



**REPUBLIC OF LEBANON**  
**MINISTRY OF PUBLIC HEALTH**  
Epidemiology Surveillance Program

# Guideline for Hospital-based Mortality Surveillance



2015

ممول من الاتحاد الأوروبي  
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تنفيذ  
Implemented by



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بالشراكة مع مفوضية الأمم المتحدة العليا لشؤون اللاجئين وذلك في إطار مشروع بإدارة وزارة الصحة العامة.  
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**MINISTRY OF PUBLIC HEALTH**  
Epidemiology Surveillance Program

# **Guideline for Hospital-based Mortality Surveillance**

2015



# Introduction

الدليل الوطني لترصد اسباب الوفيات في المستشفيات

## المقدمة

مرض السارس، فيروسات الانفلونزا المستجدة والمتعددة، الاشريكية القولونية (E. coli O104:H4)، العدوى بفيروس التاجي المستجد (الكورونا)، فيروس الايبولا... اسماء امراض تكررت على مسامعنا واخذت حيزا كبيرا من اهتمامنا، كما احتلت اولويات في برامج الحكومات بمختلف قطاعاتها الصحية، اضف الى الحراك على مستوى المجتمعات المحلية والعالمية. فنجد عالمنا اليوم بدءاً من العام 2003، يعيش في حالة ترقب ازاء ظهور امراض جديدة ومستجدة

ويعتبر كل مرض مستجد تحديا جديدا للبلدان، ويتيح فرص جديدة لتعزيز الاستعداد الوطني والعالمي لمواجهة المخاطر الصحية.

تزامنا مع ظهور فيروس الانفلونزا (H5N1) ومخاطره على صحة الافراد، قامت وزارة الصحة العامة باطلاق نظام مراقبة اسباب الوفيات في المستشفيات في العام 2006، بهدف الكشف عن الفاشيات وخاصة تلك المتعلقة بالامراض المستجدة.

عند قراءة هذا الدليل، سيتعرف القارئ على ركائز نظام الابلاغ عن اسباب الوفيات من المستشفيات، وسيدرك أهمية جودة المعلومات المدوّنة في استمارة الابلاغ الاسبوعي الخاصة لهذا النظام. كما سيدرك ان "توقف القلب" ليس سببا للوفاة بل تعبيراً عن حالة الوفاة. بالإضافة الى ذلك سيلمس أهمية الترميز للمعطيات الطبية الذي يسمح بإجراء التحاليل للبيانات بطريقة علمية ومهنية.

نشكر كافة المستشفيات الحكومية والخاصة التي تقوم بالابلاغ عن اسباب الوفيات لوزارة الصحة العامة.

كما ننوه بمن قام باعداد هذا الدليل من قبل برنامج الترصد الوبائي، وترجمته وطباعته من قبل منظمة الصحة العالمية بدعم من الاتحاد الاوربي بالشراكة مع مفوضية الامم المتحدة العليا لشؤون اللاجئين.

مدير عام وزارة الصحة العامة

الدكتور وليد عثمان

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## A. Generalities

### 1. Context and regulations

In Lebanon, a death certificate is issued upon each death. Death certificates are filled by a physician or a civil person from the Ministry of Interior and Municipalities (MIM) and gathered at MIM/Directorate of civil status. Statistics displaying the number of registered deaths by month and causa of registration are routinely issued by the MIM and the Central Administration for Statistics (CAS). Those statistics do not show the causes of death. Annually, around 20000 deaths are registered among nationals. A study was conducted in the 2000s showed that the most common causes of death mentioned in these death certificates were “cardiac arrest” and “cardio-respiratory arrest”.

In 2006, there was urgent need to detect deaths due to emerging and re-emerging diseases. A Hospital Mortality Surveillance System was launched by the Ministry of Public Health in pilot areas: the hospitals in the Nabatieh mohafaza and the cazas of Zahleh, Aley and Baabda were asked to report on weekly basis the deaths and their causes.

The MOPH decision no. 206/1 dated on the 4<sup>th</sup> April 2006 requests from hospitals to establish and update a nominative hospital log-book of the hospital deaths specifying the causes of deaths in addition to demographic variables [Annex 3].

In 2009, the Hospital Mortality Surveillance System was generalized, and the MOPH decision no. 371/1 dated on the 4<sup>th</sup> May 2009 requests all public and private hospitals operating in Lebanon to report deaths and causes [Annex 1].

In 2013, due to the influx of Syrian refugees in Lebanon, the reporting form was modified; the MOPH decision no. 85/1 dated on the 25<sup>th</sup> January 2013 has included the nationality of deceased persons in the form [Annex 2].



## **2. Objectives**

The main objectives of hospital mortality surveillance are to:

- Measure and monitor on a weekly basis mortality indicators in hospital settings in Lebanon
- Detect alerts and identify outbreaks at an early stage
- Detect deaths from emerging and re-emerging diseases
- Assist decision makers on proper control measures.

## **3. Objectives and target audience of this guideline**

This guideline aims to provide hospitals (both public and private) as well as the MOPH staff an easy tool to run the hospital mortality surveillance system.

At the end of this guideline, our target audience will:

- Know the objectives of the hospital mortality surveillance system
- Know the terms of reference of key players
- Know how to adequately fill the hospital mortality reporting form
- Understand how medical coding and selecting of the underlying cause of death are performed
- Understand and compute the needed indicators
- Recognize an alert and understand the investigation procedures
- Be able to interact with various key players in the system.

## B. Information System and methods

### 1. Data sources

Data sources are both public and private hospitals across Lebanon.

The MOPH decisions request each hospital to designate a focal person from the medical staff to monitor deaths occurring in the hospital, register them into the nominative hospital death logbook, and report them to the MOPH using an anonymous form.

Table (1): Distribution of hospitals by mohafaza, Lebanon, 2014

Mohafaza	Number of hospitals
Beirut	24
Mount Lebanon	57
North	26
Bekaa	26
South	19
Nabatieh	11
<b>Lebanon</b>	<b>163</b>

### 2. Target deaths

The target deaths are:

- Deaths occurring in the hospital settings
- Deaths received by the hospital settings.

Deaths occurring in the hospital settings include:

- Deaths during hospital stay
- Deaths occurring at Emergency Departments (ER)
- Stillbirths.

Deaths received by the hospital settings include deaths on arrival (DOA). For those deaths, the available medical information is recorded.

### 3. Case definitions

The guideline uses the definitions mentioned in the table below.

Table (2): Case definitions

Term	Definitions
Death	Death is the cessation of all biological functions that sustain a living organism. Clinical death is the medical term for cessation of blood circulation and breathing, the two necessary criteria to sustain life. Cardio-respiratory arrest is a status of death.
Cause of death	All those diseases, morbid conditions or injuries which either resulted in or contributed to death and the circumstances of the accident or violence which produced any such injuries (WHO).
Comorbidities	Other significant conditions contributing to the death, but not related to the disease or condition causing it (WHO).
Underlying cause of death	(a) The disease or injury which initiated the train of morbid events leading to death or (b) The circumstances of the accident or violence which produced the fatal injury.
Maternal death	A maternal death is the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and the site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes (WHO).
Still birth	Baby born with no signs of life at or after 28 weeks' gestation (WHO).
Newborn infant or neonate	A child under 28 days of age (WHO).
Neonatal period	It commences at birth and ends 28 completed days after birth (WHO).
Infant	Children up to 1 year of life.

## 4. Weekly form

Data is collected using an anonymous line-listing form [Annex 4]. The form is sent every week by the hospital even if no deaths were reported.

### 4.1 Categories of variables

That form includes the following categories of data:

- General information: the hospital name, the week of identification, and the total number of registered deaths
- Case-based death information: for each death, various demographic and medical variables are specified.

Table (3): Variables included in the anonymous line-listing form

Categories	Sub-categories	Variables
General information	Source identification	<ul style="list-style-type: none"><li>• Identification of the hospital: hospital name</li><li>• Identification of the week and the year. The week starts on Monday</li><li>• Identification of the focal person: name and phone number</li></ul>
	Number of deaths	Number of deaths for the week
Case-based death information	Case identification	Number at the hospital death log book
	Demographic data	<ul style="list-style-type: none"><li>• Gender</li><li>• Age</li><li>• Place of residence: locality and caza</li><li>• Nationality</li></ul>
	Medical information	<ul style="list-style-type: none"><li>• Causes of death: direct and leading causes</li><li>• Comorbidities</li><li>• Maternal death</li><li>• Stillbirth</li></ul>
	Additional information	<ul style="list-style-type: none"><li>• Place of death (inside or outside the hospital)</li><li>• Medico legal consultation</li></ul>
For MOPH use	Underlying cause of death	ICD-10 codes

## 4.2 General recommendations

For better use and analysis of the form, it is highly recommended to:

- a) Write clearly
- b) Avoid using abbreviations. Some abbreviations can be interpreted in different ways. Ex: “IR” can refer to respiratory or renal failure (in French).
- c) Fill with all available information. All variables are important.

For deaths occurring at hospital setting, all needed variables are usually available.

For deaths received by the hospital setting, some variables may be incomplete.

## 4.3 Week

- a) In Lebanon, weeks start on Monday.
- b) At hospital level, the week is filled by specifying the date of the Monday.
- c) At MOPH level, the week are numbered using the ISO 8601 norm. The first week of the year is the one containing the first Thursday or the 4<sup>th</sup> January. Example: The first week for 2014 is the week starting on 29<sup>th</sup> December 2013, as it contains the first Thursday of 2014.
- d) The presentation of the week includes the year and the number of the week. Example: 2014W02 is the second week of 2014.

