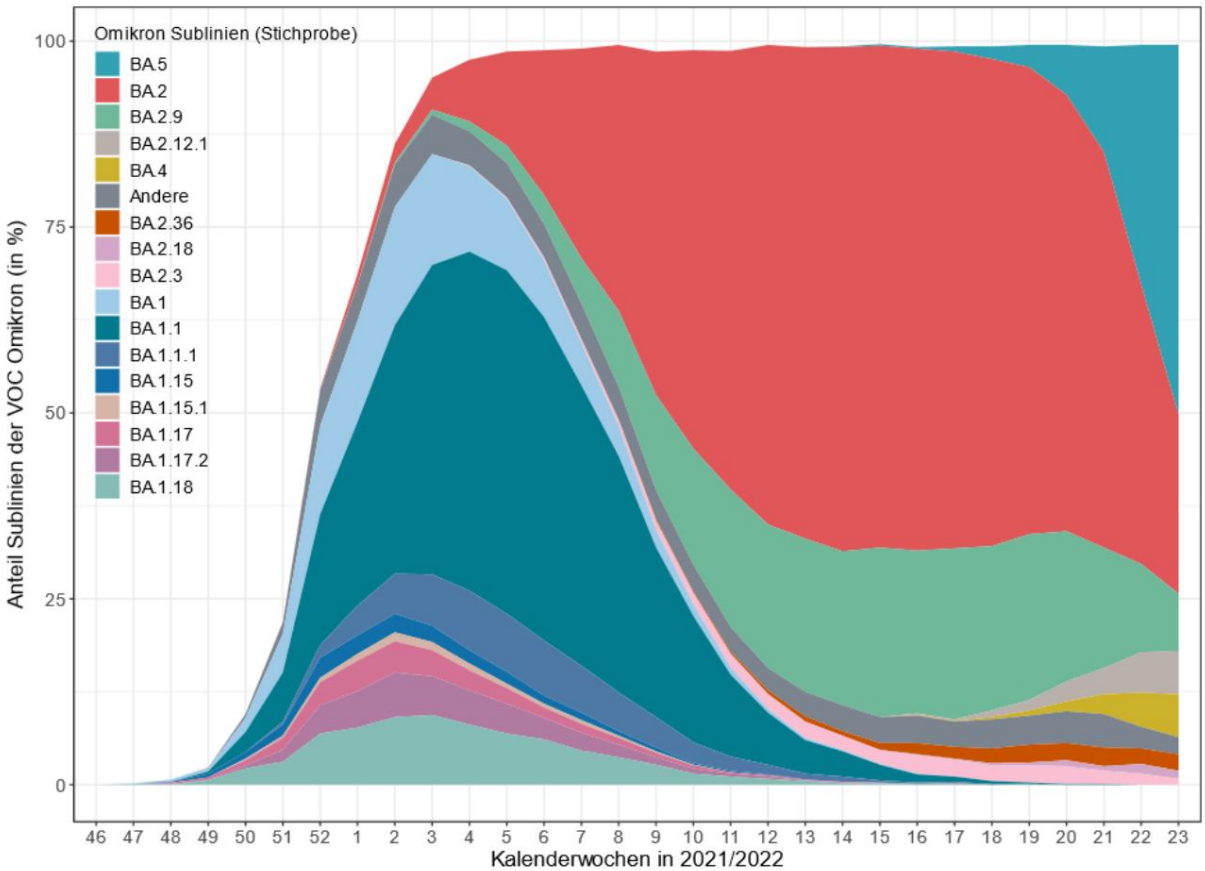

Figure 21: Percentages of the Omicron sublines with a share of >1% each, based on the genome sequences from the sample, sorted in descending order according to their share in week 23/2022. All other variants and sub-lines are in the complete table from week 01/2021 at www.rki.de/DE/Content/InfAZ/N/Neuartiges_Coronavirus/Daten/VOC_VOI_Table.html contain.

