

COVID-19 SURVEILLANCE IN RESIDENTIAL INSTITUTIONS

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WHO WE ARE

SCIENSANO can count on more than 700 staff members who commit themselves, day after day, to achieving our motto: Healthy all lifelong. As our name suggests, science and health are central to our mission. Sciensano's strength and uniqueness lie within the holistic and multidisciplinary approach to health. More particularly we focus on the close and indissoluble interconnection between human and animal health and their environment (the "One health" concept). By combining different research perspectives within this framework, Sciensano contributes in a unique way to everybody's health.

For this, Sciensano builds on the more than 100 years of scientific expertise of the former Veterinary and Agrochemical Research Centre (CODA-CERVA) and the ex-Scientific Institute of Public Health (WIV-ISP).

Sciensano

Epidemiology and public health - Healthcare-associated infections and antimicrobial resistance
Long-term care facilities

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ABBREVIATIONS

AVIQ	Agence pour une Vie de Qualité
AZG	Agentschap Zorg en Gezondheid
COVID-19	Coronavirus disease 2019
CT	Computed tomography
ECDC	European Centre for Disease Prevention and Control
NIHDI (INAMI/RIZIV)	National Institute for Health and Disability Insurance (Institut national d'assurance maladie-invalidité/ Rijksinstituut voor ziekte- en invaliditeitsverzekering)
LTCF	Long-term care facility
WHO	World Health Organisation

INTRODUCTION

Coronavirus disease 2019 (COVID-19) erupted in Wuhan China in late December 2019 (1). On March 11, 2020, the WHO affirmed the rapid spreading of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) leading to a pandemic (2). The COVID-19 pandemic is posing an unprecedented threat to European countries, which have been experiencing widespread transmission of the virus in the community for several months (1,3).

Residential institutions are institutions where long-term care or shelter is provided to adults or children who stay in this facility rather than in their own home or family home and encompass a broad range of institution types. Long-term care facilities (LTCFs) are a specific kind of residential institution that take care of people who require support in their activities of daily living and cannot live independently in the community due to older age, physical or mental conditions and/or because of chronic medical conditions. LTCFs typically have residents who need medical or skilled nursing and supervision 24h a day, but are medically stable and do not need invasive medical procedures (4). Nursing homes are a type of LTCF that provides principally care to seniors with severe illnesses or injuries.

Residents of LTCFs are among the populations most vulnerable to infections, rapid spread, more severe illness and death, this because of the way people live together in these facilities and because of the fact that these residents often suffer from other health problems (5,6). Especially in nursing homes, elderly in general suffer from weakened immunity and underlying diseases (5,6). In addition, people in residential institutions are living closely together. As a result, there is a high risk of widespread transmission of bacteria and viruses within LTCFs and residential institutions with the potential of high case-fatality rates. Moreover, the virus can spread back into the community leading to overall disease spread (7).

An increasing number of COVID-19 outbreaks have been reported in LTCFs across Europe with high associated mortality, highlighting the extreme vulnerability of the elderly in this setting (1). It is therefore essential to follow-up the spread of COVID-19 in residential institutions, particularly nursing homes and LTCFs (8).

On the 5th of January 2021 the Belgian vaccination campaign started in the nursing homes, including both staff and residents. Other residential institutions, including healthcare workers in acute care facilities, soon followed. The vaccination campaign in other residential institutions has started. Due to this vaccination, we do not expect a lot of cases and/or outbreaks in these LTCFs anymore, which seems the perfect timing to update this protocol.

OBJECTIVES

Main objective of this protocol for COVID-19 surveillance in residential institutions

To ensure standardized definitions and data collection in the institutions participating in the COVID-19 surveillance in residential institutions.

Specific objectives of this COVID-19 surveillance in Belgian residential institutions

- To identify possible clusters in these residential institutions and provide the responsible health authorities data to investigate these outbreaks.
- To measure the incidence and prevalence of confirmed COVID-19 cases among residents and staff members in Belgian residential institutions during the COVID-19 pandemic.
- To monitor the number of COVID-19 deaths among residents, whether they die in the institution or in a hospital.
- To measure absenteeism due to COVID-19 among staff in Belgian residential institutions.
- To provide and follow-up indicators to evaluate the measurements in place to contain the COVID-19 spread in residential institutions.

DEFINITIONS

These definitions have been developed for surveillance purposes and are intended for national use. It is perfectly possible that other more practical definitions will be developed for clinical purposes or as a guideline for testing, cohorting, isolation measurements etc.

1. COVID-19 infections

1.1. CONFIRMED CASE (=LAB-CONFIRMED)

A confirmed case of a COVID-19 infection is a person with laboratory confirmation of the virus causing COVID-19 infection via a molecular or antigen test¹, irrespective of clinical signs and symptoms.

