COVID-19 SURVEILLANCE
FREQUENTLY ASKED QUESTIONS

LINK TO FR - NL VERSION

CONTENTS

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1. General context

1.1. WHAT IS THE ROLE OF SCIENSANO DURING THE COVID-19 EPIDEMIC?

Question added 07/04/2020 | Last updated 07/04/2020

The World Health Organization (WHO) and the European Union (EU) require each Member State to have a structure capable of dealing with any health crisis. To this end, Belgium has set up a strong structure with 3 components:

1. Risk Assessment Group (RAG)

2. Risk Management Group (RMG)

3. National Focal Point (NFP)

Sciensano (the Belgian institute for health) coordinates the RAG which is in charge of assessing risks to public health in a national and international context. The RAG analyses any signal that may have an impact on health. The RAG is composed of permanent members who are public health experts, supported by specific experts who are invited according to the type of signal such as an infectious disease, an environmental problem, etc. The RAG proposes prevention and control measures to the RMG, which is composed of the health authorities and decides on the measures to be applied. The NFP, including amongst others the Federal Service for Public Health, ensures the implementation of measures in consultation with the various entities. The NFP acts as a relay for communication with European and international institutions. More information on the role of Sciensano in the context of emergency and response can be found on our website.

At the request of the health authorities, Sciensano also coordinates the development of the procedures to be implemented by general practitioners, hospitals, patients and laboratories in the context of the COVID-19 epidemic. It is the Risk Management Group that validates the content of the procedures and then they become operational. These procedures can be found on our website (in Dutch • in French • in German).

Finally, Sciensano has a legally determined surveillance task in the context of public health as laid down by the federal law of 25 February 2018 (in Dutch • in French). As part of this task, Sciensano has put a surveillance system in place to monitor the COVID-19 epidemic in Belgium and to report on the data that are collected.

1.2. WHICH DATA DOES SCIENSANO COLLECT FOR THE COVID-19 SURVEILLANCE?

Question added 07/04/2020 | Last updated 24/09/2020|

In order to get comprehensive information to monitor the COVID-19 epidemic, Sciensano brings together data streams from different sources. Sciensano collects data on lab-confirmed COVID-19 cases (see section 3), testing (see section 4), hospitalized COVID-19 patients (see section 5) and COVID-19 deaths (see section 6).

1.3. HOW DOES SCIENSANO ENSURE DATA QUALITY IN TIMES OF A HEALTH CRISIS?

Question added 07/04/2020 | Last updated 07/04/2020

In times of a health crisis, Sciensano continuously monitors the situation in the field and sets up relevant data collection procedures. The data collected need to be checked and consolidated in order to get them reliable. Also, data import by the data providers can't always be done immediately, so it can take a while before a dataset is complete and "stable".

1.4. IS THERE A GENERAL RULE WHEN INTERPRETING THE COVID-19 DATA?

Question added 07/04/2020 | Last updated 24/09/2020

We take a kind of data "snapshot" every day. In such a context, it is important to be careful when interpreting absolute numbers (see also the delay in reporting as referred to in question 1.3). There is a tendency to focus on these numbers in terms of "risk" whilst in order to monitor the evolution of the COVID-19 epidemic, it is necessary to follow trends instead of absolute numbers.

During the press conference of the Home Affairs crisis centre, the interfederal COVID-19 spokesmen communicates a number of clear key figures on the COVID-19 epidemic and discusses the important trends of that moment.

1.5. WHERE CAN I FIND THE DATA COLLECTED BY SCIENSANO?

Question added 07/04/2020 | Last updated 24/09/2020

The risk managing authorities (RMG) receive daily an epidemiological report. That way they can base their actions and decisions on accurate and up-to-date information.

Based on these reports, the interfederal COVID-19 spokesmen discuss the epidemiological situation during the press conference of the Home Affairs crisis centre.

The epidemiological report (in Dutch • in French) is also publicly available on our website.

You can also stay up to date with the latest figures via :

- raw data and the corresponding codebook
- dynamic graphs

1.6. WHAT KIND OF DATA IS AVAILABLE IN THE COVID-19 OPEN DATA PORTAL?

Question added 07/04/2020 | Last updated 24/09/2020

You can consult specific datasets via our website (free of charge). These are updated daily during the night.

The following datasets are published as open data:

- confirmed cases by date, age, sex and province

- confirmed cases by date and municipality

- cumulative number of confirmed cases by municipality

- hospitalizations by date and provinces

- mortality by date, age, sex, and province

- total number of tests performed by date

1.7. FOR WHICH PURPOSES ARE THE SURVEILLANCE DATA USED?

Question added 07/04/2020 | Last updated 07/04/2020

The authorities and the Risk Management Group (RMG) use these data to manage this health crisis. Additionally, mathematical modelers use these data to predict the future course of the epidemic taking into account the measures taken. We also share our data with the European Centre for Disease Control (ECDC) and the World Health Organization (WHO) so that they can draw an accurate picture of the international situation.

2. Epidemiological terminology

2.1. WHAT IS THE DIFFERENCE BETWEEN INCIDENCE, PREVALENCE AND OTHER BASIC EPIDEMIOLOGICAL CONCEPTS?

Question added 07/04/2020 | Last updated 07/04/2020

In our reports, we use different epidemiological measures to characterize the current COVID-19 pandemic and its evolution. We use these terms in a vulgarized way to be understandable by the general public. Hence, our definitions may differ from the classical textbook definitions of these measures. Overall, we report 5 distinct measures:

- Number of new cases: the number of new confirmed cases, hospitalizations, or deaths reported (daily update).

- Incidence: the number of new cases, hospitalizations, or deaths reported during a certain period (for example: last 24 hours), relative to the population size.

- Cumulative number of cases: the total number of confirmed cases, hospitalizations, or deaths reported since the beginning of the outbreak or a specific starting point.

- Cumulative incidence: the total number of confirmed cases, hospitalizations, or deaths reported since the beginning of the outbreak or a specific starting point, relative to the population.

- Prevalence: the number of cases present at a given moment. It corresponds to taking a snapshot of the situation at a specific moment in time. For instance, we report the prevalence of occupied hospital beds, i.e., the total number of hospital beds occupied by COVID-19 patients at a given moment.

2.2. WHAT POPULATION IS USED FOR CALCULATIONS OF THE INCIDENCE?

Question added 23/06/2022 | Last update 23/06/2022

The most recent official figures for the legally registered population in Belgium are used as denominators. The population figures as of 1 January 2020 were used until July 2021, when the population numbers for 2021, published by STATBEL used. The population figures as of 1 January 2022 were published by STATBEL on 16 June 2022 and are used since 23 June 2022 (STATBEL; population as at 1 January 2022).

2.3. WHAT IS THE MOVING AVERAGE AND HOW IS IT CALCULATED?

Question added 30/03/2021 | Last updated 30/03/2021

In order to obtain a better visualization of the curves we want to avoid daily fluctuations. Therefore, a smoothed curve is created based on the moving average over 7 days on the different indicators. This moving average is calculated for a day D as the arithmetic mean of the indicator over the period D-6 to D.

To find out how (positive or negative) an indicator is evolving, its change (in percentage) compared to the value of the previous week is calculated. To do so, we calculate the difference between the moving averages, on day D and day D-7, divided by the moving average on day D-7.

However, it is very important to mention that the moving averages and evolutions reported on day D are based on consolidated data, thus until D-4 (see question 1.3/3.5 above). This means that the moving average presented in our graph is calculated for the period D-10 to D-4.

The evolution of the average for the aforementioned period is calculated for the period D-17 to D-11 (for example, the average reported on 28/10 is, in fact, calculated based on the data from 18/10 to 24/10. The evolution reported on 28/10 is calculated by comparing the average on 24/10 (data from 18/10 to 24/10) with the average on 17/10 (data from 11 to 17/10).

The graph below shows the number of daily cases and the moving averages. The graph showing the corresponding evolution is placed underneath. The moving average (green line) shows a 3-day time delay compared to the raw data. This is due to the fact that the average value of the interval was not imputed at the center of the interval but at the end of it. The yellow line shows the moving average if it was imputed at the center of the interval.

As the evolution is also calculated at the end of a 7-day interval, a second delay of three days is observed on the evolution graph (see figure below).

The curves smoothed by average over 7 days and the evolutions are calculated to illustrate trends. The critical points of the curves (inflection points, maximum, minimum, etc.) should therefore not be associated to specific dates.
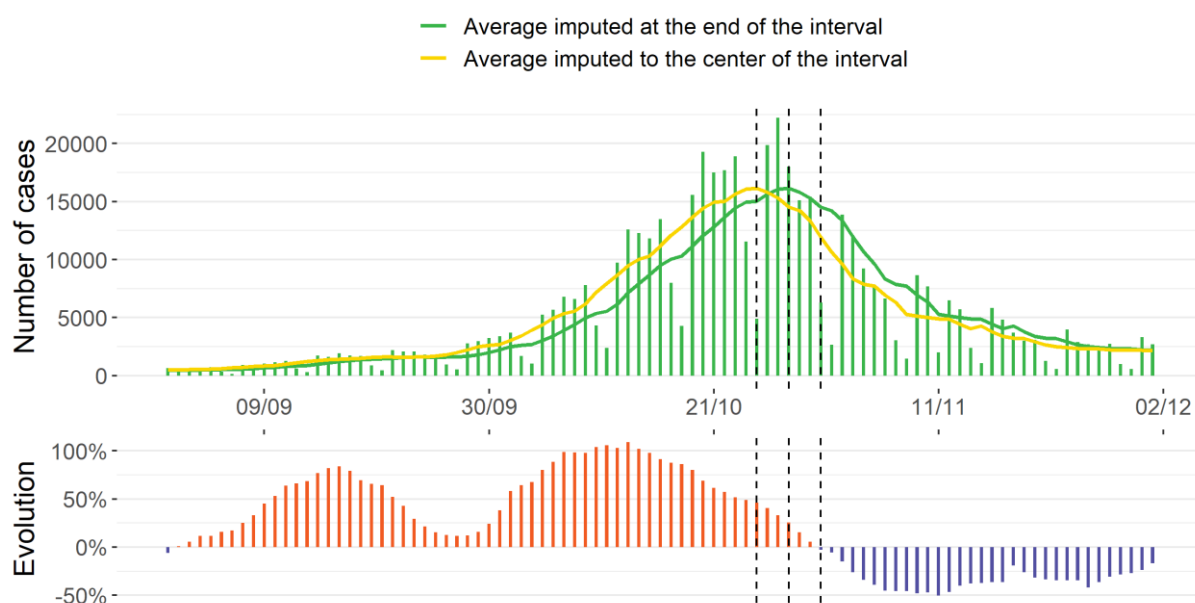
2.4. WHAT DATES DEFINE THE WAVES OF THE COVID-19 EPIDEMIC IN BELGIUM?

Question added 30/03/2021 | Last updated 06/03/2024

The **first wave** of the epidemic took place in Belgium from March 1 to June 21, 2020. The **second wave** of the epidemic started on August 31, 2020. The period between June 22 and August 31 was defined as an "interwave" period. The **third wave** occurred from February 15 to June 27, 2021. There was no clearly observed "interwave" period between the second and third waves. The **fourth wave** started on October 4, 2021, the period between June 27 and October 4 was defined as an "interwave" period. The **fifth wave** started on December 27, 2021, **the sixth wave** on February 28, 2022 and the **seventh wave** on May 30, 2022. The **eighth wave** started on September 12th, 2022 and the **ninth wave** started on November 21st, 2022. The **tenth wave** started on January 23rd 2023 and ended on July 9th 2023. No "interwave" period has been clearly observed since the fifth wave. When there is no specific "interwave" period or when the date of the end of a wave is not explicitly mentioned, this date corresponds to the starting date of the next wave.

