STATENS SERUM INSTITUT

Weekly trends: covid-19 and other respiratory infections

Week 22 | 2022

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STATENS SERUM INSTITUT

The epidemiological development of covid-19 and other respiratory infections in Denmark from week 20 to week 21

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Overall assessment

Case numbers measured by PCR-testing continue declining across all age groups between week 20 and 21. Test activity has continued decreasing with an average of just below 5,000 daily PCR tests. A slight fall in the concentration of SARS-CoV-2 in waste water sampling is seen on a national level in week 21, after an increase in the week before, but with an increase in Region of North Denmark and Region Zealand.

The positive percentage is stable in week 21 but with a continued variation across age groups, where the age groups between 60 and 79 years continues to have higher case numbers than the younger age groups and a rising positive percentage between week 20 and 21.

Overall, a signal of stabilization in the concentration of SARS-CoV-2 in waste water sampling has been seen in the recent weeks after a continuous fall in the period from start / mid-February until the beginning of May. There are not yet signals of rising case numbers based on PCR testing but this should be seen in the light of continuous test activity. Furthermore, there is a rise in the proportion of sequenced test with subvariants BA.5 and BA.2.12.1, which in recent weeks has doubled respectively every week and every other week.

On this background, it is continuously expected that case numbers with SARS-CoV-2 will drop further over the coming weeks as test activity continues dropping. However, the waste water surveillance shows signs of a stabilizing concentration of SARS-CoV-2 and perhaps a slight increase in parts of the country, which can be a signal of rising incidence in segments of the population, who are not tested. Simultaneously, there is a growth in sub variants BA.5 and BA.2.12.1 and both sub-variants constitute more than 10% of the sequenced tests in week 21. There are thus signs of both sub-variants are growing. The emergence of BA.5 and BA.2.12.1 can increase the risk of rising infection rates as has been seen in other countries.

Summary

- The number of new cases with covid-19 has decreased by 20% between week 20 and week 21, corresponding to the incidence in week 21 being 56 cases per 100,000 inhabitants. The positive percentage is stable at 10% in week 21. During the same period, the number of PCR tests has decreased by 21%.

- The incidence is highest in the Capital Region (64 per 100,000 inhabitants) and then Region Zealand (62 per 100,000 inhabitants). Declining incidences are seen in all five regions. There is little variation in the positive percentages in the five regions (from 9.8% in the Capital Region to 11.7% in the Central Jutland Region), and a small increase in the Capital Region, North Jutland Region and Zealand Region.

- The incidence of infection decreases across all age groups. The incidence is still highest in the older age groups over 40 years, where the incidence for the different age groups is between 62-98 per 100,000 inhabitants. The test rate remains stable or declining for the different age groups and remains highest among the oldest and lowest among children and young people aged 0-24 years. The positive percentage varies in the different age groups; it is increasing in the age groups between 16-29 years and 60-79 years, while it is stable or declining in the remaining age groups. The highest positive percentage of 13% is seen among the 60-79-year-olds, and the lowest positive percentage is among the 3-5-year-olds (4%).

- The number of new admissions related to covid-19 has decreased by 19% to 201 in week 21, and the elderly aged 70-79 continue to constitute the largest group among the new admissions. There is a decline in all age groups except the 30-39 year olds. The number of admissions to the intensive care units is 13 in week 21 compared to 10 in week 20. The proportion of admissions among people admitted due to a covid-19 diagnosis (as opposed to covid-19) has increased from 41% in week 18 to 53% in week 19.

- The number of covid-19-related deaths is declining from 38 in week 20 to a preliminary 25 in week 21. Mortality in Denmark is at a normal level.

- Among nursing home residents, a declining test rate is seen from 3.0% in week 20 to 2.6% in week 21. The positive percentage is 4.2% in week 20 compared to 4.6% in week 21. The number of confirmed cases is the same level with 51 cases in week 20 compared to 49 in week 21. The number of deaths among residents with covid-19 has decreased from 9 in week 20 for the time being 6 in week 21.

- Among special staff groups, there is a decrease in the number of confirmed cases, incidence and test rate from week 20 to week 21. There is a slightly increasing positive percentage among employees in the health sector from 9.6% in week 20 to 10.8% in week 21. In the social sector, a stable positive percentage is seen from week 20 (4.7%) to week 21 (4.6%).

- BA.2 and sub-variants are still dominant in Denmark, however with a declining share of approx. 87% in total. An average weekly increase in the number of infected has been seen

corresponding to 135% and 52% respectively for the subvariants BA.5 and BA.2.12.1 in weeks 17-20. These variants each amount to approx. 10% of the sequenced samples in week 21. However, a reservation must be made that a particularly large number of samples have not yet been sequenced in week 21.

- In week 21, a flattening of SARS-CoV-2 concentration in the wastewater is seen at national level. Divided by regions, however, there is a decrease in SARS-CoV-2 concentration in the wastewater in the Region of Southern Denmark, the Central Jutland Region and the Capital Region, while the slight increase in the North Jutland Region and the Zealand Region from last week is still seen. SARS-CoV-2 virus concentrations are at a relatively low level in all regions.

- The proportion of COVIDmeter's user panel who are suspected of being infected with covid-19 in week 21 is 0.6%, which is the same as in week 20. The most common symptoms reported in week 21 were runny or stuffy nose (2, 9%), more tired, debilitated or exhausted (2.8%) and headache (2.4%). The test rate among all COVIDmeter participants is 2.7% in week 21, which is a decrease from 3.2% in week 20.

  At the same time, there is also a decrease in the positive percentage to 16% in week 21 from 18% in week 20. Among the COVIDmeter participants who are suspected of being infected, the test rate is 43% in week 21, which is on a par with week 20, while a decrease in the positive percentage is seen to 31% in week 21 from 42% in week 20.

- Data for sentinel will in future be included in the report, as sentinel has been expanded for year-round monitoring, and provides an opportunity to continuously monitor the presence of various respiratory viruses in the inventories. It was in week 20 parainfluenza, rhinovirus and covid-19 that constituted the three most common viruses among the samples.

Overall assessment

Infection detected by PCR test continues to decrease across all age groups between week 20 and week 21. There has been a further decrease in test activity, and in week 21 there have been an average of almost 5,000 PCR tests daily. In week 21, there is a slight decrease in the concentration of SARS CoV-2 in the wastewater at national level after an increase was seen in the previous week, and there is an increase in the wastewater concentration SARS-CoV-2 in Region North Jutland and Region Zealand.

The overall positive percentage is stable in week 21, but there is still variation across ages, with the elderly in the age groups between 60-79 years still having a higher incidence of infection than the younger age groups, and an increasing positive percentage between weeks 20 and 21.

Overall, in recent weeks there has been a signal of a discharge in the concentration of SARS CoV-2 in the wastewater after a continuous decrease in the period from start / mid-February to the beginning of May. There are as yet no signs of increasing incidence based on PCR testing, but this should be seen in the light of a continuing decline in test activity. In addition, there is a growth in the proportion of sequenced samples with the subvariants BA.5 and BA.2.12.1, which in recent weeks have had a growth corresponding to more than a doubling every other week.

Against this background, it is still expected that the infection with SARS-CoV-2 will decrease further over the coming weeks in continuation of the continued decrease in test activity. However, wastewater monitoring shows signs that the concentration of SARS-CoV-2 is stabilizing and may increase slightly in parts of the country, which may be a signal of increasing infection in segments of the population not being tested. In parallel, there is an emergence of the sub-variants BA.5 and BA.2.12.1, and both sub-variants in week 21 make up more than 10% of the proportion in the sequenced samples. There are thus signs that both sub-variants are growing.
The emergence of BA.5 and BA.2.12.1 may increase the risk of infection, as seen in other countries.

At the end of this report, the data basis is described.

key figures

Covid-19

Table 1. COVID-19: Key numbers and trends, weekly, 2022

Table 1. Covid-19: Key figures and trends, broken down by week, 2022

Covid-19	2022						Trend week
	16	17	18	19	20	21	16-21
Incidence pr. 100,000 inhabitants *	189	120	100	8 2	7 0	5 6	
Number of tests performed (PCR)	100,465	86,904	54,762	47,014	43,041	34,129	
Confirmed cases (PCR)	11,103	7,071	5,853	4,787	4,120	3,290 (fr most common	
Positive Percentage (PCR)	16.0	12.0	11.8	11.1	10.4	10.4	

Notes to table: The positive percentage in this table is calculated solely on the basis of PCR tests from the public sector.

* The population for calculating incidences is described in the data base under the section "Populations for calculating incidence".

Table 2. COVID-19: Key numbers and trends for hospital admissions and deaths, weekly, 2022

Table 2. Covid-19: Key figures and trends for hospitalized and dead, by week, 2022

Covid-19	2022						Trend week
	16	17	18	19	20	21	16-21
New hospital admissions	569	455	359	276	249	201	
Number admitted on Monday morning	747	632	512	447	318 **	267 ***	
Number admitted to intensive care on Monday morning	1 5	8	1 0	1 3	10 **	13 ***	
Number of dead *	9 0	78	5 9	4 7	3 8	2 5	

* The number of deaths is updated retrospectively as data may be delayed due to post-registration.

