

---

# Comparison of statistics on COVID-19 deaths from the National Board of Health and Welfare versus the Public Health Agency of Sweden

**A comparison of the statistics from the Public Health Agency of Sweden versus those of the National Board of Health and Welfare (NBHW) show that the statistics on the number of COVID-19 deaths have diverged between calendar weeks 3–7 2022 compared to the corresponding period in 2021. This is mainly because a larger proportion of the deaths included in the Public Health Agency's statistics have COVID-19 only as a contributory cause of death or because COVID-19 is not mentioned at all on the death certificate at the NBHW.**

## About the statistics

The Public Health Agency's statistics on death are compiled to monitor the burden of the epidemic in the short term, while the NBHW's statistics are compiled to produce official statistics on causes of death. The statistics from the two agencies thus serve different purposes. This fact sheet presents a comparison between the death statistics from the NBHW and the Public Health Agency. The comparative statistics have been compiled by combining data from the death certificates received at the NBHW with data from SmiNet, which is the Public Health Agency's register of infected persons, including deceased persons. Deaths for which the date of death is unknown have not been included in the comparison.

The Public Health Agency's statistics include persons with a laboratory-confirmed COVID-19 diagnosis who have been reported as deceased in the SmiNet database. A person is reported as deceased in SmiNet by the attending physician or by being identified as deceased within 30 days of being confirmed infected with COVID-19 and subsequently reported as deceased in SmiNet. In a limited number of cases, the Infectious Disease Unit may know that the cause of death was not related to COVID-19, in which case the death has been removed from the statistics.

The NBHW's statistics are based on the cause of death certificate, which is written by the attending physician or the physician who pronounced the death, and are compiled in the cause of death register. The cause of death certificate describes the causal chain of events, diseases and conditions that led to the death, and also the diagnoses that contributed to the course of events leading to death. The disease or event (e.g. an accident) that initiated the causal chain is called the *underlying cause of death*, and is what is presented

---

in the NBHW's cause of death statistics. The data sources have been described in more detail in a fact sheet from 2020, and an earlier comparison of the data sources was published in early 2021 (see "More information" below). This fact sheet is a follow-up to the latter text.

In this fact sheet, the NBHW compares the statistics of the Public Health Agency with those of the NBHW over 3 periods:

- Full period: All COVID-19 deaths up to 7 March 2022.
- Weeks 3–7 of 2021: COVID-19 deaths with date of death during the period 18 January to 21 February 2021.
- Weeks 3–7 of 2022: COVID-19 deaths with date of death during the period 17 January to 20 February 2022.

The period weeks 3–7 of 2021 is well reported. The NBHW has received most cause of death certificates, and the Public Health Agency's statistics are up to date. For the period weeks 3–7 of 2022, information on deaths is still missing due to a backlog in reporting. A significant number of cause of death certificates are missing in the NBHW's statistics, but the Public Health Agency's statistics are also affected by a degree of backlog.

COVID-19 mortality has changed between the two periods. During weeks 3–7 of 2021, COVID-19 vaccination efforts had just begun in Sweden, while the vast majority of individuals at risk of severe COVID-19 disease had already received two or three doses of the vaccine in weeks 3–7 of 2022. It is also significant that different virus variants were prevalent during the two comparison periods. During weeks 3–7 of 2021, several different genetic groups of COVID-19 were circulating and the alpha variant increased during the period, while the omicron variant was the dominant form being spread during weeks 3–7 of 2022.

## Differences between data sources

Compared to the previous period, the statistics on deaths from the Public Health Agency and the NBHW have diverged. For the most recent period, weeks 3–7 of 2022, 46 percent (715 out of 1,549) of the deaths according to SmiNet can be found in the NBHW's statistics, compared to 81 percent (1,249 out of 1,547) for the same period in 2021. However, 11 percent of the cause of death certificates (174 out of 1,549) have still not been received for the most recent period. At the same time, the proportion of deaths according to the NBHW which are also found in the Public Health Agency's SmiNet has remained almost constant, at 86 percent (1,249 out of 1,455) in 2021 and 90 percent (715 out of 794) in 2022.

