



REPUBLIC OF LEBANON
MINISTRY OF PUBLIC HEALTH
Epidemiology Surveillance Program

Guideline

for Intensive Care Unit-based Acute Respiratory Infection Surveillance

2015

ممول من الاتحاد الأوروبي
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تنفيذ
Implemented by



طبع هذا الدليل بدعم من الاتحاد الأوروبي ومنظمة الصحة العالمية
بالشراكة مع مفوضية الأمم المتحدة العليا لشؤون اللاجئين وذلك في إطار مشروع بإدارة وزارة الصحة العامة.
إن وزارة الصحة العامة هي الجهة الوحيدة المسؤولة عن محتوى هذا الدليل ولا يمكن اعتباره بأي
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www.moph.gov.lb - (→ **prevention** → **surveillance**)

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Introduction

الدليل الوطني لترصد التهاب التنفسي الحاد في اقسام العناية الفائقة

المقدمة

فيروسات الانفلونزا (او النزلة الوافدة او الخنان) متعددة ومتقلبة. يطرأ على فيروس الانفلونزا تعديل طفيف لبعض خصائصه سنويا مما يسبب ظهور العدوى الموسمية السنوية. في لبنان، تبدأ العدوى الموسمية عند الخريف وتبلغ ذروتها في نهاية شهر كانون الثاني. وللفيروس القدرة على انتاج انماط جديدة مما يسبب فاشيات عالمية (جائحات) مع عواقب صحية شديدة.

عند ظهور خطر جائحة الانفلونزا (A(H5N1)، بادرت وزارة الصحة العامة بوضع خطة وطنية للكشف عن الفيروس واحتوائه. فتم وضع نظام ترصد الالتهاب التنفسي الحاد في اقسام العناية الفائقة في المستشفيات منذ العام 2005. وتم تعزيز هذا النظام بعيد ظهور جائحة A(H1N1) خلال 2009.

مازالت فيروسات الانفلونزا المستجدة تتطلب وجود نظام ترصد خاص حتى اليوم. ففيروس A(H5N1) وفيروس A(H7N9) مازالا يسجلان حالات بشرية في العالم.

عند قراءة هذا الدليل، ستتعرفون على نظام ترصد الالتهاب التنفسي الحاد في اقسام العناية الفائقة، ومكوناته من تعريف للحالات، طرق الابلاغ، منهجية التحليل وتحديد مؤشرات المتابعة.

نشكر كافة اقسام العناية الفائقة التي تقوم بالابلاغ الاسبوعي لوزارة الصحة العامة.

ونشكر كل من 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 علم وزارة الصحة العامة

الدكتور وليد عمار

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A. Generalities

1. Context and regulations

Lower respiratory infections represent the third cause of death worldwide. In addition, the emerging of respiratory infectious diseases constitutes substantial risk for humans. Since 2003, several new agents have been emerging leading to high morbidity and/or mortality, as SARS, the novel influenza viruses AH5N1, AH1N1, AH7N9 and lately the MERS-CoV.

In 2005, an Intensive Care Unit ICU-based surveillance was established in Lebanon. The MOPH decision no. 617/1 dated on the 29th October 2005 requests from the ICUs in public and private hospitals in Lebanon to adopt a weekly reporting system [Annex 1]. The target event was to report any acute respiratory distress.

In 2013, the MOPH circular no. 2 dated on the 9th January 2013 modified the reporting form in order to include any ICU-based acute respiratory infection ARI [Annex 2].

2. Objectives

The main objectives of ICU-based surveillance are to:

- Measure and monitor on weekly basis morbidity indicators related to acute respiratory infections in Lebanon
- Detect abnormal pattern and novel agents at an early stage, and investigate them
- Assist decision makers on proper control measures.

3. Objectives and target audience of this guideline

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

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

- Know the objectives of the ICU-based surveillance system
- Know how to fill adequately the ICU reporting form
- Understand how medical coding is performed
- Understand and compute the needed indicators
- Be able to recognize an alert and to understand the investigation procedures
- Know the terms of reference of key players
- Be able to interact with various key players in the system.

B. Information system and methods

1. Data sources

Data sources are both ICUs in public and private hospitals across Lebanon.

The MOPH decision requests each hospital to designate a focal person from the ICU staff in charge of reporting to the MOPH.

2. Target cases and case definition

2.1 Case definition

The general case definition of Acute Respiratory Infection (ARI) is any patient with fever and respiratory symptoms. The general case definition of Severe Acute Respiratory Infection (SARI) is any patient with ARI requiring hospital admission.

For ICU-based surveillance, the target case definition is:

- Acute Respiratory Infection with fever and dyspnea
- Whatever was the etiological agent
- Admitted to ICU

The ARI can be due to various agents:

- Bacterial: Streptococcus pneumoniae, Haemophilus influenzae, Mycoplasma pneumoniae, Listeria, Staphylococcus, Chlamydia...
- Viral: seasonal influenza, novel influenza, adenovirus, classical coronavirus, novel coronavirus, hantavirus, human metapneumovirus, parainfluenza, respiratory syncytial virus...
- Parasitic.

2.2 Inclusion

Any new ICU admission for ARI is targeted for reporting.

The ARI cases include:

- Community-acquired infections
- Hospital-associated infections.

2.3 Exclusion

- a) Are excluded the patient who has been admitted to the ICU for any reason and who developed ARI in that ICU in later phase.
- b) Are excluded the newborns admitted to ICU after birth and before discharge.

3. ICU logbook

At hospital level, the presence of ICU logbook will help to fill the ICU weekly form in adequate manner. The minimum data in the logbook are: name, age, date of admission to ICU, and medical etiology.

Such logbook will provide:

- The number of new admissions and of those for ARI
- The basic demographic and medical information for ARI cases.

4. Weekly form

Data is collected using a specific form [Annex 3]. The form is sent every week by the hospital even if no cases were reported.

The reporting form is a nominative line-listing. The name of the patient is specified.

4.1. Categories of variables

The form includes the following categories of variables:

- General information: hospital name, week identification, total number of new admissions to ICU and total number of new ARI cases
- Case-based information for each ARI patient including demographic and medical variables.

Categories	Sub-categories	Variables
General information	Source identification	<ul style="list-style-type: none">- Identification of the hospital: hospital name- Identification of the week and the year. The week starts on Monday.- Identification of the focal person: name and phone number
	Number admissions	<ul style="list-style-type: none">- Number of new admissions for the week- Number of new admissions for ARI
Case-based information (for each ARI case)	Demographic data	<ul style="list-style-type: none">- Name- Gender- Age- Date of admission

		- Place of residence: locality and caza
	Exposure	- Health worker - Laboratory worker - Animal-related occupation - Travel history in the previous 10 days before onset, and country
	Medical information	- Fever - Use of mechanical ventilation - Death, and date - Etiologies
	Laboratory investigation	- Specimen collection and results
For MOPH use	For MOPH	- ID form in the database

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.
- c) Fill with all available information. All variables are important.

4.3 Hospital and week identification

- a) The hospital name is specified.
- b) The ICU is specified. Hospitals may have several ICUs as ICU, PICU, NICU... Two options are available:
 - Option A: Each ICU may fill the form as individual unit. Later, at data-entry phase, all ICUs related to one hospital are considered as one ICU
 - Option B: One weekly form is filled for all ICUs in one hospital.
- c) The year is specified.
- d) The week is specified. In Lebanon, weeks start on Monday. The week is filled by specifying the date of the Monday. Weeks are numbered using the ISO 8601 norm. The first week of the year is the one containing the first Thursday or the 4th January.
Example: The first week for 2014 is the week starting on 29th December 2013, as it contains the first Thursday of 2014.

Table (2): Example of hospital and week identification

Hospital name	ICU	Year	Week
ABC	ICU	2014	From Monday: 03/03/2014

4.4. General information

Every week, the new admissions are reported:

- The new admissions to the ICU whatever was the medical diagnosis
- The new admissions with the diagnosis fitting with ARI/SARI.

Table (3): Two examples on filling the number of new admissions

#	Variables	Count
1	New admissions for the week	4
	New admissions for the week, for SARI, number of cases	0
2	New admissions for the week	5
	New admissions for the week, for SARI, number of cases	2

The patients already admitted to ICU for various etiologies and who developed ARI in later stage in the same ICU are not included in the counts.