## 4.4 Logbook number

- a) At hospital level, a nominative logbook for deaths is established and maintained. For each death, an ID number is designated.
- b) Upon reporting to MOPH, each case is reported using the ID number in the hospital death log-book.
- c) It is recommended to use new sequential numbers for every year.

#### 4.5 Anonymous form

- a) The reporting line-listing form is anonymous. The name of the deceased is not specified.
- b) In case there is need for the MOPH to investigate a death, the ID number at the hospital death logbook is used to identify the deceased person. Example: Maternal deaths are targeted for investigation.

#### 4.6 Age of the deceased person

- a) The date of birth and date of death for the deceased person are not requested. Those dates may disclose, indirectly, the identity of the deceased person.
- b) Instead of dates, the age of the person is specified.
- c) The age is specified using some rules related to the unit:
  - Stillbirths have always age as “zero” days
  - Newborns (less than one month) have the age specified in elapsed days
  - Infants (less than 1 year) have the age specified in elapsed months
  - Persons aged 1 year or more have the age specified in elapsed years.

Table (4): Examples for the variable “age”

#	Case	Age
1	A male born on 01/06/1950 and died on 10/07/2013	63 years
2	A male born on 01/10/2000 and died on 05/10/2013	13 years
3	A female born on 01/01/2013 and died on 20/11/2013	10 months
4	A female born on 25/11/2013 and died on 12/12/2013	17 days
5	A female born dead, after a pregnancy of 8 months	0 days (stillbirth)

#### 4.7 Place of residence

- a) The place of residence was the main place of living in Lebanon for the deceased person.
- b) The place of residence includes the caza and the locality.
- c) It is recommended to specify the variables caza and locality. Mentioning the locality without the caza may be confusing as some localities may have the same names but are located in different cazas. Example: There are 3 localities named Niha in Lebanon: one in Chouf caza, one in Zahleh caza and one in Batroun caza.
- d) The place of residence is not necessary the same place of death.

**Table (5): Examples for the variable “place of residence”**

#	Case	Residence (caza/locality)
1	A person was living in Achrafieh but died in a car accident in Antelias.	Beirut/Achrafieh
2	A male, Syrian refugee, was living in the Bar Elias since 3 months	Zahleh/Bar Elias
3	An Ethiopian woman was living in Mansourieh since 4 years	Metn/Mansourieh
4	A Lebanese woman was living in Tripoli/Mina but died in Beirut	Tripoli/Mina
5	A Lebanese man living in Canada but came in a visit to Lebanon in Halba (Akkar), and passed away in Lebanon	Akkar/Halba

## 4.8 Medical information

### 4.8.1 Causes of death

Causes of death are specified using temporal sequencing:

- The immediate cause (or direct) cause is the condition that lead to death
- This immediate cause may be due to initial medical conditions. In case there are several conditions related to each other within a logical time frame, the earliest one is the initial condition and the others are called intermediate conditions.



**Table (6): Examples of causes of death with time sequencing**

#	Immediate cause	Due to	Due to	Due to
1	Pulmonary embolism	Pathologic fracture (intermediate condition)	Metastasis in bones (intermediate condition)	Breast cancer (initial condition)
2	Hemorrhage due to oesophageal varices	Portal Hypertension (intermediate condition)	Liver cirrhosis (intermediate condition)	Viral hepatitis B (initial condition)
3	Acute pneumonia	Chronic bronchitis (initial condition)		
4	Acute myocardial infarction	Chronic ischemic heart disease (initial condition)		
5	Pneumonia	Measles (initial condition)		
6	Uraemia	Hydronephrosis (intermediate condition)	Retention of urine (intermediate condition)	Hypertrophy of prostate (initial condition)

#### 4.8.2 Comorbidities

Comorbidities are health conditions that the deceased person had. Those conditions are not related to the disease leading to death.

Table (7): Examples of causes of death and co-morbidities

#	Immediate cause	Due to	Due to	Due to	Comorbidities
1	Pulmonary embolism	Pathologic fracture (intermediate condition)	Metastasis in bones (intermediate condition)	Breast cancer (initial condition)	Diabetes
2	Hemorrhage due to oesophageal varices	Portal Hypertension (intermediate condition)	Liver cirrhosis (intermediate condition)	Viral hepatitis B (initial condition)	Hypercholesterolemia
3	Acute pneumonia	Chronic bronchitis (initial condition)			Hypertension

#### 4.8.3 Cardiac and cardio-respiratory arrest

- a) Cardiac and cardio-respiratory arrest are not causes of death. They are status of death.
- b) It is recommended to avoid using these terms in filling the form.
- c) They are used to evaluate the quality of reported data.

#### 4.8.4 Injuries

- a) Medical information related to injuries include two components:
  - Information on the external cause
  - Information on the body lesions.
- b) For road traffic injuries, it is needed to specify the mechanism:
  - The victim was he/she a pedestrian or occupant of a vehicle?
  - The vehicle of the victim was it a pedal cycle, motorcycle, car, or a heavy vehicle ...?

- The type of collision.

c) For fire-arms victims, it is needed to specify the intention:

- Intentional self-harm
- Assault
- Accidental.

**Table (8): Examples of causes of deaths due to injuries**

#	Immediate cause	Due to	Due to	Due to
1	Intra-cerebral hemorrhage	Intracranial injury	Car occupant injured in collision with a car (external cause)	
2	Bronchopneumonia	Paraplegia	Spinal cord trauma	Pedal cyclist injured in collision with a car (external cause)
3	Ruptured liver	Pedestrian knocked over by car (external cause)		
4	Compound fracture of skull	Gunshot wound suicide (external cause)		
5	Occipital fracture	Fall following epileptic (external cause)	Epileptic convulsions	
6	Massive abdominal and thoracic hemorrhage	Explosion (external cause)		
7	Asphyxia	Drowning and submersion while in natural water (external cause)		

#### 4.8.5 Poisoning

a) Medical information related to poisoning include two components:

- Information on the external toxic agent(s)
- Information on the body dysfunctions.

Table (9): Examples of causes of deaths due to poisoning

#	Immediate cause	Due to	Due to	Due to
1	Dehydration	Salmonella infection	Food poisoning	
2	Respiratory failure	Clostridium Botulinum infection	Food poisoning	
3	Coma	Opioid overdose	Suicide	
4	Respiratory failure	Accidental organophosphate ingestion		

#### 4.8.6 Tumors and cancer

a) Tumor is not one disease; it is a group of diseases. Each tumor is identified by the primary site and the behavior (benign or malignant).

b) If the tumor was the initial cause of death, it is recommended to specify the tumor by its primary site.

c) If cancer was the initial cause of death and had distant metastasis, it is recommended to specify the cancer by its primary site with metastasis.

d) If the tumor was not the initial cause of death, it is mentioned in the “comorbidities” group.

e) If the cause of death is due to cerebral metastasis secondary to cancer of unknown site, it is recommended to mention the cancer of unknown site with metastasis.

**Table (10): Examples of causes of deaths due to tumors and cancers**

#	Immediate cause	Due to	Due to	Due to
1	Septicemia	Immuno suppression	Acute lymphoid leukemia	
2	Generalized metastasis	Cancer of the lung		
3	Hepatic metastasis	Cancer of unknown primary site		
4	Coma	Intra-cranial hypertention	Benign brain tumor	
5	Hepatic failure	Bile duct obstruction	Carcinoma of head of pancreas	

#### 4.8.7 Diabetes

a) Usually, there is under-reporting of diabetes as cause of death. Physicians often mention it as a comorbidity.

b) Diabetes may cause death:

- Directly in case of acido-cetosis
- Or following complications of the treatment (Ex: hypoglycemia)
- Or due to diabetes complications: nephropathy, neuropathy, infections...

c) If the person had diabetes, the physician is asked to assess the link between the direct cause of death and diabetes. In case a link exists, diabetes is mentioned in the causes of death, if no link exists, it is mentioned as a comorbidity.

#### 4.8.8 Unspecific medical terms

a) Some medical terms, if used, are confusing. They represent:

- Health conditions not specific enough
- Health conditions common to various diseases
- Signs and symptoms common to several diseases.

- b) It is recommended to avoid the unspecific medical terms.  
 c) Their proportion is an indicator for the quality of the data.

The table below includes some frequent ill-defined terms.

**Table (11): Unspecific medical terms**

Unspecific medical terms	Rationale	Recommendations
Shock	There are 3 types of shock: 1) Hemodynamic; 2) Septic; and 3) Cardiogenic. Each has its specific causes. Shock is an intermediate cause of death, but not an underlying cause of death.	Specify the type of shock, and the cause.
Infection	There are several agents causing infections and deaths, with specific ICD 10 codes.	Specify the causative organism, and the location (primary and secondary).  If the causative agent was not identified, specify the suspected infectious group and the location of the infection.
Pneumonia	Pneumonia is due to various agents: bacterial, viral, parasitic... Also it can be caused by various conditions (immobility, lung disease...)	Specify the causative agent, and the underlying condition (if any).
Pulmonary edema	Pulmonary edema may be: 1) Hemodynamic (cardiac or extra cardiac origin); or 2) Due to lung injury/lesion (respiratory origin).	Specify the cause of the pulmonary edema.
Cardiac /heart failure	Cardiac failure may be acute or chronic. It is the consequence of : 1) Cardiac diseases (valve heart disease, hypertension, coronary disease, congenital malformation, cardiomyopathy, rhythm disorder, conduction disorder...) or 2) Extra-cardiac diseases (respiratory diseases, beriberi, thyroid gland disorders...).	Specify the cause of cardiac/heart failure.

