



**World Health  
Organization**

Regional Office for the Eastern Mediterranean

# Post Disaster Rapid Hospital Assessment

Governmental hospital of Beirut – Quarantine Report

Prepared by: **New Health Concept**





This document was prepared as an activity of the World Health Organization (WHO) to assess the damaged hospitals post the Explosion of Port Beirut on August 04, 2020 that have damaged major medical centers in the region of Beirut.

This report is intended to present the assessment held to the damaged hospital: **“Governmental hospital of Beirut – Quarantina”**.

The site visit was held to rapidly assess the status of the Medical Centers post the Beirut’s explosion; the Hospital’s old building is **severely damaged** by the explosion since it is located at proximity of the port.

The intensity of damage at the Quarantine hospital can be estimated to 80% to the old building and 30% to the new one.

**The hospital old building is currently not functional nor safe. The new one is not yet finished nor equipped.**

The assessment was conducted as per the “Post Disaster Rapid Hospital Assessment – Hospital Administrator” tool, adapted from the WHO PAHO Checklist which includes sections on Structural (S), Non-structural (N) and Functional Capacity (F) of the hospital.

In addition, photos were taken and added as support documents.

#### **Assessment team:**

- The assessment was coordinated by Dr Nagi Souaiby for the ministry of public health (MOPH), under the support of the World Health organization (WHO)
- The assessment team included the following experts: a nurse, a civil engineer, a biomedical engineer, a medical doctor as per below details.

Name	Function	Contact number	Email address
Dany Raad	Physician	+961 3 169 521	danyraad@hotmail.com
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Hady Charaf	Civil engineer	+961 3 033 910	hady.charaf@gmail.com

\*team leader

### Quarantine Hospital Team:

Name	Function
Hussein Moussallam	Nursing Director
Youssef Kayrouz	Laboratory Director
Karin Sakr Saliba	Hospital Director

General Information	
Assessment date	August 10, 2020
Hospital name	Governmental hospital of Beirut – Quarantine
Hospital type	<input checked="" type="checkbox"/> General <input type="checkbox"/> Specialized
Affiliation	<input checked="" type="checkbox"/> Public (Ministry of Health) <input type="checkbox"/> Public (other than MoH) <input type="checkbox"/> Private <input type="checkbox"/> NGO
Bed capacity	52 beds
Health/clinical services provided	NICU, PICU, Adult ICU, and Pediatrics
Hospital Condition	<input type="checkbox"/> Partially damaged <input type="checkbox"/> Not damaged <input checked="" type="checkbox"/> Totally damaged
Hospital Status at the assessment time	<input type="checkbox"/> Fully Functioning <input type="checkbox"/> Partially Functioning <input checked="" type="checkbox"/> Not Functioning
Functional services at the assessment time	<input checked="" type="checkbox"/> in-patient <input type="checkbox"/> OPD <input checked="" type="checkbox"/> Lab <input checked="" type="checkbox"/> imaging <input type="checkbox"/> others



# N: Non-Structural

## Assess integrity of the non-structural aspects and patient care areas

N1	Accessibility	Yes	No	Observations/Comments/Actions
	<ul style="list-style-type: none"> <li>▪ Is there safe and adequate vehicular access to the hospital?</li> <li>▪ Is there safe pedestrian access to the hospital?</li> </ul>	<input type="checkbox"/> <input type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	It is not safe for both buildings, old building to be demolished to provide good access to the new one.
N2	Safety of external areas	Yes	No	Observations/Comments/Actions
	<ul style="list-style-type: none"> <li>▪ Are parking lots cleared and safe for usage?</li> </ul> Check safety and security of hospital compound, external to buildings: <ul style="list-style-type: none"> <li>▪ Boundary fence and gate(s) intact?</li> <li>▪ Fallen power/telecomm lines and poles?</li> <li>▪ External drains free from blockage?</li> <li>▪ Are water tanks secured and intact?</li> </ul>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	No parking is available  The hospital is severely damaged  There is no water in the hospital
N3	Safety of internal areas	Yes	No	Observations/Comments/Actions
	Check the building interior for any potential sources of injury: <ul style="list-style-type: none"> <li>▪ Are ceilings and overhead fixtures intact?</li> <li>▪ Are windows and doors secured to walls and able to close?</li> <li>▪ Are shelves, equipment and materials secured from falling?</li> <li>▪ Gases: Are bottles, tanks and gas links secure and without leaks?</li> <li>▪ Electricals: Is the electrical supply safe and reliable?</li> </ul>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<b>2-A:</b> Old building ceilings don't exist <b>2-B:</b> New building ceilings demolished <b>3:</b> old building and new building windows and doors are gravely damaged <b>4:</b> Medical gases tanks in old building don't exist and new building is not equipped with gas tanks <b>5:</b> Electrical supply for old buildings is damaged, and in new building don't exist yet
N4	Assessment of major systems (lifelines)	Yes	No	Observations/Comments/Actions
<i>Select YES, if system is functional and, NO, if the systems are non-functional</i>				
	<ul style="list-style-type: none"> <li>▪ Potable water (Is safe water available in adequate quantities?)(5 litres/out-patient; 40-60 litres/in-patient/day. Additional quantities may be needed for laundry equipment, flushing toilets, etc.)</li> <li>▪ Electrical generator</li> <li>▪ Fire system</li> <li>▪ Chillers / Boilers</li> <li>▪ Fuel supplies (<i>Check for leaks in fuel storage tanks or lines</i>)</li> <li>▪ Medical gases</li> <li>▪ Elevators</li> <li>▪ Hospital information system (HIS) <i>Check IT infrastructure</i></li> <li>▪ Wastewater system</li> <li>▪ Medical waste system</li> </ul>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<b>6-</b> In old building all water tanks are damaged and in new building tanks exist but not connected to public connection <b>7-</b> In old building there is no generators purchased and stocked at the supplier's stores and can be installed once the Electrical systems are tested <b>8-</b> No fire system in old building, in the new one system installed not tested <b>9-</b> In old building there is no boilers nor chillers however the chillers in the new buildings are damages not tested yet <b>10-</b> old building don't have fuel connection, new building fuel tanks not checked.