4.5. Demographic variables

- a) The name of the patient is mentioned. The name at birth is the recommended one.
- b) The age is specified in years (ex: 50 y). For under 1 year, the age is specified in months with the unit (Ex: 7 months).
- c) The gender of the patient is specified.
- d) The date of admission is the date of admission to the ICU of the reporting hospital.
- e) The place of residence is the current main place of living in Lebanon of the patient. The needed information is the caza and the locality. Mentioning the locality without the caza may be confusing as some localities may have the same names but in different cazas. Example: There are 3 localities named Bireh in Lebanon: one in Rashaya caza, one in Akkar caza and one in Chouf caza.

Table (4): Three fictive examples on filling the demographic variables

#	Name	Gender	Age	Date of admission	Residence	
					Caza	Locality
1	Nour Nour	F <input checked="" type="checkbox"/> M <input type="checkbox"/>	58 y	04/03/2014	Chouf	Kfar Fakoud
2	Alia Alia	F <input type="checkbox"/> M <input checked="" type="checkbox"/>	23 y	05/03/2014	Zahleh	Kfar Zabad
3	Jad Jad	F <input checked="" type="checkbox"/> M <input type="checkbox"/>	10 m	06/03/2014	Koura	Kfar Saroune

4.6. Exposure variables

Two exposure variables are explored:

- The occupation of the patient
- The travel history.

The occupation variables focus on the following:

- Health care provider: medical and paramedical staff providing care to patients
- Laboratory worker dealing with human or animal specimen.
Example: personal working in human laboratory, or in animal/ food laboratory
- Animal related profession dealing with live, dead or slaughtered animals. Example: veterinarian, agriculture inspector, farmer, shepherd, slaughter, butcher ...

If the answer is “yes”, the detailed information is specified.

The travel variable focuses on any travel history:

- In the 10 days before the onset of ARI symptoms
- In any country.

If the answer is “yes”, the country is specified.

Table (5): Four examples on filling the exposure variables

#	Occupation			Travel history 10 days before onset
	Health worker	Laboratory worker	Animal-related	
1	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes, specify: Medical doctor	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes, specify:	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes, specify:	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes, specify: UAE
2	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes, specify:	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes, specify: Lab technician in hospital lab	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes, specify:	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes, specify:
3	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes, specify:	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes, specify:	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes, specify: farmer	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes, specify: China
4	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes, specify:	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes, specify:	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes, specify:	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes, specify:

4.7. Medical variables

The medical variables include 4 items reflecting the known situation at the time of filling the report:

- The fever highlighting the diagnosis of infection. Some patients may not show fever at certain time of the course of the disease.
- The requirement of mechanical ventilation as supportive care, including intubation and any artificial ventilation.
- The outcome and the death. If death has occurred, the date of death is specified.
- The medical diagnosis. The patient may present several medical diagnosis. The ones that lead to ICU admission are specified. If the etiological infectious agent is known, it is also specified.

Table (6): Four examples on filling the medical variables				
#	Fever (30°C & above)	Mechanical ventilation	Death (date of death)	Etiologies
1	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	Viral pneumonia
2	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	Surinfection + Chronic Bronchitis
3	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes (09/03/2014)	Acute Distress Respiratory Syndrome
4	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	Bacterial pneumonia due to Streptococcus pneumoniae

The comorbidities not related to the current admission to ICU are not needed to be specified.

Some medical terms are confusing. They represent non-specific health conditions, or signs and symptoms common to several diseases, or health conditions common to various diseases. It is recommended to avoid the unspecific medical terms. The table below includes some frequent ill-defined terms.

Table (7): Examples of non-specific medical terms		
Unspecific medical terms	Rationale	Recommendations
Shock	There are 3 types of shock: 1) Hemodynamic; 2) Septic; 3) Cardiogenic. Each has its specific causes.	Specify the type of shock, and the cause.
Infection	There are several agents causing infections and there are several infection sites.	Specify the causative organism if known 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 (respiratory origin).	Specify the cause of the pulmonary edema.
Respiratory/lung failure	Respiratory failure may be acute or chronic. It is the consequence of various diseases: asthma, emphysema, chronic bronchitis, interstitial lung diseases, neurologic diseases, muscular diseases, infection...	Specify the underlying cause of respiratory/ lung failure.

4.8. Laboratory variables

This part verifies if any specimen was collected for virological testing for influenza and other emerging viruses.

The variable is specified wherever the tests are performed in the same hospital, or in reference laboratories.

The target specimens are the respiratory specimens:

- Sputum
- Nasal wash
- Naso-pharyngeal swab or throat swab
- Tracheal aspirate
- Broncho-alveolar lavage
- Pulmonary biopsy.

The target tests are:

- Rapid test
- PCR test
- Virological culture.

Table (8): Four examples on filling the laboratory variable

#	Specimen collection for virus investigation
1	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes, specify:
2	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes, specify: nasal wash for influenza rapid test: positive for influenza A
3	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes, specify: tracheal aspirate for MERS-CoV (pending)
4	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes, specify: throat swab for Influenza (pending)

The specimens and the tests are specified, even if the results are still pending.

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

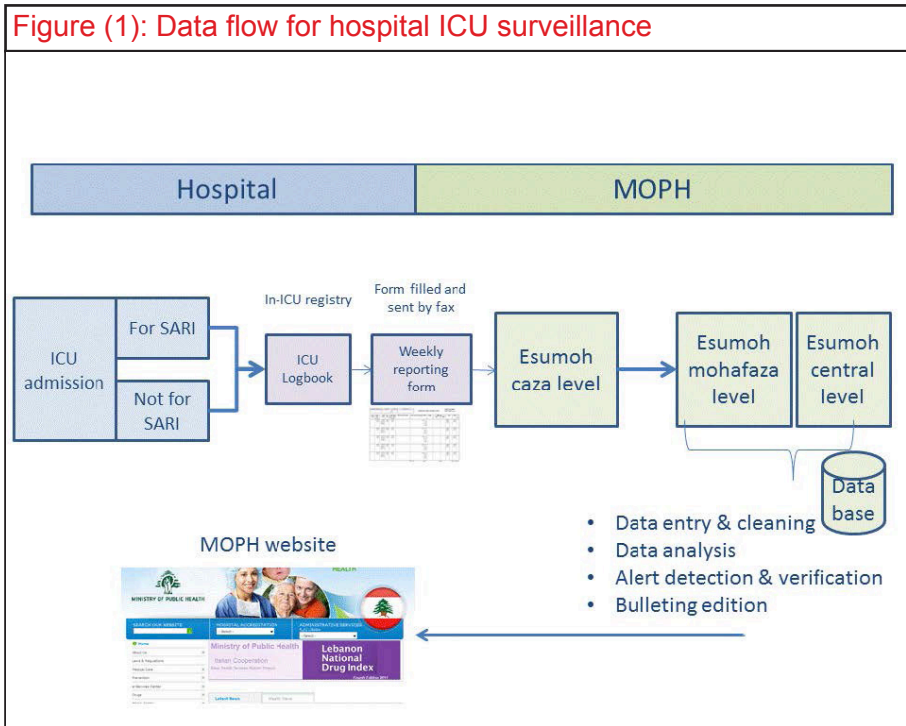
a) At hospital ICU level, on weekly basis, the assigned focal person verifies the ICU logbook. Then he/she fills the weekly line-listing reporting form. The form is sent to the MOPH/Esumoh caza team. In case there are technical communication issues with the MOPH caza level, the hospital faxes the form 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.

b) 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. Received and verified forms are sent by fax to the MOPH/Esumoh corresponding mohafaza team.

c) 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. Descriptive outputs are generated. Indicators are monitored for potential alerts. In case of alert, case verification and investigation are conducted in coordination with the caza team. Once a week, a copy of the local database is sent to the central team.

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

Figure (1): Data flow for hospital ICU surveillance



C. Data management

1. Checking the form

Forms are checked for the following points:

- The hospital name is filled
- The specified date for starting the week is filled and is indeed a Monday
- The unspecific medical terms are checked with the hospital
- 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.

The ICD-10 is developed, adapted and promoted by WHO. Training on ICD-10 is available at the WHO website, at the following link:

<http://apps.who.int/classifications/apps/icd/ICD10Training/>

Other websites provide technical guidance to use the ICD-10 as:

- www.icd10data.com
- www.findacode.com

2.1. Volumes

ICD-10 has 3 volumes:

- Volume 1: The tabular list. The classification in this volume is divided into chapters, each of which is identified by a Roman numeral (i.e. I, II, III, IV, V etc.) and a title.
- Volume 2: The instruction manual. It contains rules and guidelines for the use of the classification for coding of

mortality and morbidity data.