Respiratory/lung failure	<p>Respiratory failure may be acute or chronic.</p> <p>It the consequence of various diseases: asthma, emphysema, chronic bronchitis, interstitial lung diseases, neurologic diseases, muscular diseases, infection...</p>	Specify the underlying cause of respiratory/lung failure.
Pulmonary embolism	<p>It is secondary to various etiologies: injuries, immobility, cancer, cardiopathy, post-surgery, hemopathy...</p>	Specify the cause of the pulmonary embolism.
Thrombosis	<p>Thrombosis can be arterial or venous.</p> <p>It may appear due to immobility, after surgical procedure, or due to underlying disease ...</p>	Specify if arterial or venous, the blood vessel, and any underlying disease or condition
Renal failure	<p>Renal failure may be acute or chronic.</p> <p>Renal failure may be: 1) Primary to various renal diseases; or 2) Secondary to other non-renal diseases (diabetes, lupus...)</p>	<p>Specify if acute or chronic.</p> <p>Specify the disease causing the renal failure.</p>
Hepatitis	<p>Hepatitis may be acute or chronic.</p> <p>Several diseases can cause hepatitis (Viral Hepatitis B, Viral Hepatitis C, alcoholism, iatrogenic...)</p>	Specify the disease causing the hepatitis.
Dehydration	<p>Dehydration is due to various causes: 1) Digestive (vomiting and diarrhea); 2) Renal; 3) Cutaneous (burn, excessive sweating); 4) Fever (new born); 5) Pulmonary (tracheotomy)</p>	Specify the cause of the dehydration.
Drugs	<p>Drugs may be: 1) Medicinal drugs; or 2) Illegal drugs (cocaine, opium...)</p>	Specify substance and the intention.
Complication of surgery	<p>Various types of complications may occur following surgical procedure.</p>	Specify the disease leading to surgery and the type of complications.
Cutaneous ulcer	<p>Ulcer may cause death via infection and septicemia. Ulcer is usually secondary to medicaly health conditions as diabetes, immobility.</p>	Specify the disease or condition causing the ulcer.

#### 4.8.9 Unknown Cause of Death

- a) If the cause of death is unknown, it is recommended to write unknown cause.
- b) “Unknown” cause of death should be recorded if the investigation cannot determine a cause of death. “Unknown” is better than any speculation on the possible cause of death.
- c) The proportion of unknown cause of death is an indicator for the quality of the data.

#### 4.9 Reporter

At the end of the form, the person who has filled the form mentions his/her full name and contact details. Such information is highly needed for any verification and/or investigation.

### 5. Data flow

1) At hospital level, on weekly basis, the assigned focal person verifies the deaths registered at the hospital. He/she fills and updates the hospital death logbook, and also fills the weekly line-listing reporting form. The form is sent to the MOPH/Esumoh caza team. In case there are technical communication issues with the MOPH caza level, the hospital may fax the form to the higher level (MOPH mohafaza team or central team). In Beirut, forms are sent directly to the MOPH/Esumoh central team. Forms are sent on weekly basis, by fax. The hospital focal person may be assisted by a team.

2) At the MOPH caza level, the Esumoh team receives and reviews the form. In case of non-reporting or missing data, the team contacts the hospital. Then the forms are sent by fax to the MOPH/Esumoh corresponding mohafaza team.

3) At the MOPH mohafaza level, the Esumoh team receives the forms and performs coding and data entry in a specific

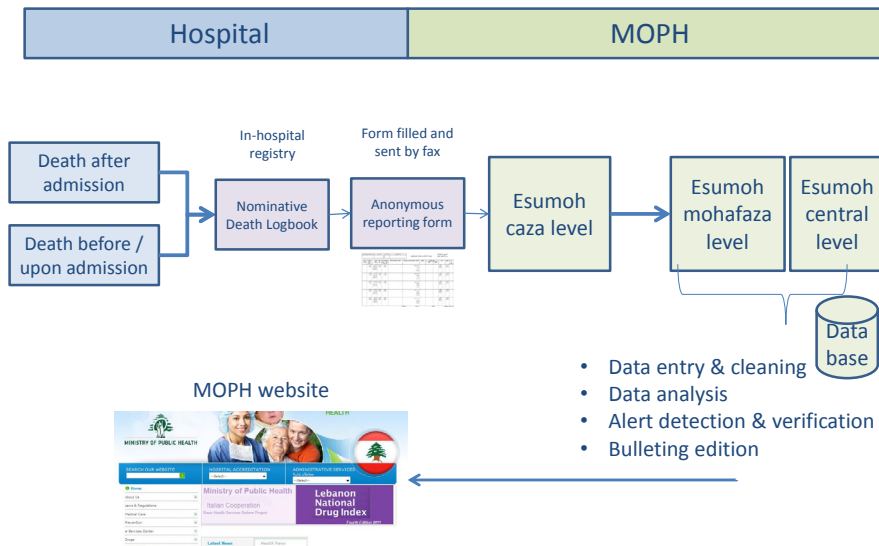


application. Also, the team conducts data cleaning and data analysis. Indicators are monitored and screened for potential alerts. In case of alert, case verification and investigation are initiated. Once a week, the local database is sent to the central team.

4) At the MOPH central level, the Esumoh team receives all the local databases and merges them in the national database. Generated descriptive outputs are verified and screened for alert detection. The team follows up on case verification and investigation. Validated outputs are published on the MOPH website.

Figure (1): Data flow for hospital-based mortality surveillance

## Data flow



## C. Data management

Upon reception of the forms, there are several steps to manage the data:

### 1. Checking the form

Forms are checked for the following points:

1. The hospital name is filled.
2. The specified date for starting the week is filled and should be a Monday.
3. The unspecific medical terms are checked with the hospital.
4. The missing information is checked with the hospital.

### 2. Data Coding

Medical coding is performed using the tenth revision of the International Statistical Classification of Diseases and Related Health Problems (ICD-10).

The ICD is a classification of diseases: a system of categories to which morbid entities are assigned according to established criteria. It translates diagnoses of diseases and other health problems from words to alphanumeric codes. Those codes enable:

- Easy storage, retrieval and analysis of the data
- Data comparison.

Training on ICD-10 is available at the WHO website, at the following link: <http://apps.who.int/classifications/apps/icd/ICD10Training/>

#### 2.1 Volumes

ICD-10 has 3 volumes:

- Volume 1: The tabular list
- Volume 2: The instruction manual
- Volume 3: The alphabetical index

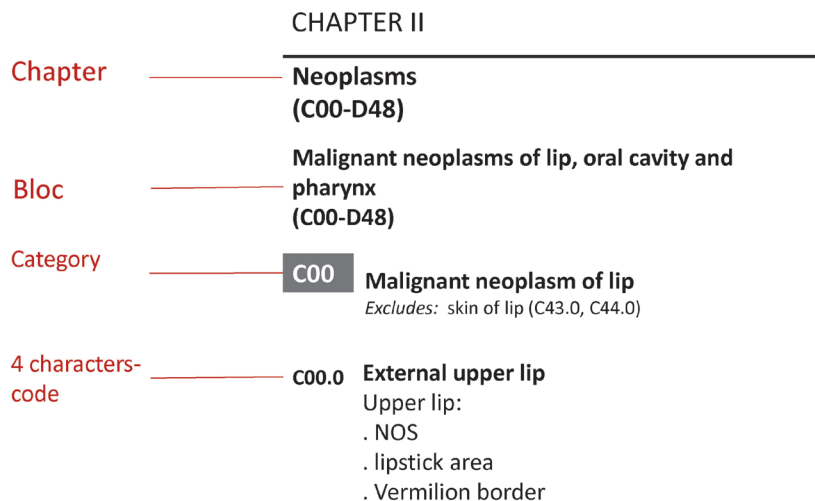
The ICD-10 includes 21 chapters [Annex 6] and over 11400 four-character codes.

## 2.2 Code format

The format of the tabular list includes blocks, categories and codes:

- Each chapter includes blocks of diseases
- Blocks are divided into categories represented by three-character codes
- The 3-character category may be subdivided into codes with 4-characters.

Figure (2): Format of ICD-10 chapter, block, category and 4-character code (from ICD-10 volumes)



Source: WHO, ICD-10

Medical coding may be performed using:

- The 3-character codes (or categories)
- The 4-character codes.

### 2.3 NOS and NEC

“NOS” stands for “Not Otherwise Specified”. It is the equivalent of saying:

- “Unspecified”
- “Unqualified”
- No further information to allow more specific three- or four-character code for a disease.

“NEC” stands for “Not Elsewhere Classified” in the Index. It indicates that certain specified variants of the listed conditions may appear in other parts of the classification, and that, where appropriate, a more precise code should be looked for in the Index.

### 2.4 Dagger and asterisk

Certain conditions use two codes – dual coding:

- Primary code represented by a dagger (†)
- Optional code represented by an asterisk (\*).

Primary code or dagger refers to the code that must always be used for single condition coding. It represents the underlying disease.

Optional code or asterisk refers to an additional code for a specific manifestation of the underlying condition.

Example: A patient suffers from kidney tuberculosis:

- The primary code is A18.1 †: Tuberculosis of the genito-urinary system.
- The optional code is N29.1\*: Other disorder of kidney and ureter in infectious and parasitic diseases classified elsewhere.

## 2.5 ICD-10 golden rules

Four rules exist while coding with ICD-10.

### **WHO/ICD-10 Golden Coding Rule Number 1:**

Volumes 1 and 3 must be used together to correctly find codes for each case (e.g. cause of death or diagnosis).

### **WHO/ICD-10 Golden Coding Rule Number 2:**

The special disease categories take priority over the body system categories.

### **WHO/ICD-10 Golden Coding Rule Number 3:**

The dagger code (†) is used as the underlying cause of death. Never use the asterisk code (\*) alone if the diagnosis being coded uses the dagger and asterisk convention.

### **WHO/ICD-10 Golden Coding Rule Number 4:**

Be cautious of the spelling of the diseases you are coding since the Tabular List uses British spelling and the Alphabetical Index uses American spelling. There are cross-references in the Index to guide you to the American spelling.