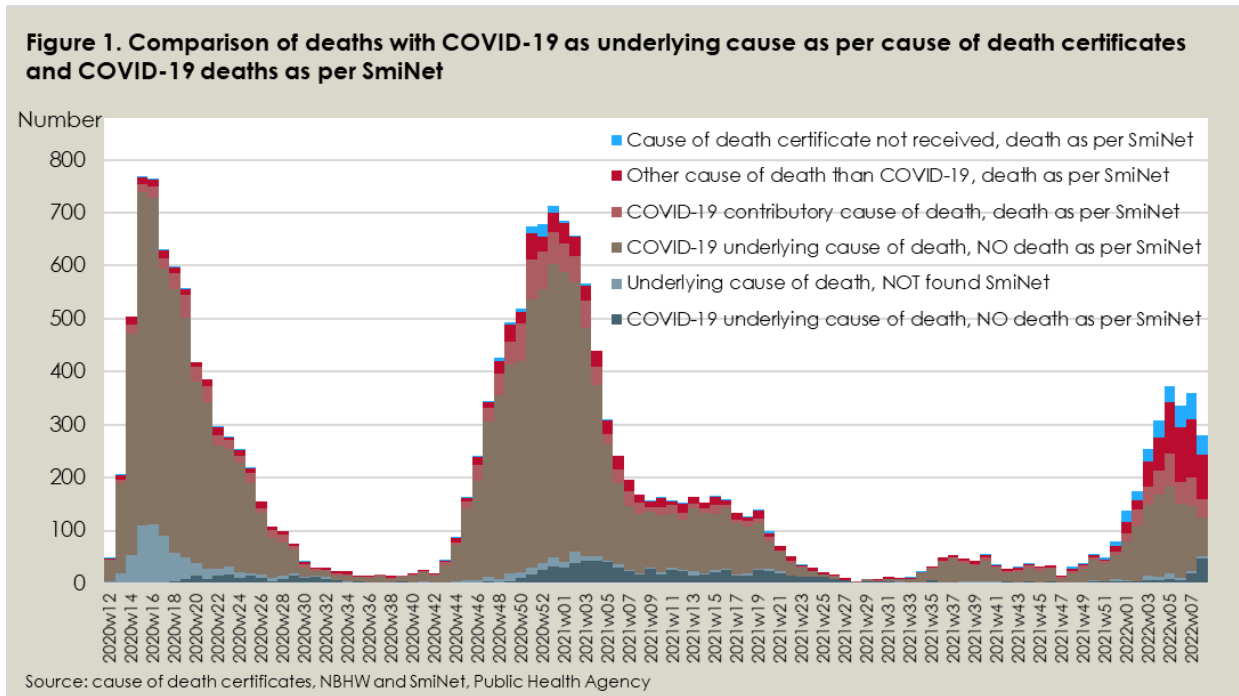
---

**Table 1. Deaths according to the Public Health Agency and the NBHW, by statistical source and by period**

	Full period		Weeks 3–7 of 2021		Weeks 3–7 of 2022	
	No.	%	No.	%	No.	%
Number of deaths according to Public Health Agency	17,458	100	1,547	100	1,549	100
Of which NBHW has statistics	13,930	80	1,249	81	715	46
Of which cause of death certificate not yet received by NBHW	422	2.4	5	0.3	174	11
Number of deaths according to NBHW	15,943	100	1,455	100	794	100
Of which Public Health Agency has statistics	13,930	87	1,249	86	715	90

Source: Cause of death certificates at the NBHW and Public Health Agency's SmiNet

Figure 1 below shows the correlation between cause of death certificates and deaths according to SmiNet for the entire pandemic period per week. Each bar shows the total number of deaths in a week as reported by either the NBHW or the Public Health Agency. The bar is made up of different parts to indicate how the two statistical sources correlate. The dark and light bluish-grey fields represent deaths for which the underlying cause of death is COVID-19, but the death is not registered in SmiNet as a COVID-19 death (dark blue) or the person is not registered as a COVID-19 case (light blue). The brown field represents cases found in both the NBHW's statistics and the Public Health Agency's statistics – i.e. where the data sources are in agreement. The pink, red and top light blue fields represent deaths found in the Public Health Agency's statistics, but not in those of the NBHW. For the pink field, COVID-19 is only a contributory cause of death, while for the red field, COVID-19 was not listed on the cause of death certificate at all. The top light blue field represents deaths for which the NBHW has not yet received the cause of death certificate.



## Deaths found only in the NBHW's statistics

In the most recent period, 10 percent (79 out of 794) of deaths in the NBHW's statistics were unique to the cause of death certificates. In other words, COVID-19 was the underlying cause of death and included in the NBHW's statistics, but the death is not included in the Public Health Agency's statistics. The percentage was similar for the same period in 2021, i.e. 14 percent (206 out of 1,455). It is difficult to compare these relatively small differences, as more cause of death certificates will be received for the most recent period and additional deaths may be registered with the Public Health Agency.