- Volume 3: The alphabetical index. It contains many more diagnostic terms than the tabular list, reflecting the many and varied ways that doctors and other clinical staff describe diseases.

The ICD-10 includes 21 chapters [Annex 5] and over 11400 four-character codes.

2.2. Code format

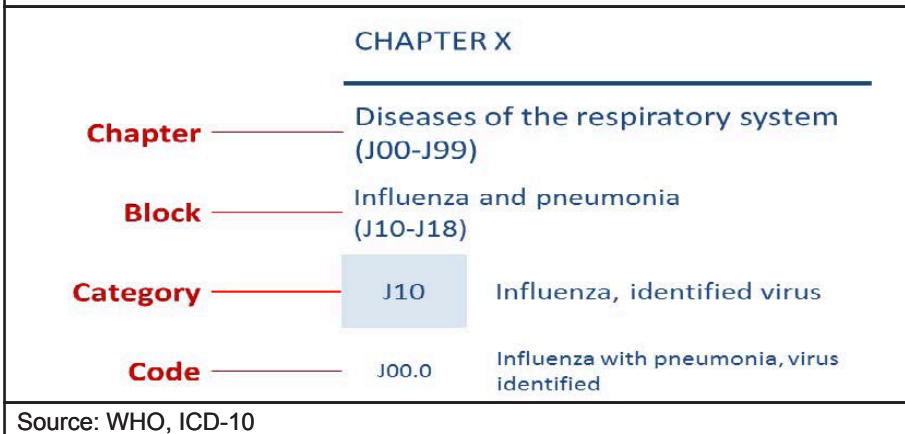
The format of the tabular list includes chapters, blocks, categories and codes:

- Each chapter is divided into blocks which group together categories having some common factors
- Blocks are divided into categories represented by three-character codes (or core codes)
- The 3-character code (category) may be subdivided into codes with four characters. Certain codes also have optional supplementary characters to add more detail.

Medical coding may be performed using:

- The 3-character codes (or category or core code)
- The 4-character codes.

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



2.3. NOS and NEC

“NOS” stands for "Not Otherwise Specified". It is the equivalent of saying: “unspecified”, “unqualified”, or “no further information”.

“NEC” stands for "Not Elsewhere Classified". 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 pneumonia due to whooping cough:

- The primary code is A37.9†: Whooping cough
- The optional code is J17.0*: Pneumonia in diseases classified elsewhere.

2.5. Chapter X

Chapter X is related to respiratory diseases.

Ten blocks are identified, as specified in table (9).

Table (9): The blocks included in the chapter X in ICD-10

Label	Block
Block: Acute upper respiratory infections	J00-J06
Block: Influenza and pneumonia	J10-J18
Block: Other acute lower respiratory infections	J20-J22
Block: Other diseases of upper respiratory tract	J30-J39
Block: Chronic lower respiratory diseases	J40-J47

Block: Lung diseases due to external agents	J60-J70
Block: Other respiratory diseases principally affecting the interstitium	J80-J84
Block: Suppurative and necrotic conditions of lower respiratory tract	J85-J86
Block: Other diseases of pleura	J90-J94
Block: Other diseases of the respiratory system	J95-J99
Source: WHO. ICD-10	

The category/code J81 refers to pulmonary edema excluding the cardiogenic origin and toxic origin.

The list of categories for chapter X is available in Annex 6.

3. Data entry

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

The data-entry includes two components:

- A screen for ICU identification. For each ICU, 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. For each hospital, one ICU is specified. If the hospital has several Intensive Care Units, there are merged into one in the database.
- A screen for the weekly reporting form [Annex 4].
 - In case no new ARI admission was reported, the parts (1) and (2) of the screen are filled with the information related to ICU and week identification with the mention of no ARI/SARI case. The ICU may have new admissions but not ARI/SARI cases.
 - In case new ARI/SARI admissions are reported, part (3) is filled in addition to parts (1) and (2). The part (3) includes the demographic, exposure, medical and laboratory information. A screen is filled for every ARI patient.

Data entry is performed at the mohafaza and central levels.

4. Data cleaning

Forms and database are checked. Data cleaning searches the database for missing and unspecified information. In order to retrieve the needed information, Esumoh teams contact the ICUs.

4.1. Missing data

Cases with unspecified core variables are checked. The target core variables are:

- Week
- Age
- Etiology.

4.2. Unspecified medical information

Cases are screened for ill-defined medical terms:

- Medical terms related to symptoms, signs and abnormal clinical and laboratory findings (Chapter XVIII)
- Unspecified medical terms.

5. Data Analysis

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

Cases are analyzed by:

- Time: week, month, year
- Place: hospital, place of residence
- Person: age group, gender
- Disease: diagnosis, fever, mechanical ventilation, death
- Exposure: occupation and travel history.

The used indicators are the following:

- ICU participation
- ICU completeness of weekly reporting from participating hospitals
- ICU with nil ARI cases
- Proportion of verified ARI
- ARI weekly counts
- ARI weekly ratios
- ICU-based ARI incidence.

For analysis purpose, all ICUs related to one hospital are considered as one ICU.

5.1. ICU participation proportion

The ICU participation proportion is the proportion of reporting ICUs at any week divided by the number of all ICUs. It is usually computed on annual basis.

$$\text{ICU participation proportion} = \frac{\text{Number of reporting ICUs at any time} \times 100}{\text{Number of all ICUs}}$$

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

Figure (3): ICU participation by caza in Mount-Lebanon, 2013



Source: Lebanon, MOPH, Esumoh, 2014

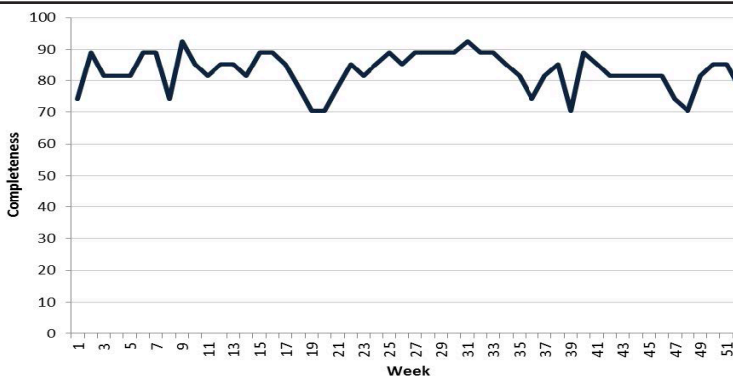
5.2. Completeness of weekly reporting from participating ICUs

Weekly completeness is the proportion of ICUs who reported the weekly form (even if no ARI cases) among the expected number of forms to be received from participating ICUs.

$$\text{Weekly completeness of zero-reporting} = \frac{\text{Number of received forms from ICUs for a specific week} \times 100}{\text{Number of expected forms from participating ICUs for that specific week}}$$

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

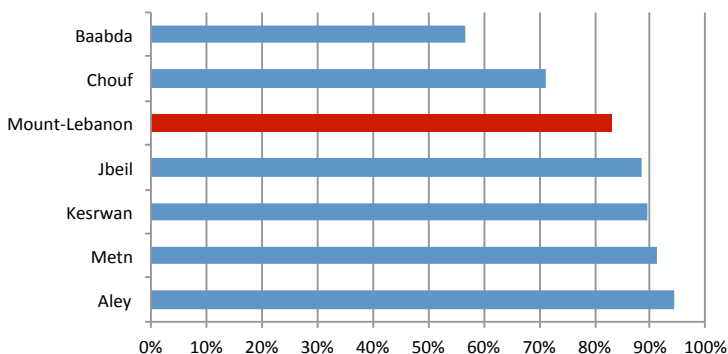
Figure (4): Weekly completeness of ICU reports, Mount-Lebanon, 2013



Source: Lebanon, MOPH, Esumoh, 2014

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

Figure (5): Annual cumulative completeness of ICU reports by caza, Mount-Lebanon, 2013



Source: Lebanon, MOPH, Esumoh, 2014

5.3. Proportion of ICUs with nil ARI case

The proportion of ICUs with nil ARI admission is the number of ICUs who reported zero ARI admission among the total number of reporting ICUs for a specific period of time.

