

Post Disaster Rapid Hospital Assessment

Governmental hospital of Beirut – Quarantine Report

Prepared by: New Health Concept

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.

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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	■ General □ Specialized									
Affiliation	Public (Ministry of Health) Public (other than MoH) Private NGO									
Bed capacity	52 beds									
Health/clinical services provided	NICU, PICU, Adult ICU, and Pediatrics									
Hospital Condition	Partially damaged Not damaged Totally damaged									
Hospital Status at the assessment time	☐ Fully Functioning ☐ Partially Functioning ☐ Not Functioning									
Functional services at the assessment time	■ in-patient □ OPD ■ Lab ■ imaging □ others									

S: Structural

Visual assessment of the structure.

#	Safety checks	Yes	No	Observations/Comments/Actions (*)
S1 -	Is the condition of the structure adequate to allow operations to continue of an acceptable quality and in a safe manner?			 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. Many walls and partition are completely destroyed. (some departments need to be evacuated) 1-B: New Building under construction. It is can be ready for use in a few months
S2 •	Do we need to relocate a particular service(s) to another section ofthe facility, or must the service(s) be discontinued in-house and be outsourcedin other hospitals?		_	Identify the areas/services affected.
53 •	Has there been any structural damage to walls and or foundations?			Most walls are damaged

^(*) Note: Observations/ Comments/ Actions: Identify the actions that must be carried out to ensure safe operations at the hospital. Provide practical recommendations based on available resource

N: Non-Structural

Asse	Assess integrity of the non-structural aspects and patient care areas								
N1		Accessibility	Yes	No	Observations/Comments/Actions				
	•	Is there safe and adequate vehicular access to the hospital?			It is not safe for both buildings, old building to be				
	•	Is there safe pedestrian access to the hospital?			demolished to provide good access to the new one.				
N2		Safety of external areas	Yes	No	Observations/Comments/Actions				
	•	Are parking lots cleared and safe for usage?			No parking is available				
		eck safety and security of hospital com- pound, external to ldings:							
	•	Boundary fence and gate(s) intact?			The hospital is severely damaged				
	•	Fallen power/telecomm lines and poles?							
	•	External drains free from blockage?			There is no water in the hospital				
	•	Are water tanks secured and intact?			•				
N3		Safety of internal areas	Yes	No	Observations/Comments/Actions				
	Che	eck the building interior for any potential sources of injury:			2-A: Old building ceilings don t exist				
	•	Are ceilings and overhead fixtures intact?			2-B : New building ceilings demolished				
	•	Are windows and doors secured to walls and able to close?			3: old building and new building windows and				
	•	Are shelves, equipment and materials secured from falling?			doors are gravely damaged 4:Medical gases tanks in old building don't exist				
	•	Gases: Are bottles, tanks and gas links secure and without			and new building is not equipped with gas tanks				
		leaks?			<u>5:</u> Electrical supply for old buildings is damaged,				
	_	Electricals: Is the electrical supply safe and reliable?			and in new building don t exist yet				
N4		Assessment of major systems (lifelines)	Yes	No	Observations/Comments/Actions				
Select	YES	, if system is functional and, NO, if the systems are non-functional							
	•	Potable water (Issafe water available in adequate							
		quantities?)(5 litres/out-patient; 40-60 litres/in-			<u>6-</u> In old building all water tanks are damaged and				
		patient/day. Additional quantities may be needed for			in new building tanks exists but not connected to				
		laundry equipment, flushing toilets, etc.)			public connection				
	•	Electrical generator			7-In old building there is no generators purchased				
	•	Fire system			and stocked at the supplier s stores and can be				
	•	Chillers / Boilers			installed once the Electrical systems are tested				
	•	Fuel supplies (Check for leaks in fuel storage tanks or lines)		_	8- No fire system in old building, in the new one				
	-	Medical gases			system installed not tested 9-In old building there is no boilers nor chillers				
	•	Elevators			however the chillers in the new buildings are				
	•	Hospital information system (HIS) Check IT infrastructure			damages not tested yet				
	•	Wastewater system	Ш		10- old building don t have fuel connection, new				
	•	Medical waste system			building fuel tanks not checked.				
	•				<u> </u>				

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

<u>1-A</u>: 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)





<u>1-B</u>: 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







F: Functional Capacity

Determine the functional capacity and capability of the institution. Identify the gaps. Please fill out the checklist for the departments that are present at the hospital.