A symptomatic confirmed case stays a confirmed case until 14 days after the onset of symptoms AND with at least 3 days without fever AND with a significant improvement in respiratory symptoms. An asymptomatic confirmed case stays a confirmed case until 14 days after the test. If the resident has a negative laboratory test within this time span, he/she remains a confirmed case.

1.2. POSSIBLE CASE (=CT-CONFIRMED OR POSSIBLE)

A possible case of a COVID-19 infection is any person meeting the clinical criteria:

- at least one of the following main symptoms of acute viral infection, with no other obvious cause: cough; dyspnea (shortness of breath); thoracic pain; acute anosmia (loss of the sense of smell) or dysgeusia (distortion of the sense of taste);

OR

- at least two¹ of the following symptoms, with no other obvious cause: fever; muscle pain; fatigue; rhinitis; sore throat; headache; anorexia; watery diarrhea²; acute confusion²; sudden fall;

OR

- worsening of chronic respiratory symptoms (COPD, asthma, chronic cough,...), without no other obvious cause

OR

- A person who did not have a laboratory test or whose laboratory test is negative but who is diagnosed with COVID-19 based on a suggestive clinical presentation and a compatible CT thorax*

¹ In children, only fever without an obvious cause is sufficient to consider the diagnosis of COVID-19 during an epidemic

² These symptoms are more common in the elderly, where an acute infection can be expressed atypically

(*Definition is hospital data driven to allow analysis across sectors) (9)

2. COVID-19 deaths

2.1. DEATHS OF CONFIRMED CASES (=LAB-CONFIRMED)

A death of a confirmed COVID-19 case is a resident with a COVID-19 infection confirmed by a molecular or antigen test¹ who died due to this infection (excluding residents with a confirmed COVID-19 infection who died as a result of another cause).

¹ Moleculaire test: RT-PCR; Antigeen test: snelle Ag test of laboratorium antigeen-test. A positive test for antibodies (immunoglobulins M or G; IgM or IgG) is not sufficient to be classified as a confirmed case.

2.2. DEATHS OF RADIOLOGICALLY-CONFIRMED CASES

A death of a radiologically-confirmed case, is a resident who did not have a laboratory test or whose test was negative for SARS-CoV-2 but is nonetheless diagnosed with COVID-19 on the basis of a suggestive clinical presentation AND a compatible chest CT scan*
(*Definition is hospital data driven to allow analysis across sectors)

Notes: In the surveillance for residential institutions, deaths of radiologically-confirmed cases are included in the possible case deaths section. In the final figures of COVID-19 death, deaths of laboratory-confirmed cases and radiologically-confirmed cases are combined.

2.3. DEATHS OF POSSIBLE CASES

A death of a possible COVID-19 case refers to a resident who meets the clinical criteria for the disease, but does not undergo testing, or has an inconclusive or negative diagnostic test, whether or not there is an epidemiological link to a confirmed case, and who has died as a result of this infection (excluding residents with a possible COVID-19 infection who died as a result of another cause).

A possible case of a COVID-19 infection is any person meeting the clinical criteria:

- at least one of the following main symptoms of acute viral infection, with no other obvious cause: cough; dyspnea (shortness of breath); thoracic pain; acute anosmia (loss of the sense of smell) or dysgeusia (distortion of the sense of taste);

OR

- at least two¹ of the following symptoms, with no other obvious cause: fever; muscle pain; fatigue; rhinitis; sore throat; headache; anorexia; watery diarrhea²; acute confusion²; sudden fall;

OR

- worsening of chronic respiratory symptoms (COPD, asthma, chronic cough,...), without no other obvious cause.

¹ In children, only fever without an obvious cause is sufficient to consider the diagnosis of COVID-19 during this epidemic

² These symptoms are more common in the elderly, where an acute infection can be expressed atypically

3. Other definitions

3.1. STAFF

LTCF staff: all personnel working in the facility, including nursing staff, paramedical staff, animation team, staff concerned with cleaning, maintenance or quality control and LTCF managers and their administrative staff.

The number of staff is always expressed as the number of persons (and not in fulltime equivalents) and is excluding staff members who are absent for longer than 1 month. This makes it possible to know how many persons of the staff are affected and to have an corresponding denominator.

3.2. PERIOD OF REPORTING

Since last reporting: in case of daily reporting, the period since last reporting corresponds with the past 24 hours. If reporting is not done daily, the period since last reporting corresponds with the period since the last reporting. In case of first reporting, this period corresponds to the past 24 hours.