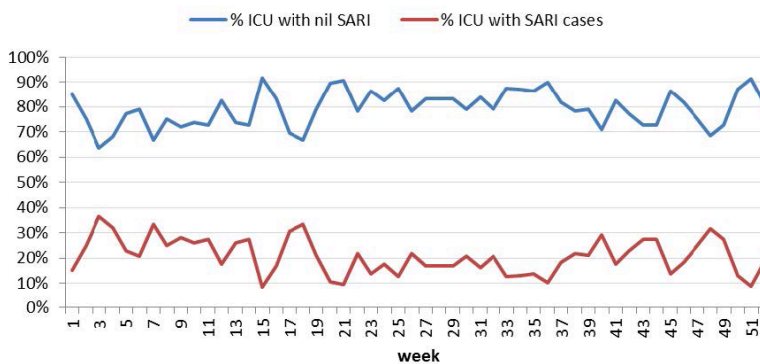
$$\text{Proportion of ICUs with nil ARI admission} = \frac{\text{Number of ICUs with zero ARI admission} \times 100}{\text{Number of reporting ICUs}}$$

Also, the proportion of ICU with at least one ARI admission can be computed.

$$\text{Proportion of ICUs with } \geq 1 \text{ ARI admission} = \frac{\text{Number of ICUs with } \geq 1 \text{ ARI admission} \times 100}{\text{Number of reporting ICUs}}$$

Those indicators reflect the quality of reporting.

Figure (6): Proportion of ICUs with and without ARI admission, Mount-Lebanon, 2013



Source: Lebanon, MOPH, Esumoh, 2014

5.4. Verified ARI

ICU may report cases who are ARI patients and those who are not. There is need to verify the diagnosis of reported ARI cases in order to select only the ARI cases in later analysis stages.

The verification includes:

- Verifying the ICD-10 codes
- Select the group of patients compatible with ARI.

In ICD-10, the ARI may be found in 4 different chapters:

- Chapter I: Infectious diseases
- Chapter X: Respiratory diseases
- Chapter XVI: Certain perinatal conditions
- Chapter XVIII: Symptoms and signs.

The diseases selected for ARI includes 29 ICD-10 categories codes, found in 3 chapters. They are listed in the table (10).

Table (10): the diseases selected as ARI

ICD-10			For ICU-based ARI
Chapter	Core code	Disease	Group
From chapter I: Infectious diseases	A36	Diphtheria	Diphtheria
	A37	Whooping cough	Whooping cough
	A15	Respiratory tuberculosis, bacteriologically and histologically confirmed	Pulmonary tuberculosis
	A16	Respiratory tuberculosis, not confirmed bacteriologically	
	A19	Miliary tuberculosis	

From chapter X: Respiratory diseases	J00	Acute nasopharyngitis [common cold]	Upper respiratory infections
	J01	Acute sinusitis	
	J02	Acute pharyngitis	
	J03	Acute tonsillitis	
	J04	Acute laryngitis and tracheitis	
	J06	Acute upper respiratory infections of multiple and unspecified sites	
	J36	Peritonsillar abscess	
	J39	Other diseases of upper respiratory tract	
	J05	Epiglottitis	Epiglottitis
	J10	Influenza due to identified influenza virus	Influenza
	J11	Influenza, virus not identified	
	J12	Viral pneumonia, not elsewhere classified	Lower respiratory infections
	J13	Pneumonia due to <i>Streptococcus pneumoniae</i>	
	J14	Pneumonia due to <i>Haemophilus influenzae</i>	
J15	Bacterial pneumonia, not elsewhere classified		
J16	Pneumonia due to other infectious organisms, not elsewhere classified		
J17	Pneumonia due to other diseases classified elsewhere		
J18	Pneumonia, organism unspecified		
J20	Acute bronchitis		
J21	Acute bronchiolitis		
	J22	Unspecified acute lower respiratory infection	
	J80	Adult respiratory distress syndrome	Acute respiratory Distress
From Chapter XVIII: Symptoms and signs	R05	Cough	Respiratory signs: cough, dyspnea
	R06	Abnormalities of breathing	

For simplicity, the 29 ICD-10 core codes are organized in 9 groups used to ICU-based ARI cases analysis and presentation. The 9 groups are:

- Diphtheria
- Whooping cough
- Pulmonary tuberculosis
- Upper respiratory infection
- Influenza
- Epiglottitis
- Lower respiratory infection
- Acute respiratory distress
- Breathing abnormalities.

Two indicators can be computed:

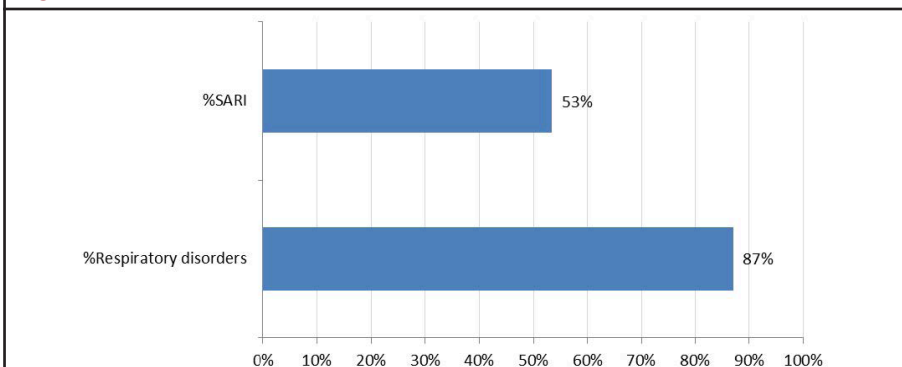
- Proportion of reported cases related to respiratory diseases, infectious or not
- Proportion of reported cases related to ARI.

$$\text{Proportion of verified ARI} = \frac{\text{Number of verified ARI based on ICD-10 codes} \times 100}{\text{Number of reported ARI by ICUs}}$$

$$\text{Proportion of respiratory cases} = \frac{\text{Number of patients related to respiratory diseases} \times 100}{\text{Number of reported ARI by ICUs}}$$

Both indicators reflect the quality of reporting.

Figure (7): Proportion of verified ARI cases, Mount-Lebanon, 2013

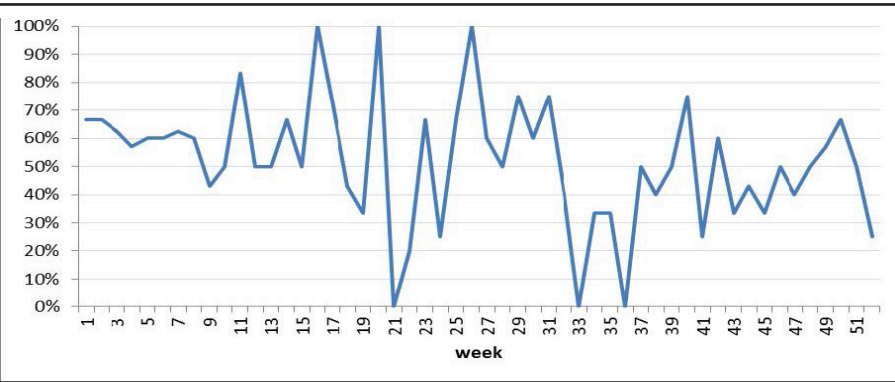


Source: Lebanon, MOPH, Esumoh, 2014

The proportion of verified ARI can be computed:

- On weekly-basis
- On cumulative manner for a period of time.

Figure (8): Weekly proportion of verified ARI, Mount-Lebanon, 2013



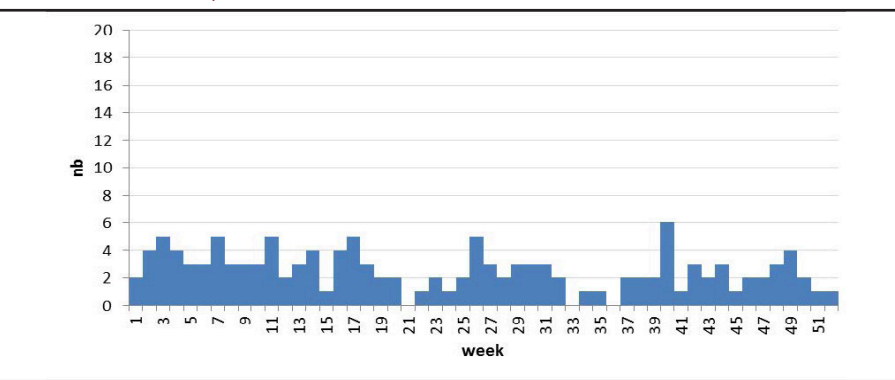
Source: Lebanon, MOPH, Esumoh, 2014

The following indicators are computed using the count of verified ARI (according to case definitions).