2.4.1. Why is it important to define a specific date to mark the beginning and the end of an epidemic wave?

Determining a date that marks the beginning and end of an epidemic wave is essential for epidemiological analyses and for a harmonized description of data coming from different surveillance systems. It is important to note that the designation of these waves does not necessarily imply a judgment about the severity of the epidemiologic situation or the public health burden during these periods.

2.4.2. How were these dates defined?

The knowledge and approach to the COVID-19 epidemic (affected groups, characteristics of hospitalized patients, circulation of different variants, …) has changed significantly over time. This has had an impact on the indicators used to survey the evolution of this epidemic. Each wave has its own specificities, therefore there is no fixed combination of indicators that determine the start of a new wave.

The start of the COVID-19 epidemic and therefore the start of the first wave is defined as the date of the first case diagnosed in Belgium, i.e. 1 March 2020. The end of the first wave of the epidemic was defined based on the fact that the number of confirmed cases was at its lowest on 21 June 2020.

The start of the second wave was defined on the basis of the evolution of the number of new cases as well as the number of hospitalizations. The week of 31 August was the first week after the end of the first wave in which both the evolution of the number of new cases and the evolution of hospital admissions remained positive throughout the week. Thereafter, both indicators remained positive for a significant period of time. For more information on the determination of the start date of the second wave of the epidemic please see the corresponding explanatory note (NL/FR).

The start of the third wave was determined on the basis of the number of new hospitalisations and the number of occupied hospital and intensive care beds, which are the two most important indicators of this wave. These indicators increased substantially as of week 7 2021, i.e. from 15 February 2021. Their increase had been preceded by the increase in the number of cases

by one week and was followed by the increase in the number of COVID-19 deaths two weeks later.

The start of the fourth wave was defined based on the number of new hospitalizations. Indeed, the week 40 2021, and more precisely from October 4, 2021, has marked the start of the increase of the number of hospital admissions. Moreover, an increase in the number of cases has been observed during this week, with an acceleration of the speed of this increase.

The start of the fifth wave has been principally established based on the number of new cases as well as on the speed at which this number of new cases has increased. Since week 52, starting from December 27, those two indicators have greatly increased, marking the start of the fifth wave. Additionally, the number of new hospitalizations has also increased since that week.

The start of the sixth wave was defined on the basis of an increase in the number of new hospitalisations, which was observed from week 9 (28 February 2022) after several weeks of decrease.

The start of the seventh wave was based on the increase in the number of new cases observed on week 22 (30 May 2022). The number of new hospital admissions increased the following week.

The start of the eighth and ninth wave was based on the increase in the number of new hospitalisations and in the viral loads detected in wastewater in week 37 (12 September 2022) and week 47 (21 November 2022), respectively.

The start of the tenth wave was based on the increase in the number of new hospitalisations and in the viral loads detected in wastewater in week 4 (23 January 2023).

2.5. WHICH SCALE IS USED FOR THE GEOGRAPHICAL COLOURED MAPS IN THE EPIDEMIOLOGICAL REPORT ?

Question added 31/08/2021 | Last updated 31/08/2021

The geographical maps that are presented in the report use a continuous scale, illustrated by colour gradients, in order to adapt the maps in an optimal way to the values of the variables presented on the maps. The scales used in the report present only continuous quantitative variables, like, for example, the number of cases, the incidence, the number of tests performed or the positivity rate.

Distribution of confirmed cases per 100 000 habitants between 08/08/21 and 21/08/21
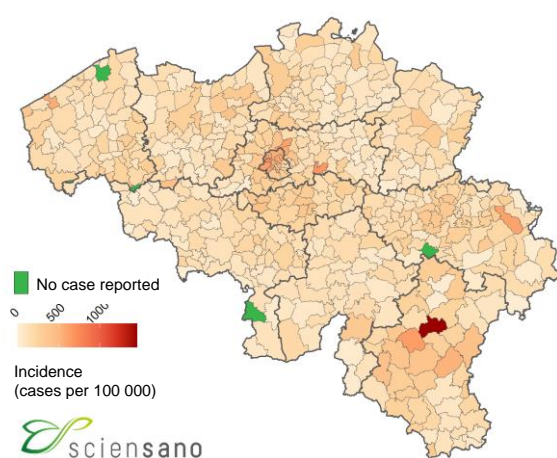
Positivity rate per province between 15/08/21 and 21/08/21
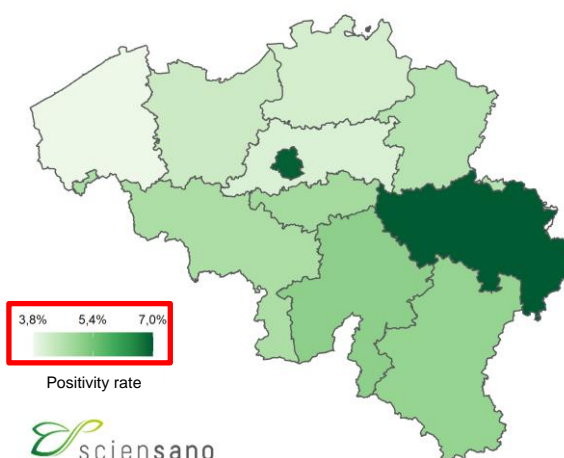
2.5.1. What is a continuous scale?

The continuous scale that is used in the report is a numerical scale that can extend to an infinitive amount of values. It is a progressive scale indicated by colours (from lighter tonality to darker).

The intervals shown above the coloured scale are automatically calculated based on the two extreme values (minimum and maximum) of the presented variable at a given moment. (For example, on the map above, presenting the positivity rate per province in the report of the 25th of August 2021, the lowest value on that date was 3,8%, while the highest value was 7%. The colour scale is thus adapted to this interval of values). The scales were implemented in a continuous way to provide a better visualisation of the geographical differences observed at a certain moment.

Such scale, with an automatic adaptation of the intervals, is more suitable than a scale with fixed values, given the fact that the maps show variables that could fluctuate enormously depending on the evolution of the epidemiological situation.

3. Data on COVID-19 cases

3.1. HOW DO WE COLLECT DATA ON COVID-19 CASES?

Question added 07/04/2020 | Last updated 24/03/2023

According to the COVID-19 case definition and the recommendations for testing (Dutch • French), persons are diagnosed on the basis of a test carried out by the laboratory of the National Reference Centre (KU Leuven) or by a peripheral clinical laboratory, by the national testing platform, by the network of university laboratories, or in pharmacies. The diagnostics include PCR tests, antigen tests as well as rapid antigen tests. Cases are defined based on positive test results, after a deduplication process to ensure that only new cases are taken into account (see also question 3.3).

Data collection includes the number of tests performed, positive and negative results, as well as basic demographic data (age, gender, postcode) collected via application forms sent to Sciensano by the different laboratories performing COVID-19 diagnostics.

From the 9th of April 2020 until the 23rd of November 2022, the national testing platform has been operational. This platform carried out tests for nursing homes, other residential collectivities and triage centers.

Since the 1st of November 2021, rapid antigen tests can be performed in pharmacies, under the supervision of a pharmacist. The results of these tests are reported via the Healthdata.be platform (see also question 3.2).

The data on COVID-19 cases are summarized in the weekly reports (Dutch • French) and dynamic graphs and are available through the open data portal.

3.2. WHICH DATA DO WE USE TO REPORT CASES AND PERFORMED TESTS?

Question added 30/09/2020 | Last updated 13/11/2023

As is typical for intervention epidemiology, Sciensano adapts its data collection in function of the evolution of the epidemic and the needs for the crisis management. Therefore, the data used to report COVID-19 cases has evolved over time.

The following table provides an overview of changes to the COVID-19 case definition and reporting systems.

Date	Event
February 2020	Regional health authorities report new COVID-19 cases via structured forms through the system of mandatory declaration of infectious diseases. The National Reference Center for respiratory pathogens (NRC) is initially the only laboratory in Belgium performing PCR tests for SARS-CoV-2. From the end of February, some other laboratories started to perform PCR tests, but during this first period the positive samples from these laboratories are forwarded to the NRC for confirmation.
15 March 2020	An increasing number of Belgian clinical laboratories implement the analysis for SARS-CoV-2. Cases are reported mainly based on direct notification by the laboratory to Sciensano, without forwarding of samples to the NRC for confirmation. Regional health authorities stop using the structured forms to report cases through the system of mandatory declaration.
26 September 2020	Cases are reported via the platform healthdata.be (see section 3.2.1), instead of the data flow described above.
16 December 2020	Positive results on rapid antigen tests (under supervision of health care professional) are included as cases
6 April 2021	Required interval between to positive tests to define a new infection increased from 60 days to 90 days
1 April 2022	Required interval between to positive tests to define a new infection reduced from 90 days to 60 days

The following table provides an overview of changes to the testing strategy

Date	Event
Start epidemic	Testing of travellers who returned from high-risk areas in the last 14 days and have severe respiratory symptoms and of symptomatic individuals who had physical contact with a lab-confirmed case.
11 March 2020	Test only hospitalised individuals, health care workers with acute respiratory symptoms, and symptomatic residents of nursing homes
28 March 2020	Advice to test maximally five (first) possible cases in residential collectivities
30 March 2020	Over 40 laboratories perform PCR and antigen tests and provide the results to Sciensano.
Start of April 2020	Initiation of the National Testing Platform (NTP) with the aim of increasing testing capacity through the participation of pharmaceutical and university laboratories among others. The NTP mostly processes samples collected in nursing homes, care residences, and triage centers. Other samples are mainly processed by the NRC and other clinical laboratories.
10 April 2020	Systematic testing of staff and residents of nursing homes
22 April 2020	Test hospitalised individuals, and symptomatic residents and visitors in residential collectivities such as nursing homes, youth (detention) centres, prisons, …
4 May 2020	Testing of all suspected cases, according to case definition
15 May 2020	Testing of all individuals with possible SARS-CoV-2 infection, high risk contacts, and individuals who work with clinically vulnerable individuals
12 June 2020	Testing of all high risk contacts (two tests for health care workers, one at start and one at end of quarantine period)
22 June 2020	**End of 1st wave**
13 July 2020	Obligatory testing of travellers returning from red zone
14 August 2020	Testing advised for travellers returning from orange zone
31 August 2020	**Start 2nd wave**
1 September 2020	Data on prescriptions by general practitioners and hospital physicians reported to Sciensano
1 October 2020	Obligatory testing of travellers returning from red zone, if classified as high-risk based on self-assessment form.
21 October 2020	Testing of asymptomatic high-risk contacts and travellers returning from high-risk zones temporarily suspended.
23 November 2020	Testing of asymptomatic high-risk contacts and travellers returning from high-risk zones resumed.

