# CRVS technical guide
## Correctly certifying deaths due to COVID-19: A quick reference guide

This document provides guidelines for certifying deaths due to COVID-19 using the World Health Organization's (WHO) International Form of Medical Certificate of Cause of Death (death certificate). The full-length version of this guide is available on the CRVS Knowledge Gateway at: https://crvsgateway.info/file/17062/3922

## Sections of the death certificate

There are three main sections of the death certificate:

1. **Part 1** – for recording the sequence/chain of events leading to death. The direct cause of death is entered at Part 1(a). The underlying cause of death - the disease or injury which initiated the train of morbid events leading directly to death, or the circumstances of the accident or violence which produced the fatal injury - is reported in the lowest used line of Part 1.

2. **Part 2** – for recording other significant or contributory diseases or conditions that were present at the time of death but did not directly lead to the underlying cause of death listed in Part 1.

3. **Time intervals column** – for recording the approximate time interval between the onset of each condition and death.

## Certifying deaths due to COVID-19

If a patient dies following a COVID-19 infection, this condition must be recorded in the death certificate, along with all relevant conditions reported in a logical sequence. Generally, patients with a COVID-19 infection die of severe respiratory distress caused by pneumonia, caused by COVID-19. **In such cases, COVID-19 is the underlying cause of death and should be reported in the lowest used line of Part 1 of the death certificate.**

The current understanding is that the risk of mortality from COVID-19 is higher among patients with co-existing chronic illnesses such as diabetes mellitus, hypertension, and chronic obstructive pulmonary disease. Whilst COVID-19 is reported in Part 1 as the underlying cause of death, other co-morbidities that may have contributed to death should be reported in Part 2 of the death certificate.

It is also necessary to state whether a COVID-19 infection is laboratory confirmed or not. Where a COVID-19 infection is not laboratory confirmed, but clinical and epidemiological information are suggestive of the diagnosis, a probable or suspected diagnosis of COVID-19 can be made. In such cases, COVID-19 should be reported as the underlying cause in the death certificate. Recording this information is very important for mortality coding purposes.

## Common mistakes to avoid

**Reporting ill-defined conditions as the underlying cause of death.** While COVID-19 patients may die of severe respiratory distress or failure, these are not underlying causes as they can be caused by a number of other conditions. The underlying cause for COVID-19 deaths should *always* be reported as either COVID-19 virus identified, or COVID-19 virus not identified.

**Recoding a clinically improbable sequence of events leading to death.** Incorrect sequencing makes it difficult to select the correct underlying cause of death.

**Illegible handwriting.** Death certificates should always be filled out clearly, so the writing is legible to other users.

**Use of acronyms or abbreviations.** Abbreviations can mean different things to different people, and their use in death certificates should be avoided where possible. COVID-19 is a standard accepted worldwide, however, and is acceptable to use.

## Correct certification examples

### Case example 1

A 45-year-old person who had recently travelled overseas was admitted to hospital with a three-day history of fever and sore throat. The nasopharyngeal swab was positive for COVID-19. On the day of admission, the patient developed breathing difficulties and was diagnosed with pneumonia. On the fifth day of hospitalisation, the patient developed severe respiratory distress and died soon thereafter. The patient had a 15-year history of type 2 diabetes and a 10-year history of hypertension.

### Case example 2

A 76-year old person who reported recent contact with a COVID-19 positive individual, was admitted to hospital with a history of fever and fatigue for eight days and breathing difficulties for five days. The chest X–ray on admission showed evidence of bilateral pneumonia. Facilities for laboratory testing were not available in the hospital, but a clinical diagnosis of COVID-19 was made. The patient then developed severe respiratory distress and died on the same day of admission. The patient had a 15-year history of type 2 diabetes and 10-year history of hypertension. The patient had been a known asthmatic for the last 10 years.

### Case example 3

A 60-year old male was admitted to hospital with a five-day history of fever, sore throat and body aches. He gave a history that included two years of occasional chest discomfort, hypertension, a 30-year history of one-pack per-day cigarette smoking, and a 10-year history of insulin-dependent diabetes mellitus. He was noted to be markedly obese and to have severe hypercholesterolemia. His nasopharyngeal swab for polymerase chain reaction (PCR) was positive upon admission. Three days after hospitalisation, his fever and sore throat subsided. On the tenth day of hospitalisation, the second PCR was negative. One day later, the patient complained of sudden tightening retrosternal chest pain associated with sweating, nausea and vomiting. ECG showed evidence of non-ST elevation anterior myocardial infarction. A cardiac catheterisation done the next day demonstrated severe multi-vessel coronary artery stenosis. Two hours after the cardiac catheterisation, he again developed severe chest pain and went into cardiac arrest. Despite all attempts of resuscitation, the patient expired thirty minutes after the arrest.

### Figure for case example 1

| *Frame A*: Medical data: Part 1 and 2 | | | | |
|---|---|---|---|---|
| **1**<br>Report disease or condition directly leading to death on line a<br><br>Report chain of events in due to order (if applicable)<br><br>State the underlying cause on the lowest used line | | | Cause of death | Time interval from onset to death |
| | | a | **Severe acute respiratory distress syndrome** | **1 day** |
| | | b | Due to: **COVID-19 infected pneumonia** | **5 days** |
| | | c | Due to: **Coronavirus disease (COVID-19) Laboratory confirmed** | **8 days** |
| | | d | Due to: | |
| **2**  Other significant conditions contributing to death  (time intervals can be included in brackets after the condition) | | | **Hypertension (10 years), Diabetes mellitus type 2 (15 years)** | |

### Figure for case example 2

| *Frame A*: Medical data: Part 1 and 2 | | | | |
|---|---|---|---|---|
| **1**<br>Report disease or condition directly leading to death on line a<br><br>Report chain of events in due to order (if applicable)<br><br>State the underlying cause on the lowest used line | | | Cause of death | Time interval from onset to death |
| | | a | **Severe acute respiratory distress syndrome** | **1 day** |
| | | b | Due to: **COVID-19 infected pnuemonia** | **5 days** |
| | | c | Due to: **Coronavirus disease (COVID-19) No laboratory confirmation** | **8 days** |
| | | d | Due to: | |
| **2**  Other significant conditions contributing to death  (time intervals can be included in brackets after the condition) | | | **Hypertension (10 years) Diabetes mellitus type 2 (15 years)**<br>**Bronchial asthma (10 years)** | |

### Figure for case example 3

| *Frame A*: Medical data: Part 1 and 2 | | | | |
|---|---|---|---|---|
| **1**<br>Report disease or condition directly leading to death on line a<br><br>Report chain of events in due to order (if applicable)<br><br>State the underlying cause on the lowest used line | | | Cause of death | Time interval from onset to death |
| | | a | **Non ST elevation myocardial infarction** | **2 days** |
| | | b | Due to: **Coronary arteriosclerosis** | **2 years** |
| | | c | Due to: | |
| | | d | Due to: | |
| **2**  Other significant conditions contributing to death  (time intervals can be included in brackets after the condition) | | | **COVID-19 (test positive) (17 days), Hypertension (10 years), Diabetes mellitus (10 years), Smoking (30 years), Obesity, Hypercholesterolaemia** | |

*Not a COVID-19 death*

The program partners on this initiative include: The University of Melbourne, Australia; CDC Foundation, USA; Vital Strategies, USA; Johns Hopkins Bloomberg School of Public Health, USA; World Health Organization, Switzerland.

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