## 3. Underlying cause of death

When there is one cause of death specified, it is the one used for data analysis. When there are several causes of death specified, there is a need to select one for data analysis.

The selected cause is called “the underlying cause of death” (UCD). Usually, it is the initial cause.

The underlying cause of death is:

- The disease or injury which initiated the train of morbid events leading directly to death, or
- The circumstances of the accident or violence which produces the fatal injury.

The selection of the underlying cause of death follows the WHO recommendations General Principle and Rules.

**WHO/ICD-10 General principle for UCD:** When more than one condition are entered as direct / intermediate / initial, the condition entered at the end should be selected only if it could have given rise to all the conditions entered before.

Example for General Principle:

- Provided causes of death: Hepatic failure, due to bile duct obstruction, due to carcinoma of head of pancreas
- Selected underlying cause of death: Carcinoma of head of pancreas.

**WHO/ICD-10 Rule 1 for UCD:** If the General Principle does not apply and there is a reported sequence terminating in the condition first entered (direct cause) in the form, select the originating cause of this sequence. If there is more than one sequence terminating in the condition mentioned first (direct cause), select the originating cause of the first-mentioned sequence.

Example for Rule 1:

- Provided causes of death: Acute myocardial infarction, due to atherosclerotic heart disease, due to influenza
- Selected underlying cause of death: Atherosclerotic heart disease.

**WHO/ICD-10 Rule 2 for UCD:** If there is no reported sequence terminating in the condition first entered in the form, select this first-mentioned sequence (direct cause).

Example for Rule 2:

- Provided causes of death: Fibrocystic disease of the pancreas, due to bronchitis and bronchiectasis
- Selected underlying cause of death: Fibrocystic disease of the pancreas.

**WHO/ICD-10 Rule 3 for UCD:** If the condition selected by the General Principle or by Rule 1 or Rule 2 is obviously a direct consequence of another reported condition, whether mentioned in causes of death or in comorbidities, select this primary condition.

Example for Rule 3:

- Provided causes of death: Tuberculosis
- Provided comorbidities: HIV
- Selected underlying cause of death: HIV.

Additional specific rules are indicated in Annex 7.

#### **4. Data entry**

A specific application is developed by Esumoh for data entry and data analysis for hospital-based mortality surveillance.

The data-entry application includes two components:

- A screen for hospital identification. For each hospital, the information related to hospital coordinates (caza and locality), focal person name, and contact details is entered. Such screen is entered once a year for each hospital and updated when needed.
- A screen for the weekly reporting form [Annex 5].
  - In case no death was reported, the parts (1) and (2) of the screen are filled with the information related to hospital and week identification with the mention of no cases.
  - In case deaths are reported, part (3) is filled in addition to parts (1) and (2). Part (3) includes the demographic and medical information of the deceased person. A screen is filled for every death.

Data entry is performed at the mohafaza and central levels.

## 5. Data cleaning

Data cleaning searches the database for abnormal and unusual information. Forms are checked. Hospitals may be contacted for additional information.

### 5.1 Age

Age is checked for the following:

- Stillbirths are aged 0 days.
- Congenital malformations are usually among stillbirths and infants, but many occur at a later stage in life.
- Non communicable diseases are usually during adulthood.
- Deaths from senility occur usually among people aged at least 70 years old.

The causes of deaths among children under 15 years are checked for accuracy and scientific consistency.

### 5.2 Gender

Gender is checked for the following:

- Female genital diseases
- Male genital diseases.

### 5.3 Maternal death

Cases of maternal death are checked for:

- Gender
- Age within child bearing years
- Causes of death in relation to pregnancy or delivery.

### 5.4 Missing data

Cases with unspecified or missing variables are also checked.

The target variables are:

- Age
- Gender
- Causes of death.



### 5.5 Need for recoding

Cases are screened for codes related to:

- Chapter XVIII: Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified
- Chapter XIX: Injury, poisoning and certain other consequences of external causes
- Optional codes with asterisk.

Codes of chapter XVIII are replaced with the codes reflecting diseases if available, otherwise the code is kept as it is.

Codes of chapter XIX have to be replaced by codes of chapter XX. If no information is available on the external cause of the injuries, the code “X59, exposure to unspecified factor” is used.

Optional codes with asterisk (\*) have to be replaced with a primary code or with a code with dagger (†).

## 6. Data Analysis

Data analysis is performed at MOPH/Esumoh mohafaza and central levels.

**Since the system does not provide all deaths in Lebanon, crude mortality rate and disease-specific mortality rate cannot be computed. Only proportional mortality is computed.**

Deaths are analyzed by:

- Time: week
- Place: hospital, place of residence
- Person: age group, gender, nationality.

The used indicators are the following:

- Hospital participation proportion
- Reporting completeness for participating hospitals
- Weekly counts
- Proportional mortality.

Causes of deaths are analyzed following specific grouping and sub-grouping [Annex 8]. That grouping is based on the recommended WHO tabulation.

### 6.1 Selection

Various selections of cases are performed for data analysis and data presentation:

- Deaths occurring at hospital settings:
  - Deaths excluding stillbirth
  - Stillbirth
- Received deaths: death on arrival.

In addition, selection is performed based on nationality.

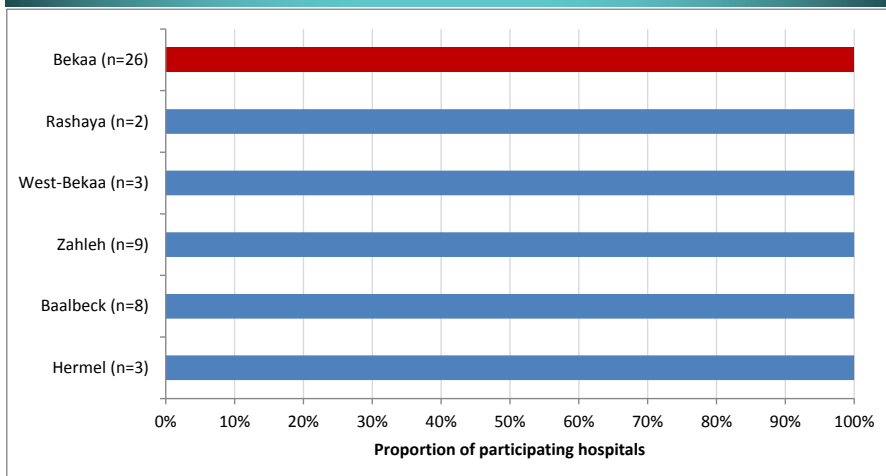
### 6.2 Hospital participation proportion

The hospital participation proportion is the proportion of reporting hospitals at any week divided by the number of active hospitals. It is usually computed on annual basis.

$$\text{Hospital participation proportion} = \frac{\text{Number of reporting hospitals at any time} \times 100}{\text{Number of active hospitals}}$$

The hospital participation proportion can be computed at caza, mohafaza and national level. The target is to reach 100% participation.

Figure (3): Hospital participation by caza in the Bekaa, 2013



Source: Lebanon, MOPH, Esumoh, 2014

### 6.3 Completeness of reporting from participating hospitals

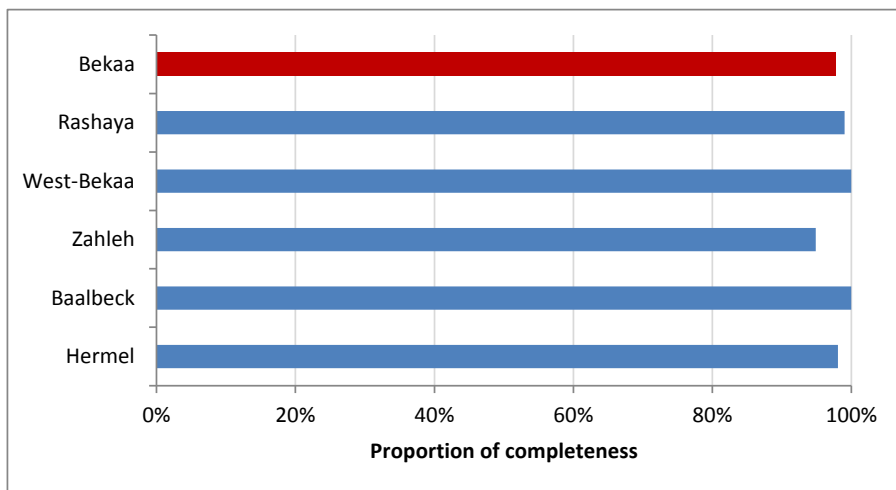
Weekly completeness is the proportion of hospitals who reported for a specific week among the total number of participating hospitals.

$$\text{Weekly Completeness from participating hospitals} = \frac{\text{Number of received forms from hospitals for specific week} \times 100}{\text{Number of expected forms from participating hospitals for that specific week}}$$

Cumulative completeness is the proportion of weekly received forms among the total expected forms from participating hospitals for a specific time period.

The completeness is computed for the hospital, caza, mohafaza and national levels. The target of good reporting is to reach at least 80% of completeness.