25 December 2020 until 26 January 2021	Transition from national testing platform (NTP) to (federal) testing platform bis
10 December 2020	Data on prescriptions by physicians in collectivities and prescriptions without consultation reported to Sciensano. Note that this addition does not result in exhaustive coverage of all prescriptions in the data received by Sciensano. For example, not all hospitals systematically fill in the prescription forms.
31 December 2020	Obligatory quarantine and testing on day 1 and day 7 for travellers returning from red zones.
25 January 2021	Two tests for high-risk contacts on day 1 and day 7 + 10 day isolation period for confirmed cases.
15 February 2021	**Start 3rd wave**
6 April 2021	Self-tests available in pharmacies
24 June 2021	Only a single test and no quarantine for fully vaccinated high-risk contacts
28 June 2021	Up to two reimbursed tests prior to travel for Belgian residents over 5 years old who did yet receive an invitation for vaccination, or received their initial invitation for vaccination in the last 35 days, or had their first vaccination within 35 days after the first invitation for vaccination but are not yet fully vaccinated.
1 July 2021	Introduction of EU-DCC ('European Digital COVID certificate') for travellers
15 July 2021	Pharmacists can perform rapid antigen tests for individuals over the age of 6 without COVID-19 symptoms to provide a certificate for travel or events
31 August 2021	Two test and no quarantine for fully vaccinated high-risk contacts
30 September 2021	Reimbursement of tests prior to travel discontinued.
4 October 2021	**Start 4th wave**
1 November 2021	Pharmacists can perform rapid antigen tests for travellers returning from a red zone or symptomatic individuals. Self-assessment tool online, providing a test prescription code to whose (self-reported) symptoms match the case definition.
27 December 2021	**Start 5th wave**
10 January 2022	Reduction of testing strategy: Asymptomatic high-risk contacts are no longer tested (specific rules apply to children under 12 years old)
28 February 2022	**Start 6th wave**
30 May 2022	**Start 7th wave**
12 September 2022	**Start 8th wave**
17 October 2022	Routine testing of symptomatic individuals with PCR or rapid antigen tests by health care workers no longer recommended.
21 November 2022	**Start 9th wave**
23 November 2022	Federal testing platform (bis) discontinued

30 January 2023	**Start 10th wave**
16 July 2023	PCR and rapid antigen tests no longer reimbursed, except in exceptional cases. Self-testing still recommended for symptomatic individuals. Positive self-testing no longer needs confirmation by PCR test or RAT.

3.2.1. What is the Healthdata.be platform ?

The Healthdata.be platform is a standardization system for health-related scientific data flows developed by Sciensano and funded by INAMI-RIZIV.

The Healthdata.be platform allows health professionals to collect data in a standardized and completely digitalized way. The resulting databases can then be transferred to Sciensano scientists for surveillance purposes and are subsequently used to inform health policy makers.

Different sources of data related to COVID-19 (laboratory data, contact tracing, serology, hospital data among others…) have been progressively integrated in the Healthdata.be platform. For more information on Healthdata.be, please click here.

3.2.2. What are the advantages of the Healthdata.be platform?

Firstly, it allows to collect data via a single data flow. This lowers the workload for laboratories as they can transfer their data at once.

Secondly, a single data flow implies that the data is stored in a unified database, making it possible to link all data from a single patient through a unique identifier (national register number). This improves the efficiency and accuracy of the data management. In order to protect patients identity and privacy, data is (pseudo)anonymized and highly secured control mechanisms are in place.

Lastly, the healthdata.be platform is also used by other services within Sciensano. Therefore, data from different sources could be combined for more in-depths analyses through the unique identifier provided agreement of the privacy commission.

3.3. HOW DO WE ENSURE THAT WE ONLY TAKE THE NEW CASES INTO ACCOUNT?

Question added 30/10/2020 | Last updated 24/03/2023

Persons might test positive more than once over a short period of time (see question 4.3). To assure that only the first of these positive tests is counted, a system of deduplication is put in place.

Until 22 October 2020 duplicates of reported positive test results were removed based on date of birth/gender/postal code and only the first positive test was taken into account as a new confirmed case (see also question 4.2).

Since 23 October 2020, the deduplication process is more precise, using the national register number that is available through the Healthdata.be platform (see question 3.2.2). In addition, a period of time between a first and second positive test is taken into account before considering the second positive test as a possible re-infection. This period of time was initially set at 8 weeks and has been extended to 90 days based on the RAG advice of 29 March, 2021 (scroll down for English) that states that an interval of at least 90 days is needed to consider a second positive PCR test as a potential reinfection. Since April 1st 2022, this period has been shortened to 60 days (see Sciensano advice from 30 March 2022 (Dutch only).

Duplicates are thus removed based on the national register number if a person already had another positive test within the last 60 days. In this case only the first positive test result within this timeframe is retained.

3.4. WHY IS IT HARD TO COMPARE CASE NUMBERS FROM DIFFERENT COUNTRIES?

Question added 07/04/2020 | Last updated 23/06/2020

Each country has its own testing strategy to determine who should be tested for COVID-19. This strategy evolves and can be adapted to the epidemiological evolution and available resources.

In Belgium, for example, from 11 March 2020, only hospitalized persons with acute respiratory complaints, even if they are mild, as well as health personnel and symptomatic people (up to 5 people) were tested in residential communities such as nursing homes.

In addition, since 10 April 2020, the staff and residents of residential care centres have been systematically tested as part of a specific screening strategy targeting nursing homes only.

On 22 April 2020, the testing strategy was extended and since that date, anyone requiring hospitalisation, including day hospitalisation (first time), can be tested. On top of that, any person entering a residential community for the first time (e.g. nursing homes, homes for disabled, youth centres, prisons, etc.) or any resident of that residential community with compatible symptoms can also be tested.

On 15 May 2020, the testing strategy was extended once again in the context of the deconfinement strategy. From then on, all persons with a possible COVID-19 infection will be tested, as well as persons who had a high-risk contact with a COVID-19 case and who are themselves in professional contact with people who are at risk of developing a serious form of the disease. (link to case definition and testing, Dutch • French)

The implementation of testing strategies and the overall epidemiological timelines differ between countries. Therefore a direct comparison of case numbers between two countries remains difficult.

3.5. WHY IS THE REPORTED NUMBER OF CONFIRMED CASES ALWAYS LOW FOR THE LAST REPORTED DAY?

Question added 07/04/2020 | Last updated 24/03/2023

There are two important reasons for this apparent underestimation:

1. Firstly, in order to produce the weekly reports (Dutch • French) and open data, we take the situation on Wednesday morning. The data for the last day in the time series are therefore always incomplete.

2. Secondly, the reported data for the last 3 days always require progressive consolidation. The data are mainly displayed on the date the sample was taken. The analysis in the laboratory obviously takes time, as do the subsequent reporting and processing of the data. Therefore, the number of positive samples taken 'today' is only integrated in the data over the course of the following days.

Both issues imply that the data reported for the last days will be updated in future iterations of the weekly reports and open data. In other words, our database is dynamic and subject to continuous updating and improvement of the already reported data.

3.6. WHY ARE THERE ALWAYS LESS CASES REPORTED DURING THE WEEKENDS?

Question added 07/04/2020 | Last updated 24/09/2020

We observe that less cases are being reported over the weekends (see figure in the lighter green). This can be due to several factors:

1. First of all, patients may be reluctant to go to the general practitioner or the hospital during the weekend and rather wait until Monday.

2. Secondly, less staff may be working in the hospitals and in the diagnostic labs on weekends, which may delay the processing of samples and the reporting of results.

We mainly see this effect in the number of reported cases, less so in the number of hospitalizations, and almost not in the number of deaths.
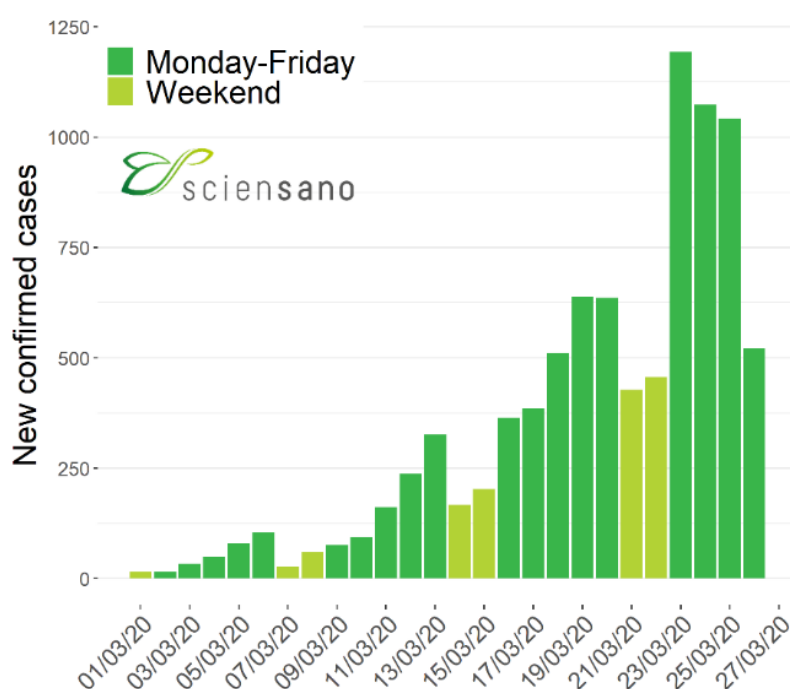
3.7. ARE SEROLOGICAL RESULTS ALSO INCLUDED IN THE NUMBER OF CONFIRMED COVID-19 PATIENTS?

Question added 23/06/2020 | Last updated 23/06/2020

Persons with only a positive serological test are not included in the figures of confirmed cases, as a serological test examines the presence of antibodies and does not indicate an acute infection. A positive serological test confirms that the person has had a COVID-19 infection. In most cases these are older infections and have already been cured. Therefore, these test results are not included in the reporting of new cases.

4. Data on the tests performed and the positivity ratio

4.1. WHAT IS THE POSITIVITY RATIO AND HOW IS IT CALCULATED?

Question added 18/09/2020 | Last updated 18/09/2020

The positivity ratio describes which proportion of all the performed tests are positive for a certain time period (e.g. per day or per week). Therefore, to calculate it, we divide the total number of positive tests by the total number of tests for a certain time period.

Example: When, in a certain time period, among 100 persons, there are 5 positive tests and everybody got tested only once, the positivity ratio is 5% and there are 5 new cases.

! It is important to bear in mind that the testing strategy has changed a lot since the beginning of March (also see question 3.4). As a result, comparing positivity ratio over time should be done with caution.

4.2. WHY IS THE POSITIVITY RATIO IN THE EPIDEMIOLOGICAL REPORT NOT EQUAL TO THE NUMBER OF DIAGNOSED CASES DIVIDED BY THE TOTAL NUMBER OF TESTS FOR THAT SAME TIME PERIOD?

Question added 18/09/2020 | Last updated 28/10/2020

1. Since March 15, 2020 the laboratories are participating in the reporting of PCR tests. It can be noted that the number of positive tests is larger than the number of cases. This is because a positive PCR test is not counted as a new case when there was already a positive test for this person within the reference period (see question 3.3). Therefore, duplicates have been removed and only the first positive test per person is taken into account. Depending on the testing strategy, the proportion of people with a previous positive test varies. Stricter application of the testing strategy will result in fewer people being tested, as was the case at the beginning of the epidemic. This reduces the chance of a person testing positive twice and thus the respective share in the total number of tests.

Example: In a given time period, 100 people are tested of which 1 person has already been tested positive at least once. If 5 of those 100 tests are positive, the positivity ratio is 5%. However, there are only 4 new cases because several positive results come from the same person.