3.2.2. IfSG reporting data on SARS-CoV-2 variants

With the changes in the Coronavirus Test Ordinance (TestV) of February 11, 2022, variant-specific PCR tests are no longer reimbursed. Since then, the number of transmitted VOC results has decreased significantly since week 06/2022. This has a particular effect in federal states with a small population and leads to greater fluctuations in the calculation of the VOC proportions, so that a comparison between the federal states is no longer meaningful. The transmitted cases by VOC and by federal state have not been published since April 7th, 2022.

At www.rki.de/covid-19-VARIENTS you can find more information about Omikron and all VOCs. In addition, the RKI provides assistance in deriving variant-specific PCR tests from characteristic amino acid exchanges and deletions in SARS-CoV-2 to disposal.

[10] *In the previous weeks, the numbers of all detected recombinants, including those outside the random sample, were listed. The limitation to sampling evidence results in smaller numbers for individual recombinants in this report.*

4. Recommendations and measures in Germany

Documents and information on recommendations and measures can be found at www.rki.de/covid-19.

4.1. Current

- Federal press conference on June 17, 2022 on the corona situation in summer
  Federal Health Minister Karl Lauterbach and RKI Vice President Lars Schaade (06/17/2022) https://www.youtube.com/watch?v=yQ1Q9A_ya84
- Update 6/7/2022: COVID-19 and Vaccination: Answers to Frequently Asked Questions (FAQ)
  https://www.rki.de/SharedDocs/FAQ/COVID-Impfen/gesamt.html
- Updated May 30th, 2022: RKI recommendations on hygiene measures in the treatment and care of patients infected with SARS-CoV https://www.rki.de/DE/Content/InfAZ/N/Neuartigs_Coronavirus/Hygiene.html
- Update 05/27/2022: Isolation in the inpatient area as well as in old people's and nursing homes
  https://www.rki.de/DE/Content/InfAZ/N/Neuartiges_Coronavirus/Entlassmanagement.h etc.
- Update 05/27/2022: Prevention and management of COVID-19 in old people's and nursing homes and facilities for people with impairments and disabilities

  https://www.rki.de/DE/Content/InfAZ/N/Neuartiges_Coronavirus/Pflege/Dokumente.html

5. Appendix

5.1. Notes on data collection and evaluation

The data presented in this management report represent a snapshot. Information on cases can be determined later during the course of the disease and added to the reporting system. Complete recording is not possible for all variables.

The health authorities may determine additional information, assess the case and initiate the necessary infection control measures. The data will be transmitted electronically by the health department to the responsible state authority and from there to the RKI no later than the next working day. The data is updated at the RKI once a day at midnight.

Due to the data input and data transmission, there is a time delay from the time the case becomes known to the time it is published by the RKI, so that there may be deviations in the number of cases from other sources.

Since August 26, 2021, the data from the population statistics of the Federal Statistical Office with the data status of December 31, 2020 have been used to calculate the incidences. The 7-day incidence is calculated on the basis of the reporting date, i.e. the date on which the local health authority became aware of the case and recorded it electronically. For today's 7-day incidence, cases reported within the last 7 days are counted.

The difference from the previous day, as shown in the management report and dashboard, on the other hand, refers to the date when the case was first published in the RKI's reporting. It may be that e.g. B. Due to a delay in transmission, there are also cases that have a reporting date of more than 7 days ago. At the same time, the difference also takes into account cases that were subsequently deleted due to data quality checks, so that the 7-day incidence cannot be deduced from this difference. The reporting week corresponds to the calendar week according to the rules of the international standard ISO 8601 (corresponds to DIN 1355). It starts on Monday and ends on Sunday. The reporting weeks of a year are numbered consecutively, starting with the first week that contains at least 4 days of the year in question. Reporting years may have 52 or occasionally 53 weeks. The assignment to the reporting week is determined by the day on which the health department officially becomes aware of a case. The term "MW" for reporting week is used for the data from reporting systems listed here. The designation "KW" for calendar week is used for independent surveillance systems and those in which different data sources flow together.