**Figure (4): Completeness of hospital reports by caza, Bekaa, 2013**



Source: Lebanon, MOPH, Esumoh, 2014

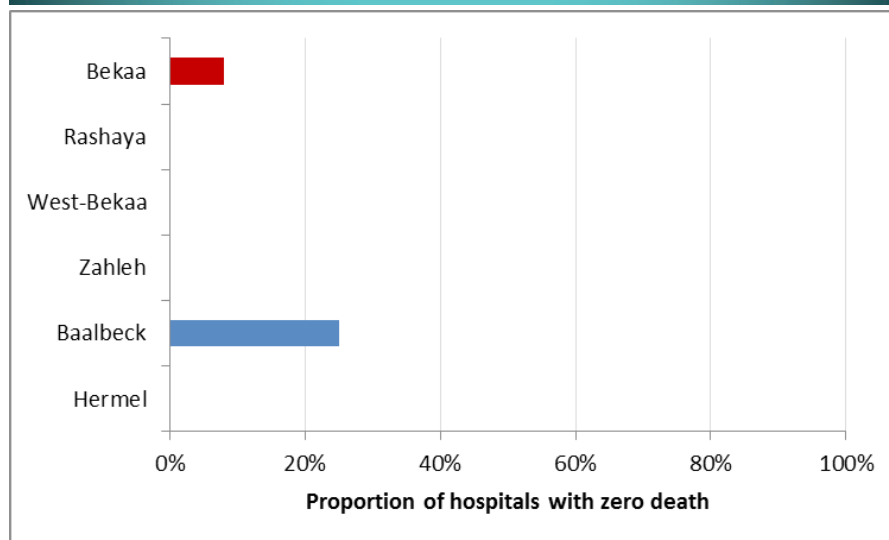
#### 6.4 Proportion of hospital with nil death

Proportion of hospital with nil death is the proportion of hospitals who reported zero death among the total number of participating hospitals for a specific period of time.

$$\text{Proportion of nil death} = \frac{\text{Number of hospitals with zero death} \times 100}{\text{Number of participating hospitals}}$$

It reflects the quality of reporting.

Figure (5): Proportion of hospitals with nil death, Bekaa, 2013



Source: Lebanon, MOPH, Esumoh, 2014

## 6.5 Proportion of ill-defined deaths

The proportion of ill-defined deaths reflects the quality of the data.

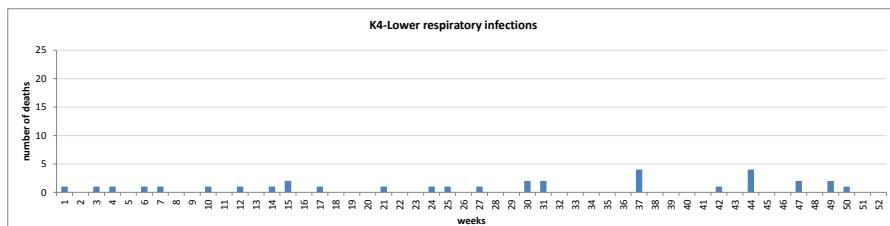
The ill-defined causes include:

- Cardiac arrest or cardio-respiratory arrest
- Death due to unknown cause
- Death due to injury with unknown external agent
- Death due to signs and symptoms without the mention of a specific disease.

## 6.6 Weekly counts

Weekly counts are used to monitor deaths from specific diseases as cholera, meningitis... They allow the detection of epidemiological alerts.

Figure (6): Weekly counts for deaths due to lower respiratory infections, Bekaa, 2013



Source: Lebanon, MOPH, Esumoh, 2014

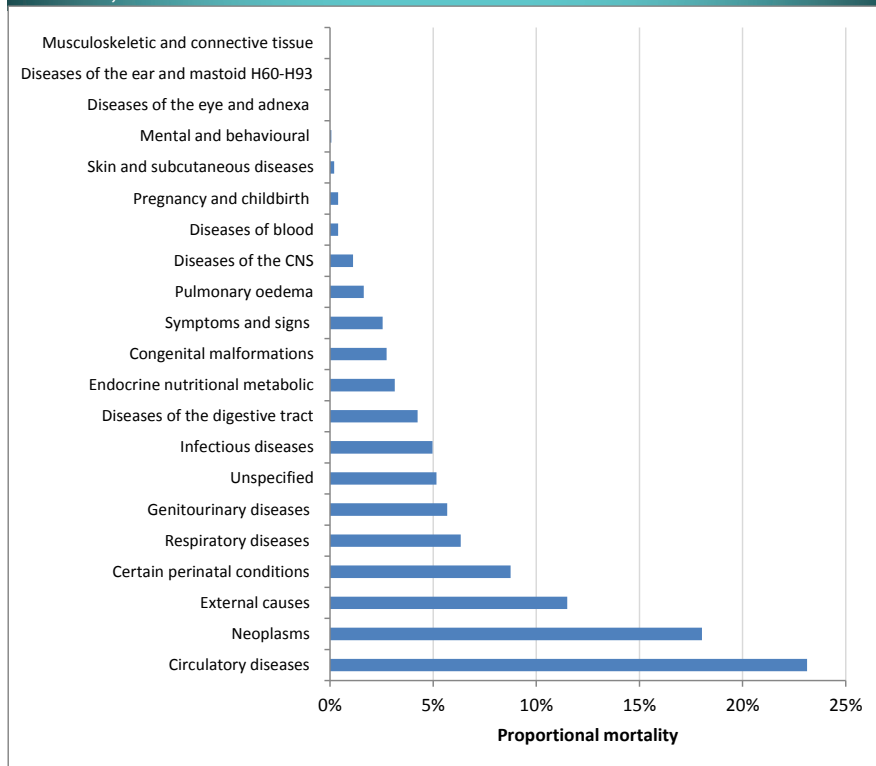
## 6.7 Proportional mortality

Weekly proportional mortality is the proportion of specific causes of deaths reported among the total number of reported deaths for a specific week.

$$\text{Weekly proportional mortality} = \frac{\text{Number of deaths due to a specific disease} \times 100}{\text{Number of deaths due to all causes}}$$

Cumulative proportional mortality is the proportion of specific causes of deaths reported among the total number of reported deaths for a specific period of time.

**Figure (7): Cumulative proportional mortality by main groups, Bekaa, 2013**



Source: Lebanon, MOPH, Esumoh, 2014

An example of proportional mortality is provided in Annex 9.

## 7. Alert detection

Data is screened on weekly basis in order to detect alerts.

Three steps are followed in alert detection:

- Detecting abnormality in main groups
- Detecting alerts related to epidemic-prone diseases
- Detecting alerts related to emerging diseases
- In addition, the screening searches for CBRN alerts.

### 7.1 The main groups

The indicators of proportional mortality of the main groups are compared with the previous weeks and years.

In case of an increase in a main group, that group is screened to find out the disease causing that increase.

### 7.2 Epidemic-prone diseases

The screening is targeting:

- Specific main groups: certain infectious and parasitic diseases, diseases of the respiratory system, diseases of the digestive system ...
- Specific ICD-10 categories and codes: cholera, meningococcal disease, rabies, acute poliomyelitis, measles, diphtheria, viral infections of CNS, encephalitis, lower respiratory infections, intestinal infections ...

The weekly counts and weekly proportional mortality are compared:

- To specific fixed thresholds
- To previous weeks: relative increase
- To historical data of previous years.

Alerts are generated based on 3 methods:

- a) One case may constitute an alert. This applies to cholera, acute poliomyelitis, rabies, measles, diphtheria, meningococcal infection ...
- b) A cluster may constitute an alert. This applies to viral



infections of CNS, encephalitis, lower respiratory infections, intestinal infections ...

c) Increase of the proportional mortality compared to previous weeks may constitute an alert.

d) Increase of the proportional mortality compared to previous years may constitute an alert.

### 7.3 Emerging and re-emerging diseases

An emerging disease is one that has appeared in a population for the first time, or that may have existed previously but is rapidly increasing in incidence or geographic range (WHO).

The list includes respiratory infections, vector-borne diseases, zoonosis, foodborne/waterborne diseases, specific infections of the CNS...

The screening targets infectious diseases:

- Disease-based. Example: One death due to autochthonous malaria is an alert of re-emerging disease.
- Syndromic-based. Example: A cluster of death due to lower respiratory infection is considered an alert.

## 8. Verification and investigation

### 8.1 Verification

Once an alert is generated, the verification process is launched.

Case verification includes contacting the hospital, the treating physician and reviewing the hospital medical file, in order to check the cause of death.

Cluster verification includes in addition to case verification, the description of the epidemiological link between the deaths.

## 8.2 Investigation steps

Investigation includes 10 steps:

1. Confirming the outbreak
2. Confirming the disease
3. Establishing a case definition
4. Searching for cases via passive or active methods
5. Describing cases by time, place and person
6. Generating hypothesis
7. Testing hypothesis by carrying out additional studies
8. Documenting the investigation
9. Recommending control measures
10. Continuing surveillance

## 9. Information dissemination

Summary tables are posted at the MOPH website:

[www.moph.gov.lb](http://www.moph.gov.lb). ( → prevention → surveillance)

The tables are presented by mohafaza level.

## D. Terms of Reference of key players

### 1. Hospital focal person

Hospitals designate a focal person from the medical staff. The focal point may be assisted by other health professionals from the hospital staff.

Hospitals communicate to the MOPH the name of the focal person via an official letter specifying his/her contact details. In case of any modifications, they are shared with the MOPH.

The terms of reference of the hospital focal person are to:

- Collect data on mortality at the hospital level
- Revise and discuss with the medical staff on the identified / registered causes of death
- Establish and update the hospital death logbook
- Fill the weekly mortality line-listing form and send it to MOPH/Esumoh
- Coordinate with the MOPH staff in case of verification and investigation.

### 2. MOPH/Esumoh caza team

At MOPH caza level, the Esumoh team is in charge to receive the filled forms of hospital-based mortality surveillance.

The terms of reference of MOPH/Esumoh caza team are to:

- Receive the forms
- Follow up with the hospitals in case of no reporting
- Check the form information and contact the hospital focal point to check for missing information
- Send the mortality forms to the MOPH/Esumoh corresponding mohafaza team.

### **3. MOPH/Esumoh mohafaza team**

At the mohafaza level, the MOPH/Esumoh teams are in charge of data management for the hospital mortality surveillance system.