** Data are from Tuesday morning due to problems in data delivery Monday morning .

*** Due to delays in data, there is a risk that the actual number of inpatients may be slightly higher or lower.

Other respiratory diseases

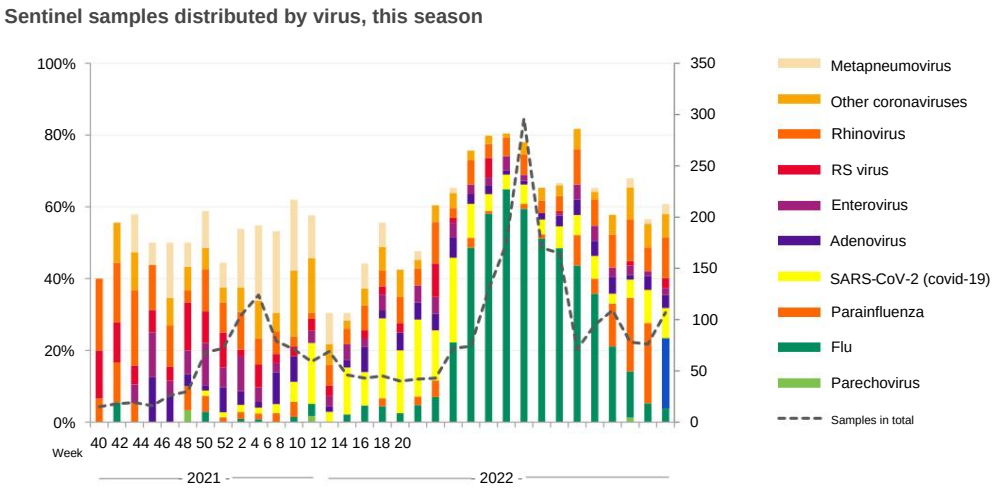
Data is updated backwards.

Follow developments in sentinel surveillance - GPs' surveillance of flu-like illness on SSI's website.

Table 3. Sentinel surveillance: Total number of test, proportion of airborne virus infections (%) and proportion of different types of airborne virus infections with 5 or more cases in week 15-20, 2022 **Table 3. Sentinel surveillance: total number of samples, proportion detected respiratory virus (%) and proportion of different types of respiratory virus with 5 or more cases in week 15-20, 2022**

	2022 week						Trend week
	15	16	17	18	19	20	15-20
Total number of samples	71	95	109	78	76	107	
Detected respiratory virus (%)	81.7	65.3	57.8	67.9	56.6	60.7	
Detected cases with other coronaviruses (%)	5.6	2.1	5.5	9.0	6.6	6.5	
Detected cases of rhinovirus (%)	9.9	7.4	9.2	11.5	6.6	11.2	
Detected cases of adenovirus (%)	4.2	4.2	4.6	1.3	3.9	3.7	
Detected cases with covid-19 (%)	5.6	6.3	2.8	5.1	9.2	8.4	
Detected cases of parainfluenza (%)	8.5	4.2	11.9	20.5	22.4	19.6	
Detected cases of influenza (%)	43.7	35.8	21.1	12.8	5.3	3.7	

Figure 1. Airborne viruses: Sentinel tests across virus types, week 40-20, 2021-2022.
Figure 1. Respiratory virus: Sentinel samples by virus, week 40-20, 2021-2022



Trends - covid-19

This section shows more detailed graphs and tables to illustrate the evolution of covid 19 over the past six weeks.

For other respiratory infections, refer to SSI's website under disease surveillance.

Regional differences

Table 4. COVID-19: Key numbers and trends by region, weekly, 2022

Table 4. Covid-19: Key figures and trends for regions, by week, 2022

Covid-19	Region	2022 week						Trend week 16-21
		16	17	18	19	20	21	
Incidence pr. 100,000 inhabitants	The capital	177	128	107	9 1	7 3	6 4	
	Central Jutland	172	104	8 8	7 1	6 5	5 0	
	North Jutland	231	116	8 8	7 3	5 2	4 5	
	Zealand	215	135	107	78	78	6 2	
	Southern Denmark	183	115	9 7	8 1	6 8	4 5	
Positive percentage	The capital	13.7	10.9	10.9	10.2	9.3	9.8	
	Central Jutland	17.8	12.8	13.3	13.0	12.4	11.7	
	North Jutland	20.4	14.8	13.1	12.4	9.8	10.2	
	Zealand	17.6	13.0	12.0	10.3	10.9	11.1	
	Southern Denmark	15.6	12.1	12.2	12.3	10.9	10.0	
New hospital admissions	The capital	217	167	134	108	9 5	8 7	
	Central Jutland	8 4	7 2	5 2	3 9	4 4	2 7	
	North Jutland	6 0	3 4	4 3	3 1	2 3	2 0	
	Zealand	9 7	9 7	6 8	4 4	4 5	3 9	
	Southern Denmark	109	8 2	6 1	5 1	4 2	2 4	
	Unknown region	2	3	1	3	0	4	

Age-distributed incidence, test rates and positive percentage

Data is updated backwards.

See also cases by age SSI's regional dashboard.

Figure 2. COVID-19: Age-specific incidence per 100,000 inhabitants
Figure 2. Covid -19: Age-specific incidence per 100,000 inhabitants

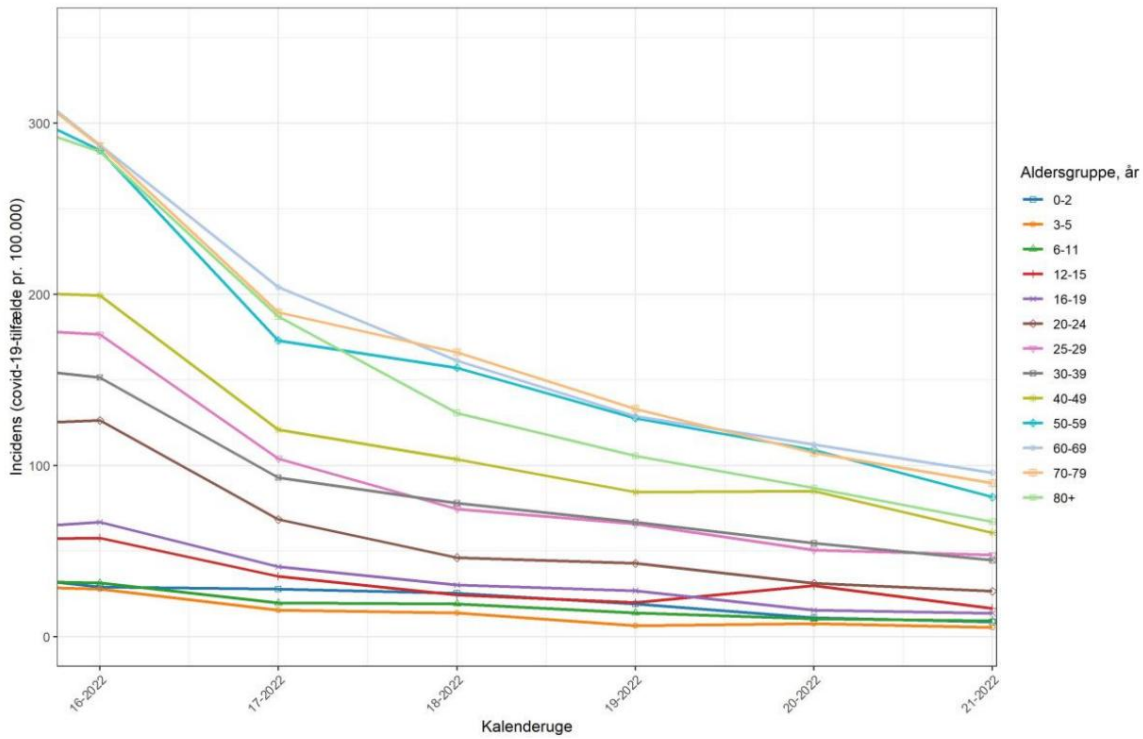


Table 5. Covid-19: Age-specific *incidence per 100,000 inhabitants, test rate and positive percentage*

Table 5. Covid-19: Age-specific incidence per 100,000 population, test rate and positive percentage