2. For the time period until March 15, the number of new cases is higher than the number of positive tests. This is explained by the fact that at the beginning of the epidemic, new cases were notified by the regional health authorities to Sciensano (see question 3.2). They initially used the system of mandatory declaration of infectious diseases that has been in place for years. It was not possible to retrospectively link all of these declarations back to a positive PCR test. These possible cases were counted as confirmed cases. As the PCR test result was not available for these cases, they were not included in the calculations of the positivity rate.

4.3. FOR WHAT REASONS CAN A PERSON BE TESTED SEVERAL TIMES?

Question added 18/09/2020 | Last updated 24/03/2023

Reinfections can occur after recovery from COVID-19. In these cases, the same individual can be tested multiple times. In addition, it is possible for a person to be tested multiple times in relation to the same episode of COVID-19. Indeed, there are several situations in which a test is indicated, for example when developing possible COVID-19 symptoms, when returning from an orange or red zone, after a high-risk contact with a confirmed case of COVID-19 or in the context of screening in residential collectivities. On one hand, a person may find himself in several of these situations, on the other hand, he may be tested several times in the same situation.

COVID-19 cases are determined based on the positive test results, after a process of deduplication. When a person has multiple positive test results during the same reference period, only the first positive test will be counted as new case of COVID-19 (see also question 3.3).

4.4. WHY IS THE NUMBER OF POSITIVE TESTS IN THE OPEN DATA TABLE "TESTS" NOT THE SAME AS THE NUMBER OF CASES IN "CASES_AGESEX"?

Question added 30/09/2020 | Last updated 24/03/2023

The number of positive tests (TESTS) refers to the total number of tests that yielded a positive result. Sometimes the same person undergoes multiple tests, and can therefore yield multiple positive tests (see question 4.3). In order to obtain the number of cases (CASES_AGESEX) we perform a deduplication process, after which only the first positive test of a person during the reference period is taken into account (see question 3.3).

Moreover, the number of positive tests are aggregated by date of laboratory diagnosis (or date of sampling if date of diagnosis was not available), while the number of cases are aggregated by date of symptoms onset (or, if not available, date of diagnosis or notification). A person does not always have the possibility to get tested on the first day of symptoms. Moreover the result, and thus the diagnosis, is not always known on the same day of the sampling. Therefore the test result of a person diagnosed with COVID-19 might be included as a positive test (TESTS) on a different date than the inclusion as a case (CASES_AGESEX).

This reflects the fact that indicators on performed tests are used for monitoring laboratory capacity, while the number of cases is an epidemiologic indicator. As a result of this difference, sometimes the number of new cases will be higher than the number of positive tests and sometimes, for a given date, it could be lower. Therefore, they shouldn't be compared, as they do not refer to the same dates.

5. Data on hospitalized COVID-19 patients

5.1. HOW DO WE COLLECT DATA ON HOSPITALIZED COVID-19 PATIENTS?

Question added 07/04/2020 | Last updated 20/03/2023

Two separate surveys provide us data about hospitalization:

- All Belgian general hospitals should provide aggregated data on the number of hospitalized and deceased COVID-19 patients through a daily online survey (Surge Capacity survey). Psychiatric and rehabilitation hospitals do not register in this surveillance. Participation to this surveillance is mandatory for all general hospitals (Royal Decree of 30.04.2020) and can therefore be considered as containing exhaustive data on the number of COVID-19 patients within Belgian general hospitals. It is meant to follow the evolution of COVID-19 patients in Belgian hospitals in real time and contains data on both prevalence (number of patients currently in the hospital, number of patients currently in ICU, number of patients receiving ventilation support and ECMO [extracorporeal membrane oxygenation]) and incidence (number of new admissions, number of discharges, number of deaths).

  Since 24 March 2020, this database is the official reference to follow up COVID-19 deaths in hospitals. Previously, Sciensano was responsible for collecting this data. Since 1 March 2023, the FPS Public Health has taken over the collection of the data, but it is still transferred and processed by Sciensano.

  Hence, you can still find this information in the weekly report (Dutch • French), the Epistat dashboard and the Open Data portal.

- Additionally, all hospitals in Belgium provide case-based data on their hospitalized patients with a confirmed COVID-19 infection (Clinical Hospital Surveillance) through an online survey comprising 3 questionnaires: one on admission information, one on discharge information and a third in case the patient is admitted in ICU. This data collection is not exhaustive but is representative for the population of hospitalized COVID-19 patients in Belgium. In the Clinical Hospital Surveillance information is collected on demographic data, and comorbidities (underlying diseases) of COVID-19 patients. These data are used to examine patient profiles, to monitor these over the course of the epidemic and to examine the association of these profiles with development of severe disease, admission in ICU and/or death.

  Information obtained from the Clinical Hospital Surveillance can be found in the weekly report and in the thematic reports published on the Epidemiological situation page (Dutch • French) of the Sciensano COVID-19 webpage (Dutch • French).

More information regarding the methodology of both hospital surveillance systems can be found in the following publication:
https://archpublichealth.biomedcentral.com/articles/10.1186/s13690-020-00505-z.

5.2. WHY IS THE DIFFERENCE BETWEEN THE NUMBER OF HOSPITALIZED PATIENTS BETWEEN 2 CONSECUTIVE DAYS NOT THE SAME AS THE DIFFERENCE BETWEEN NEW INTAKES AND DISCHARGES TODAY?

Question added 07/04/2020 | Last updated 30/03/2021

We will use the daily report of 28/03 to answer this question. The report can be downloaded in Dutch or French.

This apparent discrepancy has many reasons, and the relative importance of each specific reason will vary from day to day. Important to note is that incidence (new intakes, "NEW IN") and prevalence (occupied beds, "TOTAL IN") are queried separately; we thus do not (and cannot) mathematically derive one from the other:

a) A difference in prevalence is not only the result of new intakes and discharges, but also of new hospital deaths.

b) Approx. 99% of hospitals report each day, but the subset of reporting hospitals may vary from day to day; even one (large) hospital reporting or not can already give noticeable differences.

c) New 'confirmed' hospitalized patients might not always be reported as 'new intakes' if the patient was already hospitalized as a 'suspected' patient because the test result is not available at the moment of reporting. They would however be counted in the prevalence from the moment that the test result turns out positive. We are working with the hospitals to increase consistency in reporting in order to count patients who were hospitalized but got a positive test result at a later time as new confirmed COVID-19 patients The same applies to internal hospital outbreaks of COVID-19 infections among already hospitalized patients.

d) In light of the advice published on April 22, 2020 on the extension of test indication criteria (all patients admitted in hospital could be tested, irrespective of the reason of admission), since April 30 2020 patients are stratified according to pathology. Patients admitted for non-COVID-19 reasons but that are tested positive in a screening context are registered separately and are not counted in the daily new patients that are daily reported ("NEW IN"). It is however possible that these patients are isolated on a COVID-19 unit and thus counted in the prevalence count ("TOTAL IN").

5.3. WHAT EXACTLY IS MEANT BY THE TOTAL NUMBER OF HOSPITAL ADMISSIONS?

Question added 29/01/2021 | Last updated 30/03/2021

The number of new COVID-19 patients that is daily monitored and reported in the reports, dashboard and open data ("NEW IN") contains the new laboratory-confirmed COVID-19 patients over the last 24 hours, admitted because of COVID-19 and not referred from another hospital. Also patients admitted previously for COVID-19 but getting a positive test result during the last 24 hours are counted in this number. Patients admitted because of another pathology and being tested positive in a screening context are registered separately and are not included in this number.

5.3.1. What exactly is meant by the total number of hospital admissions?

Question added 17/06/2020 | Last updated 30/03/2021

We will use the daily report of 09/03/2021 to answer this question.

1. Kerncijfers - Trends

Aantal gerapporteerde patiënten	In totaal	Daggemiddelde gedurende de voorlaatste periode van 7 dagen	Daggemiddelde gedurende de laatste periode van 7 dagen	Evolutie
Bevestigde COVID-19 gevallen	789 008	2 418	2 336*	-3%
Opnames in het ziekenhuis	58 246***	148,6	146,7**	-1%
Sterfgevallen****	22 292	23,6	26,3*	+12%
In ziekenhuizen	12 724	19,0	23,9	+26%
In woonzorgcentra	9 396	4,6	2,3	-50%

*Van 27 februari 2021 tot 5 maart 2021 (gegevens van de laatste 3 dagen nog niet geconsolideerd).
**Van 2 maart 2021 tot 8 maart 2021.
***Het aantal ziekenhuisopnames sinds 15 maart 2020. Meer gedetailleerde informatie rond het aantal ziekenhuisopnames vindt u in punt 5 in het document veelgestelde vragen.
****Sterfgevallen alle locaties inbegrepen.

Between 15/03/2020 (the date after which more than 99% of hospitals participate in data collection) and 08/03/2021, 58 246 COVID-19 symptomatic patients confirmed by the lab were admitted to the hospital. When interpreting this figure, it is important to consider the following information:

- It concerns only the lab-confirmed patients who were hospitalized because of COVID-19. Patients who were hospitalized because of another cause but tested positive in a screening context are registered separately since 30/04/2020 and are not included in this figure.

- Patients admitted previously for COVID-19 but receiving a positive test result during the last 24 hours (new 'confirmed' hospitalized patients) should also be counted in this number. However, depending on the hospitals' internal data systems, patients for whom no lab confirmation was (yet) available at the time of reporting are not consistently reported at the moment the test result turns out positive, leading to an underestimation of the number of newly confirmed COVID-19 patients. It only concerns the new patients for whom a lab confirmation was available at the time of reporting. Patients for whom no lab confirmation was (yet) available at the time of reporting were reported as new hospitalizations under the category 'CT confirmed or possible cases' in the survey.

5.4. HOW ARE NEW HOSPITALIZATIONS CATEGORIZED BY PROVINCE?

Question added 30/03/2021 | Last updated 30/03/2021

The hospitals register by their recognition number. A recognition number can contain multiple hospital campuses/sites. The recognition number is linked to a zip code and thus the province of the main campus/site. In an exceptional case not all campuses/sites lie in the same province. This is the case for one recognition number that belongs to Brussels Capital Region but has a campus/site in Brabant wallon. As we do not have data per hospital campus, it is impossible to correctly break down the data per province in this case.

Within the Surge Capacity Surveillance, the number of hospitalisations is aggregated per hospital. Given the lack of individual patient information within this surveillance, new admissions are classified according to the province of the hospital where the patient was hospitalised. We estimated from the individual patient data collected through the non-exhaustive Clinical Hospital Surveillance that 87% of patients are hospitalised in a hospital located in the province where the patient lives.

6. Data on COVID-19 deaths

6.1. HOW DO WE COLLECT DATA ON COVID-19 DEATHS?

Question added 07/04/2020 | Last updated 08/04/2022

Sciensano collects and combines data on all deaths due to possible or confirmed COVID-19 through several sources:

- daily reporting from the hospitals to Sciensano (see question 5.1).

- daily reporting from nursing homes to the regional authorities.

- mandatory declaration for general practitioners to the regional authorities.

For more details on the methodology of COVID-19 mortality surveillance see section 3.3. of the report on COVID-19 mortality surveillance in Belgium or the publication "Establishing an ad hoc COVID-19 mortality surveillance during the first epidemic wave in Belgium, 1 March to 21 June 2020" (Eurosurveillance, 2021).

6.2. HOW ARE DEATHS REPORTED IN BELGIUM IN COMPARISON TO OTHER COUNTRIES? HOW CAN WE COMPARE THESE NUMBERS?

Question added 07/04/2020 | Last updated 08/04/2022

Each country has its own reporting strategy of COVID-19 deaths, linked to its ability to implement out-of-hospital data flows.