5.5. Weekly counts

Weekly counts are used to monitor ARI admissions by time (week) and place (mohafaza, caza, hospital).

Figure (9): Weekly counts for verified ARI admissions in ICUs, Mount-Lebanon, 2013



Source: Lebanon, MOPH, Esumoh, 2014

5.6. Weekly ratios of ARI

Weekly ratios can be used to compute the weekly ratio of verified ARI admission by ICU and by week.

$$\text{Weekly ratio of ARI per ICU} = \frac{\text{Number of verified ARI per week}}{\text{Number of received ICU weekly reports}}$$

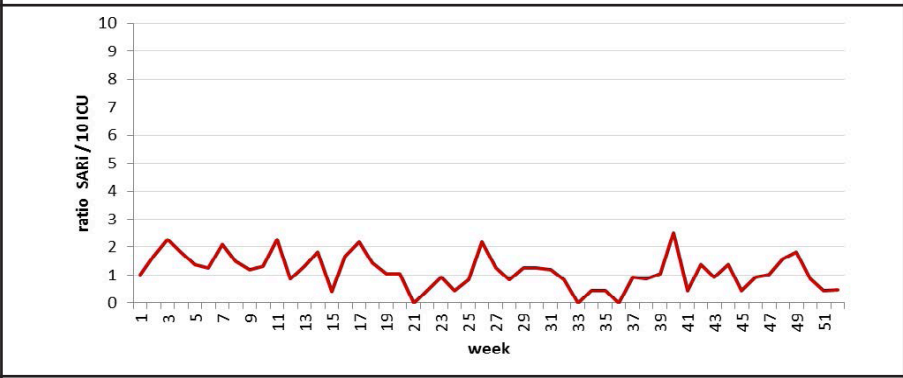
If the ratio shows figures less than 1, then, the weekly ratio of ARI per 10 ICUs can be used.

$$\text{Weekly ratio of ARI per 10 ICU} = \frac{\text{Number of verified ARI per week} \times 10}{\text{Number of received ICU weekly reports}}$$

This indicator is dependent of two main factors:

- The adequate reporting by ICU
- The incidence of ARI in the community.

Figure (10): Weekly ratio of ARI per 10 ICU, Mount-Lebanon, 2013



Source: Lebanon, MOPH, Esumoh, 2014

Compared to historical data, this indicator can be used to detect abnormal increase.

5.7. ICU-based ARI incidence rate

In case of high participation from the ICUs with at least 80% of ICUs participating in the reporting with high weekly reporting completeness (at least 80%), the incidence rate of ICU-based ARI can be computed.

ICU-based ARI incidence rate =	$\frac{\text{Number of verified ICU-ARI patients} \times 100000}{\text{Population at mid-year}}$
--------------------------------	--

The denominator is estimated based on various sources:

- Estimation of the Lebanese population from national surveys conducted by the Central Administration for Statistics CAS (excluding the Palestinian residing in camps)
- Registered population of the Palestinian residing in camps provided by UNRWA
- Registered population of Syrian refugees residing in Lebanon provided by UNCHR.

5.8. Other indicators

Other indicators are computed and monitored for the verified ICU-based ARI patients:

- Count and proportion of health care workers with ARI
- Count and proportion of laboratory workers with ARI
- Count and proportion of animal-related occupation with ARI
- Count and proportion of cases with travel history in the 10 days before onset
- Proportion of ARI cases requiring mechanical ventilation
- Reported case fatality rate of ARI at ICU.

Reported case fatality of ICU-based ARI =	$\frac{\text{Number of death among ARI patients} \times 100}{\text{Number of ARI}}$
---	---

The reported case fatality rate reflects the data provided by the ICU at the time of reporting. One patient may die in later stages.

D. Alert detection, verification and investigation

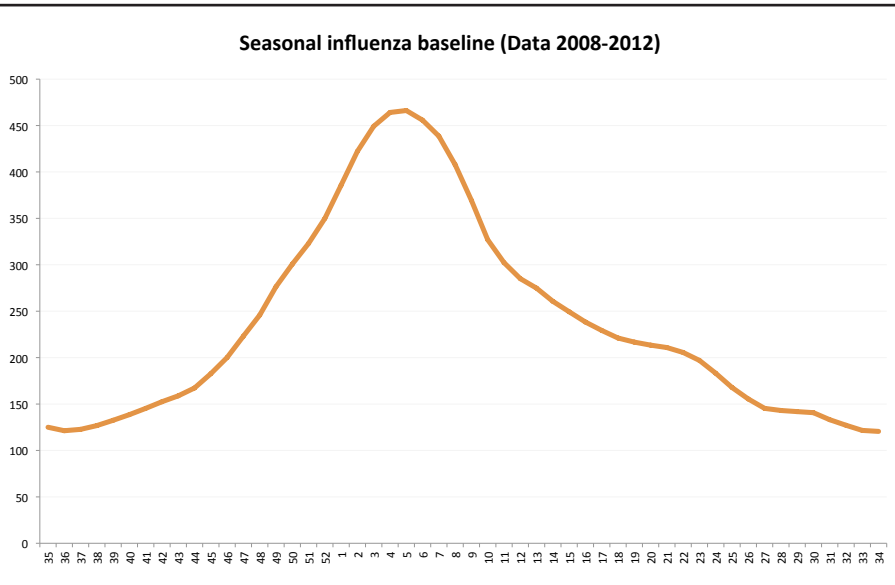
1. Alert detection

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

Alert detection is based on detecting abnormal patterns:

- Relative increase of ARI cases: current week is compared with previous weeks in order to detect any increase
- Unexpected increase of ARI based on historical data of the previous years
- Unexpected increase of ARI cases outside the influenza season
- Presence of ARI cases among specific groups: health care workers, laboratory workers and animal-related occupation, travelers
- Unexpected increase of case fatality rate.

Figure (11): National figures: Weekly ARI cases from the MOPH visa system, Lebanon 2007- 2012 (excluding 2009)



Source: Lebanon, MOPH, Esumoh, 2014

2. Alert verification

Once alerts are generated, the verification process is launched.

Verification includes:

- Case verification and collection of additional information related to clinical picture, exposure history, imagery findings, laboratory results, and outcomes
- Search for any cluster.

Verification is done by:

- Contacting the ICU
- Verifying if similar alert was detected by other surveillance systems.

The verification aims primarily to find out if any etiological agent was suspected or confirmed.

3. Laboratory investigation

Laboratory investigation aims to collect respiratory specimens for virological testing.

The target agents are mainly viral agents causing ARI in particular influenza viruses and novel coronavirus (MERS-CoV).

For influenza, the best specimens are naso-pharyngeal and oro-pharyngeal swabs. The national reference laboratory is the Research Laboratory at Rafic Hariri University Hospital RHUH. The reference test is PCR with various primers.

For MERS-CoV, the best specimens are deep respiratory specimens as deep sputum, tracheal aspirates, broncho-alveolar lavage. The national reference laboratory is the Clinical Laboratory at Rafic Hariri University Hospital RHUH, where PCR is performed.

Respiratory specimens are conserved at 4-8°C if referred to reference laboratory within 48 hours. Beyond that, it is recommended to conserve specimens at minus 20°C.

Annex 7 provides instructions for specimen collection of nasopharyngeal and oropharyngeal swabs.

Annex 8 provides instructions for packaging for national laboratory.

Annex 9 provides instructions for packaging for international laboratory.

4. Outbreak 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.

E. Information dissemination

Summary tables are posted at the MOPH website: www.moph.gov.lb.
(--> Prevention, --> Surveillance).

The tables are displayed for national and mohafaza levels.