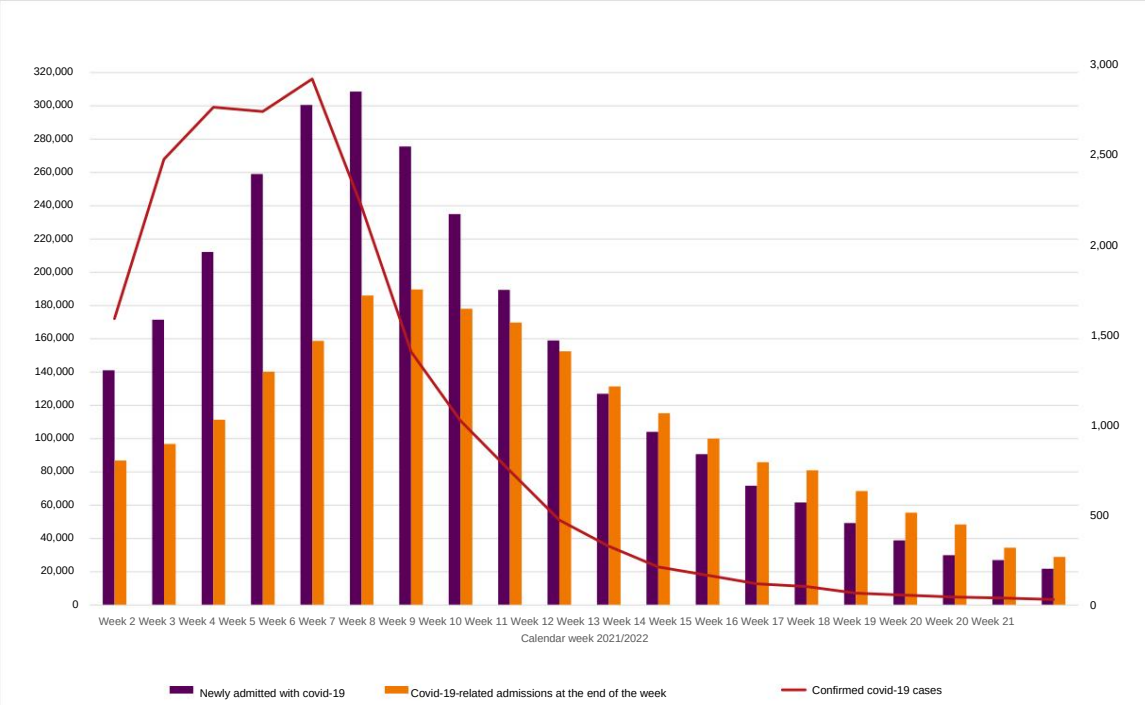
Covid-19, age groups	Incidence, test rate (%), positive percentage	2022 week						Trend week
		16	17	18	19	20	21	16-21
0-2 years	Incidence	25	25	22	17	10	8	
	Test rate	0.2	0.2	0.2	0.2	0.2	0.2	
	Positive percentage	11.0	11.0	9.6	8.4	5.1	5.1	
3-5 years	Incidence	28	15	14	6	7	6	
	Test rate	0.3	0.2	0.2	0.2	0.2	0.1	
	Positive percentage	11.0	6.8	6.9	3.3	4.4	4.4	
6-15 years	Incidence	43	26	21	17	19	13	
	Test rate	0.4	0.3	0.3	0.3	0.3	0.3	
	Positive percentage	12.0	8.4	7.3	5.2	6.7	4.7	
16-19 years	Incidence	67	41	30	27	16	13	
	Test rate	0.6	0.5	0.5	0.4	0.3	0.3	
	Positive percentage	10.0	8.5	6.7	6.0	4.7	4.9	
20-24 years	Incidence	124	68	46	42	31	27	
	Test rate	1.0	0.9	0.7	0.7	0.6	0.4	
	Positive percentage	12.0	7.5	6.2	6.4	5.3	6.2	
25-29 years	Incidence	177	104	75	66	52	49	
	Test rate	1.2	1.0	0.9	0.8	0.7	0.6	
	Positive percentage	15.0	10.0	8.5	8.6	7.4	8.5	
30-39 years	Incidence	151	92	79	67	56	46	
	Test rate	1.2	1.1	0.9	0.8	0.7	0.6	
	Positive percentage	13.0	8.8	8.8	8.5	7.8	7.8	
40-49 years	Incidence	202	123	106	87	88	62	
	Test rate	1.3	1.1	0.94	0.8	0.8	0.6	
	Positive percentage	16.0	12.0	11.0	10.0	11.0	10.0	
50-59 years	Incidence	286	174	159	128	111	83	
	Test rate	1.6	1.3	1.2	1.0	0.9	0.7	
	Positive percentage	18.0	13.0	14.0	13.0	12.0	12.0	
60-69 years	Incidence	289	205	162	130	114	98	
	Test rate	1.7	1.5	1.2	1.0	0.9	0.7	
	Positive percentage	17.0	14.0	13.0	13.0	12.0	13.0	
70-79 years	Incidence	289	192	169	135	109	91	
	Test rate	1.7	1.5	1.1	1.0	0.9	0.7	
	Positive percentage	17.0	13.0	15.0	14.0	12.0	13.0	
80+ years	Incidence	292	193	134	109	90	70	
	Test rate	2.6	2.2	1.7	1.4	1.2	1.0	
	Positive percentage	11.0	8.8	8.0	8.1	7.4	6.7	

Newly admitted

See also age distribution curves of new entrants on SSI's regional dashboard.

Figure 3. COVID-19: PCR-positive hospital admissions (purple), PCR-positive patients in hospital on Monday morning (orange) and confirmed (PCR-positive) cases in population (red)

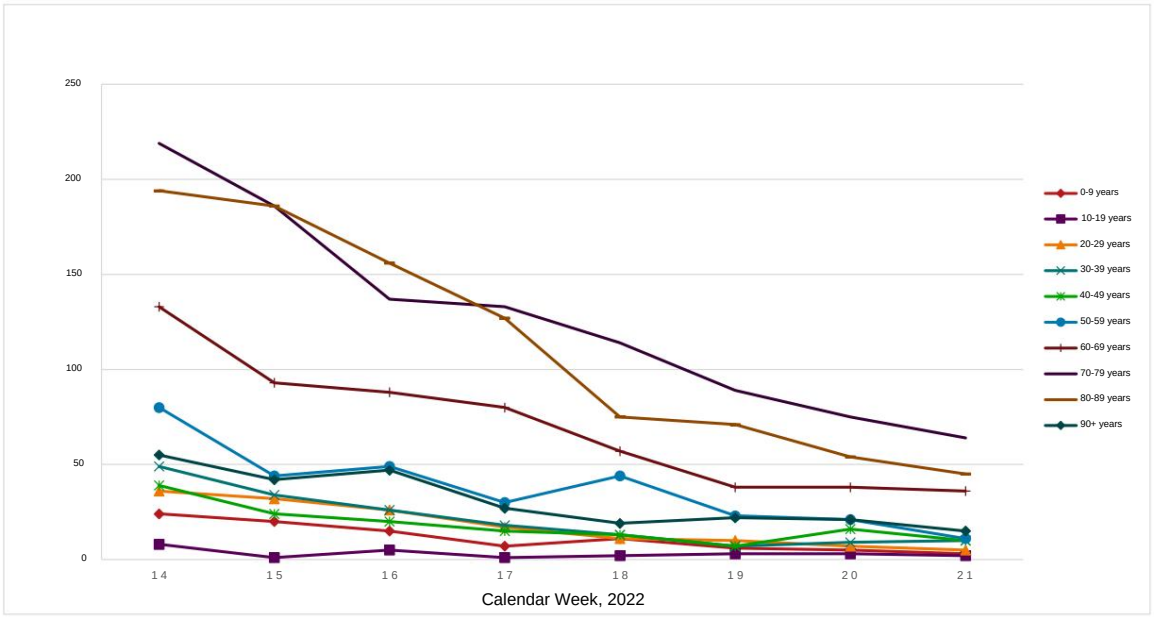
Figure 3. Covid-19: Newly admitted, hospitalized Monday morning and confirmed cases



Note to figure: Number of covid-19-related admissions week 20, data were retrieved on Tuesday morning and not Monday morning as in the remaining weeks due to delivery issues.

Due to delays in data for week 21, there is a risk that the actual number of inpatients may be slightly higher or lower.

Figure 4. COVID-19: Weekly numbers of PCR-positive hospital admissions by age group
Figure 4. Covid-19: Weekly number of new admissions by age group



The following figures and tables in this section are updated retrospectively.

Figure 5. COVID-19: Proportion of hospital admissions with a positive SARS-CoV-2 test with a COVID-19 diagnosis (red), with a respiratory or tentative COVID-19 diagnosis (green), or with another diagnosis (blue), June 1st 2020 to May 15 th 2022

Figure 5. Covid-19: Proportion of new admissions with positive SARS-CoV-2 sample admitted due to covid-19 diagnosis, due to respiratory or obs covid-19 diagnosis, or due to other diagnosis, 1 June 2020 to 15 May 2022

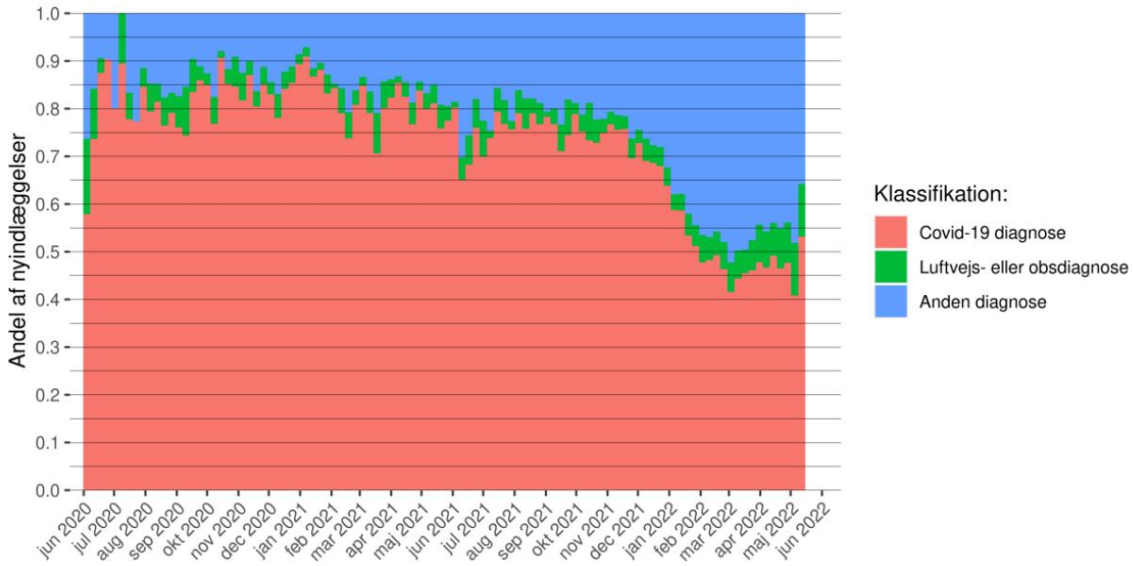


Table 6. COVID-19: Proportion of PCR-positive hospital admissions with a COVID-19-diagnosis, with a respiratory or tentative COVID-19 diagnosis, or with other diagnosis

Table 6. Covid-19: Proportion of new admissions with positive SARS-CoV-2 sample admitted due to covid-19 diagnosis, due to respiratory or obs covid-19 diagnosis, or due to other diagnosis

Diagnosis	2022 week						Trend week
	14	15	16	17	18	19	14-19
Covid-19 diagnosis	47	49	47	48	41	53	
Respiratory or observational diagnosis	8	7	8	8	11	11	
Second diagnosis	46	44	45	44	48	36	

Figure 6. COVID-19: Proportion of PCR-positive hospital admissions with a COVID-19-diagnosis (red), with a respiratory or tentative COVID-19-diagnosis (green), or with other diagnosis (blue) by age group, June 1 st 2020 to May 15 th 2022

Figure 6. Covid-19: Proportion of new admissions with positive SARS-CoV-2 sample admitted due to covid-19 diagnosis, due to respiratory or obs covid-19 diagnosis, or due to other diagnosis divided by age groups, 1 June 2020 to 15 May 2022