In Belgium, deaths **in hospitals** are reported by hospitals through the "hospital surge capacity survey". Deaths for which the COVID-19 infection has been confirmed by a laboratory test or on the basis of a CT scan of the thorax with suggestive clinical presentation of COVID-19 are reported as "deaths of confirmed case". Deaths from patients who were not tested for COVID-19 but who met the clinical criteria for COVID-19 as determined by a clinician, are reported as "deaths of possible cases" (see the case definition/testing : Dutch • French • German).

Deaths **outside the hospital** (nursing homes and others) are reported by the regional authorities and refer to confirmed and possible COVID-19 cases. During the first six weeks of the epidemic, the vast majority of people who died outside the hospital setting were possible COVID-19 cases.

Comparing mortality data between countries has some limitations. This comparison must first of all take into account the total number of inhabitants of each country. Moreover, in Belgium, the registration of COVID-19 deaths is precise (including confirmed as well as possible cases; inpatient and outpatient cases) whereas other countries may have more restrictive registration criteria (see the description of COVID-19 death surveillance among European countries, ECDC).

Given the different international methods for the surveillance of COVID-19 deaths, excess mortality is a better indicator to assess the severity of the epidemic as long as there is no other major cause of death (e.g. heat wave). In Belgium, Sciensano carries out all-cause mortality monitoring through the Be-MOMO project (Belgian Mortality Monitoring). Mortality during the the COVID-19 epidemic was shown in the weekly epidemiological reports (Dutch • French). Further analysis of the excess mortality during the first two waves has been reported in a separate report (French). Further information on the link between COVID-19 mortality and all-

cause mortality during the first wave of the epidemic can be found in the publication "All-cause mortality supports the COVID-19 mortality in Belgium and comparison with major fatal events of the last century".

At the European level, excess mortality is assessed on a weekly basis by EuroMOMO.

6.3. ARE DEATHS IN NURSING HOMES ALSO INCLUDED IN THE COVID-19 DEATH STATISTICS?

Question added 07/04/2020 | Last updated 19/01/2021

Yes, these are included in the dataset with the total number of deaths.

The surveillance of deaths of confirmed COVID-19 cases in hospital does not reflect the true magnitude of COVID-19 mortality in our population, our goal is to have mortality statistics that are as complete as possible and, therefore, to include COVID-19 deaths occurring in hospital and elsewhere (e.g. in nursing homes, other residential communities, or at home), as well as confirmed and possible COVID-19 deaths.

6.4. HOW IS THE NUMBER OF DEATHS IN NURSING HOME RESIDENTS OBTAINED?

Question added 18/12/2020 | Last updated 08/04/2022

As described above, information on the number of COVID-19 deaths in hospitals, nursing homes and in the "community" (at home or in other places) is available.

Currently, deaths in nursing homes are first notified to the regional authorities and reported with a delay of more or less 2 days by Sciensano. All regions provide individual data for deaths of nursing home residents, specifying whether the death occurred in a nursing home or in hospital. In addition, since 19 June 2020, hospitals indicate whether the person who died of COVID-19 in hospital was a nursing home resident or not.

Each week, the hospital data are combined with the data from the nursing homes, in order to determine as accurately as possible the total number of COVID-19 deaths among nursing home residents and also to specify whether these deaths occurred in the nursing home or in hospital. The linkage of these two databases takes place on Wednesdays and is published in the weekly epidemiological report in the chapter on nursing home surveillance.

Many investigations have already been carried out by Sciensano to improve the counting of COVID-19 deaths among nursing home residents. The list of major changes to the COVID-19 death database is available in the Open data codebook.

6.5. ARE DEATHS OUTSIDE HOSPITALS AND NURSING HOMES ALSO INCLUDED IN THE COVID-19 DEATH STATISTICS?

Question added 07/04/2020 | Last updated 19/01/2022

Yes, these are included in the dataset with the total number of deaths.

The surveillance of deaths of confirmed COVID-19 cases in hospital does not reflect the true magnitude of COVID-19 mortality in our population, our goal is to have mortality statistics that are as complete as possible and, therefore, to include COVID-19 deaths occurring in hospital and elsewhere (e.g. in nursing homes, other residential communities, or at home), as well as confirmed and possible COVID-19 deaths.

6.6. DO THE DATA ON COVID-19 DEATHS INCLUDE CONFIRMED CASES AND POSSIBLE CASES?

Question added 07/04/2020 | Last updated 08/04/2022

Yes, COVID-19 death data includes laboratory confirmed cases as well as chest CT confirmed and possible cases. Possible cases refer to patients who did not undergo a COVID-19 diagnostic test, but who met the clinical criteria for COVID-19 as judged by the physician (see case definition definition/testing : Dutch • French • German).

Sciensano aims to report mortality statistics that are as complete as possible. Since the surveillance of deaths of confirmed COVID-19 cases in hospital does not reflect the true extent of COVID-19 mortality in our population, out-of-hospital COVID-19 deaths are also included (in particular deaths in nursing homes).

For out-of-hospital deaths, only deaths of confirmed COVID-19 cases were reported before 30 March 2020. Before the start of the specific screening strategy targeting nursing homes, the vast majority of out-of-hospital deaths were reported as possible COVID-19 cases. This expansion to possible COVID-19 cases was also done retroactively for all out-of-hospital deaths reported before that date.

Since 5 May 2020, deaths of possible cases and radiologically confirmed cases in hospital are also included in the statistics. This expansion was also done retrospectively for deaths of possible and radiologically confirmed in-hospital cases reported before this date.

6.7. WHY CAN THE NUMBER OF DEATHS FOR A SPECIFIC DATE CHANGE?

Question added 22/04/2020 | Last updated 08/04/2022

The mortality database is dynamic. Every day, improvements are made after checking the data with the regional health authorities or hospitals. Sometimes dates of death or birth are incorrectly entered in the questionnaires; after checking with hospitals and nursing homes, these dates are corrected. More specific information about deaths nursing homes in Flanders was added to the database on 26 August (see question 6.4). As a result, a case may be moved to another date of death or deleted if it is found to be a duplicate.

6.8. WHAT CHANGES TO DATA COLLECTION HAVE BEEN MADE?

Question added 08/04/2022 | Last update 08/04/2022

Some data were not always available. Here is an overview of the improvements that have taken place in the collection of COVID-19 death data:

- COVID-19 hospital surveillance data specify the type of residence of deceased patients (home, nursing home,...) since 19 June 2020. The full date of birth of deceased patients, as well as their postal code of residence, are available from 24 April 2020.
- For the Walloon Region, the complete date of birth of the deceased residents of MR/MRS of COVID-19 was available from 20 January 2021, before this date, only the age was notified[1].

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[1] This makes it impossible to univocally identify nursing home (NH) and thus to check that the information provided by the hospitals is consistent with that provided by the RHs/RCs. Indeed, it happens that a resident of an NH is erroneously indicated by the hospital as still living at home.

- Until 2 June 2020, the Flemish Region only provided aggregated data on COVID-19 deaths occurring in MR/MRS. Therefore, for deaths of MR/RSM residents in hospital, the cause of death (COVID-19 or not) is not specified by the Flemish regional authority.
- The number of hospital deaths of Flemish MR/RSM residents could only be estimated in the first wave. Thanks to a retrospective survey by the Flemish Agency for Care and Health (Agentschap Zorg en Gezondheid - VAZG), individual data on age, sex and exact date of death could be obtained for a large part of the deaths that occurred before 2 June 2020. On 26 August 2020, this additional information was integrated into the database. The results of this update are detailed in the report: Mortality COVID-19 - Data update - 26 August 2020 (Dutch • French).
- A survey was conducted in the summer of 2021 among the 103 Belgian general hospitals and the military hospital to retrieve unavailable data on people who died of COVID-19 during the first wave of the epidemic. These data were used to improve the mortality statistics. More detailed information is described in the report published on 18 December 2021.
- The vaccination status of the COVID-19 decedents was requested from 8 December 2021 in the hospital surveillance data. In nursing home surveillance, the vaccination status was requested from 21 July 2021, 13 December 2021, 23 December 2021 and 10 January 2022 for the deceased in the Brussels Region, the Walloon Region, the German-speaking Community and the Flemish Region respectively.

The investigations conducted during the first wave of the epidemic are described in the publication "Establishing an ad hoc COVID-19 mortality surveillance during the first epidemic wave in Belgium, 1 March to 21 June 2020" (Eurosurveillance, 2021). The list of major changes to the COVID-19 mortality database since the beginning of the epidemic is available in the Open data codebook.

7. Data from the Influenza Surveillance System

7.1. HOW DO WE COLLECT DATA ON INFLUENZA-LIKE ILLNESSES?

Question added 07/04/2020 | Last updated 03/04/2020

The sentinel network of general practitioners continuously records consultations in general medicine for influenza-like illnesses and acute respiratory infections. The network has around 120 general practitioner offices spread throughout Belgium. It records for each episode age group, vaccination status, outcome and immediate hospitalization. In a subset of these patients, a clinical sample is collected and virologically tested by the National Reference Centre (NRC) for Influenza. From this subgroup, we also record additional clinical data (symptoms, risk factors and comorbidities, vaccination, treatment and severity indicators).

Additionally, six sentinel hospitals participate in this surveillance. Since the 2011-2012 respiratory season, this network has recorded all episodes of hospitalized severe acute respiratory infections (SARI) that occur during the period of high influenza activity. The surveillance starts as soon as the first signs of influenza virus circulation are detected by the NRC for Influenza, and ends at least 3 weeks after the incidence of influenza-like syndromes (collected via the sentinel network of general practitioners) again drops below the epidemic threshold. For each episode, the patient's demographic characteristics, symptoms, risk factors and comorbidities, vaccination status, treatment, severity and clinical outcome are registered during the hospital stay. In addition to this clinical data recording, the hospital collects a nasopharyngeal sample from each patient, which is virologically tested by the NRC for Influenza.

We carry out both surveillances in close collaboration with the NRC for Influenza, which performs microbiological tests on nasopharyngeal samples collected from each patient for the influenza virus and, since March 2020, SARS-CoV-2.

The results of the influenza surveillance can be found on our website.

They are also included in the weekly COVID-19 report (in Dutch • in French) which is also available on our website.

8. Molecular surveillance

8.1. WHAT IS MOLECULAR SURVEILLANCE?

Question added 30/03/2021 | Last updated 18/05/2021

The term "molecular surveillance" in the context of COVID-19 refers to the genetic characterisation of circulating viruses from PCR-positive samples, and thus the monitoring of the different circulating variants. This genetic characterisation is done by sequencing the whole genome of the virus (WGS), or by analysing specific regions that are of interest.

Analysis of the genetic diversity of circulating viruses and its evolution over time is essential to understand the dynamics of the epidemic and to adapt measures accordingly.

8.2. HOW IS MOLECULAR SURVEILLANCE ORGANISED IN BELGIUM?

Question added 30/03/2021 | Last updated 18/05/2021

In Belgium, molecular surveillance, especially for whole genome sequencing, is organised by different clinical laboratories that collaborate within the WGS platform. Part of the positive samples had been sequenced by the NRC since the beginning of the COVID-19 epidemic, but molecular surveillance has been expanding since December 2020.

Since it is impossible to sequence all positive samples diagnosed in Belgium, the molecular surveillance focuses on a baseline surveillance on the one hand, and on an active surveillance on the other.