Figure (12): MOPH website

The image shows a screenshot of the Ministry of Public Health (MOPH) website. At the top, the URL www.moph.gov.lb is displayed. Below the URL is a banner image featuring a woman holding a large blue scale, with a globe and various health-related icons in the background. The MOPH logo and the text "MINISTRY OF PUBLIC HEALTH" are visible on the left side of the banner.

The website's navigation menu is divided into three main sections:

- SEARCH OUR WEBSITE:** A search bar with a green search button.
- HOSPITAL ACCREDITATION:** A dropdown menu with "--Select--" as the current selection.
- ADMINISTRATIVE SERVICES:** A dropdown menu with "--Select--" as the current selection.

Below the navigation bar, there is a main menu with the following items:

- Home
- About Us
- Laws and Regulations
- Medical Care
- Prevention
- e-Services Center
- Drugs
- Media Center
- E-Health
- Awareness Campaigns
- Statistics

Two blue arrows point from the "Prevention" and "Surveillance" items in the main menu to their respective sub-menus:

- Prevention Sub-menu:** AIDS, Tobacco Program, Expanded Program on Immunization, Mother & Child Health Care, Primary Health Care, Sanitary Engineering, List of Bottled Water permitted by MO, HACCP Certificates, Communicable Diseases.
- Surveillance Sub-menu:** Current Year, Past Years, Poliomyelitis, Meningitis, Measles, Rubella, Avian Influenza, Rabies Exposure, Cancer, Sentinel, Absenteeism, ICU-based surveillance.

On the right side of the page, there is a sidebar with a "SMAR" logo and the text "TAKE PROTECTION YOUR SIDE SEE" and "DATE 1".

F. Terms of reference of key players

1. ICU focal person

Hospitals designate an ICU focal person from the health staff. The focal point may be assisted by other health professionals from the ICU staff.

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

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

- Ensure the presence and the regular update of the ICU logbook
- Collect data related to ICU admissions and to ARI patients
- Fill the weekly ICU line-listing form and send it to MOPH/ Esumoh
- Discuss with the medical staff for potential specimen collection for virological testing in reference laboratories
- Coordinate with MOPH and reference laboratories for specimen referral testing
- Coordinate with the MOPH staff in case of verification and investigation.

2. The MOPH/Esumoh caza team

At MOPH caza level, the Esumoh team is in charge to receive the filled forms from ICUs.

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

- Receive the forms
- Follow up with the ICUs in case of no reporting
- Check received forms and contact the ICU focal point to check for missing or unspecified information
- Send the ICU forms to the MOPH/Esumoh corresponding mohafaza team
- Ensure specimen referral in coordination with ICU and MOPH/ Esumoh mohafaza and central teams
- Conduct case verification and investigation in coordination with ICU and MOPH/Esumoh mohafaza and central teams.

3. MOPH/Esumoh mohafaza team

At the mohafaza, the MOPH/Esumoh team is in charge of data management for the ICU-based surveillance system. Usually, for each mohafaza, one person is designated to ensure necessary tasks.

The terms of reference are to:

- Receive ICU forms from MOPH/Esumoh caza teams
- Check the forms information and contact the MOPH/Esumoh caza teams and/or the ICUs for any verification and clarification
- Code the etiology in the ICU weekly form, using the 10th Revision of the International Statistical Classification of Diseases and Related Health Problems (ICD-10)
- 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 ICU-based surveillance system, and conducting adequate data management.

For mohafaza without dedicated person for ICU-based 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 ICU-based ARI surveillance
- Train the staff on the application
- Conduct necessary sessions for ICU focal persons and staff
- Receive copies of the local databases and merge them in national database
- Conduct analysis and generate the national data
- Identify needed indicators and thresholds
- 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
- Prepare the national reports.

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Abbreviations

Abbreviation	Complete term
ARI	Acute Respiratory Infection
CAS	Central Administration for statistics
Esumoh	Epidemiological Surveillance Program
HCW	Health Care Worker
ICD-10	International Classification of Diseases-10 th revision
ICU	Intensive Care Unit
ISO	International Organization for Standardization
MERS-CoV	Middle East Respiratory Syndrome – Novel Coronavirus
MOPH	Ministry of Public Health
NEC	Not Elsewhere Classified
NICU	Neonatal Intensive Care Unit
NOS	Not Otherwise Specified
PICU	Pediatric Intensive Care Unit
RHUH	Rafic Hariri University Hospital
SARI	Severe Acute Respiratory Infection
UNHCR	United Nations High Commissioner for Refugees
UNRWA	United Nations Relief and Works Agency for Palestine refugees
VTM	Viral Transport Medium
WHO	World Health Organization



الجمهورية اللبنانية
وزارة الصحة العامة
الوزير

رقم المحفوظات: 2/4/203/1
بيروت في: 29/ تشرين الأول/ 2005

قرار رقم 617/1
يتعلق بالإبلاغ عن حالات acute respiratory distress
في أقسام العناية الفائقة

إن وزير الصحة العامة،
بناء لتوصيات منظمة الصحة العالمية،
بناء لفتاوى الأمراض المعدية في لبنان الصادر بتاريخ 31 كانون الأول 1957،
وبناء للاقتراح اللجنة الوطنية للأمراض الانتقالية،

يقرر ما يلي:

المادة الأولى: تعتمد كافة المستشفيات العاملة على الأراضي اللبنانية/نظام الإبلاغ عن حالات acute respirator distress التي تم ادخالها الى قسم العناية الفائقة. يهدف النظام الى الكشف عن حالات ناتجة عن الانفلونزا الطيور وبشكل سريع لبدء أعمال التقصي والاستجابة.

المادة الثانية: على كافة المستشفيات العاملة على الأراضي اللبنانية، الحكومية والخاصة، المدنية والعسكرية، اللبنانية وغير اللبنانية، ان يطبق العمل/بنظام الإبلاغ عن حالات acute respirator distress التي تم ادخالها الى قسم العناية الفائقة/ بحلول 11/كانون الثاني/2006.

المادة الثالثة: يتوجب على المستشفى تعيين طبيب من قسم العناية الفائقة/مسؤولا عن مراجعة وإبلاغ وزارة الصحة العامة عن الحالات. وتعلم المستشفى الوزارة عن اسم طبيب المكلف وكيفية الاتصال به.

المادة الرابعة: يتم الإبلاغ وزارة الصحة العامة، اسبوعيا، عبر املء استمارة خاصة/ "ICU- acute respirator distress" (مرفقة). ترسل الاستمارات من المستشفيات الى قسم الصحة في القضاء. في بيروت، ترسل الاستمارات الى برنامج الترصد الوبائي.

المادة الخامسة: في حال عدم وجود حالات، ترسل المستشفيات استمارة "acute respirator distress" / موضحة/عدم وجود حالات.

المادة السادسة: يتم الإبلاغ عن الحالات بشكل اسمي. لكل حالة، توضح المعلومات التالية: الاسم، العمر، الجنس، قضاء وبلدة الإقامة، مهنة المريض (في القطاع الصحي او المختبرات او له علاقة بالتداول مع الحيوانات)، وجود سفر الى بلد غربي او يعاني من انفلونزا الطيور (عند الحيوانات او الانسان)، وجود حمى، للجوء الى التنفس الاصطناعي والامراض المسببة.

المادة السابعة: تجمع الاستمارات في أقسام الصحة في القضاء، حيث يعين طبيب لمتابعتها. يقوم قسم الصحة في القضاء بجمع الاستمارات واستلامها والتدقيق بها/ومراجعة المستشفيات الاستكمال/وتوضيح المعلومات اللازمة. بعدها، ترسل الاستمارات بغلاف مغلق الى افرع الترصد الوبائي في المحافظة/حيث يتم تأجيلها وتحليلها واستخراج جداول/غير اسمية/فيما يخص اسم المتوفى/واسم المستشفى. ريثما يستكمل التجهيز الالى لفرع الترصد الوبائي في المحافظات، تجمع الاستمارات/الذي/برامج/الترصد الوبائي في بيروت.

المادة الثامنة: يبلغ هذا القرار/حيث/تدعو/الحاجة/ %

وزير الصحة العامة
الدكتور محمد جواد خليفة



الجمهورية اللبنانية
وزارة الصحة العامة
المديرية العامة

رقم المحفوظات: 1/1
بيروت في 9 كانون الثاني 2013

تعميم رقم 2
تعديل استمارة ترصد الإبلاغ من أقسام العناية الفائقة

في إطار تحديث نظام الإبلاغ من أقسام العناية الفائقة واستهداف الالتهابات الرئوية دون سواها ، يطلب الإبلاغ عن حالات الالتهاب الرئوي التي أدت الى ضائقة تنفسية ودخول العناية الفائقة severe acute respiratory infection.