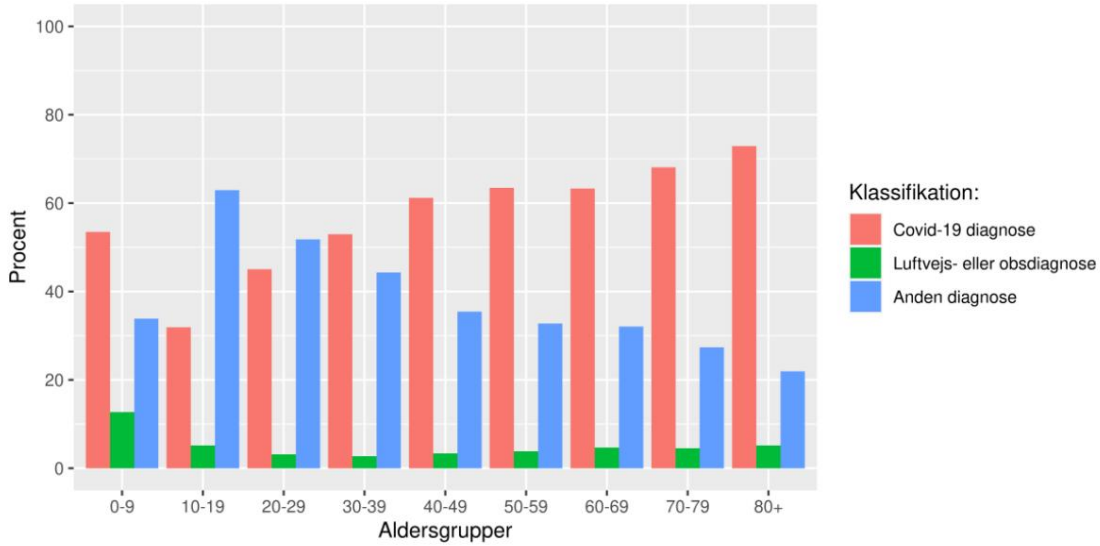


Table 7. COVID-19: Proportion of PCR-positive hospital admissions with a COVID-19-diagnosis (red), with a respiratory or tentative Covid-19 diagnosis (green), or with other diagnosis (blue), by age groups 0-59 and 60+ years old

Table 7. Covid-19: Proportion of new admissions with positive SARS-CoV-2 samples admitted due to covid-19 diagnosis, or due to respiratory or obs covid-19 diagnosis, or due to other diagnosis, divided by age groups 0-59-year-olds and 60 + -year-olds

Diagnosis / age groups	2022 week						Trend week
	14	15	16	17	18	19	14-19
0-59-year-olds							
Covid-19 diagnosis	33.9	39.6	35.2	31.4	25.6	32.1	
Respiratory or observational diagnosis	4.3	5.8	4.8	8.1	15.6	10.7	
Second diagnosis	61.7	54.5	60	60.5	58.9	57.1	
60+ year olds							
Covid-19 diagnosis	51.6	52	50.3	51.5	46.0	58.6	
Respiratory or observational diagnosis	8.8	7.2	9.5	8.5	9.5	11.2	
Second diagnosis	39.6	40.8	40.1	39.9	44.5	30.2	

SARS-CoV-2 variants

Sequences from the Danish positive covid-19 samples can be seen here:

https://www.covid19genomics.dk/home

Figure 7. COVID-19: The 10 most frequently observed (sub) variants based on whole genome sequencing data

Figure 7. Covid-19: The 10 most frequently observed (sub) variants based on whole genome sequencing data

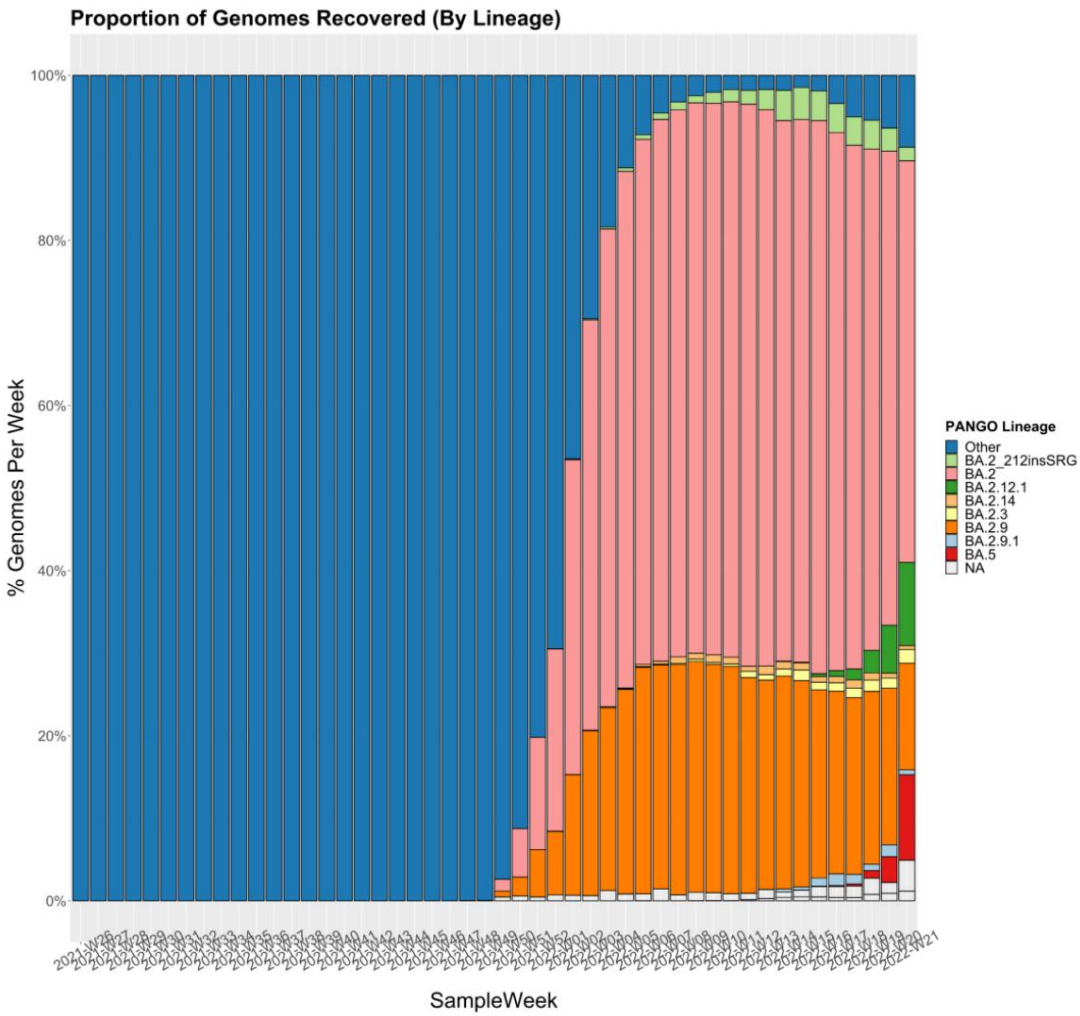


Table 8. COVID-19: The most frequently observed sub (variants) based on whole-genome sequencing data for the last four weeks, 2022

Table 8. Covid-19: The most frequently observed (sub) variants based on whole genome sequencing data in the last four weeks, 2022

The most frequently observed (sub) variants based on whole genome sequencing data in the last 4 weeks					
Lineage	WHO	18	19	20	21
BA.2	Omicron	2695 (63.44%)	2080 (60.73%)	1258 (57.44%)	414 (48.65%)
BA.2.9	Omicron	910 (21.42%)	717 (20.93%)	415 (18.95%)	110 (12.93%)
BA.2.12.1	Omicron	56 (1.32%)	93 (2.72%)	127 (5.80%)	86 (10.11%)
BA.5	Omicron	10 (0.24%)	31 (0.91%)	68 (3.11%)	88 (10.34%)
BA.2_212insSRG	Omicron	147 (3.46%)	120 (3.50%)	61 (2.79%)	14 (1.65%)
BA.4	Omicron	25 (0.59%)	30 (0.88%)	40 (1.83%)	22 (2.59%)
BA.2.9.1	Omicron	49 (1.15%)	26 (0.76%)	32 (1.46%)	5 (0.59%)
BA.2.18	Omicron	22 (0.52%)	33 (0.96%)	30 (1.37%)	9 (1.06%)
Unassigned		60 (1.41%)	68 (1.99%)	29 (1.32%)	32 (3.76%)
BA.2.3	Omicron	48 (1.13%)	47 (1.37%)	27 (1.23%)	14 (1.65%)
BA.2.23	Omicron	17 (0.40%)	27 (0.79%)	20 (0.91%)	10 (1.18%)
BA.2.12	Omicron	22 (0.52%)	15 (0.44%)	16 (0.73%)	5 (0.59%)
BA.2.14	Omicron	43 (1.01%)	30 (0.88%)	13 (0.59%)	4 (0.47%)
BA.2.13	Omicron	12 (0.28%)	12 (0.35%)	10 (0.46%)	7 (0.82%)
BA.2.31	Omicron	36 (0.85%)	36 (1.05%)	10 (0.46%)	11 (1.29%)
BA.2.1	Omicron	7 (0.16%)	6 (0.18%)	8 (0.37%)	1 (0.12%)
BA.2.5	Omicron	2 (0.05%) 1	3 (0.09%)	6 (0.27%)	7 (0.82%)
BA.2.22	Omicron	(0.02%) 21	1 (0.03%)	5 (0.23%)	2 (0.24%)
BA.2.10	Omicron	(0.49%) 2	8 (0.23%) 1	4 (0.18%)	0 (0.00%)
BA.2.11	Omicron	(0.05%) 12	(0.03%) 6	3 (0.14%)	0 (0.00%)
BA.2.7	Omicron	(0.28%) 0	(0.18%) 1	2 (0.09%)	3 (0.35%)
BA.2.9.2	Omicron	(0.00%) 1	(0.03%) 0	2 (0.09%)	0 (0.00%)
BA.1	Omicron	(0.02%) 3	(0.00%) 0	1 (0.05%)	0 (0.00%)
BA.1.1	Omicron	(0.07%)	(0.00%)	1 (0.05%)	0 (0.00%)
BA.2.32	Omicron	0 (0.00%)	2 (0.06%)	1 (0.05%)	1 (0.12%)
BA.2.8	Omicron	7 (0.16%)	2 (0.06%)	1 (0.05%)	0 (0.00%)
BA.1.17	Omicron	0 (0.00%)	2 (0.06%)	0 (0.00%)	0 (0.00%)
BA.2.10.1	Omicron	5 (0.12%)	10 (0.29%)	0 (0.00%)	2 (0.24%)
BA.2.17	Omicron	1 (0.02%)	0 (0.00%)	0 (0.00%)	0 (0.00%)
BA.2.21	Omicron	0 (0.00%)	1 (0.03%)	0 (0.00%)	0 (0.00%)
BA.2.25	Omicron	7 (0.16%)	4 (0.12%)	0 (0.00%)	0 (0.00%)
BA.2.26	Omicron	7 (0.16%)	4 (0.12%)	0 (0.00%)	0 (0.00%)
BA.2.27	Omicron	1 (0.02%)	0 (0.00%)	0 (0.00%)	0 (0.00%)
BA.2.3.2	Omicron	1 (0.02%)	1 (0.03%)	0 (0.00%)	1 (0.12%)
BA.2.34	Omicron	3 (0.07%)	1 (0.03%)	0 (0.00%)	0 (0.00%)
BA.2.4	Omicron	2 (0.05%)	0 (0.00%)	0 (0.00%)	0 (0.00%)
BA.2.6	Omicron	2 (0.05%)	3 (0.09%)	0 (0.00%)	1 (0.12%)
XE	Recombinant	2 (0.05%)	0 (0.00%)	0 (0.00%)	0 (0.00%)
XG	Recombinant	8 (0.19%)	4 (0.12%)	0 (0.00%)	2 (0.24%)
XN	Recombinant	1 (0.02%)	0 (0.00%)	0 (0.00%)	0 (0.00%)
Total		4248	3425	2190	851