▪ Air conditioning/Ventilation systems

**11:** Medical gases tanks in old building does not exist and new building is not equipped with gas tanks

**12:** In old building there is no elevators and in new buildings the elevators are purchased but not installed

**13:** HIS in old building does not exist but in new building infrastructure installed not tested

**14:** Waste water system is broken at many places

**15:** Ventilation and air conditioning system to be checked

**1-A :** Old Building structure is in a bad condition , the explosion consequences are added to the old warn structure , multiple beams and columns are showing cracks and rusted steel reinforcement. (some departments to be evacuated)





**1-B** : New Building under construction





2-A: Old building ceilings don't exist



3: Old building and new building windows and doors are gravely damaged



New Building:



9-In old building there is no boilers nor chillers however the chillers in the new buildings are damages not tested yet



15:Ventilation and air conditioning system to be checked







Assessment of critical areas including equipment functionality						
F1	Emergency Room	Yes	No	Observations/quantities/Comments/Actions		
	<ul style="list-style-type: none"> <li>▪ Catheters</li> <li>▪ Tubes</li> <li>▪ Personal protective equipment</li> <li>▪ Sutures</li> <li>▪ Gloves: disposable and surgical</li> <li>▪ Extrication collars</li> <li>▪ Spinal boards and splints</li> <li>▪ Bandages</li> </ul>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>			
F2	Intensive Care Unit (ICU)	Yes	No	Observations/ quantities/Comments/Actions		
	<p><b>Bed capacity:</b></p> <ul style="list-style-type: none"> <li>▪ Has there been a reduction in bed capacity? (list number of beds currently available)</li> <li>▪ Is there capability to improvise or increase bed capacity/ patient services? (list number of additional beds)</li> <li>▪ <a href="#">Number of beds available</a></li> </ul>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<p>The old building is not functional and is dangerous due to severe damage. The new building is not equipped.</p>		
	<p><b>Equipment:</b></p> <ul style="list-style-type: none"> <li>▪ Ventilator</li> <li>▪ Vital sign monitor</li> <li>▪ Infusion pump</li> <li>▪ Medical gases</li> <li>▪ Medication refrigerator</li> <li>▪ Defibrillator</li> <li>▪ Ambu bags and mask</li> <li>▪ Blood gas machine</li> <li>▪ Suction device</li> <li>▪ Stocked crash cart</li> </ul> <p><b>Related to NICUs:</b></p> <ul style="list-style-type: none"> <li>▪ Same above equipment suitable for neonates</li> <li>▪ Incubators</li> </ul>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<p>No. Functioning</p>	<p>No. Needed</p>	<p>Equipment could not be tested. Most of them are covered by sand, plaster or glass. No electricity is available to allow testing.</p> <p>The NICU wall fell completely after the explosion.</p>