Identify safe areas that can be used to increase patient care capacity (surge capacity) (e.g. use of hospital corridors, lobby and other non-essential spaces and also parking areas and open spaces).

Assessment of critical areas including equipme	nt fu	nction	ality		
Emergency Room	Yes	No	Observ	ations,	quantities/Comments/Actions
 Bed capacity: Has there been a reduction in bed capacity? (list number of beds currently available) Is there capability to increase beds/ patient care capacity? (list number of additional beds) 					
 Number of beds available Cautions and			No.	No.	For the second and he tooked
Equipment:	_				Equipment could not be tested.
Vital sign monitorsSphygmomanometer			runctioning	rveedec	Most of them are covered by sand plaster or glass. No electricity is
Defibrillator					available to allow testing.
ECG machine		П			available to allow testing.
Pulse Oximeter		П			
Suction device and connective tubing	П	П			
Medical gases and regulators	П				
Stretchers	П	П			
Infusion pumps					
 Arterial blood gas machine 					
 Glucometer machine 					
Otoscope					
 IV (intravenous) poles 					
 Xray reader 					
other					
Supplies:					
■ IV fluids					
IV administration sets					
Intracaths					
Syringes / needles					
Nebulization sets					
 Oxygen mask and nasal cannula 					
 Scalpel blades and handles 					

	Assessment of critical areas including equipme	nt fur	nction	nality		
1	Emergency Room	Yes	No	Observations/quantities/Comments/Actions		
	 Catheters 					
	Tubes					
	 Personal protective equipment 					
	Sutures					
	 Gloves: disposable and surgical 					
	Extrication collars					
	Spinal boards and splints					
	Bandages					
F2	Intensive Care Unit (ICU)		No	Observations/ quantities/Comments/Actions		
	Bed capacity:			The old building is not functional and is dangerous du		
	 Has there been a reduction in bed capacity? (list number of beds currently available) 			to severe damage. The new building is not equipped		
	 Is there capability to improvise or increase bed 					
	capacity/ patient services? (list number of additional beds)					
	 Number of beds available 					
	Equipment:			No. No. Equipment could not be tested		
	Ventilator			Functioning Needed Most of them are covered by		
	Vital sign monitor			sand, plaster or glass. No		
	Infusion pump			electricity is available to allow		
	 Medical gases 			testing.		
	 Medication refrigerator 					
	 Defibrillator 					
	 Ambu bags and mask 					
	 Blood gas machine 					
	 Suction device 			The NICU wall fell completely		
	 Stocked crash cart 			after the explosion.		
	Related to NICUs:					
	 Same above equipment suitable for neonates 					
	Incubators					

F3	Operating Theatre (OT)			No	Observations/ quantities/Comments/Actions					
	YES, if items are present and functional and, N									
functi	ional. please mention the number functional eq	uipment and num	ber of n	eeded (equipme	ent in the	e comments .	section in front of each equipment.		
	Equipment:				No.			Equipment could not be tested.		
	Anesthetic machine				Functio	oning	Needed	Most of them are covered by sand,		
	 Operating theatre table 							plaster or glass. No electricity is available to allow testing.		
	Defibrillators							The laparoscopic tower is broken.		
	Suction device							An ophthalmic microscope is		
	Airway equipment							damaged.		
	Operating room lights									
	Surgical diathermy									
	Fluid warmer									
	Stocked crash cart									
	Medical gases									
	 Autoclave 									
	Air condition									
	Refrigerator									
	Supplies: Surgical sets									
					Quantit	ies are a	vailable but there is no way to operate.			
	Airway supplies/ tubes									
	Medication									
	Gowns, masks and gloves									
	Sterile instruments									
F4	Wards	Number of	Is th	ere	ls th	nere		Observations/		
		Beds	adeq	uate	adequate		quantities/Comments/Actions			
			sta	ff?	equip	ment?				
			Yes	No	Yes	No				
	Medical						1 7 7	could not be tested. Most of		
	Surgical	15						overed by sand, plaster or lectricity is available to allow		
	Adult ICU	3					testing.	lectricity is available to allow		
	Pediatrics	12								
	NICU	12								
	PICU	4								
	Intermediary NICU	6								