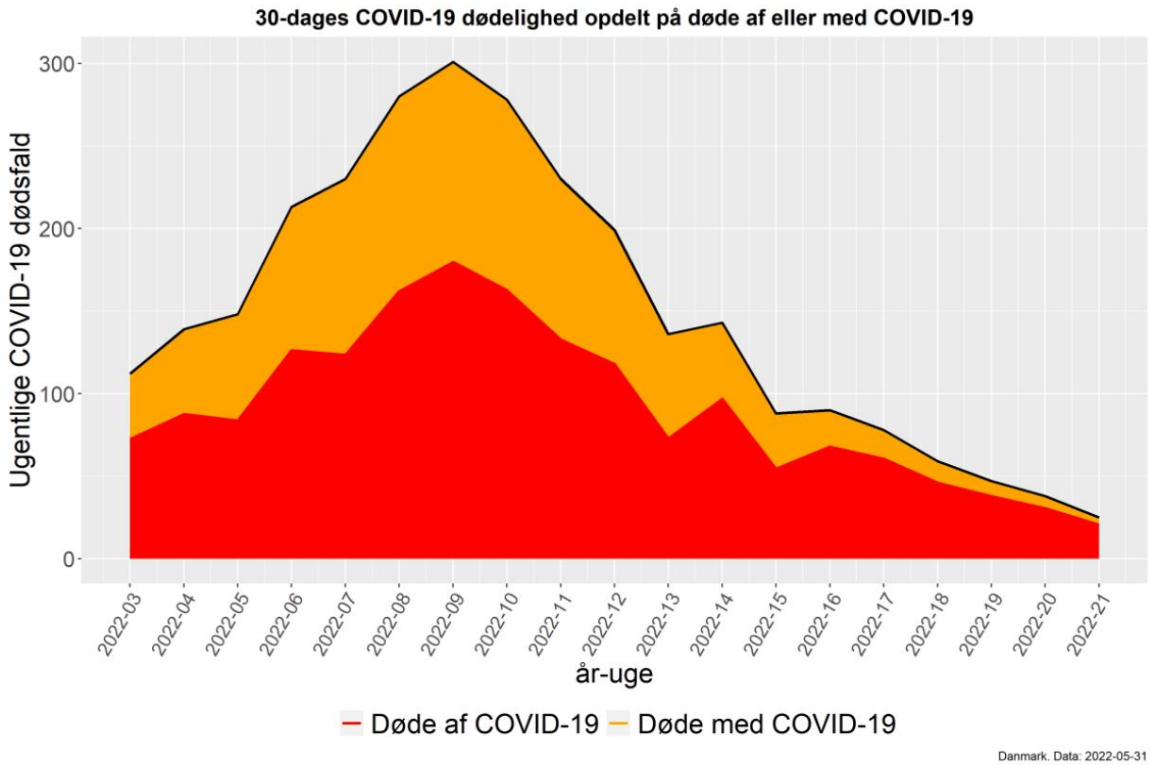
Note to table: Number of variants may change when multiple samples are sequenced and included in the table. The last week's figures are incomplete and must be interpreted with reservations.

Mortality

SSI contributes every week with monitoring mortality in Denmark, by calculating the number of the total number of deaths in society in relation to the expected number of deaths in Denmark. See also note on mortality. In addition, SSI contributes with mortality monitoring together with 26 other European countries (www.euromomo.eu).

Figure 8. COVID-19: Estimated deaths due to or with COVID-19, by week. Calculated number of deaths directly related to COVID-19 infection (red), calculated number of deaths unrelated to COVID-19 infections (orange), 2021/2022

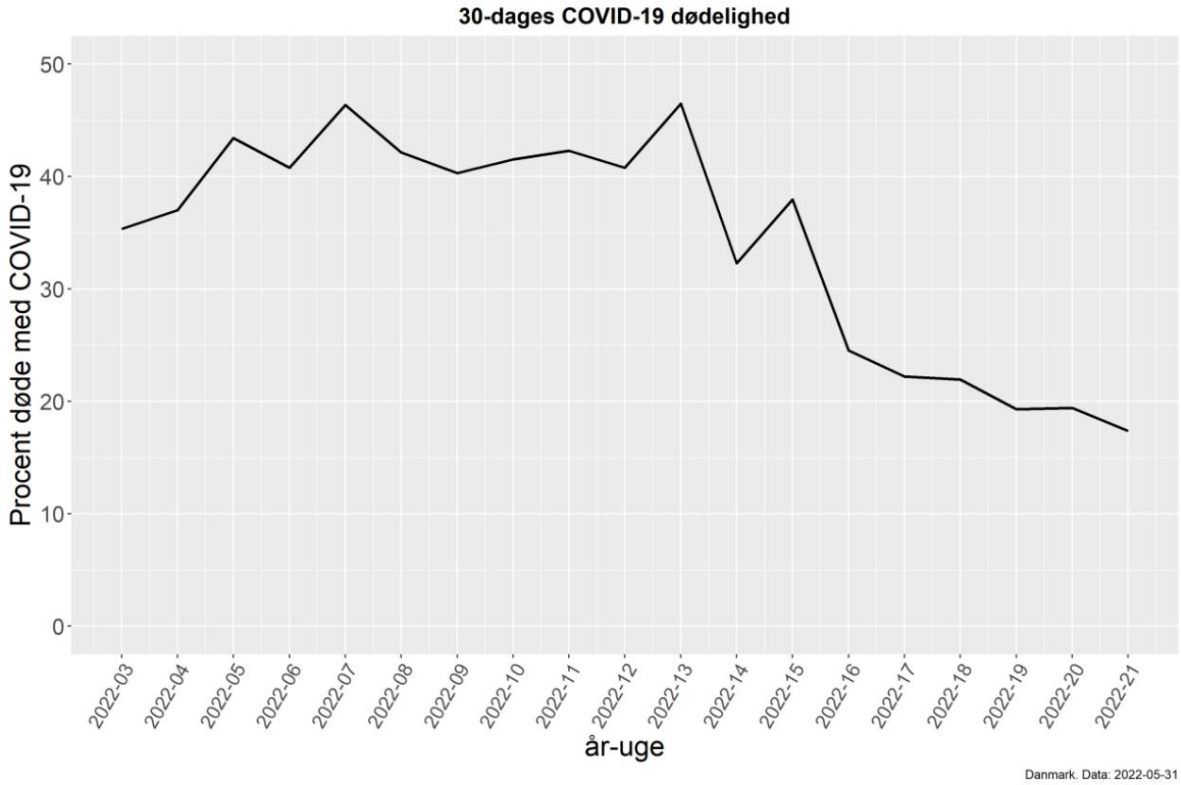
Figure 8. Covid-19: Estimated deaths of or with covid-19 and proportion of all covid-19-registered deaths calculated as non-covid-19-related, broken down by weeks, 2021/2022



Note: Calculation performed on the basis of a model from PandemiX Research Center, RUC in collaboration with EuroMOMO, SSI.

Figure 9. COVID-19: Estimated proportion of all COVID-19-registered deaths estimated not related to COVID-19, by week, 2021/2022

Figure 9. Covid-19: Estimated proportion of all covid-19-registered deaths calculated as non-covid-19-related, broken down by weeks



Note: Calculation performed on the basis of a model from PandemiX Research Center, RUC in collaboration with EuroMOMO, SSI.