F5	Sterilization Department	Yes	No	Observations/ quantities/Comments/Actions
Select YES, if items are present and functional and, NO, if the items are insufficient or non-functional.				
	<ul style="list-style-type: none"> <li>Autoclave machines</li> </ul>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Equipment could not be tested. Most of them are covered by sand, plaster or glass. No electricity is available to allow testing.
F6	Dialysis	Yes	No	Observations/ quantities/Comments/Actions
Select YES, if items are present and functional and, NO, if the items are insufficient or non-functional. State in comments, if equipment was not available at hospital prior to event. <input type="checkbox"/>				
	<ul style="list-style-type: none"> <li>Dialysis machine</li> <li>Water</li> <li>Water treatment (reverse osmosis) plant</li> <li>All dialysis supplies</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	There is no dialysis center in the hospital.
F7	Blood bank	Yes	No	Observations/ quantities/Comments/Actions
	<ul style="list-style-type: none"> <li>Refrigerated / Frozen blood products storage</li> <li>Blood warmers</li> <li>Administration sets</li> <li>Lab testing equipment and supplies</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	<b>There is no blood bank in the hospital.</b>
Assessment of ancillary services				
F8	Radiology	Yes	No	Observations/ quantities/Comments/Actions
Select YES, if items are present and functional and, NO, if the items are insufficient or non-functional. State in comments, if equipment was not available at hospital prior to event.				
	<b>Equipment:</b> <ul style="list-style-type: none"> <li>MRI</li> <li>CT Scan</li> <li>Ultrasound</li> <li>General radiographic/ fluoroscopic equipment</li> <li>Film processor/ computerized radiography system (CR reader)</li> <li>Mammography system</li> <li>Defibrillator</li> <li>Other( interventional...)</li> </ul>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<b>There is No MRI in the hospital</b> <b>The CT Scan cover is broken into half. The CT needs to tested.</b> <b>Equipment could not be tested. Most of them are covered by sand, plaster or glass. No electricity is available to allow testing.</b>
	<b>Supplies:</b> <ul style="list-style-type: none"> <li>Films and Cassettes</li> <li>Processing equipment &amp; chemicals</li> <li>Contrast media</li> <li>Emergency trolley</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	Equipment could not be tested. Most of them are covered by sand, plaster or glass. No electricity is available to allow testing.
F9	Laboratory	Yes	No	Observations/quantity/ Comments/Actions
Select YES, if items are present and functional and, NO, if the items are insufficient or non-functional. State in comments, if equipment was not available at hospital prior to event.				

	<b>Equipment</b> <ul style="list-style-type: none"> <li>▪ Hematology analyzer</li> <li>▪ Chemistry analyzer</li> <li>▪ Centrifuge</li> <li>▪ Diagnostic kits / Reagents</li> <li>▪ refrigerator</li> <li>▪ Microscope</li> <li>▪ Autoclave</li> <li>▪ Others:</li> </ul>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	No. Functioning	No. Needed	<b>Equipment could not be tested.</b> <b>Most of them are covered by sand, plaster or glass. No electricity is available to allow testing.</b>
<b>F10</b>	<b>Pharmacy</b>	<b>Yes</b>	<b>No</b>	<b>Observations/ quantity/Comments/Actions</b>		
<i>Select YES, if items are present and functional and, NO, if the items are insufficient or non-functional.</i>						
	<b>Equipment:</b> <ul style="list-style-type: none"> <li>▪ Medication refrigerators</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	No. Functioning	No. Needed	
	Availability of medicines based on the approved essential drug list by the Ministry of Public Health, for example: <ul style="list-style-type: none"> <li>▪ General/Local Anaesthetics</li> <li>▪ Broad spectrum antibiotics</li> <li>▪ Antihistamines</li> <li>▪ Steroids and metabolic medications</li> <li>▪ Gastrointestinal medicines</li> <li>▪ Medicines acting on respiratory system</li> <li>▪ Non-steroidal anti-inflammatory drugs</li> <li>▪ Cardiac and Vascular Drugs</li> <li>▪ Delivery related medicines</li> <li>▪ Narcotics / Opiates</li> <li>▪ Oncology medications</li> </ul>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>			
<b>F11</b>	<b>Mortuary</b>	<b>Yes</b>	<b>No</b>	<b>Observations/ quantity/Comments/Actions</b>		
<i>Select YES, if items are present and functional and, NO, if the items are insufficient or non-functional. State in comments, if equipment was not available at hospital prior to event.</i>						
	<ul style="list-style-type: none"> <li>▪ Refrigerator/ freezer room</li> <li>▪ Body trolley(s)</li> <li>▪ All consumables</li> </ul>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<b>This service does not exist in the hospital</b>		
<b>F12</b>	<b>Laundry</b>	<b>Yes</b>	<b>No</b>	<b>Observations/ quantity/Comments/Actions</b>		
<i>Select YES, if items are present and functional and, NO, if the items are insufficient or non-functional. State in comments, if equipment was not available at hospital prior to event</i>						
	<ul style="list-style-type: none"> <li>▪ Washing machine / Dryer</li> <li>▪ Flat work ironer</li> </ul>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<b>This service does not exist in the hospital</b>		

