

# **Improving Cause of Death Reporting**

## **Module 4**

Welcome to Module 4 of Improving Cause of Death Reporting.

## Competencies at end of this module

### **Understand guidelines for special situations:**

- HIV
- Diabetes Mellitus
- Hypertension
- Infectious & parasitic conditions
- Cancer
- Death in the elderly
- Death on arrival

You now know all the role players involved in the process of recording the cause of death and how the information is used. You also know how to complete a death certificate, including cases involving perinatal and maternal deaths, injury or other external causes and when to refer to Forensic Pathology Services. At the end of this module you should be able to demonstrate the competencies to, report the cause of death in other special conditions, namely

- HIV
- Diabetes Mellitus
- Hypertension
- Infectious and parasitic conditions
- Cancer
- Death in the elderly
- And death on arrival

## Guidelines for special situations

### Guidelines for special situations

HIV

Diabetes Mellitus

Hypertension

Infectious and parasitic conditions

Cancer

Death in the elderly

Death on arrival

Guidelines for special situations – HIV.

# HIV

## Immediate cause of death is

- Condition associated with HIV
- AIDS defining condition

## Report "HIV" in Part I as underlying cause of death (on lowest completed line)

### 77. CAUSES OF DEATH

**Part 1** Enter the disease, injuries or complications that caused the death. Do not enter the mode of dying, such as cardiac or respiratory arrest, shock or heart failure. **List only one cause on each line**

**IMMEDIATE CAUSE** (final disease or condition resulting in death)

Sequentially list conditions, if any, leading to immediate cause.

Enter **UNDERLYING CAUSE** last (Disease or injury that initiated events resulting in death)

- a) **TB**  
Due to (or as a consequence of)
- b) **HIV / AIDS**  
Due to (or as a consequence of)
- c) \_\_\_\_\_  
Due to (or as a consequence of)
- d) \_\_\_\_\_

### Examples

- Diarrhea
- Pneumonia
- Cryptococcal meningitis
- Cervical cancer

In HIV positive persons where the immediate cause of death is known to be:

A condition associated with HIV, or  
is an AIDS defining illness

HIV should be reported in Part 1 as the underlying cause of death. That is, on the on lowest completed line.

Some examples include diarrhea, pneumonia, cryptococcal meningitis, and cervical cancer.

The immediate cause of death should be reported on line A of Part 1.

## HIV: Case scenario

A 35-year-old woman presented with a three month history of productive cough, haemoptysis and severe weight loss. CXR was suggestive of pulmonary TB. Acid fast bacilli were present in the sputum. An HIV test was positive. She was admitted to hospital for treatment. During the night she had a massive episode of haemoptysis and died.

### G.1 FOR DEATHS OCCURRING AFTER ONE WEEK OF BIRTH

Instructions: Section G.1 is to be completed for all deaths that occurred after one week of birth

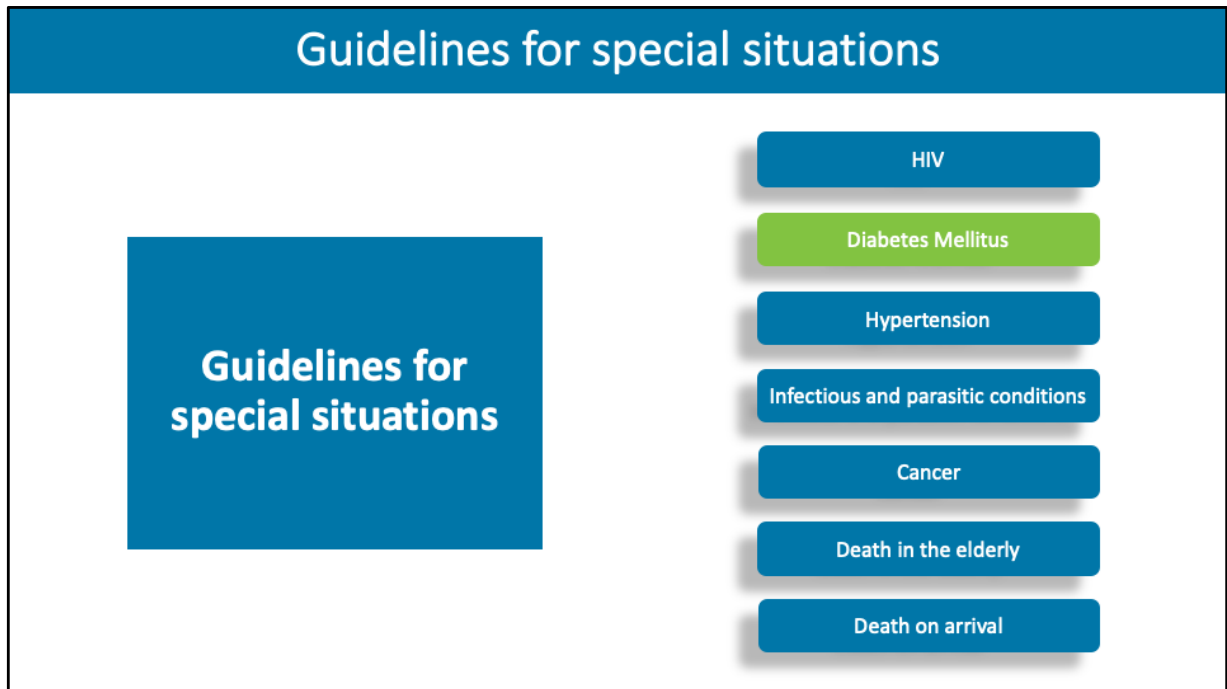
#### 77. CAUSES OF DEATH

|               |                                                                                                                                                                                                            |                                                                      |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|
| <b>Part 1</b> | Enter the disease, injuries or complications that caused the death. Do not enter the mode of dying, such as cardiac or respiratory arrest, shock or heart failure. <b>List only one cause on each line</b> | Approximate interval between onset and death (Days / Months / Years) |
|               | <b>IMMEDIATE CAUSE</b> (final disease or condition resulting in death)                                                                                                                                     | <b>3 months</b>                                                      |
|               | Sequentially list conditions, if any, leading to immediate cause.                                                                                                                                          | <b>Over 3 months</b>                                                 |
|               | Enter <b>UNDERLYING CAUSE</b> last (Disease or injury that initiated events resulting in death)                                                                                                            |                                                                      |
| <b>Part 2</b> | Other significant conditions contributing to death but not resulting in underlying cause given in Part 1                                                                                                   |                                                                      |

Let's have a look at a case scenario where the underlying cause of death was HIV.