Table 9. COVID-19: Estimated deaths with positive SARS-CoV-2 test within 30 days, total. Deaths due to (caused by) COVID-19. Deaths with (ie not caused by) COVID-19. Proportion of deaths with COVID-19

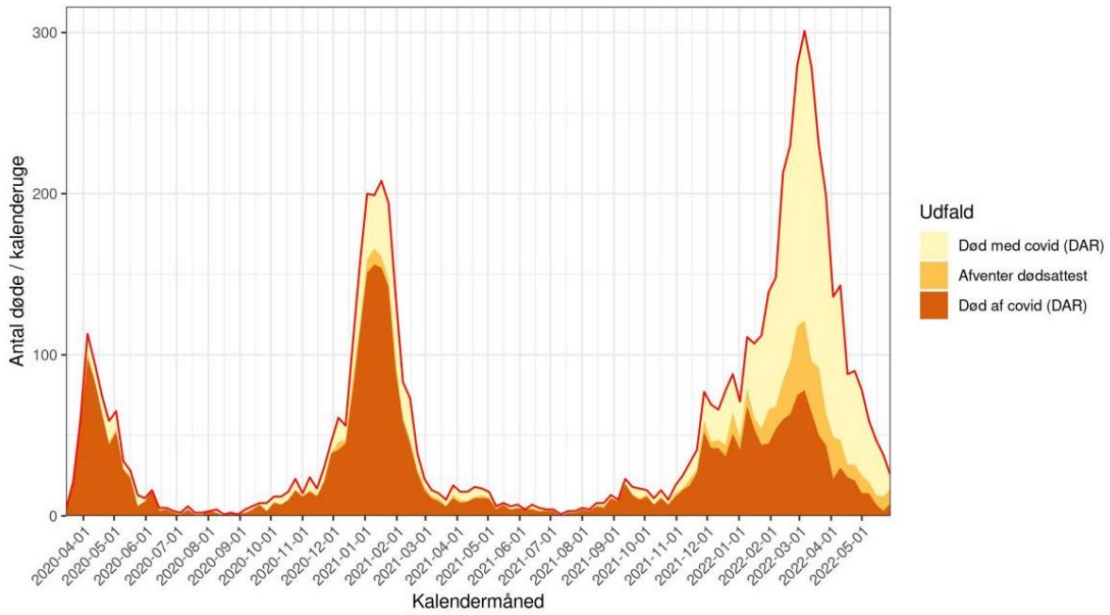
Table 9. Covid-19: Estimated deaths with positive covid-19 PCR test within 30 days, total, deaths "of" and "with" covid-19 and proportion of deaths with covid-19

2022, week	covid-19-PCR -test within 30 days, total	Deaths "of" covid-19	Deaths "with" covid-19	Percentage (%) of deaths "with" covid-19
9	301	180	121	40.3
10	278	163	115	41.5
11	230	133	97	42.3
12	199	118	81	40.8
13	136	73	63	46.5
14	143	97	46	32.3
15	88	55	33	37.9
16	90	68	22	24.5
17	78	61	17	22.2
18	59	46	13	21.9
19	47	38	9	19.3
20	38	31	7 4	19.4
21	25	21		17.4

Note: Calculation performed on the basis of a model from PandemiX Research Center, RUC in collaboration with EuroMOMO, SSI.

Figure 10. COVID-19: Deaths by and with COVID-19 based on death certificates (DAR: The Cause of Death Register). Death not related to COVID-19-infection (light), death related to COVID-19-infection (dark), 2020-2022

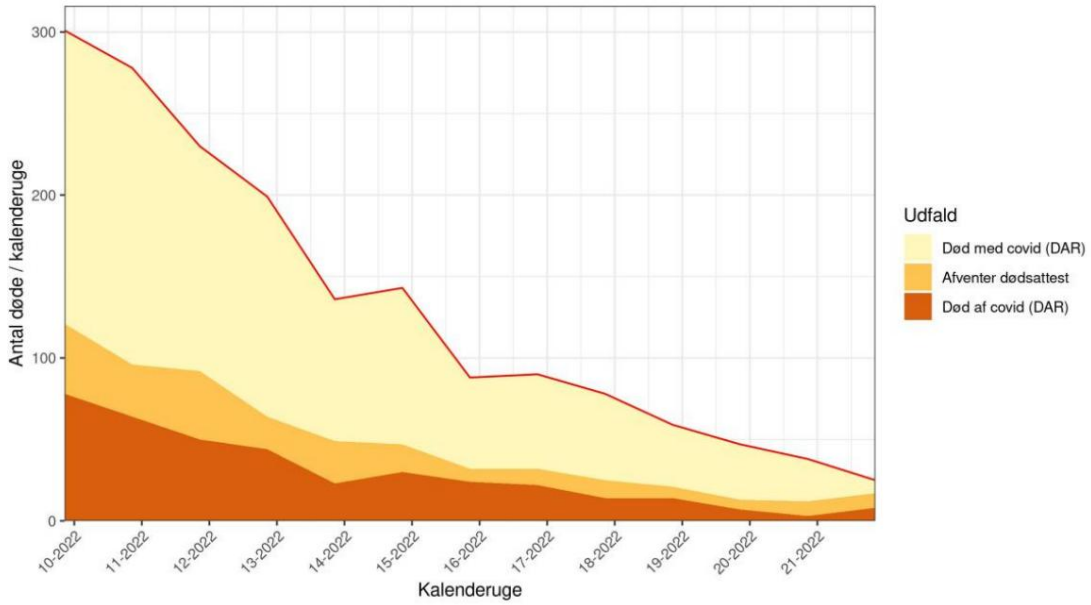
Figure 10. Covid-19: Deaths by and including covid-19 based on death certificates, 2020-2022



Note: Prepared on the basis of data from the Cause of Death Register (DAR) via the Danish Health and Medicines Authority

Figure 11. COVID-19: Deaths by and with COVID-19 based on death certificates (DAR: The Cause of Death Register). Death not related to COVID-19-infection (light), death related to COVID-19-infection (dark), 2021/2022

Figure 11. Covid-19: Deaths by and including covid-19 based on death certificates, 2021/2022



Note: Prepared on the basis of data from the Cause of Death Register (DAR) via the Danish Health and Medicines Authority

Hospital outbreaks

Table 10. COVID-19: Outbreaks at hospitals

Table 10. Covid-19: hospital outbreaks

Hospital outbreaks	2022 uge					
	16	17	18	19	20	21
Number of outbreaks (out of 12 infection control units)	-	3	3	2	3	3
Of which no outbreak	-	3	2	2	3	3
Of which units with eruptions	-	0	1	0	0	0
Total number of outbreaks	-	0	1	0	0	0
Number of major outbreaks (> 20 infected, patients and / or staff)	-	0	0	0	0	0
Number of medium-sized outbreaks (11 to 20 infected, patients and / or staff)	-	0	0	0	0	0
Number of minor outbreaks (ÿ10 infected, patients and / or staff)	-	0	1	0	0	0

Nursing home

Data is updated backwards.

Table 11. COVID-19 at nursing homes

Table 11. Covid-19 in nursing homes

Covid-19, nursing home	2022 week						Trend week
	16	17	18 19		20	21	16-21
Confirmed cases among residents	289	182	99	55	51	49	
Test rate among residents (%) *	10.7	8.3	5.3	3.8	3.0	2.6	
Positive percentage among residents *	6.7	5.4	4.7	3.6	4.2	4.6	
Deaths among confirmed cases	20	22	22	7	9	6	
Nursing homes with confirmed cases	104	74	53	33	30	25	

*** Data is drawn the night before Tuesday, with the other data in the table drawn on Tuesday morning, and the background population is defined a bit different, cf. data basis**

Special staff groups

Data is updated backwards.

Table 12. COVID-19: Confirmed cases, incidence per 100,000 inhabitants, test rate and positive percentage among specific employees **Table 12. Covid-19: confirmed cases, incidence per 100,000 inhabitants, test rate and positive percentage among special staff groups**

Covid-19, special staff groups	Confirmed cases, incidence per 100,000, test rate (%), positive percentage	2022 week						Trend week
		16	17	18	19	20	21	16-21
Social sector	Confirmed cases	582	379	270	194	155	122	
	Incidence	336	219	156	112	90	71	
	Test rate	3.4	2.9	2.5	2.1	1.9	1.5	
	Positive percentage	9.8	7.5	6.3	5.3	4.7	4.6	
Health sector	Confirmed cases	563	359	271	219	213	170	
	Incidence	314	200	151	122	119	95	
	Test rate	2.1	1.8	1.5	1.3	1.2	0.9	
	Positive percentage	14.7	11.0	9.9	9.7	9.6	10.8	

Sewage

You can read more about wastewater measurements on SSI's website with monitoring of SARS-CoV-2 .

Please note that in week 1 and week 16 2022 there are changes in test and calculation methods. For further explanation see the data base.

Figure 12. COVID-19: Incidence and results from waste-water surveillance, 2021/2022
Figure 12. Covid-19: incidence and results from wastewater measurements, 2021/2022