PARTICIPATION AND DATA COLLECTION

1.1. PARTICIPATION

Participation in the surveillance includes:

- Participation of all Belgian nursing homes, other LTCFs and residential institutions during the COVID-19 pandemic
- Reporting of data at institutional level (=aggregated data) (see chapter collected data), including:
 - At least a weekly reporting, **preferably on Tuesdays**, of all data as long as there is no confirmed case among residents and/or staff members (according to the instructions of the federated entities – ‘nil reporting’). Having one fixed day for all institutions, makes it more easy to interpret the data and to do analyses with it.
 - Following confirmation of a case, reporting on a **daily basis until there are no longer cases among residents and staff members**
 - Reporting of the corresponding denominators
 - Reporting of data for each resident who lived in the institution and died due to COVID-19 (=individual level data) (see chapter collected data, question 13)

1.2. DATA COLLECTION TOOLS

Nursing homes and LTCFs fall under the authority of the regions. This means that there are two possible ways of collecting the data:

1. The responsible region adapts this protocol and uses their own data collection tool, but delivers the data to Sciensano.
2. Sciensano offers a common tool for the data collection in nursing homes and LTCFs. In this case, Sciensano provides the data of the participating facilities to the responsible region/organisation.

Note: The Flemish region (Agentschap Zorg en Gezondheid =AZG) is currently using their e-locket for collecting data in nursing homes. The Walloon region (AViQ) is currently using their own tool (Plasma) for collecting data. Both regions send their data to Sciensano, but do not provide all data requested in this protocol. Brussels and Ostbelgien are using the tool implemented by Sciensano (=LimeSurvey) for this surveillance.

DATA TO BE COLLECTED

1. Institution

1. Accreditation number or other unique number to identify the institution (preferably an identification number already used by a recognized federal/regional authority, e.g. NIHDI)
2. Date of registration
3. Name of the institution (*only first time*)
4. Postal code of the institution (*only first time*)
5. Type of facility (Nursing home, Revalidation center, Chronic psychiatric care institution, Shelter (Fedasil, etc.), Residential service (service flat), psychiatric hospital, sheltered living (beschut wonen, IPH), center for disabled people (physically/mentally), youth services, Other) (*only first time*)
6. Number of authorized beds (*only first time*)
7. Current bed occupancy (= the number of residents including hospitalized residents and short-stay residents)
8. Total number of staff members on the 1st of the current month (expressed in number of persons, excluding those absent for more than one month).

Notes:

Accreditation number: The NIHDI number of the institution is the preferred number to enter. This number can easily be matched with other databases. In case the NIHDI number is not known or not available, another accreditation number or unique number can be used to identify the institution.

Type of facility: the type of institution for which accreditation was obtained. If the correct type is not mentioned in the list, 'other' can be selected and should be specified.

Current bed occupancy: this is the current occupancy on the registration day. Deceased residents are excluded.

Total number of staff members: all personnel working in the facility, including nursing staff, paramedical staff, animation team, staff concerned with cleaning, maintenance or quality control and LTCF managers and their administrative staff. Including interns and volunteers.

2. Residents with confirmed COVID-19 infections

9. Number of newly **confirmed** COVID-19 cases since the last reporting.
10. Number of newly **confirmed** COVID-19 cases admitted to a hospital since the last reporting.
11. Total number of **confirmed** COVID-19 cases at the moment of registration.

Notes:

Number of newly confirmed COVID-19 cases: this includes the number of newly confirmed COVID-19 cases who have been admitted to a hospital since the last reporting

Total number confirmed COVID-19 cases: this includes the number of newly confirmed COVID-19 cases who have been admitted to a hospital since the last reporting

3. Deceased residents since last reporting

12. Number of newly deaths in **confirmed, possible or radiology confirmed** COVID-19 cases since the last reporting (CT-scan included).
13. For all COVID-19 death among residents:
 - a) This death has been declared before and changes are entered now (yes/no)
 - b) Date of birth
 - c) Date of death
 - d) Gender (male/female)
 - e) Method of diagnosis:
 - confirmed COVID-19, confirmed by lab test;
 - possible COVID-19, defined by clinic;
 - radiology confirmed COVID-19, defined by CT-scan;
 - f) Place of death (institution, hospital, other)

Notes:

Change in diagnostic status: If a death in a previously registered possible COVID-19 case received a positive test result since the last registration, please re-register as newly confirmed COVID-19 death including the detailed information.

Date of birth: The date of birth is essential to make retrospective corrections (tracing of doubles, more convenient for institutions to retrospectively check data when they have a date of birth, etc.), but also to avoid doubles with other surveillances (e.g. surveillance in hospitals).

Details of deceased residents: Institutions report COVID-19-related deaths through the surveillance networks established for real time epidemiological surveillance. In addition, as usual, physicians complete the death certificate with the cause of death according to WHO guidelines.

4. Staff members with confirmed COVID-19 infections

15. Number of staff members with a newly **confirmed** COVID-19 infection since the last reporting.
16. Total number of staff members absent from work (<1 month) due to a **confirmed** COVID-19 infection at the moment of registration

Notes:

Confirmed case: a symptomatic confirmed case stays a confirmed case until 14 days after the onset of symptoms AND with at least 3 days without fever AND with a significant improvement in respiratory symptoms. An asymptomatic confirmed case stays a confirmed case until 14 days after the test. If the resident has a negative laboratory test within this time span, he/she remains a confirmed case.