Usually, for each mohafaza, one person is designated to ensure necessary tasks.

The terms of reference are to:

- Receive mortality forms from MOPH/Esumoh caza teams
- Check the forms information and contact the MOPH/Esumoh caza teams and/or the hospitals for any verification and clarification
- Code the causes of death mentioned in the mortality form, using the 10<sup>th</sup> Revision of the International Statistical Classification of Diseases and Related Health Problems (ICD-10)
- Select the underlying cause of death
- Perform data entry and data cleaning
- Send a copy of the local database to the Esumoh central team
- Perform data analysis
- Monitor indicators
- Detect alert
- Initiate necessary verification and investigation
- Coordinate with partners for verification and investigation.

### **4. MOPH/Esumoh central team**

At the central level, the MOPH/Esumoh central team is in charge to ensure the overall running of the hospital mortality surveillance system, and conducting adequate data management.

For a mohafaza without a dedicated person for hospital-based mortality surveillance, the central team designates necessary staff to ensure the needed data management.

In addition to the terms of reference mentioned for mohafaza teams, the central team has to:

- Prepare any necessary official texts
- Develop the application for hospital-based mortality surveillance
- Train the staff on the application
- Conduct necessary training for hospital focal persons and staff
- Merge all local databases in the national data base
- Identify needed indicators
- Monitor trends and detect alerts
- Coordinate with partners for necessary verification and investigation
- Coordinate with partners for necessary response measures
- Disseminate the general tables on the MOPH website
- Edit the national reports.

## **5. Mortality surveillance working group**

The mortality surveillance working group is composed of MOPH mohafaza and central teams.

This working group meets regularly.

The terms of reference are to:

- Revise the application and update it if needed
- Revise the mortality form when needed
- Set indicators and thresholds to generate alerts
- Evaluate the indicators and the system
- Set national rules in data management
- Harmonize the coding of causes of death and the selection of the underlying cause of death based on WHO rules.

## Abbreviations

<b>Abbreviation</b>	<b>Complete term</b>
CAS	Central Administration for Statistics
CBRN hazards	Chemical Biological Radio-Nuclear hazards
CNS	Central Nervous System
DOA	Death on Arrival
ER	Emergency Room
Esumoh	Epidemiological Surveillance Program
ICD-10	International Classification of Diseases-10 <sup>th</sup> revision
ISO	International Organization for Standardization
MIM	Ministry of Interior and Municipalities
MOPH	Ministry of Public Health
NEC	Not Elsewhere Classified
NOS	Not Otherwise Specified
UCD	Underlying Cause of Death
WHO	World Health Organization

## References

WHO. International Statistical Classification of Diseases and Related Health Problems, 10<sup>th</sup> revision. 1992

WHO: [www.who.int](http://www.who.int)

## Annexes

- Annex 1: MOPH decision related to hospital-based mortality surveillance (2009)
- Annex 2: MOPH decision related to hospital-based mortality surveillance form (2013)
- Annex 3: MOPH decision related to hospital death logbook (2006)
- Annex 4: Hospital-based mortality surveillance form
- Annex 5: Screen for data entry
- Annex 6: ICD-10 chapters
- Annex 7: ICD-10 modification rules A to F
- Annex 8: Table of groups and subgroups of causes of death
- Annex 9: Proportional mortality



## Annex 1: MOPH decision related to hospital-based mortality surveillance (2009)



الجمهورية اللبنانية  
وزارة الصحة العامة  
الوزير

رقم المحفوظات: 2/4-2/202  
بيروت في 4 ايار 2009

### قرار رقم 1/371

### يتعلق بالإبلاغ عن الوفيات واسبابها في المستشفيات

إن وزير الصحة العامة،  
بناء للمرسوم الاشتراعي رقم 18 الصادر بتاريخ 11 تموز 2008 (تشكيل الحكومة)،  
بناء على المرسوم الاشتراعي رقم 8377 تاريخ 30 كانون الاول 1961 (تنظيم وزارة الصحة العامة)،  
بناء على قانون اللوائح الصحية الدولية (2005)،  
بناء على قرار رقم 1/206 تاريخ 4 نيسان 2006 (يتعلق بسجل الوفيات العملمة على الاراضي اللبنانية)،  
بناء على قرار رقم 1/228 تاريخ 11 نيسان 2006 (يتعلق بالإبلاغ عن الوفيات واسبابها في المستشفيات)،  
وللكشف عن الأوبئة المميتة والتي تشكل خطر على الصحة العامة،

### يقرر ما يلي:

المادة الأولى : يعتمد نظام الإبلاغ عن أسباب الوفيات في المستشفيات، يهدف النظام الى معرفة، وبشكل سريع، اسباب الوفيات على الاراضي اللبنانية والكشف السريع عن الفاشيات والحالات التي تشكل خطر على الصحة العمومية. تشمل الابلاغات كافة الوفيات التي حدثت داخل المستشفى.

المادة الثانية : يتوجب على الطبيب المكلف بمتابعة "سجل الوفيات" في المستشفى، مراجعة ودراسة وإبلاغ وزارة الصحة العامة عن كافة عن الوفيات واسبابها التي سجلت عندها.

المادة الثالثة : يتم إبلاغ وزارة الصحة العامة، اسبوعياً، عبر ملء "استمارة خاصة بوفيات المستشفيات" (مرفقة). ترسل الاستمارات من المستشفيات الى قسم الصحة في القضاء أو مصلحة الصحة في المحافظة أو الوحدة المركزية للترصد الوبائي في بيروت.

المادة الرابعة : في حال عدم وجود وفيات، ترسل المستشفيات "استمارة خاصة بوفيات المستشفيات" موضحة عدم وجود وفيات.

المادة الخامسة : يتم الإبلاغ عن وفيات المستشفيات بشكل غير اسمي (anonyme) لكل وفاة، توضح المعلومات التالية: العمر، الجنس، بلدة وقضاء السكن عند الوفاة، الحالات المرضية التي ادت الى الوفاة، الحالات المرضية الأخرى، وجود حالة حمل او ولادة، وجود استشارة طبيب شرعي.

المادة السادسة : يعطى لكل وفاة رقم تسلسلي (رقم في "سجل الوفيات" في المستشفى) يستعمل من قبل وزارة الصحة العامة لمراجعة المستشفى، الطبيب المعالج والملف الطبي. كما تحفظ المستشفى نسخة عن كل استمارة ارسلت الى وزارة الصحة العامة.

المادة السابعة : تجمع الاستمارات في قسم الصحة في القضاء أو مصلحة الصحة في المحافظة، حيث يعين طبيب لمتابعتها. يقوم الطبيب المكلف في القضاء أو المحافظة بجمع الاستمارات واستلامها والتدقيق بها ومراجعة المستشفيات لاستكمال وتوضيح المعلومات اللازمة. كما يقوم بترميز الاسباب والأمراض معتمدا المراجعة العاشرة للتصنيف الدولي للأمراض (ICD-10) واختيار السبب الأولي (Underlying cause of death). ترسل الاستمارات بغلاف مغلق الى برنامج الترصد الوبائي في بيروت حيث يتم تأليلها وتحليلها واستخراج جداول غير اسمية فيما يخص اسم المتوفي واسم المستشفى.

المادة الثامنة : يطلب من المستشفيات ايضاح اسباب الوفاة، وتجنب السبب "توقف في القلب او التنفس"، اذ ان هذه العبارة تعتبر حالة وفاة وليس سبب للوفاة. إضافة يطلب من المستشفيات تجنب الحروف المختصرة اي abbreviations.

المادة التاسعة : يلغى قرار وزارة الصحة العامة رقم 1/228 تاريخ 11 نيسان 2006.

المادة العاشرة : يبلغ هذا القرار حيث تدعو الحاجة %

وزير الصحة العامة  
الدكتور محمد جواد خليفة

## Annex 2: MOPH decision related to hospital-based mortality surveillance form (2013)



الجمهورية اللبنانية  
وزارة الصحة العامة  
الوزير

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رقم المحفوظات: 2/4  
بيروت في 25 كانون الثاني 2013

### قرار رقم 1/85

يتعلق بتعديل القرار رقم 1/371 تاريخ 4 ايار 2009  
المتعلق بالإبلاغ عن الوفيات واسبابها في المستشفيات

إن وزير الصحة العامة،  
بناء على المرسوم رقم 5818 الصادر بتاريخ 2011/6/13 (تشكيل الحكومة)،  
بناء على المرسوم الاشتراعي رقم 112 الصادر بتاريخ 12 حزيران 1959 وتعديلاته (نظام الموظفين)،  
بناء على قانون اللوائح الصحية الدولية (2005)،  
بناء على قرار رقم 1/206 الصادر بتاريخ 4 نيسان 2006 (يتعلق بسجل الوفيات في المستشفيات العاملة  
على الاراض اللبنانية)،  
بناء على القرار رقم 1/371 الصادر بتاريخ 4 ايار 2009 (المتعلق بالإبلاغ عن الوفيات واسبابها في  
المستشفيات)،  
وبغية تعزيز نوعية المعلومات التي يتم جمعها،

### يقرر ما يلي:

**المادة الأولى:** تعدل المادة الثالثة من القرار 1/371 تاريخ 4 ايار 2009 لجهة تعديل استمارة الخاصة بوفيات  
المستشفيات وذلك بإضافة جنسية المتوفي على الاستمارة (مرفقة ربط).