F13	Kitchen	Yes	No	Observations/ quantity/Comments/Actions
	<ul style="list-style-type: none"> <li>Is there the ability to prepare, serve and distribute meals?</li> <li>Refrigerators?</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	
F14	Hygiene & Infection control	Yes	No	Observations/ quantity/Comments/Actions
	<ul style="list-style-type: none"> <li>Has the hospital developed and implemented infection prevention and control measures?</li> <li>Are there written IPC SOPs?</li> <li>Personal protective equipment (PPE)</li> <li>Disinfectant</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	
F15	Medical records	Yes	No	Observations/ quantity/Comments/Actions
	<ul style="list-style-type: none"> <li>Are patient records safe and accessible?</li> <li>Are patient records paper based or automated?</li> <li>Is there capability to develop and store records for new patients?</li> <li>Are patient records archives intact?</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	
F16	Communication	Yes	No	Observations/ quantity/Comments/Actions
	<ul style="list-style-type: none"> <li>Is there reliable communication available between the Hospital Emergency Operation Centre (EOC) and all staff and community?</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	

### Staff availability by department

F19	Staff Availability	Yes	No	Observations/ quantity/Comments/Actions
<i>Select YES, if there is adequate staff available, either present at the hospital or on call and, NO, if there is insufficient staff.</i>				
	<b>Staff by department:</b> <ul style="list-style-type: none"> <li>Emergency Room</li> <li>ICU</li> <li>NICU</li> <li>Operating theatre(s)</li> <li>Sterilization department</li> <li>Dialysis</li> <li>Blood bank</li> <li>Radiology</li> <li>Laboratory</li> <li>Pharmacy</li> <li>Support and general services</li> <li>Hygiene &amp; Infection Control</li> <li>Housekeeping &amp; cleaning</li> <li>Medical Records</li> <li>General wards</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	

## Summary

### Structural

Is the hospital structure safe to continue to be functional? Tick the appropriate box.

Safe	Partially safe	Unsafe/ need to evacuate
		Unsafe and evacuated
<b>Comments:</b> <i>Identify specific areas that are deemed unsafe and immediate action to be taken:</i> <b>All the old hospital premises are considered UNSAFE.</b>		

### Non-Structural

Assessment of the integrity of the non-structural aspects of the hospital; whether they are safe and functional, partially functional or unsafe or non-functional. Tick the appropriate box.

Non-structural aspect	Safe and functional	Partially safe/ partially functional	Unsafe/non-functional	Comments/immediate action
Accessibility				
External areas and parking lots				No parking exists
Internal areas				
Major systems (lifelines)				

### Functional

Assessment of the current functionality and capability of the hospital. If the department does not exist at the hospital, leave blank.

<b>Overall bed capacity of the hospital:</b>	
Number of functional beds prior to the event:	52 beds
Number of functional beds after the event:	0
Can bed capacity be increased? If yes, by how many beds:	No
<b>Staff availability at the hospital:</b>	

**Comments:** Identify immediate staff requirements (not currently available) per department to ensure normal operations:

Critical functional areas	Functional	Partially functional	Non- functional	Comments/immediate action
Emergency room, ER				
Intensive Care Unit, ICU				
Neonatal ICU (NICU)				
Operating theatre(s), OT				
Sterilization department				
Dialysis				
Blood bank				
Auxiliary functional areas	Functional	Partially functional	Non- functional	Comments/immediate action
Radiology				Machines need to tested
Laboratory				Machines need to tested
Pharmacy				The building is very dangerous
Mortuary				This service does not exist in the hospital
Laundry				This service does not exist in the hospital
Auxiliary functional areas	Functional	Partially functional	Non- functional	Comments/immediate action
Kitchen				Could not assessed because a solid door closes the entrance after the explosion
Housekeeping and cleaning				Many volunteers are helping in cleaning the broken glass and other waste from the explosion.
Medical records				
Communication				Wire have fallen into the ground

Others				
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**Immediate action in order of priorities:**

The building is not secure. No one should be allowed to enter. Immediately, equipment needs to be transferred to a safe place. Then, they have to be tested. The old building has to be removed. The new building is to be considered as the Quarantina Hospital. Operational equipment can be used in the new building. Non-Operational equipment should be replaced.

**Please provide roughly estimated cost for different components proposed in the tool:**

Estimated budget to demolish the old building: \$138,125.00  
Estimated budget for the construction of the new building: \$5,525,000.00  
Civil and Building Engineering Works (for the new building): \$3,867,500.00