For the full period, 876 deaths were not registered in SmiNet at all. These consist largely of deaths with underlying cause of death *U07.2 – COVID-19, virus not identified* and occurred mainly during the first wave, before testing had become fully developed (see the light blue field in Figure 1).

**Table 2. Deaths according to cause of death certificates (NBHW), total and unique to cause of death certificates, by cause and period**

Deaths according to cause of death certificates	Full period		Weeks 3–7 of 2021		Weeks 3–7 of 2022	
	No.	%	No.	%	No.	%
Number of deaths according to cause of death certificates	15,943	100	1,455	100	794	100
Deaths unique to cause of death certificates	2,013	13	206	14	79	10
Of which not registered in SmiNet	876	5.5	25	1.7	31	3.9
Of which registered in SmiNet but not registered as deceased in SmiNet	1,137	7.1	181	12	48	6.0

Source: Cause of death certificates at the NBHW and Public Health Agency's SmiNet

Of those registered in SmiNet but not registered as deceased, 88 percent (1,004 out of 1,137) have a time period between date of testing and date of death that exceeds 30 days and therefore are not included in the Public Health Agency's statistics (dark blue in Figure 1). However, for the most recent period, i.e. weeks 3–7 of 2022, a small proportion of these deaths are not yet registered in SmiNet. Thus, this reflects a backlog in reporting deaths to SmiNet.

## Deaths found only in the Public Health Agency's statistics

The proportion of deaths reported by the Public Health Agency but not found in the NBHW's statistics increased from 19 percent (298 out of 1,547) in the period weeks 3–7 of 2021 to 54 percent (834 out of 1,549) in the same period in 2022 (Table 3). This is explained to some extent by deaths that have not been reported to the NBHW, i.e. a backlog of cause of death certificate submission, which accounts for 11 percent (174 out of 1,549) and can be compared with 0.3 percent (5 out of 1,547) for the period in early 2021.

The difference between the periods is mainly explained by an increase in the number of deaths for which COVID-19 was only a contributing factor or not listed at all in the cause of death certificate in the Public Health Agency's statistics. The proportion of deaths for which COVID-19 was listed as a contributory cause of death on the cause of death certificate increased from 10 percent (162 out of 1,547) in weeks 3–7 of 2021 to 15 percent (240 out of 1,549) in weeks 3–7 of 2022. Similarly, the proportion of deaths in SmiNet for which COVID-19 was not listed at all on the cause of death certificate increased from 8.5 percent (131 out of 1,547) to 27 percent (420 out of 1,549). This suggests that the Public Health Agency's recent statistics include relatively more deaths for which COVID-19 is not the underlying cause of death.

**Table 3. Deaths according to SmiNet (Public Health Agency), total and unique to SmiNet, by cause and period**

Deaths according to SmiNet	Full period		Weeks 3–7 of 2021		Weeks 3–7 of 2022	
	No.	%	No.	%	No.	%
Total number of deaths according to the Public Health Agency's statistics	17,458	100	1,547	100	1,549	100
Deaths unique to the Public Health Agency's statistics	3,528	20	298	19	834	54
For which cause of death certificate has not been received	422	2.4	5	0.3	174	11
For which COVID-19 is only listed as contributory cause of death	1,645	9.4	162	10	240	15
For which COVID-19 is neither contributory or underlying cause of death	1,461	8.4	131	8.5	420	27

Source: Cause of death certificates at the NBHW and Public Health Agency's SmiNet

The proportion of deaths in the NBHW's statistics for which COVID-19 was not the underlying cause of death out of the cause of death certificates received by the NBHW was 48 percent (660 out of 1,375) for weeks 3–7 of 2022, compared to 19 percent (293 out of 1,542) for weeks 3–7 of 2021.

### More information

National Board of Health and Welfare's COVID-19 statistics:

<https://www.socialstyrelsen.se/statistik-och-data/statistik/statistik-om-covid-19/statistik-over-antal-avlidna-i-covid-19/>

Description of data sources for estimating COVID-19 deaths:

<https://www.socialstyrelsen.se/statistik-och-data/statistik/statistik-om-covid-19/statistik-over-antal-avlidna-i-covid-19/datakallor-for-avlidna-i-covid-19/>

### Contact:

Erik Wahlström (statistics-related matters)

Telephone: 075-247 30 00

Email: erik.wahlstrom@socialstyrelsen.se

Anna Bennet-Bark (statistics-related matters)

Telephone: 075-247 30 00

Email: anna.bennet@socialstyrelsen.se