**المادة الثانية:** تبقى كافة المواد المتبقية في القرار 1/371 الصادر بتاريخ 4 ايار 2009 دون تعديل.

**المادة الثالثة:** يبلغ هذا القرار حيث تدعو الحاجة %

وزير الصحة العامة

علي حسن خليل

## Annex 3: MOPH decision related to hospital death logbook (2006)



الجمهورية اللبنانية  
وزارة الصحة العامة  
الوزير  
- - -

رقم المحفوظات: 4/2- 1/203  
بيروت في 4 نيسان 2006

### قرار رقم 1/206

#### يتعلق بـ "سجل الوفيات" في المستشفيات العاملة على الأراضي اللبنانية

إن وزير الصحة العامة،  
بناء للمرسوم الاشتراعي رقم 8377 الصادر بتاريخ 1961/12/30 (تنظيم وزارة الصحة العامة)،  
ولوضع سياسة صحية مبنية على الاحصاءات الوطنية وخاصة احصاءات اسباب الوفيات،

#### يقرر ما يلي:

- المادة الأولى:** ينشأ "سجل الوفيات" في كافة المستشفيات العاملة على الأراضي اللبنانية.
- المادة الثانية:** على كافة المستشفيات العاملة على الأراضي اللبنانية، الحكومية والخاصة، المدنية والعسكرية، اللبنانية وغير اللبنانية، ان يطبق العمل "بسجل الوفيات" بحلول 1 كانون الثاني 2006.
- المادة الثالثة:** يشمل "سجل الوفيات" كافة الوفيات التي حدثت في المستشفى، وكافة الوفيات التي حدثت خارج المستشفى والتي تطلبت المرور بالمستشفى قبل الدفن. كما تشمل الولادات الميتة.
- المادة الرابعة:** يبين طبيب (من المستشفى) مسؤول لمتابعة "سجل الوفيات" حيث يقوم بجمع المعلومات عن الوفيات وتدوينها في السجل. وتعلم المستشفى الوزارة عن اسم طبيب "سجل الوفيات" وكيفية الاتصال به.
- المادة الخامسة:** "سجل الوفيات" اسمي. يتضمن السجل المعلومات التالية: رقم التسلسلي في السجل، اسم المتوفي، عنوانه اقامته عند الوفاة (القضاء، البلدة/المدينة، العنوان الكامل)، تاريخ الولادة، تاريخ الوفاة، الجنس، مكان الوفاة (داخل/خارج المستشفى)، الحالات المرضية التي ادت الى الوفاة، الحالات المرضية الاخرى والمرافقة، وجود حالة حمل او ولادة قبل الوفاة، وجود استشارة طبيب شرعي، تحديد ان كانت ولادة ميتة لدون اليوم من العمر، تاريخ الدخول الى المستشفى، اسم القسم الطبي والطبيب المعالج، رقم الملف الطبي ورقم الادراي عند دخول المستشفى.
- المادة السادسة:** يطبق على "سجل الوفيات" السرية الطبية والمهنية.
- المادة السابعة:** يحق لطبيب وزارة الصحة العامة، مكلف من قبل قسم الصحة في القضاء أو مديرية الوقاية الصحية، الاطلاع على "سجل الوفيات" داخل مبنى المستشفى، وذلك في اطار جمع معلومات عن اسباب الوفيات في لبنان والكشف عن الفاشيات.
- المادة الثامنة:** يبلغ هذا القرار حيث تدعو الحاجة %

وزير الصحة العامة

الدكتور محمد جواد خليفة

## Annex 4: Hospital-based mortality surveillance form

عدد الوفيات في الاسبوع	الاسبوع	السنة	اسم المستشفى
	من	الي	

استمارة الإبلاغ عن وفيات المستشفيات

الجمهورية اللبنانية  
وزارة الصحة العامة

خصائص التواراة	استمارة طبيب مرعي	مكان الوفاة	وفاة مبررة وفترة 42 يوم قبل الوفاة	الحالات المرضية المبررة	الحالات المرضية التي انت الی الوفاة	الجنسية	العرقية		العمر	الجنس	رقم السجل
							البلدة	مكان القضاء			
<input type="checkbox"/> داخلي <input type="checkbox"/> خارج المستشفى	<input type="checkbox"/> داخلي <input type="checkbox"/> خارج المستشفى	<input type="checkbox"/> داخلي <input type="checkbox"/> خارج المستشفى	<input type="checkbox"/> نعم <input type="checkbox"/> لا	- السبب المبرر: تلفع عن: تلفع عن: تلفع عن:	- السبب المبرر: تلفع عن: تلفع عن: تلفع عن:			<input type="checkbox"/> ايام <input type="checkbox"/> شهر <input type="checkbox"/> سنة	<input type="checkbox"/> انكر <input type="checkbox"/> انفى		
<input type="checkbox"/> داخلي <input type="checkbox"/> خارج المستشفى	<input type="checkbox"/> داخلي <input type="checkbox"/> خارج المستشفى	<input type="checkbox"/> داخلي <input type="checkbox"/> خارج المستشفى	<input type="checkbox"/> نعم <input type="checkbox"/> لا	- السبب المبرر: تلفع عن: تلفع عن: تلفع عن:	- السبب المبرر: تلفع عن: تلفع عن: تلفع عن:			<input type="checkbox"/> ايام <input type="checkbox"/> شهر <input type="checkbox"/> سنة	<input type="checkbox"/> انكر <input type="checkbox"/> انفى		
<input type="checkbox"/> داخلي <input type="checkbox"/> خارج المستشفى	<input type="checkbox"/> داخلي <input type="checkbox"/> خارج المستشفى	<input type="checkbox"/> داخلي <input type="checkbox"/> خارج المستشفى	<input type="checkbox"/> نعم <input type="checkbox"/> لا	- السبب المبرر: تلفع عن: تلفع عن: تلفع عن:	- السبب المبرر: تلفع عن: تلفع عن: تلفع عن:			<input type="checkbox"/> ايام <input type="checkbox"/> شهر <input type="checkbox"/> سنة	<input type="checkbox"/> انكر <input type="checkbox"/> انفى		

رقم الهاتف:-

التاريخ:-

التوقيع:-

اسم طبيب المستشفى:

ملاحظات:

قرار وزارة الصحة العامة، رقم 1/371 تاريخ 4 ايار 2009  
قرار وزارة الصحة العامة رقم 1/55 تاريخ 25 كانون الثاني 2013

## Annex 5: Screen for data entry

Hospital weekly causes of deaths

1 REPORT  
 Report Number:  Year1:  Zone Code:  Zone Label:

2 HOSPITAL  
 Hospital Label:  Hospital Code:   
 Week of Monday:  Week Code:  Nb of weeks:   
 Received on:  Signed by:   
 Number deaths:

3 CASE  
 Death register:  Gender:   
 Age days:  Age months:  Age years:   
 Caza Code:  Caza Label:   
 Locality lncas:  casLoca:   
 Nationality:  NationLa:

Death Cause (ICD10):  
 Cause1:      
 Cause2:      
 Cause3:

Comorbidity (ICD10):  
 Comor1:      
 Comor2:

Other:  
 Maternal death:  Stillbirth:  Death Place:  MedicoLegal:

Underlying cause of death (ICD10):  
 Underc:      
 Notes:

4 END

## Annex 6: ICD-10 Chapters

Chapter	Chapter title	Category
I	Certain infectious and parasitic diseases	Special diseases
II	Neoplasms	Special diseases
III	Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism	Diseases of a specific body system
IV	Endocrine, nutritional and metabolic diseases	Special diseases
V	Mental and behavioral disorders	Special diseases
VI	Diseases of the nervous system	Diseases of a specific body system
VII	Diseases of the eye and adnexa	Diseases of a specific body system
VIII	Diseases of the ear and mastoid process	Diseases of a specific body system
IX	Diseases of the circulatory system	Diseases of a specific body system
X	Diseases of the respiratory system	Diseases of a specific body system
XI	Diseases of the digestive system	Diseases of a specific body system
XII	Diseases of the skin and subcutaneous tissue	Diseases of a specific body system
XIII	Diseases of the musculoskeletal system and connective tissue	Diseases of a specific body system
XIV	Diseases of the genitourinary system	Diseases of a specific body system
XV	Pregnancy, childbirth and the puerperium	Special diseases
XVI	Certain conditions originating in the perinatal period	Special diseases
XVII	Congenital malformations, deformations and chromosomal abnormalities	Special diseases
XVIII	Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	Special diseases (ill defined)
XIX	Injury, poisoning and certain other consequences of external causes	Special diseases
XX	External causes of morbidity and mortality	Special diseases
XXI	Factors influencing health status and contact with health services	Special diseases

## Annex 7: ICD-10 modification rules A to F

### **Rule A. Senility and other ill-defined conditions**

Where the selected cause is classifiable to Chapter XVIII (Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified) except for R95 (Sudden infant death syndrome), and a condition classified elsewhere than to R00-R94 or R96-R99 is reported on the certificate, reselect the cause of death as if the condition classified to Chapter XVIII had not been reported, except to take account of that condition if it modified the coding.

### **Rule B. Trivial conditions**

Where the selected cause is a trivial condition unlikely to cause death and a more serious condition is reported, reselect the underlying cause as if the trivial condition had not been reported. If the death was the result of an adverse reaction to treatment of the trivial condition, select the adverse reaction.

### **Rule C. Linkage**

Where the selected cause is linked by a provision in the classification or in the notes for use in underlying cause mortality coding with one or more of the other conditions on the certificate, code the combination.

Where the linkage provision is only for the combination of one condition specified as due to another, code the combination only when the correct causal relationship is stated or can be inferred from application of the selection rules.

Where a conflict in linkages occurs, link with the condition that would have been selected if the cause initially selected had not been reported. Make any further linkage that is applicable.

### **Rule D. Specificity**

Where the selected cause describes a condition in general terms and a term that provides more precise information about the site or nature of this condition is reported on the certificate, prefer the more informative term. This rule will often apply when the general term becomes an adjective, qualifying the more precise term.