The baseline surveillance aims to sequence 5-10% of positive samples diagnosed in Belgium, taken at random from sentinel laboratories in order to represent all positive samples in the country (i.e. samples from the different regions of the country, from patients presenting the whole clinical spectrum). The results from the baseline surveillance should reflect the genetic diversity of the viruses circulating in the country.

Within the active surveillance, sequenced samples are selected because they are of particular interest, for instance a selection of 'travelers' samples from red zones, outbreaks of unexpected course, certain samples with particular PCR results, possible re-infections, etc... The results of the active surveillance allow for better monitoring of genetic variation in these specific contexts.

8.3. HOW IS INFORMATION ABOUT DIFFERENT VARIANTS COLLECTED, REGISTERED AND REPORTED BY SCIENSANO?

Question added 18/05/2021 | Last updated 25/04/2022

8.3.1. Collection

For the **baseline surveillance**, a number of laboratories performing COVID-19 PCR-testing were selected to participate as a sentinel laboratory in the molecular baseline surveillance. There are about 30 sentinel laboratories spread over Belgium. They are selected based on their catchment area with the objective to obtain a representative set of samples of the population (geographic location, ambulant and hospitalised patients, all age groups,…). Once a week, the sentinel laboratories send a completely random selection of their PCR positive samples (with sufficient viral load to allow good quality sequencing analysis) to one of the sequencing laboratories involved in the baseline surveillance.

In comparison, the **active surveillance** relies first on additional information available on the COVID-19 PCR tests performed in hospitals and other laboratories. If the laboratory identifies specific criteria associated with a positive COVID-19 sample, this sample will be analysed in the active molecular surveillance in one of the sequencing laboratories. (These criteria include a vaccine breakthrough, a possible reinfection, an outbreak with unexpected evolution, travelers from zones known with a variant,…)

For example, to support this process, a clinical laboratory will receive a notification when they obtain a positive COVID-19 result for a sample of a patient who has already completed a primary course of vaccination for more than 7 days. Due to this notification, the clinical laboratory can identify possible samples which apply for further laboratory analysis within the active surveillance, and forward these samples for sequencing.

8.3.2. Registration and reporting

All the results of the sequencing analyses are uploaded in an **aggregated** manner to a central national registration system. This means that the registration is based on the week of sampling of the original sample, the indication for sequencing (baseline or active surveillance), and the identification of a variant. The individual sequencing labs complete this registration after each run performed, report of all sequenced results is done by the NRC and sent to Sciensano on a weekly basis. This data is used, amongst others, for the weekly risk assessment of the epidemiological situation and for the weekly epidemiologic report, section 'molecular surveillance'.

While the aggregated registration system is an adequate tool for the surveillance of the current major variants of concern over time, it is limited in the flexibility of the output and the level of detail associated to the registered results. (For example, there is no information about localization, neither about the clinical status (ambulant or hospitalised) of the patients.)

From the end of March 2021 onwards, the laboratories have started reporting the results of the sequencing analyses in a case-based manner via HealthData. This is a process which needs to be automated and might not yet be in place for all laboratories.

The case-based reporting is, essential for an efficient surveillance of the transmissibility and severity of the variants, the vaccine-effectiveness against variants, as well as for a more detailed surveillance and reporting of the spread of the variants.

Until completeness of the case-based registration, the reporting of the results of the molecular surveillance in the weekly epidemiological bulletin will still be based on the aggregated registration system.

8.4. HOW IS MOLECULAR SURVEILLANCE REPORTED ON AN INTERNATIONAL LEVEL?

Question added 18/05/2021 | Last updated 18/05/2021

All results of the molecular surveillance are also uploaded to the international database GISAID[2], where comparisons can be done with data uploaded from other countries. This international database registers sequencing results in an anonymous way and is limited in the amount of information (metadata) that is available for each sample.

The GISAID database allows for phylogenetic analyses at an international level. Technical analyses performed by the NRC and the WGS-consortium based on the data present in GISAID are weekly published in a technical report. The result of the phylogenetic analysis for Belgium, based on the data present in GISAID, is accessible via an interactive dashboard.

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[2] **GISAID** *is a global science initiative and primary source established in 2008 that provides open-access to genomic data of influenza viruses and, since March 2020, the coronavirus responsible for the COVID-19 pandemic*

9. Data for the surveillance of vaccinations

9.1. HOW ARE THE DATA FOR THE SURVEILLANCE OF VACCINATIONS COLLECTED?

Question added 21/05/2021 │ Last updated 06/01/2023

The information used by Sciensano for the surveillance of vaccinations is obtained through the Vaccinnet+ database, the national COVID-19 vaccination registry. All doses of COVID-19 vaccines administered in Belgium, are, as required by law, recorded in this database. Vaccinations in this database are recorded as accurately and completely as possible, under the responsibility of medical doctors.

Nevertheless, a delay may occur between the time of vaccination and the time of registration in Vaccinnet+. This is something to take into account when interpreting the results of this surveillance.

9.2. WHICH DATA ARE COLLECTED IN VACCINNET+ AND SENT TO SCIENSANO?

Question added 30/04/2021 │ Last updated 28/02/2025

Sciensano receives demographical data (sex, age, postal code of residence) of all people in Belgium having received at least one dose of a COVID-19 vaccine. In addition, Sciensano also receives data on the vaccinator (type (person or organisation) and postal code) and on the administered vaccine (brand of the vaccine, lot number, date of administration, date of registration).

Vaccinnet+ does not register information concerning the indication for COVID-19 vaccination (resident of a nursing home, health care worker, pregnancy, etc.). Similarly, the dose sequence (distinction between a first, second or third dose) of a COVID-19 vaccine is not directly available in Vaccinnet+. At the level of healthdata.be a sequence is attributed to a dose according to the date of administration of a vaccine (see question 3.2). Initially, a formula, based on the time that was minimally needed between two doses, was applied to distinguish effective second doses from possible encoding errors in Vaccinnet+. Because the quality and completeness of the surveillance data on the vaccinations evolved positively, this rule is not applied anymore since the 15th of June 2021. Until the 15th of September 2024, we distinguished between primary vaccination and revaccination. As of that date, this distinction is no longer made in our reports.

Since the 23rd of June 2021, vaccinations administered to Belgian residents abroad or in the context of a clinical trial can be encoded in Vaccinnet+ upon specific request of the vaccinated person. Only the vaccinations with vaccines approved by a national regulatory authority in Europe or included in the WHO Emergency List are included in the numbers we report.. Vaccinations performed with a vaccine that does not fulfil these criteria may be recorded in Vaccinnet+ in a generic form (without specifying the COVID-19 vaccine brand) but are excluded from Sciensano's reported vaccination figures.

Please note that the processing of data concerning vaccinations against COVID-19 is regulated by the Cooperation agreement of 12th March 2021 between the Federal State, the Flemish Community, the French Community, the German speaking Community, the Common

Community Commission, the Walloon Region and the French Community Commission with regard to the processing of data concerning vaccinations against COVID-19 (only available in French and Dutch).

9.3. WHAT DO THE DIFFERENT VACCINATION SCHEMES AGAINST COVID-19 LOOK LIKE IN BELGIUM?

Question added 02/04/2021 │ Last updated 28/02/2025

The table below shows the vaccines that have been authorised for use in Belgium, and for which administrations have been registered in Vaccinnet+. In the 2024 autumn campaign, only registrations with Comirnaty® JN.1 have been registered in Vaccinnet+.

Vaccine producer	Vaccine (and adapted versions)
Pfizer/BioNtech	Comirnaty®
	Comirnaty® Original/Omicron BA.1
	Comirnaty® Original/Omicron BA.4-5
	Comirnaty® XBB 1.5 vaccine
	Comirnaty® JN.1
Moderna	Spikevax®
	Spikevax® Original/Omicron BA.1
Johnson & Johnson	Jcovden®
AstraZeneca-Oxford	Vaxzevria®
Novavax	Nuvaxovid® vaccine
Sanofi Pasteur	VidPrevtyn Beta®

The Comirnaty® vaccine (Pfizer/BioNtech) has been used in Belgium since 28th December 2020. It is an mRNA-vaccine that was administered with a two-dose primary immunization schedule. The interval between the two doses varied between 19 and 42 days, depending on the region, in the Belgian vaccination campaign. The age indication for Comirnaty® was expanded during the Belgian vaccination campaign as follows: (i) from December 28 to June 4: ≥18 years old; (ii) from June 5: ≥16 years old; (iii) from June 26: ≥16 years old and open to 12- to 15-year-olds with comorbidities; (iv) from July 7 2021: ≥16 years old and open to all 12- to 15-year-olds on a voluntary basis and subject to parental (or legal guardian) consent.

Since the 20th December 2021, a paediatric formulation of the Comirnaty® vaccine (Pfizer/BioNtech) has been in used in Belgium for the vaccination of children aged 5 to 11 years. It consists of a reduced dose of mRNA (10 μg/dose compared to 30 μg/dose in the adult formulation). The primary immunization schedule consisted of two doses, administered with a recommended interval of 21 days. It was offered to children aged 5-11 years on a voluntary basis and subject to parental (or legal guardian) consent.

The Comirnaty® Original/Omicron BA.1 vaccine has been used in Belgium since the 5th of September 2022 and the Comirnaty® Original/Omicron BA.4-5 vaccine since the 3rd of October 2022. Both Comirnaty® bivalent vaccines were eligible for people aged 12 years and older, and were initially only administered as a booster dose. Since December 2022, the Comirnaty® Original/Omicron BA.4-5 was also used for the primary vaccination schedule.

Since the 20th of October 2022, a formulation adapted to children aged 6 months to 4 years was available in Belgium. Its administration consisted of 3 doses (3 μg/dose) with a first interval of 3 weeks, followed by a second interval of 8 weeks.

The Comirnaty® XBB 1.5 vaccine has been used in Belgium since the 14th of September 2023. It was eligible for all age groups and used for revaccination and primary vaccination. From the

14th of September 2023 onwards, adults and children from 5 years of age onwards were to receive a single dose (10 µg/dose for children aged 5 to 11 years of age, 30 µg/dose for those 12 years of age and older), irrespective of their previous vaccination history. Children from 6 months to 4 years old who have not completed a primary course of vaccination and have no history of SARS-CoV-2 infection were to receive 3 doses (3 µg/dose) with a first interval of 3 weeks, followed by a second interval of 8 weeks. Children from 6 months to 4 years of age who previously have completed a primary vaccination or have been infected with SARS-CoV-2before were to receive a single dose (3 µg/dose).

The **Comirnaty® JN.1 vaccine** is authorized in Belgium since the 26th of August 2024. It is eligible for all age groups and used for revaccination and primary vaccination. From September 2024 onwards, adults and children from 5 years of age should receive a single dose (10 µg/dose for children aged 5 to 11 years of age, 30 µg/dose for those 12 years of age and older), irrespective of their previous vaccination history. Children from 6 months to 4 years of age who have not completed a primary course of vaccination against COVID-19 and have no history of SARS-CoV-2 infection should receive 3 doses (3 µg/dose) with a first interval of 3 weeks, followed by a second interval of 8 weeks. Children from 6 months to 4 years of age who previously have completed a primary vaccination or have been infected with SARS-CoV-2, should receive a single dose (3 µg/dose).