A 35 year old woman presented with a three month history of productive cough, haemoptysis and severe weight loss. The chest X-Ray was suggestive of pulmonary TB. Acid fast bacilli were present in the sputum. An HIV test was positive. She was admitted to hospital for treatment. During the night she had a massive episode of haemoptysis and died.

- The immediate cause of death in this patient is Tuberculosis reported on line A of Part 1
- HIV is the underlying cause of death, so it is reported on the lowest used line of Part 1.
- Haemoptysis is a symptom and should not be reported on the death certificate.



Guidelines for special situations – Diabetes mellitus.

## Diabetes Mellitus

**Report “type” of diabetes (if known)**

**Diabetes can be:**

underlying cause of death

or risk factor for another underlying cause of death



When diabetes mellitus is a cause of death, the type of diabetes should be reported, if known.

The guidelines for certifying diabetes as a cause of death are complex, as diabetes can be an underlying cause of death or, a risk factor for another underlying cause of death.

## Diabetes Mellitus: Case Scenario

A diabetic man who had been under insulin control for many years, developed ischemic heart disease and died suddenly from a myocardial infarction.

### G.1 FOR DEATHS OCCURRING AFTER ONE WEEK OF BIRTH

Instructions: Section G.1 is to be completed for all deaths that occurred after one week of birth

#### 77. CAUSES OF DEATH

|               |                                                                                                                                                                                                            | Approximate interval between onset and death (Days / Months / Years) |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|
| <b>Part 1</b> | Enter the disease, injuries or complications that caused the death. Do not enter the mode of dying, such as cardiac or respiratory arrest, shock or heart failure. <b>List only one cause on each line</b> |                                                                      |
|               | <b>IMMEDIATE CAUSE</b> (final disease or condition resulting in death)                                                                                                                                     |                                                                      |
|               | a) <b>Myocardial infarction</b>                                                                                                                                                                            | <b>Minutes</b>                                                       |
|               | Due to (or as a consequence of)                                                                                                                                                                            |                                                                      |
|               | Sequentially list conditions, if any, leading to immediate cause.                                                                                                                                          |                                                                      |
|               | b) <b>Chronic ischemic heart disease</b>                                                                                                                                                                   | <b>Months</b>                                                        |
|               | Due to (or as a consequence of)                                                                                                                                                                            |                                                                      |
|               | Enter <b>UNDERLYING CAUSE</b> last (Disease or injury that initiated events resulting in death)                                                                                                            |                                                                      |
|               | c) _____                                                                                                                                                                                                   |                                                                      |
|               | Due to (or as a consequence of)                                                                                                                                                                            |                                                                      |
|               | d) _____                                                                                                                                                                                                   |                                                                      |
| <b>Part 2</b> | Other significant conditions contributing to death but not resulting in underlying cause given in Part 1 <b>Diabetes mellitus</b>                                                                          | <b>Years</b>                                                         |

Let us look at case scenarios where diabetes is a cause of death or a contributing condition.

A diabetic man who had been under insulin control for many years, developed ischemic heart disease and died suddenly from a myocardial infarction.

- Myocardial infarction is the immediate cause of death on line A of Part 1.
- Chronic ischaemic heart disease is reported on line B of Part 1 as the underlying cause of death.
- Diabetes mellitus is a contributing factor, so it is reported in Part 2.



## Diabetes Mellitus: Case Scenario

A diabetic man who had been under insulin control for many years, is also known with chronic ischemic heart disease. He developed septicaemia due to his diabetic foot and dies in hospital. Since the man had died from an expected complication of the diabetes, in this case septicaemia as a result of diabetic foot, the heart condition played only a subsidiary part in the death.

### G.1 FOR DEATHS OCCURRING AFTER ONE WEEK OF BIRTH

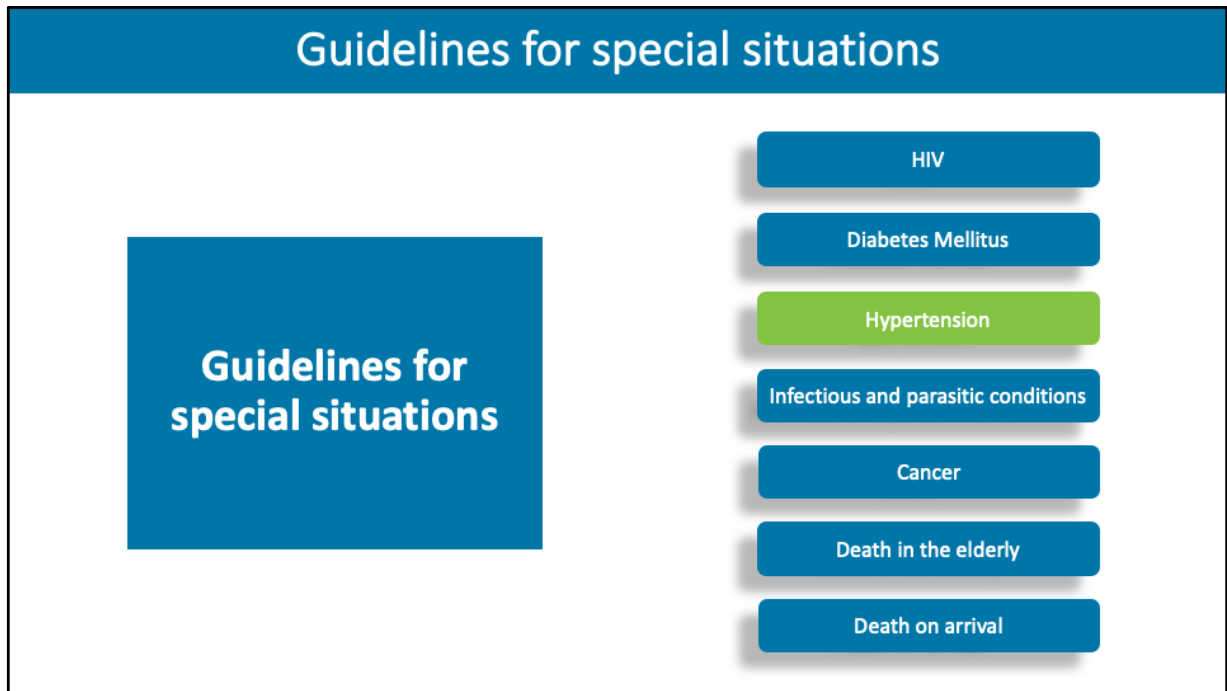
Instructions: Section G.1 is to be completed for all deaths that occurred after one week of birth