بناء عليه، تم تعديل استمارة الإبلاغ الأسبوعي (مرفقة ربطاً).

يتم تعبئة الاستمارة من قبل قسم العناية الفائقة في المستشفى، بتواتر اسبوعي، وترسل الى قسم الصحة العامة في القضاء. في بيروت، ترسل الاستمارات مباشرة الى الوحدة المركزية للترصد الوبائي.

مدير عام وزارة الصحة العامة

الدكتور وليد عمار

Annex 3: ICU-based weekly reporting form

Hospital name	ICU	Year	Week From Monday:
---------------	-----	------	----------------------

REPUBLIC OF LEBANON
Ministry of Public Health

Intensive Care Units
Severe Acute Respiratory Infection Surveillance

New admissions for the week, total number

New admissions for the week, for Severe Acute Respiratory Infection, number of cases

If new admissions of Severe Acute Respiratory Infection, cases details:

Name	Gen der	Age (years)	Date of admission	Residence		Occupation		Travel history 10 days prior to onset	Signs & evolution		Etiologies	Specimen collection for virus investiga- tion	For MOPH: Num
				Caza	Locality	Health worker	Laborat- ory worker		Animal- related	Fever (≥38°C)			
	<input type="checkbox"/> M <input type="checkbox"/> F					<input type="checkbox"/> no <input type="checkbox"/> yes, specify:	<input type="checkbox"/> no <input type="checkbox"/> yes, specify:	<input type="checkbox"/> no <input type="checkbox"/> yes, specify:	<input type="checkbox"/> no <input type="checkbox"/> yes, <input type="checkbox"/> yes	<input type="checkbox"/> no <input type="checkbox"/> yes, specify:		<input type="checkbox"/> no <input type="checkbox"/> yes, specify:	
	<input type="checkbox"/> M <input type="checkbox"/> F					<input type="checkbox"/> no <input type="checkbox"/> yes, specify:	<input type="checkbox"/> no <input type="checkbox"/> yes, specify:	<input type="checkbox"/> no <input type="checkbox"/> yes, specify:	<input type="checkbox"/> no <input type="checkbox"/> yes, <input type="checkbox"/> yes	<input type="checkbox"/> no <input type="checkbox"/> yes, specify:		<input type="checkbox"/> no <input type="checkbox"/> yes, specify:	
	<input type="checkbox"/> M <input type="checkbox"/> F					<input type="checkbox"/> no <input type="checkbox"/> yes, specify:	<input type="checkbox"/> no <input type="checkbox"/> yes, specify:	<input type="checkbox"/> no <input type="checkbox"/> yes, specify:	<input type="checkbox"/> no <input type="checkbox"/> yes, <input type="checkbox"/> yes	<input type="checkbox"/> no <input type="checkbox"/> yes, specify:		<input type="checkbox"/> no <input type="checkbox"/> yes, specify:	
	<input type="checkbox"/> M <input type="checkbox"/> F					<input type="checkbox"/> no <input type="checkbox"/> yes, specify:	<input type="checkbox"/> no <input type="checkbox"/> yes, specify:	<input type="checkbox"/> no <input type="checkbox"/> yes, specify:	<input type="checkbox"/> no <input type="checkbox"/> yes, <input type="checkbox"/> yes	<input type="checkbox"/> no <input type="checkbox"/> yes, specify:		<input type="checkbox"/> no <input type="checkbox"/> yes, specify:	

Name of physician:

Signature:

Date:

Phone:

Severe Acute Respiratory Infection is defined as any person with: fever, dyspnea, and requiring hospitalization.
Specimen collection includes: sputum, bronchoalveolar lavage, tracheal aspirate, nasopharyngeal aspirate, nose/throat swab, lung biopsy, lung autopsy.

Annex 4: Data-entry screen

ICU - Acute Respiratory Distress Admissions

1 REPORT

Number 70 Year1 Received on

Zone Code Zone Label

2 HOSPITAL

Hospital Label Hospital Code

Week Starting on Monday Week Code

Signed by

New admissions

Acute Respiratory Distress admissions

3 CASE

Name Sex

Year of Birth Age (years)

Date admission Week of admission

Caza Code Caza Label

Locality Incas casLoca

Health worker Laboratory worker Animal-related

Travel Country Label Country Code

Fever Mechanical ventil

Death Date of death Week of death

Etiology

Comorbidity

Notes

Annex 5: 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 6: ICD-10 core codes for chapter X (diseases of the respiratory system)

Block: Acute upper respiratory infections (J00-J06)

- J00 Acute nasopharyngitis [common cold]
- J01 Acute sinusitis
- J02 Acute pharyngitis
- J03 Acute tonsillitis
- J04 Acute laryngitis and tracheitis
- J05 Acute obstructive laryngitis [croup] and epiglottitis
- J06 Acute upper respiratory infections of multiple and unspecified sites

Block: Influenza and pneumonia (J10-J18)

- J10 Influenza due to identified influenza virus
- J11 Influenza, virus not identified
- J12 Viral pneumonia, not elsewhere classified
- J13 Pneumonia due to *Streptococcus pneumoniae*
- J14 Pneumonia due to *Haemophilus influenzae*
- J15 Bacterial pneumonia, not elsewhere classified
- J16 Pneumonia due to other infectious organisms, not elsewhere classified
- J17* Pneumonia in diseases classified elsewhere
- J18 Pneumonia, organism unspecified

Block: Other acute lower respiratory infections (J20-J22)

- J20 Acute bronchitis
- J21 Acute bronchiolitis
- J22 Unspecified acute lower respiratory infection

Block: Other diseases of upper respiratory tract (J30-J39)

- J30 Vasomotor and allergic rhinitis
- J31 Chronic rhinitis, nasopharyngitis and pharyngitis
- J32 Chronic sinusitis
- J33 Nasal polyp
- J34 Other disorders of nose and nasal sinuses
- J35 Chronic diseases of tonsils and adenoids
- J36 Peritonsillar abscess
- J37 Chronic laryngitis and laryngotracheitis

- J38 Diseases of vocal cords and larynx, not elsewhere classified
- J39 Other diseases of upper respiratory tract

Block: Chronic lower respiratory diseases (J40-J47)

- J40 Bronchitis, not specified as acute or chronic
- J41 Simple and mucopurulent chronic bronchitis
- J42 Unspecified chronic bronchitis
- J43 Emphysema
- J44 Other chronic obstructive pulmonary disease
- J45 Asthma
- J46 Status asthmaticus
- J47 Bronchiectasis

Block: Lung diseases due to external agents (J60-J70)

- J60 Coalworker's pneumoconiosis
- J61 Pneumoconiosis due to asbestos and other mineral fibres
- J62 Pneumoconiosis due to dust containing silica
- J63 Pneumoconiosis due to other inorganic dusts
- J64 Unspecified pneumoconiosis
- J65 Pneumoconiosis associated with tuberculosis
- J66 Airway disease due to specific organic dust
- J67 Hypersensitivity pneumonitis due to organic dust
- J68 Respiratory conditions due to inhalation of chemicals, gases, fumes and vapours
- J69 Pneumonitis due to solids and liquids
- J70 Respiratory conditions due to other external agents

Block: Other respiratory diseases principally affecting the interstitium (J80-J84)

- J80 Adult respiratory distress syndrome
- J81 Pulmonary oedema
- J82 Pulmonary eosinophilia, not elsewhere classified
- J84 Other interstitial pulmonary diseases

Block: Suppurative and necrotic conditions of lower respiratory tract (J85-J86)

- J85 Abscess of lung and mediastinum
- J86 Pyothorax



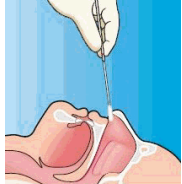
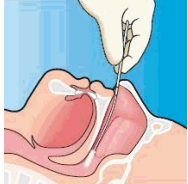

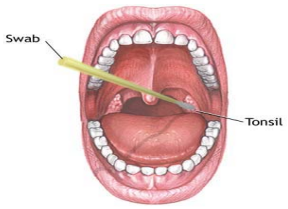


Block: Other diseases of pleura (J90-J94)