5. COVID-19 Vaccination

Information about COVID-19 vaccination is only asked on a temporally basis. These questions will be asked to follow-up vaccination campaigns (e.g. when a booster vaccine is administered), depending on the evolution of the pandemic. All regional health authorities and Sciensano will be involved in the discussion if it is needed to add these questions to the surveillance and for how long.

11. Total number of residents who had a first (partial) dose of a COVID-19 vaccine (½) at the moment of the registration (only for 2-doses vaccination regimen).
12. Total number of residents who had the complete vaccination regimen (1/1 or 2/2 doses) of a COVID-19 vaccine at the moment of the registration.
13. Total number of residents who had the complete vaccination regimen (1/1 or 2/2 doses) + an additional booster of a COVID-19 vaccine at the moment of the registration.
14. Total number of residents who haven't got any COVID-19 vaccination at the moment of the registration.

15. Total number of staff members who had a first (partial) dose of a COVID-19 vaccine (½) at the moment of the registration (only for 2-doses vaccination regimen).
16. Total number of staff members who had the complete vaccination regimen (1/1 or 2/2 doses) of a COVID-19 vaccine at the moment of the registration.
17. Total number of staff members who had the complete vaccination regimen (1/1 or 2/2 doses) + an additional booster of a COVID-19 vaccine at the moment of the registration.
18. Total number of staff members who haven't got any COVID-19 vaccination at the moment of the registration.

Note:

First (partial) dose: only one of the two doses of a COVID-19 vaccine has been given to the resident/staff member. The number of residents/staff members who received the full vaccination regimen (1/1 or 2/2 doses) or a full vaccination regimen + booster should not be included in this variable.

Complete vaccination scheme: the resident/staff member received all required (either single shot; 1/1, or both from a bivalent scheme; 2/2) doses of a COVID-19 vaccine. The number of residents/staff members who received the full vaccination regimen (1/1 or 2/2 doses) + booster should not be included in this variable.

Complete vaccination scheme + booster: the resident/staff member received all required (either single shot; 1/1, or both from a bivalent scheme; 2/2) doses of a COVID-19 vaccine and received an additional booster vaccination.

ANALYSES AND REPORTING

1. Statistical analyses

Mostly descriptive analyses will be done to give an incidence and prevalence of cases among residents and staff in residential institutions, as well as to quantify the number of COVID-19 deaths among residents.

2. Data sharing

These data are collected in order to follow-up the situation in nursing homes, other LTCFs and other residential institutions.

Data at national/regional/provincial level (never at institutional or municipality level!) are used by Sciensano to follow-up trends in time and are published in the periodic reports and on the dashboard.

If the data collection tool set up by Sciensano is used, data of the participating institutions are sent to the relevant federated entities.

Data obtained through this surveillance might be publicly shared via The European Surveillance System (TESSy) of the European Centre for Disease Prevention and Control (<https://www.ecdc.europa.eu/en/publications-data/european-surveillance-system-tessy>) in an aggregated way only. The federated entities gave their approval for this during the RMG meeting of 1st March 2021 and for the COVID19BE Open Data Platform on Epistat (<https://epistat.wiv-isp.be/covid/>) during the RMG meeting of 17th May 2021.

Researchers have the opportunity to request data that are not available in the open data in the context of an official scientific research on COVID-19, in compliance with a strict protocol established by Sciensano's Data Protection Officer (<https://epistat.wiv-isp.be/datarequest/index.aspx>), in accordance with GDPR, personal data law, and the non-publication of data at institutions or municipalities level. If there are data concerning nursing homes cases or data about COVID-19 deaths at levels lower than the provincial level requested, agreement to share the data is asked to the federated entities.

3. Reporting

3.1. DAILY REPORTING

There is a daily public report in which interesting results are included, depending on questions asked. The number of COVID-19 deaths can for example be included in these reports.

3.2. PERIODIC REPORTING

There is a periodic report (for public; e.g. weekly or monthly, or thematic report) in which more in-depth results are included, depending on the questions asked.

3.3. RESEARCH PAPERS

The data collected through this surveillance can be used for research papers, after informing the federated entities.

3.4. DASHBOARD

The data collected through this surveillance can be presented in dynamic graphs on the dashboard (<https://epistat.wiv-isp.be/covid/covid-19.html>).

3.5. EUROPEAN SURVEILLANCE SYSTEM (TESSy)

The data collected through this surveillance can be presented in dynamic graphs on the ECDC website (https://covid19-country-overviews.ecdc.europa.eu/#7_Belgium).

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