#### 77. CAUSES OF DEATH

| Part 1                                                                                                                                                                                                                                                        | Enter the disease, injuries or complications that caused the death. Do not enter the mode of dying, such as cardiac or respiratory arrest, shock or heart failure. List only one cause on each line                                          | Approximate interval between onset and death (Days / Months / Years)          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|
| <p><b>IMMEDIATE CAUSE</b> (final disease or condition resulting in death)</p> <p>Sequentially list conditions, if any, leading to immediate cause.</p> <p>Enter <b>UNDERLYING CAUSE</b> last (Disease or injury that initiated events resulting in death)</p> | <p>a) <b>Septicaemia</b> _____<br/>Due to (or as a consequence of)</p> <p>b) <b>Diabetic foot</b> _____<br/>Due to (or as a consequence of)</p> <p>c) <b>Diabetes mellitus</b> _____<br/>Due to (or as a consequence of)</p> <p>d) _____</p> | <p><b>Days</b> _____</p> <p><b>Months</b> _____</p> <p><b>Years</b> _____</p> |
| <p><b>Part 2</b></p>                                                                                                                                                                                                                                          | <p>Other significant conditions contributing to death but not resulting in underlying cause given in Part 1 <b>Chronic ischemic heart disease</b> _____</p>                                                                                  | <p><b>Years</b> _____</p>                                                     |

In this next case scenario a diabetic man, who had been under insulin control for many years, is also known with chronic ischaemic heart disease. He developed septicaemia due to his diabetic foot and dies in hospital. Since the man had died from an expected complication of the diabetes, in this case septicaemia as a result of diabetic foot, the heart condition played only a subsidiary part in the death.

- Septicaemia, due to diabetic foot, is the immediate cause of death on line A of Part 1.
- Diabetes mellitus is the underlying cause of the diabetic foot, so it is reported on the lowest used line of Part 1.
- In this case chronic ischaemic heart disease is a contributing factor, so it is reported in Part 2.
- Thus, as a general rule if the patient dies from a complication of diabetes, such as diabetic nephropathy or diabetic foot with sepsis, report diabetes mellitus as the underlying cause of death in Part 1.
- If the patient dies from a stroke or myocardial infarction, report diabetes in Part 2 as a risk factor.



Guidelines for special situations – Hypertension.

## Hypertension as a cause of death

### State whether it is

- Essential hypertension
- Hypertension secondary to other condition (e.g. chronic pyelonephritis)



When reporting hypertension as a cause of death it is important to state whether it is essential hypertension or hypertension secondary to some other condition, such as chronic pyelonephritis.

## Hypertension: Case Scenario

A male, 60 years of age, had a history of hypertension for 20 years and symptoms of ischaemic heart disease for 5 years. He died at home. A coronary thrombosis was suspected, and this was confirmed at autopsy.

### G.1 FOR DEATHS OCCURRING AFTER ONE WEEK OF BIRTH

Instructions: Section G.1 is to be completed for all deaths that occurred after one week of birth

#### 77. CAUSES OF DEATH

|               |                                                                                                                                                                                                            |                                                                      |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|
| <b>Part 1</b> | Enter the disease, injuries or complications that caused the death. Do not enter the mode of dying, such as cardiac or respiratory arrest, shock or heart failure. <b>List only one cause on each line</b> | Approximate interval between onset and death (Days / Months / Years) |
|               | <b>IMMEDIATE CAUSE</b> (final disease or condition resulting in death)                                                                                                                                     | <b>Seconds</b>                                                       |
|               | a) <b>Coronary thrombosis</b><br>Due to (or as a consequence of) _____                                                                                                                                     | _____                                                                |
|               | Sequentially list conditions, if any, leading to immediate cause.                                                                                                                                          | <b>5 years</b>                                                       |
|               | b) <b>Ischaemic heart disease</b><br>Due to (or as a consequence of) _____                                                                                                                                 | _____                                                                |
|               | Enter <b>UNDERLYING CAUSE</b> last (Disease or injury that initiated events resulting in death)                                                                                                            | _____                                                                |
|               | c) _____<br>Due to (or as a consequence of) _____                                                                                                                                                          | _____                                                                |
|               | d) _____                                                                                                                                                                                                   | _____                                                                |
| <b>Part 2</b> | Other significant conditions contributing to death but not resulting in underlying cause given in Part 1 <b>Essential hypertension</b>                                                                     | <b>20 years</b>                                                      |

In this next case scenario a male, 60 years of age, had a history of hypertension for 20 years and symptoms of ischaemic heart disease for 5 years. He died at home. A coronary thrombosis was suspected, and this was confirmed at autopsy.

- Coronary thrombosis is the immediate cause of death on line A of Part 1.
- Ischaemic heart disease is the underlying cause of death
- Essential hypertension is a contributing cause of death so it is reported in Part 2.

## Hypertension: Case Scenario

A man died of cerebral haemorrhage, because of secondary hypertension from chronic pyelonephritis. The chronic pyelonephritis was a result of outflow obstruction, which was because of prostatic adenoma. He also had a history of diabetes mellitus, which had been diagnosed five years before his death.