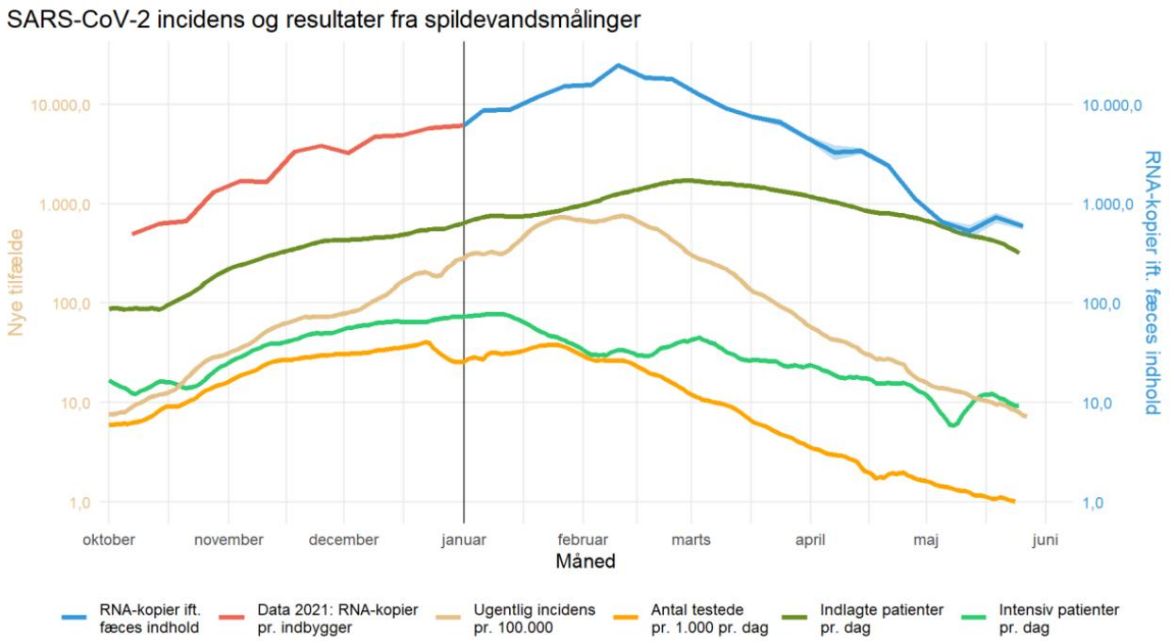
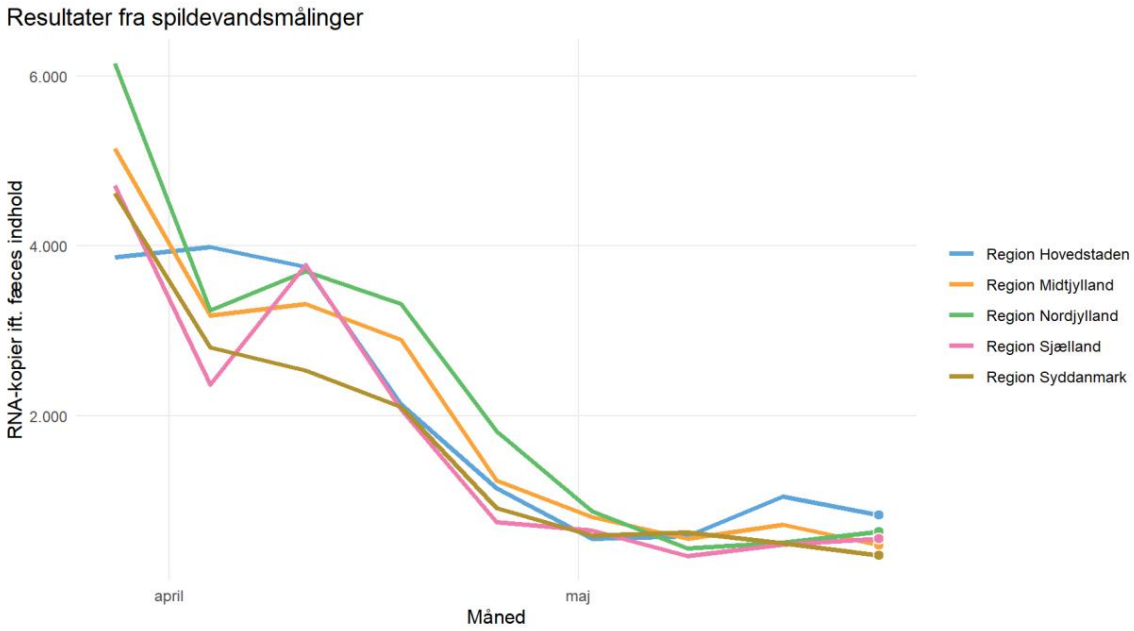


Figure 13. COVID-19. Results from waste-water surveillance by region, 2021/2022

Figure 13. Covid-19: results from wastewater measurements by regions, 2021 / 2022Note,



that the figure this week is shown on a natural scale, where it was previously shown on a logarithmic scale.

Presumably infected with covid-19 and symptoms

You can read more about COVIDmeter on SSI's website with monitoring of SARS-CoV-2 .

Data is updated backwards.

Figure 14. COVID-19: Proportion of participants in user-panel presumably infected with COVID-19 per week. Gray color indicates confidence interval for the calculation.
Figure 14. Covid-19: the proportion of responses from participants suspected of being infected with covid 19 per week in the last 5 months. The gray color indicates the confidence interval for the calculation (dark gray 95%, light gray 99%).

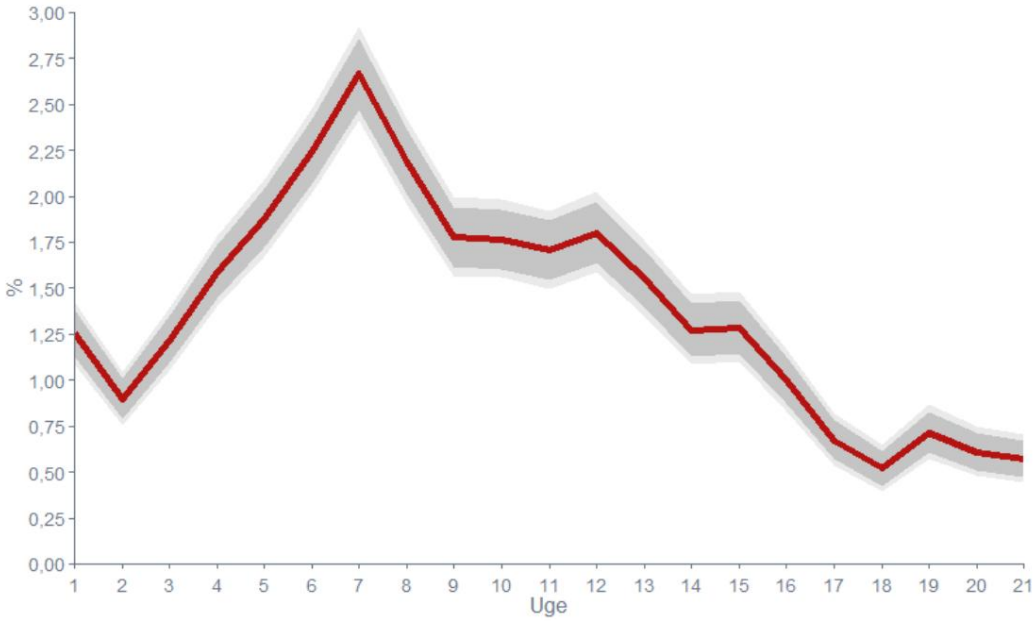


Figure 15. COVID-19: Symptoms reported to COVIDmeter by number in week 21, 2022.
Figure 15. Covid-19: symptoms reported to COVIDmeter by number in week 21, 2022.

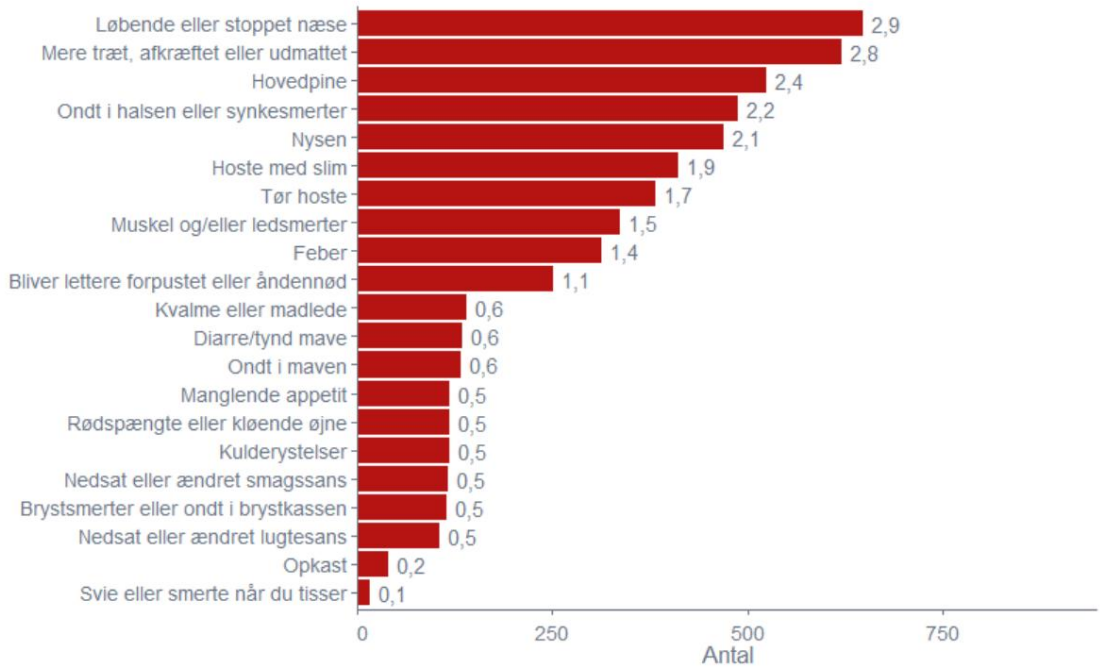


Table 13. COVIDmeter: Self-reported test rate and positive percentage among all COVIDmeter participants and among presumably infected with COVID-19
Table 13. COVIDmeter: self-reported test rate and positive percentage among all COVIDmeter participants and among presumed infected with covid-19

COVIDmeter	Number of participants, test rate (%), positive percentage and proportion of suspected infected (%)	2022 week				
		17	18	19	20	21
All participants in COVIDmeter	Number of participants	22,716	22,179	21,979	22,502	22,141
	Test rate *	3.9	3.4	3.4	3.2	2.7
	Positive percentage *	20	18	22	18	16
	Presumably infected	0.7	0.5	0.7	0.6	0.6
Presumably infected with covid-19	Test rate *	46	50	56	44	43
	Positive percentage	46	43	55	42	31

* * self-reported PCR or antigen test (private and home test) (in nose or throat), with test results.

Data basis

Covid-19

This report is based on PCR-confirmed cases.

Data for the most recent week are drawn on the preparation date. Data is not updated backwards unless otherwise stated. Data for positive PCR tests are calculated on the sample date, and therefore there may be some samples from the most recent week for which no response has yet been received. However, it is considered that the data is sufficient to assess trends and signals. It is also assessed that backward changes in data are small and insignificant in relation to the conclusions in the report.

The positive percentage is calculated so that a person can only contribute with one negative test per week. Individuals with previous covid-19 infection are not included in the calculation.

Definition of incidents in the report

In this report, the following method has been used to calculate the incidents per week:

When describing the country, region and age incidents in the report, the number of confirmed cases in the week in question (7 days calculated on a test date) per 100,000 inhabitants has been used.