The Spikevax® vaccine (Moderna) has been used in Belgium since 11th January 2021. This is also an mRNA-vaccine with a two dose primary immunization schedule, administered with a recommended interval of 28 days. It was initially used in Belgium in adults of 18 years and older. On the 23rd of July 2021, following EMA approval, its use was extended to 12- to 17-year olds, in the same conditions as the Comirnaty® vaccine (i.e: for 12- to15-years old on a voluntary basis and subject to parental or legal guardian consent).
The Spikevax® Original/Omicron BA.1 vaccine has been used in Belgium since the 12th of September 2022 and only administered as a booster dose for people aged 12 years and older.

The Vaxzevria® vaccine (AstraZeneca-Oxford) is a non-replicating viral vector (chimpanzee adenovirus) vaccine that has been used in Belgium since 12th February 2021. The vaccine administration consists of a two dose primary schedule. The interval between the two doses was shortened from 12 weeks to 8 weeks on 3rd May 2021 in the Brussels-Capital Region, and on 12th May 2021 in the whole country. The age indications for this vaccine were modified during the Belgian vaccination campaign: (i) 12th February to 2nd March 2021: 18 to 55 year olds; (ii) 3rd March to 6th April 2021: ≥ 18 years old; (iii) 7th April to 23rd April 2021: ≥ 56 years old; (iv) 24th April 2021 onwards: ≥ 41 years old.

The COVID-19 Vaccine Janssen® (Johnson & Johnson), also known as Jcovden® Vaccine, is a non-replicating viral vector (human adenovirus 26) vaccine that has been used since 28th April 2021. The primary schedule consists of a single dose. It was used in Belgium in adults of 18 years and older. However, as of May 26, 2021, the Interministerial Conference (IMC) on Public Health decided to adopt a precautionary principle and temporarily limit the use of the COVID-19 Vaccine Janssen® to people aged 41 and older. On June 9, 2021, the FPS Public Health decided that people between 18 and 40 years of age could voluntarily choose for the COVID-19 Vaccine Janssen® after having received full information on the benefit/risk ratio.

The Nuvaxovid® Vaccine (Novavax) is a subunit protein vaccine that was approved for use in Belgium since 19th January 2022. The primary schedule consists of two doses, administered with an interval of at least three weeks. Nuvaxovid® was primarily offered to 1) individuals who have a high risk of allergic reactions against the other vaccines that are used in the Belgian

vaccination campaign, and 2) those who have already had severe side effects after vaccination with one of the other vaccines used in the Belgian vaccination campaign.

The VidPrevtyn Beta® vaccine (Sanofi Pasteur) is a recombinant protein subunit vaccine with adjuvant that has been available in Belgium since 15th December 2022. It was used as a booster in people aged 18 years and older who already received an mRNA or adenoviral vector COVID-19 vaccine.

On the 9th of September 2021, the IMC on Public Health decided, based on the opinion of the Superior Health Council (CSS), to invite people with reduced immunity (due to congenital immune disorders, chronic dialysis, immunosuppressants, cancer, AIDS or Down syndrome) for an **additional dose** of mRNA vaccine (Comirnaty® or Spikevax®) after a complete primary vaccination schedule. On the 24th of January 2022, the IMC has decided to offer a **booster dose** to this group, at least three months after the additional dose. On the 6th of July 2022, the IMC decided to invite this group for a second booster dose from early September 2022 onwards (which for most persons in this group represents the fifth dose of a vaccine).

On the 22nd of September 2021, the IMC on Public Health decided to offer a **booster dose** with an mRNA vaccine (Comirnaty® or half a dose of Spikevax®) to nursing home residents. Additional target groups for a booster dose were consecutively identified by the IMC, namely people over the age of 65 on the 29th of September 2021, healthcare workers on the 30th of October 2021, and people who have received one dose of the COVID-19 vaccine Janssen® on the 10th of November 2021. On the 27th of November 2021, it was decided that all persons aged 18 years and older who have received a full primary vaccination schedule will be invited for a booster dose, in order of descending age groups. The minimal required duration for providing the booster dose after the complete primary immunization schedule differs by brand: two months after the single dose of the COVID-19 Vaccine Janssen®, four months after the second dose of Vaxzevria®, and six months after the second dose of Comirnaty® or Spikevax®. On the 16th of December 2021, the IMC decided to accelerate the administration of booster doses to address the spread of the Omicron variant and announced that people who received an mRNA vaccine (Comirnaty® or Spikevax®) may be invited to receive the booster vaccine after 4 months instead of 6. On the 4th of February 2022, it was decided that adolescents aged 12-17 years in Flanders can receive a booster dose on a voluntary basis and subject to parental or legal guardian consent. On the 16th of February 2022, the IMC decided that those who have received a primary schedule with the COVID-19 Vaccine Janssen® can receive a second booster dose, at least three months after the first booster dose. On the 4th of March 2022, the IMC decided to offer a booster dose to the 12-17 year-olds with underlying conditions leading to an increased risk of developing severe COVID-19; for the other 12-17 year-olds, a booster dose can be administered at the initiative of the adolescent or his/her parents/legal guardians. From May 2022 onwards, nursing home residents and those aged 80 years and over in Flanders have been offered a second booster dose. On the 6th of July 2022, the IMC decided that an **additional booster dose** will be offered in a proactive and systematic way from September 2022 to people aged 65+ and immunocompromised, healthcare workers, and those aged 50-64 years, respectively. An additional booster dose may also be offered to 18-50 year-olds on an individual basis (no systematic invitation). On the 16th of November 2022, the IMC gave the green light for a primary course of vaccination for children aged 6 months to 4 years, and for a booster vaccination for children aged 5-17 years. These vaccinations are recommended for children with immunocompromising conditions or severe underlying diseases.

In mid-September 2023, a new COVID-19 vaccination campaign has started with a specific recommendation for revaccination from the SHC for those at high risk: anyone aged 65 years or over, individuals living in a long-term care facilities, or with previously identified underlying conditions, or with immunocompromising conditions and their household members, pregnant individuals, and people working in the healthcare sector and institutions.

As in 2023, a vaccination campaign against COVID-19 began in mid-September 2024. The same vaccination recommendations apply, at the exception of pregnant individual. The SHC still expresses that pregnant individual with underlying-illness or those expected to have a high-risk pregnant must receive COVID-19 vaccination as high-priority. However, healthy pregnant individual, without underlying-illness or an anticipated high-risk pregnancy, may opt for COVID-19 vaccinaiton on an individual basis. This decision should involve a discussion with healthcare professional, taking into account prioirities and risk factors for all vaccinations recommended by NITAG.

In Vaccinnet+, it is not possible to distinguish those who received an additional dose from those who received a booster dose. The term "booster dose" used in epidemiological reports from Sciensano and on the dashboard Epistat therefore includes both groups.

More information about the different vaccines is published on the dedicated FAMHP webpage (only available in Dutch and French) and in the Sciensano Factsheet.

9.4. HOW IS THE VACCINATION COVERAGE CALCULATED?

Question added 02/04/2021 │ Last updated 28/02/2025

The vaccination coverage is the percentage of vaccinated people in a certain target group. The COVID-19 dashboard of Sciensano shows the vaccine coverages per age group, by sex, per municipality, per region/community and for Belgium. For this purpose, the most recent official figures with regards to the legally registered population in Belgium are used as denominator. The population figures on 1st January 2020 were used up until 18th May 2021, after which the provisional population figures on 1st January 2021 were used, as published by STATBEL (STATBEL; population on 1st January 2021). From the 23rd of June 2022 until the 2nd of July 2023, the population figures on 1st January 2022 were used (STATBEL; population on the 1st of January 2022). From the 4th of August 2023, the population figures on 1st of January 2023 are used (STATBEL; population on the 1st of January 2023). From the 4th of July 2024, the population figures on 1st of January 2024 are used (STATBEL; population on the 1st of January 2024).

At the start of the vaccination campaign, the age of a vaccinated person was determined on the date of administration of a vaccine for the calculation of vaccination coverage per age category. However, this method is no longer used. Vaccinnet+ includes the year of birth of all persons who received at least one dose of COVID-19 vaccine in Belgium. This information is used to calculate the age of the vaccinated persons on the 1st of January of the reference year: since the 4th of July 2024, this is the age of vaccinated persons on the 1st of January 2024. This calculation aligns the ages of those vaccinated (numerator) with the updated ages of the population (denominator).

For the calculation of the vaccination coverages, Sciensano performs a correction which is related to deaths occurring from the beginning of the vaccination campaign onwards, among those who have previously been vaccinated. Persons who died before the 1st of January 2024

are not included in the denominators on that date, and they must therefore be excluded from the numerator in order to avoid an overestimation of the vaccination coverage estimates. In order to make this correction, vaccinated persons deceased before the 1st of January 2024 were identified through an extract of the national registry.

It should be pointed out that the correction for deaths is not always applicable. While it is particularly relevant for vaccination coverages, it should on the other hand not be applied when the total number of doses administered since the beginning of the vaccination campaign is considered. Therefore vaccination data is still primarily collected and shared, *i.e.* in opendata (https://epistat.wiv-isp.be/covid/), without the correction for deaths. A dataset has been made available in the opendata, which presents the number of vaccinated people who died before 2024 by region, age group, sex and last dose received.

In several outputs we show the progression of the vaccination campaign and coverages of the population over time. In such cases, to avoid discontinuities when applying the correction for deaths, the assumption is made that the proportion of deaths is constant over time within a given category defined by vaccination status, age group, sex, and region.

Data on the geographical distribution of the vaccinated persons are based on the postal code of the place of residence of the vaccinated person, and not on the postal code of the place of vaccination. Consequently, this distribution does not reflect the number of vaccinations carried out by the federated entities, as some people are vaccinated at their place of work (e.g. nursing homes, hospitals).

As the time elapsed after vaccination influences the protection offered by COVID-19 vaccines, from the 5th of January 2023 and until the 21st of July 2023, vaccination coverage was presented as the proportion of a certain population who received their last COVID-19 vaccine dose within the last 3 or 6 months, or more than 6 months ago. Since the 27th of July 2023, only populations who received a last COVID-19 vaccine dose within the last 6 months and more than 6 months ago, are presented. The data are presented by age group and by region/community, including only those who have already completed a primary course of vaccination. For those who have received their last vaccine dose less than 6 months ago, we also show an evolution over time, by age group and by region/community.

As part of the LINK-VACC project, a linkage is made with external databases, in particular the CoBRHA database (Common Base Registry for Healthcare Actors), the database of the Intermutualist Agency (IMA) and STATBEL, which allows us to retrospectively analyse the vaccine coverage achieved in certain target groups. In this regard, the vaccine coverage achieved among healthcare professionals has been published in a thematic report (in Dutch and French) and is updated weekly on our Epistat page. A thematic report published on the 26th of November 2021 (in Dutch and French) describes the vaccination coverage of the complete Belgian population, as well as for high risk groups (nursing home residents, healthcare workers, those with comorbidities and pregnant women) until the 31st of October 2021. A thematic report focussing on the vaccination coverage and impact among children and adolescents was published on the 21st of December 2022 (in Dutch and French). On the 13th of June 2023, a thematic report regarding the vaccination coverage and the epidemiological impact of the COVID-19 vaccination campaigns in individuals with underlying illness/diseases was published (in Dutch and French).