### G.1 FOR DEATHS OCCURRING AFTER ONE WEEK OF BIRTH

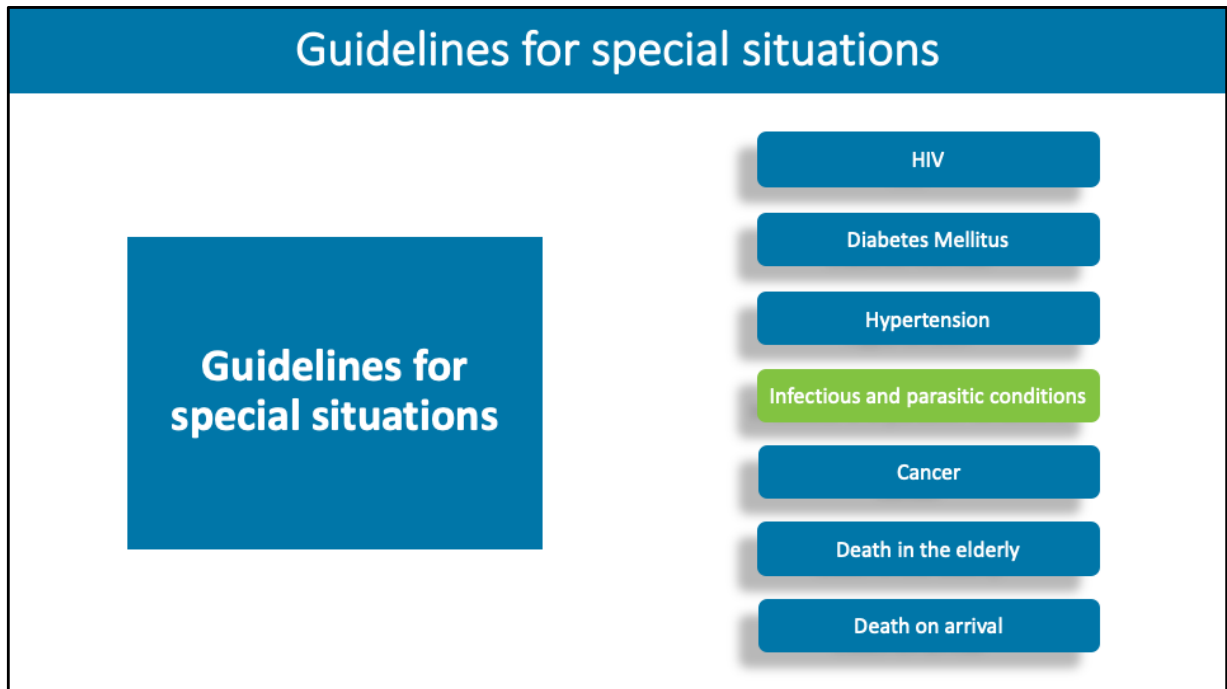
**Instructions:** Section G.1 is to be completed for all deaths that occurred after one week of birth

#### 77. CAUSES OF DEATH

|               |                                                                                                                                                                                                            | Approximate interval between onset and death (Days / Months / Years) |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|
| <b>Part 1</b> | Enter the disease, injuries or complications that caused the death. Do not enter the mode of dying, such as cardiac or respiratory arrest, shock or heart failure. <b>List only one cause on each line</b> |                                                                      |
|               | <b>IMMEDIATE CAUSE</b> (final disease or condition resulting in death)                                                                                                                                     | <b>Days</b>                                                          |
|               | Sequentially list conditions, if any, leading to immediate cause.                                                                                                                                          | <b>Weeks</b>                                                         |
|               | Enter <b>UNDERLYING CAUSE</b> last (Disease or injury that initiated events resulting in death)                                                                                                            | <b>Months</b>                                                        |
|               |                                                                                                                                                                                                            | <b>Years</b>                                                         |
| <b>Part 2</b> | Other significant conditions contributing to death but not resulting in underlying cause given in <b>Part 1</b>                                                                                            | <b>5 years</b>                                                       |

In this next case scenario a man died of cerebral haemorrhage, because of secondary hypertension from chronic pyelonephritis. The chronic pyelonephritis was a result of outflow obstruction, which was because of prostatic adenoma. He also had a history of diabetes mellitus, which had been diagnosed five years before his death.

- Cerebral haemorrhage is the immediate cause of death on line A of Part 1.
- Secondary hypertension due to chronic pyelonephritis are intermediate causes
- Prostatic adenoma is the underlying cause of death, so it is reported on the lowest used line of Part 1.
- In this case diabetes mellitus is a contributing factor, so it is reported in Part 2.



Guidelines for special situations – Infectious and parasitic conditions.

## Infectious and Parasitic Conditions

If known, state on death certificate

**Causal agent**

e.g. *Staphylococcus aureus*

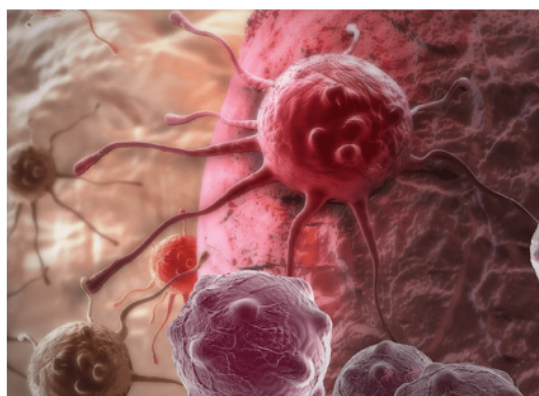
**Site of the infection**

e.g. Urinary tract, respiratory tract

**Do not use term “Septicaemia”** alone if the source of infection can be identified

Use terms such as septic abortion, community-acquired pneumonia, urinary tract infection, etc.

Where cause or site of sepsis is unknown, state “septicaemia (unknown site)”



In the case of an infectious or parasitic condition, if the causal agent is known, this should be stated on the death certificate.

It is also important,

- To state the site of the infection, if it is known, such as urinary or respiratory tract.
- If the source of the infection can be identified, the term “septicaemia” or “sepsis” should not be reported as the underlying cause of death.
- Terms that should be used could be examples such as septic abortion, community-acquired pneumonia or urinary tract infection.

However, where the cause or site of the septicaemia is unknown, state “septicaemia (unknown site)” on the certificate.

## Infectious and Parasitic Conditions: Case Scenario

A 10-month old child presented with a history of fever for 3 days. On examination the child was malnourished, with a distended abdomen and loss of muscle mass and with neck stiffness. A lumbar puncture led to the diagnosis of *Haemophilus Influenza* meningitis and IV antibiotics were started. After a day in hospital the child became tachypnoeic with bilateral crepitations in the lungs. He dies a few hours later.