### **Rule E. Early and late stage of disease**

Where the selected cause is an early stage of a disease and a more advanced stage of the same disease is reported on the certificate, code to the more advanced stage. This rule does not apply to a “chronic” form reported as due to an “acute” form unless the classification gives special instructions to that effect.

### **Rule F. Sequelae**

Where the selected cause is an early form of a condition for which the classification provides separate “sequelae of ...”, and there is evidence that death occurred from residual effects of this condition rather than from those of its active phase, code to the appropriate “Sequelae of ...” category.

## Annex 8: Table of groups and subgroups of causes of death

Main groups		Sub-groups			
Label	ICD10 codes	Label	ICD10 codes		
Certain infectious and parasitic diseases	A00-B99	Cholera	A00		
		Diarrhea and gastroenteritis of presumed infectious origin	A09		
		Other intestinal infectious diseases	A01-A08		
		Respiratory tuberculosis	A15-A16		
		Other tuberculosis	A17-A19		
		Plague	A20		
		Tetanus	A33-A35		
		Diphtheria	A36		
		Whooping cough	A37		
		Meningococcal infection	A39		
		Septicaemia	A40-A41		
		Infection with predominantly sexual mode of transmission	A50-A64		
		Acute poliomyelitis	A80		
		Rabies	A82		
		Yellow fever	A95		
		Other arthropod-borne viral fevers and viral haemorrhagic fevers	A90-A94, A96-A99		
		Measles	B05		
		Viral hepatitis	B15-B19		
		HIV disease	B20-B24		
		Malaria	B50-B54		
		Leishmaniasis	B55		
		Trypanosomiasis	B56-B57		
		Schistosomiasis	B65		
		Remainder of certain infectious and parasitic diseases	Other		
		Neoplasms	C00-D48	Malignant neoplasm of lip and oral cavity and pharynx	C00-C14
				Malignant neoplasm of oesophagus	C15
				Malignant neoplasm of stomach	C16
Malignant neoplasm of colon and rectum and anus	C18-C21				
Malignant neoplasm of liver and intrahepatic bile ducts	C22				
Malignant neoplasm of pancreas	C25				
Malignant neoplasm of larynx	C32				
Malignant neoplasm of trachea and bronchus and lung	C33-C34				
Malignant neoplasm of skin	C43				
Malignant neoplasm of breast	C50				
Malignant neoplasm of cervix uteri	C53				
Malignant neoplasm of other and unspecified parts of uterus	C54-C55				
Malignant neoplasm of ovary	C56				
Malignant neoplasm of prostate	C61				
Malignant neoplasm of bladder	C67				
Malignant neoplasm of meninges and brain and other parts of CNS	C70-C72				
Non-Hodgkin's lymphoma	C82-C85				
Multiple myeloma and malignant plasma cell neoplasms	C90				
Leukaemia	C91-C95				
Remainder of malignant neoplasms	Other				
Remainder of neoplasms	D00-D48				



Main groups		Sub-groups	
Label	ICD10 codes	Label	ICD10 codes
Diseases of blood	D50-D89	Anaemias	D50-D64
		Remainder of diseases of blood and blood-forming organs and immune mec	D65-D89
Endocrine, Nutritional and metabolic	E00-E88	Diabetes mellitus	E10-E14
		Malnutrition	E40-E46
		Remainder of endocrine, nutritional and metabolic diseases	Other
Mental and behavioural	F01-F99	Mental and behavioural disorders due to psychoactive substance abuse	F10-F19
		Remainder of mental and behavioural disorders	Other
Diseases of the nervous system	G00-G98	Meningitis	G00-G03
		Alzheimer's disease	G30
		Remainder of diseases of the nervous system	Other
Diseases of the eye and adnexa	H00-H57	Diseases of the eye and adnexa	H00-H57
Diseases of the ear and mastoid	H60-H93	Diseases of the ear and mastoid	H60-H93
Diseases of the circulatory system	I00-I99	Acute rheumatic fever and chronic rheumatic heart diseases	I00-I09
		Hypertensive diseases	I10-I14
		Ischaemic heart diseases	I20-I25
		Other heart diseases	I26-I51
		Cerebrovascular diseases	I60-I69
		Atherosclerosis	I70
Remainder of diseases of the circulatory system	I71-I99		
Diseases of the respiratory system	J00-J98	Influenza	J10-J11
		Pneumonia	J12-J18
		Other acute lower respiratory infections	J20-J22
		Chronic lower respiratory diseases	J40-J47
		Remainder of diseases of the respiratory system	Other
Pulmonary Oedema	J81	Pulmonary odema	J81
Diseases of the digestive system	K00-K92	Gastric and duodenal ulcer	K25-K27
		Diseases of the liver	K70-K76
		Remainder of diseases of the digestive system	Other
Diseases of the skin and subcutaneous tissue	L00-L98	Diseases of the skin and subcutaneous tissue	L00-L98
Diseases of the musculoskeletal and connective	M00-M99	Diseases of the musculoskeletal and connective	M00-M99
Diseases of the genitourinary system	N00-N98	Glomerular and renal tubulo-interstitial diseases	N00-N15
		Remainder of diseases of the genitourinary system	N17-N98

Main groups		Sub-groups	
Label	ICD10 codes	Label	ICD10 codes
Pregnancy, childbirth and puerperium	O00-O99	Pregnancy with abortive outcome	O00-O07
		Other direct obstetric deaths	O10-O92
		Indirect obstetric deaths	O98-O99
		Remainder of pregnancy and childbirth and the puerperium	O95-O97
Certain conditions originating in the perinatal per	P00-P96	Certain conditions originating in the perinatal period	P00-P96
Congenital malformations, deformations and chromoso	Q00-Q99	Congenital malformations and deformations	Q00-Q99
Symptoms, signs	R00-R95	Symptoms and signs	R00-R95
External causes	V01-Y89	Transport accidents	V01-V99
		Falls	W00-W19
		Accidental drowning and submersion	W65-W74
		Exposure to smoke and fire and flames	X00-X09
		Accidental poisoning by and exposure to noxious substances	X40-X49
		Intentional self-harm	X60-X84
		Assault	X85-Y09
		All other external causes	Other
Unspecified external causes	S00-T98		
Cardiac arrest	I46	Cardiac arrest	I46
Unspecified cause and death on arrival	R96-R99	Unspecified cause and death on arrival	R96-R99
Missing	XXX	Missing	XXX

Reported deaths, Bekaa, Weeks 26 and 27

Main groups	Week 26	Week 27
Infectious diseases A00-B99	1	2
Neoplasms C00-D48	6	3
Diseases of blood D50-D89	0	0
Endocrine nutritional metabolic E00-E88	1	2
Mental and behavioural F01-F99	0	0
Diseases of the CNS G00-G98	1	0
Diseases of the eye and adnexa H00-H57	0	0
Diseases of the ear and mastoid H60-H93	0	0
Circulatory diseases I00-I99	6	3
Respiratory diseases J00-J98	1	1
Pulmonary oedema J81	0	0
Diseases of the digestive tract K00-K92	2	0
Skin and subcutaneous diseases L00-L98	0	0
Musculoskeletal and connectiv M00-M99	0	0
Genitourinary diseases N00-N98	0	2
Pregnancy and childbirth O00-O99	0	0
Certain perinatal conditions P00-P96	5	1
Congenital malformations Q00-Q99	3	1
Symptoms and signs R00-R95	1	0
External causes V01-Y89	2	3
Unspecified	3	0
<b>Total</b>	<b>32</b>	<b>18</b>

The formula :

$\text{Proportional mortality} = \frac{\text{number of deaths due to specific disease} \times 100}{\text{number of deaths due to all causes}}$
--

For week 26, the weekly proportional mortality

- a) For Infectious diseases:  $1 \times 100 / 32 = 3\%$

Compute the weekly proportional mortality:

- a) For week 27, for Infectious diseases:  
 b) For week 27, for neoplasms:





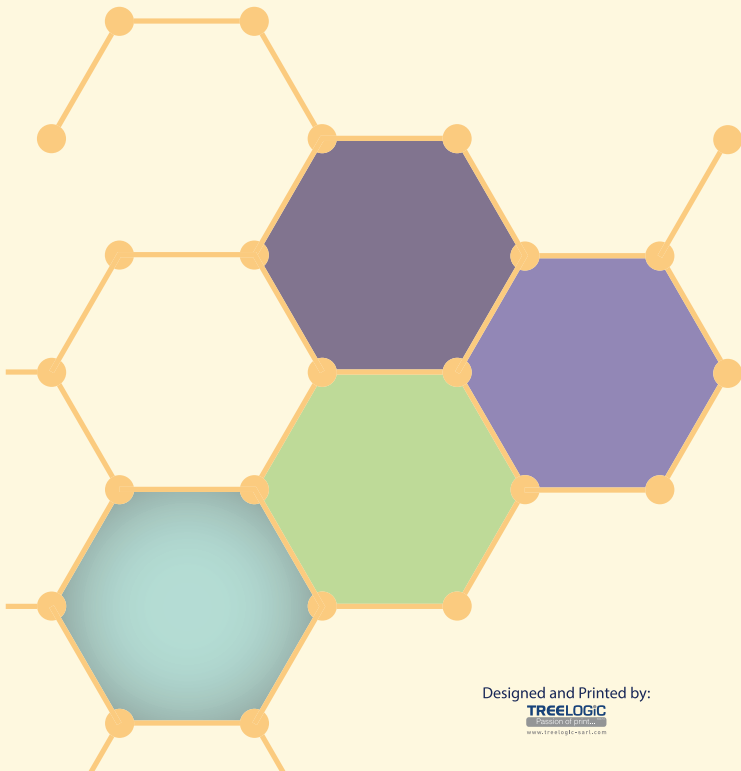












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