Since the 16th of September 2022, vaccination coverage of the first and second boosters among persons who received immunosuppressants was included in the weekly report (second

and third dose after primary schedule, respectively). The numerator for this calculation was based on making a link between persons who received a priority invitation for vaccination according to the selection made by IMA (reimbursed for receiving immunosuppressants with an ACT-code (Anatomical Therapeutic Chemical classification) L04 at a minimum of 1 defined daily dose during the period from the 1st of January 2020 to the 30th of December 2020) and Vaccinnet+. The denominator is the total number of persons who received a priority invitation on account of receiving such medication according to the selection made by IMA. Both the numerator and denominator were corrected for deaths that occurred before 2023 among persons who were previously vaccinated. From July 2023 onwards, this reporting was discontinued. From the 2023 fall vaccination campaign onwards, vaccination coverage among people who received immunsuppressants will be replaced by people who had an immunocompromising condition in the reference year 2020, or a condition that required them to take immunosuppressants. This consists of conditions belonging to the following pseudopathologies, as classified by IMA (in Dutch and French) based on reimbursement data of healthcare:

- Disease of Crohn, Colitis Ulcerosa, psoriatrische artritis, reumatoïde artritis ;
- Kidney failure ;
- Mucoviscidosis ;
- Psoriasis ;)
- Multiple sclerosis ;
- Organ transplantation ,
- Cancer treated with radio-/chemotherapy, and ;
- Cancer treated with multidisciplinary oncological consult.

It is important to note that this calculation does not reflect the total group of immunocompromised persons in Belgium.

More information on the LINK-VACC project and its objectives can be found on the project page.

9.5. WHAT IS THE MEANING OF THE TERMINOLOGY «AT LEAST ONE DOSE», «PRIMARY COURSE COMPLETED», «+ BOOSTER» AND «+ REVACCINATION» THAT IS USED IN THE SURVEILLANCE OF COVID-19 VACCINATIONS?

Question added 30/04/2021 │ Last updated 29/09/2023

The category « at least one dose » covers all persons who have received at least one dose of a COVID-19 vaccine, regardless of the vaccine schedule. Persons who subsequently received a second dose of a vaccine with a two dose schedule, or those who received an additional or booster dose, are not excluded from this category. Therefore, this category comprises partially vaccinated persons (1 of 2 doses received), persons who have completed their primary course (1 of 1 dose / 2 of 2 doses received) and those who received one or more additional or booster doses (e.g. 1 of 1 dose +1 / 2 of 2 doses +1).

A person is considered as « primary course completed » when he has received all doses required of the primary vaccine schedule. This definition thus depends on the type of vaccine the person receives. With Comirnaty®, Spikevax®, Vaxzevria® and Nuvaxovid® vaccines, a person has completed his primary course of vaccination if he has received two doses. For the COVID-19 Janssen® vaccine, a person has completed his primary course after a single dose

of the vaccine. Persons who subsequently received one or more additional or booster doses, are not excluded from this category. Therefore, this category comprises both those who have completed their primary course (1 of 1 dose / 2 of 2 doses received) and those who received additional or booster doses (e.g. 1 of 1 dose +1 / 2 of 2 doses +1).

A person who received the COVID-19 Janssen® vaccine will be directly included in both groups « at least one dose » and « primary course completed ». Please note that « primary course completed » is a term that is used here in the context of vaccination coverage surveillance. Another definition is to be applied in the context of individual immune protection. For example, with regards to the COVID-19 Janssen® vaccine, a delay of 14 days after inoculation of the vaccine dose must be taken into account before the person is considered protected. For the other vaccine brands, a person is considered protected 14 days after the second dose of the vaccine. The term « fully vaccinated » was previously used to describe those who had completed their primary vaccination schedule. However, to avoid confusion, we replaced this term by « primary course completed » or simply « primary course » in our reports, since the 25th of April 2022. The term « fully immunized » was previously used to describe persons that have completed their primary course of vaccination since 14 days or more. For clarity purposes, the term « fully immunized » was replaced by « primary course + 14 days » after deployment of the booster doses.

A person who receives an additional or booster dose after a full primary vaccine schedule belongs to the category « +booster », a person who received a second booster dose belongs to the category « + 2nd booster », etc. These categories include both additional doses given to immunocompromised individuals to complete their primary vaccination regimen and booster doses given to the general population. It is considered that booster doses provide immune protection 14 days after administration.

From autumn 2023 onwards, the term « +booster » will be replaced by the term « +revaccination » in the reports of Sciensano.

9.6. WHY DO THE VACCINATION NUMBERS REPORTED BY SCIENSANO FLUCTUATE?

Question added 07/07/2021 │ Last updated 04/08/2023

Every day, Sciensano receives data on vaccinations encoded or corrected in Vaccinnet+ the previous day. These data were published in the weekly epidemiological report every Friday until the 21st of July 2023. They are currently available on the Epistat Dashboard and published every Wednesday in the weekly bulletin of acute respiratory infections (in Dutch and French). These retrospective encodings and corrections performed continuously in the Vaccinnet+ registry allow for a constant improvement of the data quality and explain the visible fluctuations in the data reported in near real time by Sciensano.

Please note that any registration errors identified by the citizen when consulting their MyHealthViewer or when downloading the CovidSafe certificate can be corrected by the vaccinator in Vaccinnet+. If you need help with this, please contact the call centers organized by the competent authorities: https://covidsafe.be/en/frequently-asked-questions .

9.7. HOW ARE BREAKTHROUGH INFECTIONS DEFINED AND MONITORED BY SCIENSANO?

Question added 18/08/2021 │ Last updated 04/08/2023

9.7.1. Lab-confirmed COVID-19 cases surveillance

A breakthrough infection is defined as a new laboratory confirmed COVID-19 infection (positive RT-PCR or Rapid Antigen test; no positive test in prior 90 days) occurring in persons who have received their primary course for at least 14 days, previously called "fully immunized" and "fully vaccinated for at least 14 days" (see question 9.5). In the same line, we monitor infections that have occurred 14 days or more after the person has received an additional or booster dose.

Breakthrough infections are monitored by Sciensano by linking data from the Vaccinnet+ registry and the COVID-19 laboratory test results database (LINK-VACC project). The different databases are linked at the individual level on the basis of the unique identification number of the Belgian social security system (NISS number) in a pseudonymized form.

9.7.2. Hospital surveillance

Sciensano used the *Surge Capacity Survey (SCS)*, an online survey through which all Belgian general hospitals had to provide aggregated (non-individual) data on the number of hospital and ICU admissions, as well as individual data on deceased COVID-19 patients. This data collection was mandatory and could therefore be considered as an exhaustive database of the number of COVID-19 patients in Belgian general hospitals. Between the 6th of October 2021 and the 18th of December 2022, variables were included which allowed hospitals to report the number of hospitalized patients by vaccination status (unvaccinated, partially vaccinated, primary course completed, unknown vaccination status) in different age categories. From the 8th of December 2021, having received the booster dose was added as an additional category within vaccination status. Since that date, the vaccination status of persons dying from COVID-19 in the hospital had also been added in the data collection. Since the 19th of December 2022 and due to changes in the SCS, vaccination status is no longer recorded for new hospital admissions. Tables showing daily mean and incidence of patients hospitalized, admitted to ICU and deceased in hospitals due to COVID-19 infection by age group, region and vaccination status are therefore no longer presented. Since the 1st of July 2023, the SCS has been discontinued.

9.8. HOW IS THE IMPACT OF VACCINATION ASSESSED?

Question added 20/01/2022 │ Last updated 28/02/2025

We assess the impact of vaccination by calculating vaccine effectiveness. We presented the results from the 3rd of January 2022 onwards, when >80% of all cases in Belgium were due to the Omicron variant. We updated the analyses roughly once per month until the 21st of July 2023, as the estimates were relatively stable over time. The impact of the second and third boosters administered during the 2022 autumn vaccination campaign has been addressed in a specific report (which can be found here). Updates showing vaccine effectiveness estimates against hospitalization were included in the weekly bulletin of acute respiratory infections (in Dutch and French) during the 2023 vaccination autumn campaign. New estimates will be shared in the same weekly bulletin, if the number of reported hospitalizations reaches the required threshold to calculate these estimates. This will be done when the *'COVID-19*

Vaccination' section of the report will be updated at the beginning of the new vaccination campaign.

To calculate vaccine effectiveness against symptomatic infection, we use a test-negative case control study design. In this design, immunity status is compared between symptomatic persons who tested positive for SARS-CoV2 (cases) and those who tested negative (controls). Furthermore, we assess the impact of having undergone a previous infection on developing a new symptomatic infection, also in combination with vaccination. We consider all previous infections since the beginning of the COVID-19 pandemic (2020). Confounders included in the analyses are province, age, sex, and having an underlying illness.

The COVID-19 Clinical Hospital Surveillance (CHS) collects individual patient data, allowing it to be linked with data from Vaccinnet+. However, as participation in the CHS is not mandatory for hospitals, data are not exhaustive. To estimate VE against hospitalization given a symptomatic infection, we combined person-level data on the immunity status of persons with a symptomatic infection with the CHS. For the autumnal 2023 booster campaign, VE against hospitalization is calculated by using a slightly modified version of a methodology used by a European consortium, in which Sciensano is also a contributor. A description of this methodology can be found in the following protocol. One adaptation that Sciensano made while calculating VE for the Respi Bulletin is that we filter out people who received their last dose within the last 180 days before the start of the vaccination campaign instead of 90 days.

9.9. ARE THE DATA USED BY SCIENSANO FOR THE SURVEILLANCE OF VACCINATIONS AVAILABLE FOR THE GENERAL PUBLIC?

Question added 21/05/2021 │ Last updated 09/07/2024

The General Data Protection Regulation (GDPR) is applicable to the surveillance of vaccinations. Sciensano obtained a positive deliberation (only available in Dutch and French) of the Sectoral Committee of Social Security and Health to use personal data for this surveillance. A privacy statement in the context of this surveillance is available here.

Three datasets of aggregated and anonymous data were approved for sharing by the Interfederal Commission within the framework of *open data*. The information below has been made available for the general public:
   1. Administered vaccines per date, region, age, sex, brand and dose.
   2. Administered vaccines per week, municipality, age group and dose.
   3. Number of vaccinated persons deceased before 2024 by region, age group, sex, and last dose received

A codebook describing each of the variables has been made available. As datasets 1 and 2 describe numbers of administered vaccines since the beginning of the vaccination campaign, no corrections for deaths have been applied. However, the third dataset allows to correct for deaths in the computation of number of people vaccinated, and thus vaccination coverages, at the regional level.

The data in the Vaccinnet+ registry are accessible for Sciensano researchers in a pseudonymised manner (non-aggregated, not anonymous). This means that the individual

data or direct identification data of the vaccinated person, like the national registration number, are replaced by a code.

Given the fact that the vaccination data are not exclusively owned by Sciensano, but are co-owned by the regions/communities, a proposal for access to the pseudonymised data must be submitted to the Interfederal Commission. The same commission will also evaluate possible extensions of anonymous data in the open data domain.

9.10. WHERE CAN I FIND THE DISTRIBUTION FIGURES OF VACCINES IN BELGIUM?

Question added 02/04/2021 │ Last updated 06/01/2023

The analysis of the vaccine distribution numbers is not carried out by Sciensano. Information concerning the delivery of vaccines and vaccination material can however be consulted on the website of the FPS Health.

9.11. WHERE CAN I FIND INFORMATION ON POSSIBLE SIDE EFFECTS OF VACCINES?

Question added 20/10/2022 │ Last updated 20/10/2022

COVID-19 vaccines safety information and updates can be found on the AFMPS/FAGG webpage and the EMA website.