### G.1 FOR DEATHS OCCURRING AFTER ONE WEEK OF BIRTH

Instructions: Section G.1 is to be completed for all deaths that occurred after one week of birth

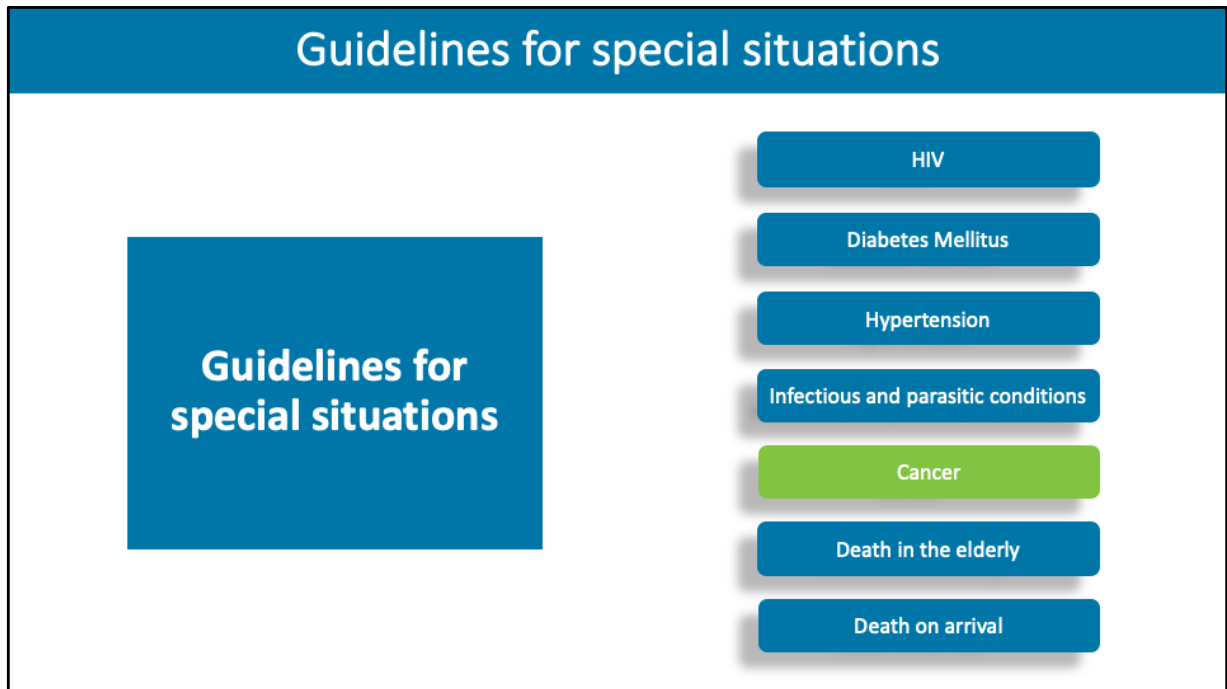
#### 77. CAUSES OF DEATH

|               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                      |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|
| <b>Part 1</b> | Enter the disease, injuries or complications that caused the death. Do not enter the mode of dying, such as cardiac or respiratory arrest, shock or heart failure. <b>List only one cause on each line</b><br><br><b>IMMEDIATE CAUSE</b> (final disease or condition resulting in death)<br><br>Sequentially list conditions, if any, leading to immediate cause.<br><br>Enter <b>UNDERLYING CAUSE</b> last (Disease or injury that initiated events resulting in death) | Approximate interval between onset and death (Days / Months / Years) |
|               | a) <u>Bronchopneumonia</u><br>Due to (or as a consequence of) _____                                                                                                                                                                                                                                                                                                                                                                                                      | <u>Hours</u>                                                         |
|               | b) <u>Haemophilus influenza meningitis</u><br>Due to (or as a consequence of) _____                                                                                                                                                                                                                                                                                                                                                                                      | <u>4 days</u>                                                        |
|               | c) _____<br>Due to (or as a consequence of) _____                                                                                                                                                                                                                                                                                                                                                                                                                        | _____                                                                |
|               | d) _____<br>Due to (or as a consequence of) _____                                                                                                                                                                                                                                                                                                                                                                                                                        | _____                                                                |
| <b>Part 2</b> | Other significant conditions contributing to death but not resulting in underlying cause given in Part 1 <u>Malnutrition</u>                                                                                                                                                                                                                                                                                                                                             | <u>Months</u>                                                        |

In this next case scenario a 10-month-old child presented with a history of fever for 3 days. On examination the child was malnourished, with a distended abdomen and loss of muscle mass and with neck stiffness. A lumbar puncture led to the diagnosis of *Haemophilus Influenza* meningitis and IV antibiotics were started. After a day in hospital the child became tachypnoeic with bilateral crepitations in the lungs. He dies a few hours later.

- Bronchopneumonia is the immediate cause of death on line a of Part 1.
- *Haemophilus influenza meningitis* is the underlying cause of the pneumonia, so it is reported on the lowest used line of Part 1.
- In this case malnutrition is a contributing factor, so it is reported in Part 2.





Guidelines for special situations – Cancer.

## Cancer

### Site of cancer

### Primary or secondary cancer

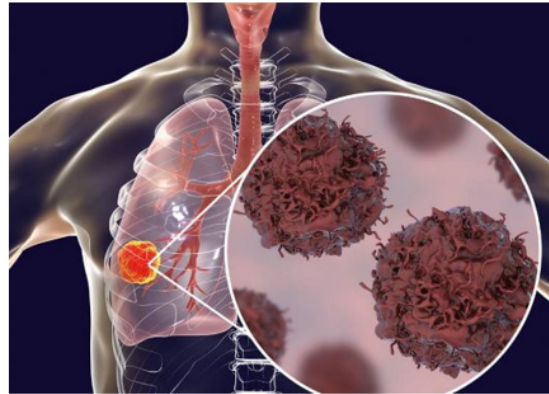
### If secondary:

State the primary site

If primary site is unknown, state  
“primary unknown”

### Histological type

### Stage of cancer



When the cause of death is cancer, it is very important to report the, Site of the cancer.

Also state whether it is primary or secondary cancer.

If it is secondary, state the primary site, if known.

If it is unknown, state “primary unknown” as the underlying cause of death.

Also state the histological type, such as adenocarcinoma, if it is known.

If the stage – such as Stage 3B breast cancer – is known, it should be reported.