Populations for calculating incidence

To be part of the underlying population, several criteria must be met, including that:

- the person must have a valid municipal code that matches an existing one commune
- gender must be stated
- the person must have a valid road code.

The persons included are therefore persons who meet the above criteria, have a valid civil registration number and are resident in Denmark. The population is based on the cpr register and is updated monthly.

Definition of covid-19 related admissions in SSI's covid 19 monitoring

From week 18, re-infections were included, and the calculation method is then also updated backwards.

For a more detailed definition of covid-19 admissions, see the Focus Report on COVID 19-related hospital admissions during the SARS-CoV-2 epidemic, published d.6. January, 2022.

Characterization of covid-19-related admissions based on hospital diagnoses - development of new algorithm Covid-19-related admissions will be divided into 3 categories via this algorithm:

- Covid-19 diagnosis: Patients who have been diagnosed with covid-19, and thus have been assessed by the attending physician to be ill with covid-19.
- Respiratory diagnosis or observation (obs) for covid-19: Patients diagnosed with another respiratory disease where the symptoms are completely or partially overlapping with covid-19, or where covid-19 is suspected.
- Other diagnosis: Patients who have not been diagnosed with covid-19 or a diagnosis of respiratory disease or observation of covid-19, but instead have completely different diagnoses during hospitalization, e.g. fracture, pregnancy or concussion.

In the day-to-day monitoring of the SARS-CoV-2 epidemic, SSI has defined a covid-19 related hospitalization as a hospitalization among individuals with a positive SARS-CoV-2-test taken from 14 days before admission or during admission. If a positive SARS-CoV-2 test is detected in the period 14 days before to 48 hours after the time of admission, the covid-19-related admission starts at the time of admission. Patients who test positive for SARS-CoV-2 during hospitalization are also registered with a covid 19-related hospitalization, but here the hospitalization date is considered to be equal to the test date (the period of 14 days before to 48 hours after is chosen as there is an expected latency period from infection to development of serious illness that may lead to hospitalization).

The inventory of covid-19-related admissions in SSI's monitoring is based on 3 data sources:

- SARS-CoV-2 test results and variant PCR responses from the Danish microbiology database (MiBa).
- Information on admissions registered in the National Patient Register (LPR).
- Snapshot data from the regions that provide an overview of twice a day hospitalized covid-19 patients.

When it is established whether a patient has been admitted with covid-19, other respiratory or obs diagnosis or other diagnosis, the registration will always take place with a delay in relation to.

time of admission. Therefore, it must take 14 days before the data is accurate, which means that this data is older than the other data in the report.

SARS-CoV-2 variants

The “SARS-CoV-2 variants” section is based on results from whole genome sequencing.

Data for the most recent week are drawn on the preparation date. Data is continuously updated backwards as results from sequencing are added. Data are calculated on a sample date, and therefore there may be some samples from the most recent week for which no response has yet been received. However, it is considered that the data is sufficient to assess trends and signals. It is also assessed that backward changes in data are small and insignificant in relation to the conclusions in the report.

Mortality

Calculation of deaths with and by covid-19

In the daily counts of covid-19-related deaths, all deaths that have occurred among persons with at least one positive PCR test within the last 30 days are counted. The definition of covid-19-related death is international standard, has been in use since the beginning of the epidemic and is relatively easy to use in practice.

However, with a high incidence of covid-19, the definition will include a number of individuals who have tested positive but who have died of other causes. Based on the number of deaths per week and the incidence of covid-19 infection, it can be calculated using probability mathematics how many people have died "of" covid-19, and how many have died "of" covid.

The analysis assumes that all individuals in the group have the same probability of testing positive and the same probability of dying during the period - or at least that the two variables are independent. Younger (0-39-year-olds) have e.g. ca. 20% probability of testing positive during the period and at the same time very low probability of death, while the elderly (65 + - year olds) only has approx. 2.5% probability of testing positive and at the same time significantly higher risk of death. It is therefore necessary to perform the analysis for each age group separately. In the analysis, we have for practical reasons chosen to use the age groups 0-19, 20-39, 40-59, 60-69, 70-79 and 80+ -year-olds. The exact choice of age groups will not significantly affect the final result, but if the method is used without age division, answers will emerge that cannot be used.

The age-specific 30-day incidence of positive covid-19 test is taken from SSI's weekly inventories. The weekly age-specific information on the number of deaths among test-positive individuals is retrieved at the same place. The total weekly age-specific deaths are taken from SSI's contribution to the EuroMOMO monitoring and apply EuroMOMO's normal method of correction for delays in the registration of deaths.

Further details on the methods and interpretations used can be requested from SSI.

Validation of Covid-19 died, cf. the Cause of Death Register

A more accurate way of calculating how many have died "of" covid-19 and how many have died "of" covid-19 is by using death certificates. However, this method causes more delay in data. Data from the Cause of Death Register via the Danish Health and Medicines Authority include deaths, where one of the following ICD10 codes on the death certificate is marked as the underlying cause:

- Covid-19 infection without indication of location
- Covid-19, severe acute respiratory syndrome
Coronavirus infection without specification
- Covid-19, virus identified
- Covid-19, virus not identified

Death is included if 30 days or less have passed since the positive SARS-CoV 2 test.

Nursing homes and special staff groups

Test and positive test data.

The data basis for the inventories is a compilation of the Statens Serum Institut's overview of COVID-19 tests (MiBa), the Danish Agency for Labor Market and Recruitment's progress database, DREAM, the CPR register and the Danish Health and Medicines Authority's overview of nursing home residents. The statement is made by the Danish Health and Medicines Authority.

- The list of COVID-19 tests (MiBa) has been updated on Tuesday night
- Industry association information from the DREAM database is based on the latest possible employment information
- The CPR register per date for data extraction
- The nursing home overview

The overview of COVID-19 test (MiBa) is a reflection of MiBa.

The inventory is based on residents and staff who are active in CPR (not departed on death or left) with residence in the Danish population register. Both unique tested persons are seen in the specified week and tests performed.

Nursing home residents include persons who on Monday in the given week have an address at a nursing home that appears in the Nursing Home overview. The specified municipality is based on the nursing home address.

Nursing home employees include persons employed in the industry "87.10.10 - Nursing homes".

Home help employees include people employed in the industry ”88.10.10 - Home help ”.

The industry affiliation is formed on the basis of the salary report to the eIndkomst register and the industry at the company from which citizens have received the largest salary sum in the given month. In Statistics Denmark's Register-based Labor Force Statistics (RAS), industry affiliation is attempted to be corrected for any error reports. Data used here
does not include industry association corrections.

Sewage

Trend analyzes:

From week 16, a new calculation method has been used for the wastewater results in the graphs, and the current and future graphs can therefore not be compared directly with the previously published ones. The change was introduced as of 25.04.2022 and has been implemented backwards until 03.01.2022. Until 03.01.2022, the wastewater results are calculated as the number of SARS CoV-2 RNA copies per inhabitant. As of 03.01.2022, the faeces normalized wastewater results are displayed. That is, the virus concentration of SARS CoV-2 in the wastewater is calculated as the average weekly number of SARS-CoV-2 RNA copies, relative to the average of two viruses (PMMoV and CrassphAge), which are indirect measures of the amount of feces in the wastewater. . This can be done, as from 03.01.2022 a new type of RT-PCR test has been taken into use, and the wastewater is thus analyzed simultaneously for two other harmless and naturally occurring viruses (PMMoV and CrAssphage), which are excreted with the faeces. The indirect measure of the amount of faeces in the waste water is set in relation to the amount of SARS-CoV-2. In this way, the results take into account dilution of the wastewater, eg due to rainwater.

The national graph and the regional graphs are made by giving the wastewater results from each treatment plant a weight, in relation to the number of residents in the catchment area, after which they are added together. The combined measurements are then presented in the graphs.

As of 3.1.2022, a new PCR test has been taken into use. Therefore, the results from before and after 3.1.2022 can not be compared directly.

COVIDmeter

Presumably infected with covid-19 and symptoms are based on data from COVIDmeter.
COVIDmeter is a digital solution where citizens can sign up for a user panel and weekly report whether they have had symptoms or not.

The COVIDmeter participants are not a representative sample of the Danish population. Eg. women and people aged 40-70 are overrepresented in the user panel.

In order to be included in the analyzes, the user must have submitted a minimum of three answers.

For COVIDmeter, a separate analysis has been made to be able to answer the question of which symptom composition is most likely due to covid-19. It is based on data from people who have had symptoms and tested positive for covid-19 and people who have had symptoms but who tested negative for covid-19. These are data from two other monitoring systems (SSI's sentinel monitoring and SSI's interviews with people who tested positive for covid-19).

If you meet the case definition two weeks in a row, you are only included as presumably infected with covid-19 in the first week.

The test rate and the positive percentage are based on self-reported negative and positive test results (PCR and home test).

Other respiratory diseases

Sentinel surveillance is an important part of the Danish and international standardized surveillance of influenza and other respiratory infections, including covid-19 and RS viruses. A fixed number of general practitioners geographically distributed throughout the country are included in the sentinel monitoring. The sentinel doctors report weekly how many patients with flu-like symptoms they see in their practice, as well as how many consultations they have had in total in their practice. In addition, they take weekly inoculations from patients with flu-like illness. The inoculations are analyzed at the Statens Serum Institut for a large number of different respiratory viruses. The results from the sentinel monitoring are used to assess the incidence of respiratory infections in the population, as well as which respiratory viruses are present.
is the reason for this.

Definition of incidents in the report

In this report, the following method has been used to calculate the incidents per week:

Number of confirmed cases in that week (Monday through Sunday) per 100,000 inhabitants.

The background population is the entire population of Denmark.

Links

Inventories of covid-19 in Denmark can be seen here:
Covid-19 monitoring figures - updated every Tuesday

Every Tuesday, an overview of possible outbreaks in schools is published on SSI's website .