- J90 Pleural effusion, not elsewhere classified
- J91* Pleural effusion in conditions classified elsewhere
- J92 Pleural plaque
- J93 Pneumothorax
- J94 Other pleural conditions

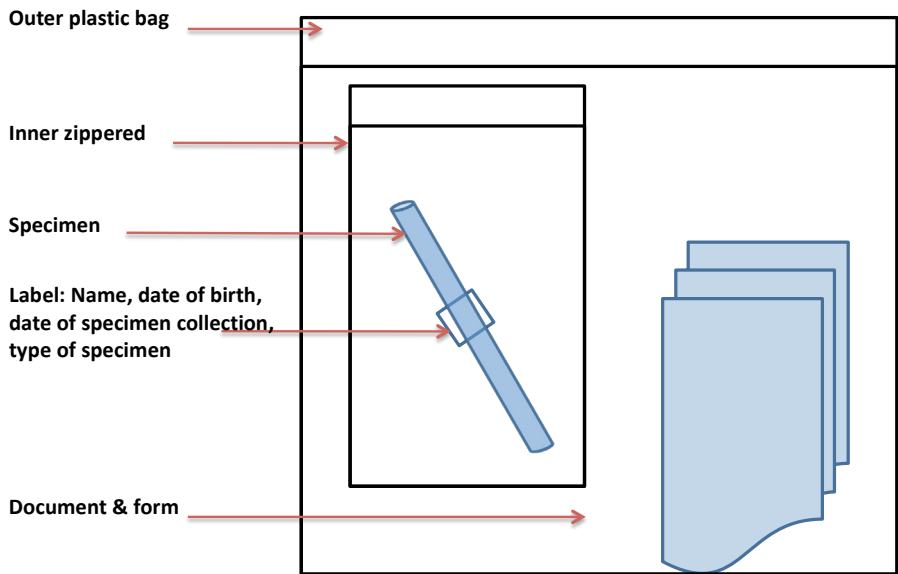
Block: Other diseases of the respiratory system (J95-J99)

- J95 Postprocedural respiratory disorders, not elsewhere classified
- J96 Respiratory failure, not elsewhere classified
- J98 Other respiratory disorders
- J99* Respiratory disorders in diseases classified elsewhere

Annex 7: Instructions for specimen collection of nasopharyngeal and oropharyngeal swabs

<p>1) The material</p>  <p>The set includes a swab and a transport vial containing Viral Transport Media VTM. Verify the expiration date.</p>	<p>2) Size of the swab</p>  <p>With thin swab, nasal (3) and throat swab (4) can be collected. With large swab, only throat swab can be collected.</p>
<p>3a) Nasal swab</p>  <p>Keep the patient in a horizontal position, laying down.</p>	<p>3b) Nasal swab</p>  <p>Pass the swab at the vertical in one nostril and rotate. Repeat for the second nostril.</p>
<p>4a) Throat swab</p>  <p>Ask the patient to be seated, and open the mouth.</p>	<p>4b) Throat swab</p>  <p>Depress the tongue and swab the posterior pharynx and both tonsils vigorously.</p>
<p>5) Transferring the swab</p>  <p>Transfer the swab into the vial containing the VTM.</p>	<p>6) Sealing the vial</p>  <p>Break the applicator's stick and close the screw capped vial.</p>

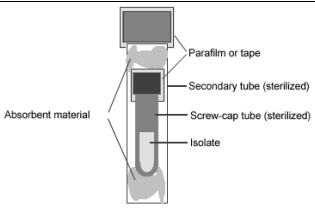
Annex 8: Instructions for specimen packaging for national referral



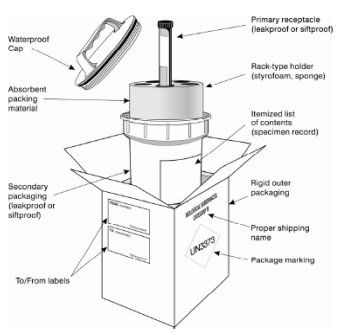
Annex 9: Instructions for specimen packaging for international referral

Based on the type of considered pathogens, various instructions of packaging are followed according to the IATA rules (international air transport association). Three points are to be considered:

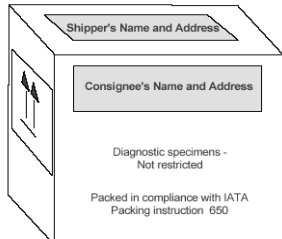
a) Leak proof primary container



b) Triple packaging instructions



c) Marking outside package



Notes

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Notes

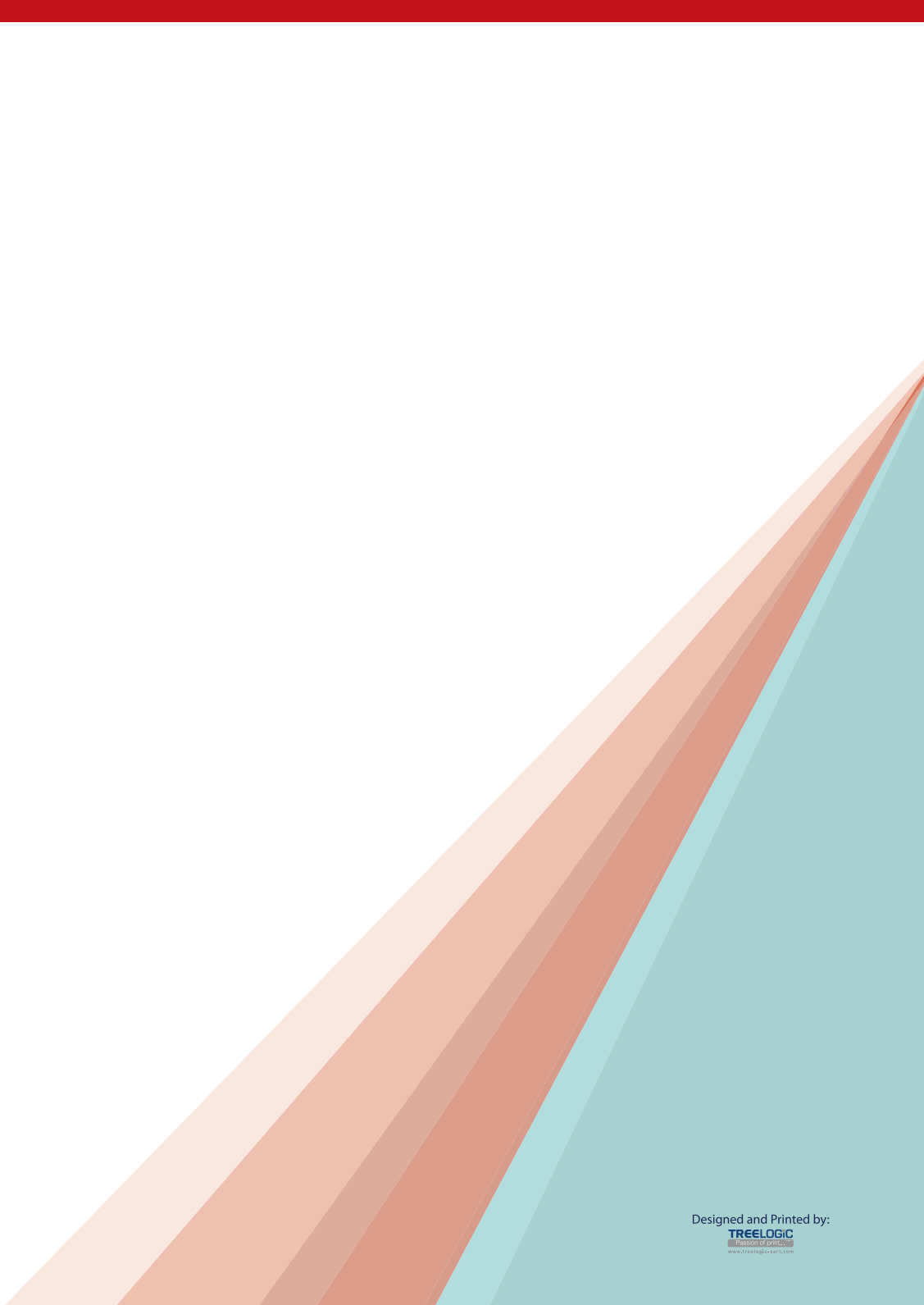
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