## Cancer: Case Scenario

A 60-year old woman was diagnosed with carcinoma of the breast 5 years ago. It was treated with a mastectomy and radiotherapy. She was well until 6 months ago, when she was diagnosed with secondary carcinoma of the femur. She was admitted to hospital 2 days ago with a pathological fracture. After a week in hospital she suffered a massive pulmonary embolism and died shortly after.

### G.1 FOR DEATHS OCCURRING AFTER ONE WEEK OF BIRTH

Instructions: Section G.1 is to be completed for all deaths that occurred after one week of birth

#### 77. CAUSES OF DEATH

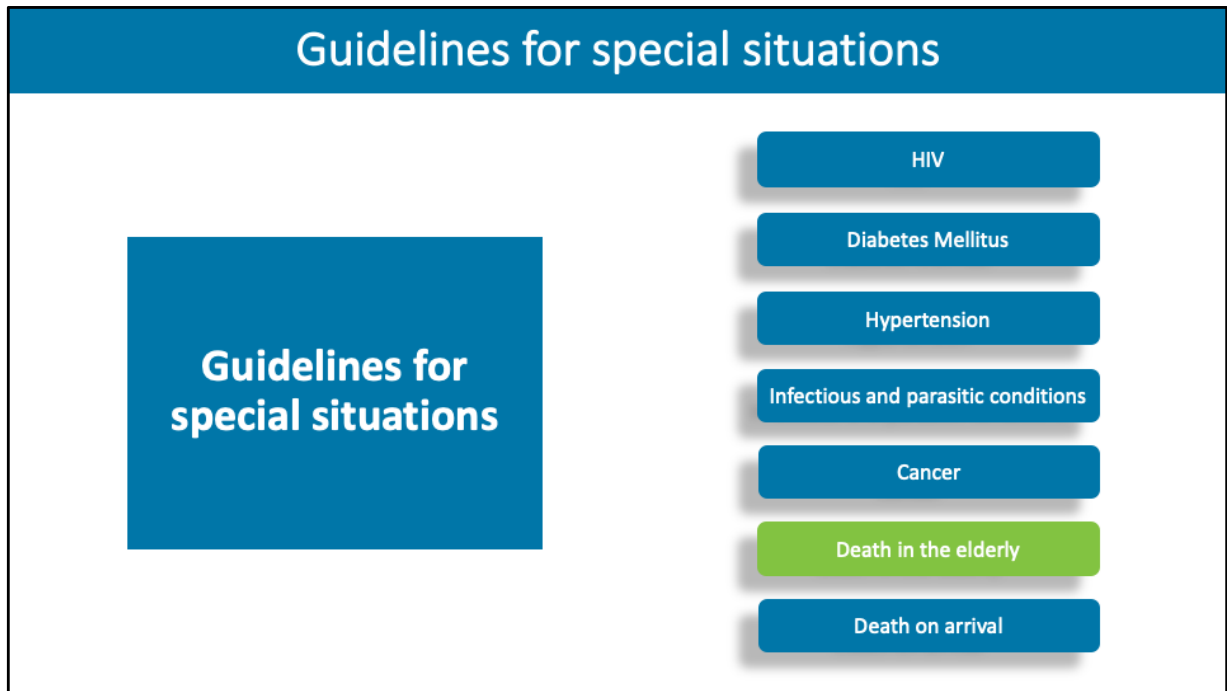
|               |                                                                                                                                                                                                            |                                                                      |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|
| <b>Part 1</b> | Enter the disease, injuries or complications that caused the death. Do not enter the mode of dying, such as cardiac or respiratory arrest, shock or heart failure. <b>List only one cause on each line</b> | Approximate interval between onset and death (Days / Months / Years) |
|               | <b>IMMEDIATE CAUSE</b> (final disease or condition resulting in death)                                                                                                                                     | _____                                                                |
|               | Sequentially list conditions, if any, leading to immediate cause.                                                                                                                                          | _____                                                                |
|               | Enter <b>UNDERLYING CAUSE</b> last (Disease or injury that initiated events resulting in death)                                                                                                            | _____                                                                |
| <b>Part 2</b> | Other significant conditions contributing to death but not resulting in underlying cause given in Part 1 _____                                                                                             | _____                                                                |

|  |                                              |       |
|--|----------------------------------------------|-------|
|  | a) <b>Pulmonary embolism</b>                 | _____ |
|  | Due to (or as a consequence of)              | _____ |
|  | b) <b>Pathological fracture of the femur</b> | _____ |
|  | Due to (or as a consequence of)              | _____ |
|  | c) <b>Femur metastases</b>                   | _____ |
|  | Due to (or as a consequence of)              | _____ |
|  | d) <b>Breast cancer</b>                      | _____ |

In this next case scenario a 60-year-old woman was diagnosed with carcinoma of the breast 5 years ago. It was treated with a mastectomy and radiotherapy. She was well until 6 months ago, when she was diagnosed with secondary carcinoma of the femur. She was admitted to hospital 2 days ago with a pathological fracture. After a week in hospital she suffered a massive pulmonary embolism and died shortly after.

- Pulmonary embolism is the immediate cause of death on line A of Part 1.
- The pathological fracture of the femur due to metastases are intermediate causes
- Breast cancer is the underlying cause of death, so it is reported on the lowest used line of Part 1.



Guidelines for special situations – Death in the elderly.

## Deaths in the Elderly

### **Multiple comorbidities in elderly:**

#### **Challenging to determine underlying cause of death**

Part 1: choose single sequence of events that led to death

Part 2: conditions that do not fit into causal sequence

#### **Use medical diagnoses, not “old age” or “advanced age”**

#### **Refer to forensic pathology services:**

Deaths due to falls and other injury-related conditions



- The presence of multiple comorbidities in the elderly make the determination of the underlying cause of death challenging.
- Where multiple comorbidities exist, choose the single sequence of events that is in your best medical opinion the sequence that led to death, to report in part 1.
- Conditions that do not fit into the causal sequence can be reported in Part 2.
- Terms such as “old age”, senility or “advanced age” are uninformative and should not be reported. Where possible enter a specific medical diagnosis.
- Deaths due to falls and other injury related conditions in the elderly - even if they are as a result of natural causes such as blindness - are not natural causes and should be reported to forensic pathology services.

## Deaths in the Elderly: Case Scenario

A 70-year-old man is known with a 20-year history of hypertension, a 15-year history of type 2 diabetes mellitus, a myocardial infarction eight years ago and a five-year history of congestive heart failure. He was admitted to the hospital with worsening shortness of breath. Over the past five days he had noticed increased swelling in his legs and had developed a cough productive of clear sputum. He was admitted with a diagnosis of an exacerbation of congestive heart failure. Unfortunately, despite aggressive diuresis, he progressed to decompensated heart failure requiring inotropic support. He remained hemodynamically unstable and died six days after admission.

### G.1 FOR DEATHS OCCURRING AFTER ONE WEEK OF BIRTH

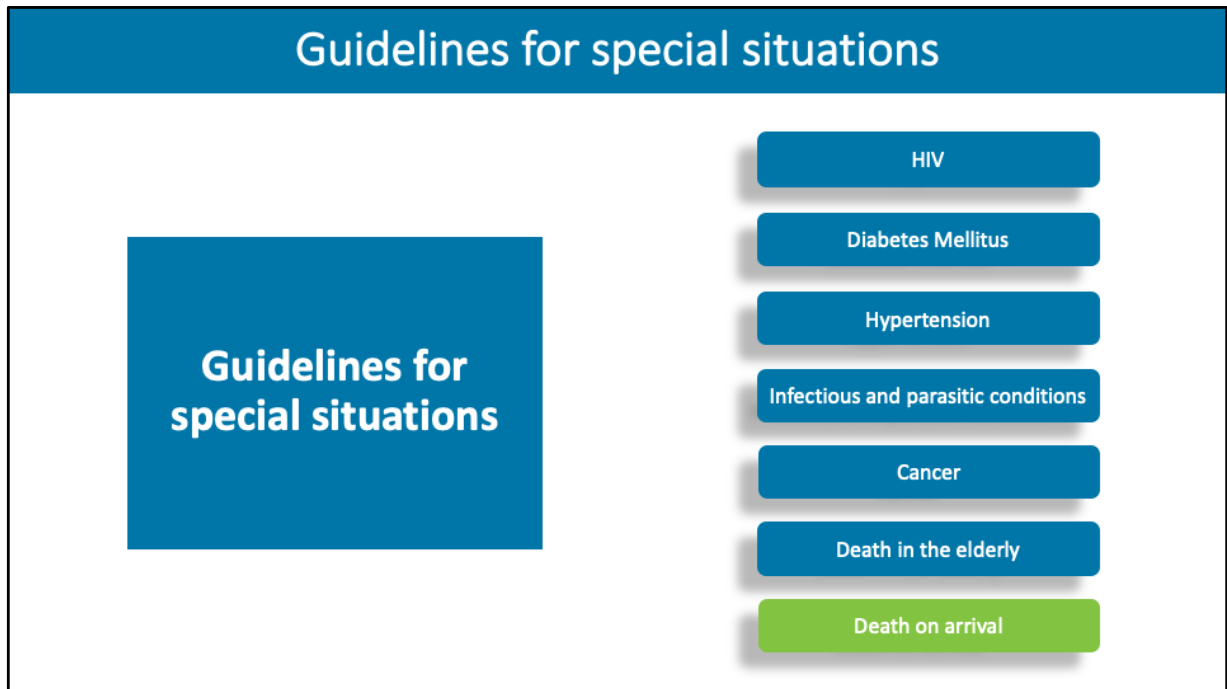
Instructions: Section G.1 is to be completed for all deaths that occurred after one week of birth

#### 77. CAUSES OF DEATH

|                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                        |    |                                   |  |               |  |  |                                 |  |  |                                                                   |    |                                |  |                |  |  |                                 |  |  |                                                                                                 |    |  |  |  |  |  |                                 |  |  |  |    |  |  |  |  |  |                                 |  |  |  |
|-------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|----|-----------------------------------|--|---------------|--|--|---------------------------------|--|--|-------------------------------------------------------------------|----|--------------------------------|--|----------------|--|--|---------------------------------|--|--|-------------------------------------------------------------------------------------------------|----|--|--|--|--|--|---------------------------------|--|--|--|----|--|--|--|--|--|---------------------------------|--|--|--|
| <b>Part 1</b>                                                                                   | Enter the disease, injuries or complications that caused the death. Do not enter the mode of dying, such as cardiac or respiratory arrest, shock or heart failure. <b>List only one cause on each line</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Approximate interval between onset and death (Days / Months / Years)   |    |                                   |  |               |  |  |                                 |  |  |                                                                   |    |                                |  |                |  |  |                                 |  |  |                                                                                                 |    |  |  |  |  |  |                                 |  |  |  |    |  |  |  |  |  |                                 |  |  |  |
|                                                                                                 | <table border="0" style="width: 100%;"> <tr> <td style="width: 35%;"><b>IMMEDIATE CAUSE</b> (final disease or condition resulting in death)</td> <td style="width: 5%; text-align: center;">a)</td> <td style="width: 55%;"><b>Congestive cardiac failure</b></td> <td style="width: 5%;"></td> <td style="width: 10%; text-align: center;"><b>5 year</b></td> </tr> <tr> <td></td> <td></td> <td style="font-size: small;">Due to (or as a consequence of)</td> <td style="border-bottom: 1px solid black;"></td> <td></td> </tr> <tr> <td style="font-size: small;">Sequentially list conditions, if any, leading to immediate cause.</td> <td style="text-align: center;">b)</td> <td><b>Ischaemic heart disease</b></td> <td></td> <td style="text-align: center;"><b>8 years</b></td> </tr> <tr> <td></td> <td></td> <td style="font-size: small;">Due to (or as a consequence of)</td> <td style="border-bottom: 1px solid black;"></td> <td></td> </tr> <tr> <td style="font-size: small;">Enter <b>UNDERLYING CAUSE</b> last (Disease or injury that initiated events resulting in death)</td> <td style="text-align: center;">c)</td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td style="font-size: small;">Due to (or as a consequence of)</td> <td style="border-bottom: 1px solid black;"></td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">d)</td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td style="font-size: small;">Due to (or as a consequence of)</td> <td style="border-bottom: 1px solid black;"></td> <td></td> </tr> </table> | <b>IMMEDIATE CAUSE</b> (final disease or condition resulting in death) | a) | <b>Congestive cardiac failure</b> |  | <b>5 year</b> |  |  | Due to (or as a consequence of) |  |  | Sequentially list conditions, if any, leading to immediate cause. | b) | <b>Ischaemic heart disease</b> |  | <b>8 years</b> |  |  | Due to (or as a consequence of) |  |  | Enter <b>UNDERLYING CAUSE</b> last (Disease or injury that initiated events resulting in death) | c) |  |  |  |  |  | Due to (or as a consequence of) |  |  |  | d) |  |  |  |  |  | Due to (or as a consequence of) |  |  |  |
| <b>IMMEDIATE CAUSE</b> (final disease or condition resulting in death)                          | a)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <b>Congestive cardiac failure</b>                                      |    | <b>5 year</b>                     |  |               |  |  |                                 |  |  |                                                                   |    |                                |  |                |  |  |                                 |  |  |                                                                                                 |    |  |  |  |  |  |                                 |  |  |  |    |  |  |  |  |  |                                 |  |  |  |
|                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Due to (or as a consequence of)                                        |    |                                   |  |               |  |  |                                 |  |  |                                                                   |    |                                |  |                |  |  |                                 |  |  |                                                                                                 |    |  |  |  |  |  |                                 |  |  |  |    |  |  |  |  |  |                                 |  |  |  |
| Sequentially list conditions, if any, leading to immediate cause.                               | b)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <b>Ischaemic heart disease</b>                                         |    | <b>8 years</b>                    |  |               |  |  |                                 |  |  |                                                                   |    |                                |  |                |  |  |                                 |  |  |                                                                                                 |    |  |  |  |  |  |                                 |  |  |  |    |  |  |  |  |  |                                 |  |  |  |
|                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Due to (or as a consequence of)                                        |    |                                   |  |               |  |  |                                 |  |  |                                                                   |    |                                |  |                |  |  |                                 |  |  |                                                                                                 |    |  |  |  |  |  |                                 |  |  |  |    |  |  |  |  |  |                                 |  |  |  |
| Enter <b>UNDERLYING CAUSE</b> last (Disease or injury that initiated events resulting in death) | c)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                        |    |                                   |  |               |  |  |                                 |  |  |                                                                   |    |                                |  |                |  |  |                                 |  |  |                                                                                                 |    |  |  |  |  |  |                                 |  |  |  |    |  |  |  |  |  |                                 |  |  |  |
|                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Due to (or as a consequence of)                                        |    |                                   |  |               |  |  |                                 |  |  |                                                                   |    |                                |  |                |  |  |                                 |  |  |                                                                                                 |    |  |  |  |  |  |                                 |  |  |  |    |  |  |  |  |  |                                 |  |  |  |
|                                                                                                 | d)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                        |    |                                   |  |               |  |  |                                 |  |  |                                                                   |    |                                |  |                |  |  |                                 |  |  |                                                                                                 |    |  |  |  |  |  |                                 |  |  |  |    |  |  |  |  |  |                                 |  |  |  |
|                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Due to (or as a consequence of)                                        |    |                                   |  |               |  |  |                                 |  |  |                                                                   |    |                                |  |                |  |  |                                 |  |  |                                                                                                 |    |  |  |  |  |  |                                 |  |  |  |    |  |  |  |  |  |                                 |  |  |  |
| <b>Part 2</b>                                                                                   | Other significant conditions contributing to death but not resulting in underlying cause given in Part 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                        |    |                                   |  |               |  |  |                                 |  |  |                                                                   |    |                                |  |                |  |  |                                 |  |  |                                                                                                 |    |  |  |  |  |  |                                 |  |  |  |    |  |  |  |  |  |                                 |  |  |  |
|                                                                                                 | <b>Hypertension (20 years); Diabetes mellitus (15 years)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                        |    |                                   |  |               |  |  |                                 |  |  |                                                                   |    |                                |  |                |  |  |                                 |  |  |                                                                                                 |    |  |  |  |  |  |                                 |  |  |  |    |  |  |  |  |  |                                 |  |  |  |

In this next case scenario a 70-year-old man is known with a 20-year history of hypertension, a 15-year history of type 2 diabetes mellitus, a myocardial infarction eight years ago and a five-year history of congestive heart failure. He was admitted to the hospital with worsening shortness of breath. Over the five past days he had noticed increased swelling in his legs and had developed a cough productive of clear sputum. He was admitted with a diagnosis of an exacerbation of congestive heart failure. Unfortunately, despite aggressive diuresis, he progressed to decompensated heart failure requiring inotropic support. He remained hemodynamically unstable and died six days after admission.

- Congestive cardiac failure is the immediate cause of death on line A of Part 1.
- Ischaemic heart disease is the underlying cause of the heart failure, so it is reported on the lowest used line of Part 1.
- In this case hypertension and diabetes mellitus would go in Part 2 as contributing factors to death.



Guidelines for special situations – Death on arrival.

## Dead on arrival

### **Obvious unnatural causes**

Refer to Forensic Pathology Services

### **Unknown causes**

History from family / ambulance personnel / friends

History from health records

Complete external examination of unclothed body to exclude injuries

Make detailed notes

Ask senior colleagues

If unsure: contact Forensic Pathology Service

### **Your best medical opinion**



Where you are asked to certify the cause of death for a person who is dead on arrival, you will need to gather information from family, ambulance personnel and friends about the circumstances of the death.

- If the death is obviously due to unnatural causes, the case should be referred to forensic pathology services in the prescribed manner with any information that you have collected.
- Where it is not obvious that the death was due to unnatural causes, you will need to get a medical history from family, ambulance personnel and friends.
- You could also check whether there are medical records for the person in the facility.
- You must do a complete external examination of the unclothed body to ensure that there are no injuries present.
- Make detailed notes to cover yourself.
- Ask senior colleagues for advice.
- If you are still unsure, contact forensic pathologist to discuss whether the case should be referred or not.
- Remember, you are only required to report your best medical opinion



## You have now come to the end of Module 4



The next step is your self-assessment for Module 4.

**Note:**

- This is only a self-assessment and not part of the final assessment at the end of the course.
- The final assessment is a summative assessment which covers all the modules and in order to successfully complete the course, you must obtain a mark of 80%.

You have now come to the end of Module 4

The next step is your self-assessment for Module 4.

**Note:**

- This is only a self-assessment and not part of the final assessment at the end of the course.
- The final assessment is a summative assessment which covers all the modules and in order to successfully complete the course, you must obtain a mark of 80%.