F5	T	Sterilization Department	Yes	No	Observations/ quantities/Comments/Actions
	+ \/_	S, if items are present and functional and, NO, if the item			7 1 1
Selec	L YE.		is are ir	isujjicie	
	•	Autoclave machines			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
			ns are ir	nsufficie	ent or non-functional. State in comments, if equipment was not
avail	able	at hospital prior to event. \square			
	•	Dialysis machine			There is no dialysis center in the hospital.
	-	Water			
	•	Water treatment (reverse osmosis) plant			
	-	All dialysis supplies			
F7		Blood bank	Yes	No	Observations/ quantities/Comments/Actions
	•	Refrigerated / Frozen blood products storage			There is no blood bank in the hospital.
	•	Blood warmers			
	•	Administration sets			
	-	Lab testing equipment and supplies			
Ass	ess	ment of ancillary services			
F8		Radiology	Yes	No	Observations/ quantities/Comments/Actions
			ns are ir	sufficie	ent or non-functional. State in comments, if equipment was not
avail		at hospital prior to event.		1	
	1 -	uipment:			
	•	MRI			There is No MRI in the hospital
	•	CT Scan			The CT Scan cover is broken into half. The CT needs to
	•	Ultrasound			tested.
	•	General radiographic/ fluoroscopic equipment			Equipment could not be tested. Most of them are covered
	•	Film processor/ computerized radiography			by sand, plaster or glass. No electricity is available to allow
		system (CR reader)			testing.
	•	Mammography system			
	•	Defibrillator			
	•	Other(interventional)			
	Su	pplies:			Equipment could not be tested. Most of them are covered
	•	Films and Cassettes			by sand, plaster or glass. No electricity is available to allow
	•	Processing equipment & chemicals			testing.
	•	Contrast media			
	•	Emergency trolley			
F9		Laboratory	Yes	No	Observations/quantity/ Comments/Actions
Selec	t YE.	S, if items are present and functional and, NO, if the iten	ns are ir	nsufficie	ent or non-functional. State in comments, if equipment was not

available at hospital prior to event.

	Equipment			No.	No.	Equipment could not be tested.
	 Hematology analyzer 			Functioning	Needed	Most of them are covered by sand,
	 Chemistry analyzer 					plaster or glass. No electricity is
	Centrifuge					available to allow testing.
	Diagnostic kits / Reagents					
	refrigerator					
	 Microscope 					
	Autoclave					
	Others:					
F10	Pharmacy	Yes	No	Obs	ervations/ q	uantity/Comments/Actions
Select	YES, if items are present and functional and, NO, if the iten	ns are in	sufficie	nt or non-funct	tional.	
	Equipment:			No.	No. Needed	lt.
	Medication refrigerators			Functioning		
	Availability of medicines based on the approved					
	essential drug list by the Ministry of Public Health,					
	for example:					
	General/Local Anaesthetics					
	 Broad spectrum antibiotics 					
	Antihistamines					
	 Steroidsand metabolic medications 					
	 Gastrointestinal medicines 					
	Medicines acting on respiratory system					
	Non-steroidal anti-inflammatory drugs					
	 Cardiac and Vascular Drugs 					
	 Delivery related medicines 					
	Narcotics / Opiates					
	 Oncologymedications 					
F11	Mortuary	Yes	No	Obs	ervations/ q	quantity/Comments/Actions
	YES, if items are present and functional and, NO, if the item	ns are in	sufficie	nt or non-funct	tional. State ii	n comments, if equipment was not
availa	able at hospital prior to event.	1	1	L		
	Refrigerator/ freezer room			This service	does not exi	st in the hospital
	Body trolley(s)					
	All consumables					
F12	Laundry	Yes	No			juantity/Comments/Actions
	YES, if items are present and functional and, NO, if the item	ns are in	sufficie	nt or non-funct	tional. State ii	n comments, if equipment was not
availa	able at hospital prior to event			— •		
	Washing machine / Dryer Slataward in a graph of the state of			inis service o	does not exi	st in the hospital
	 Flat work ironer 			I .		

F13	Kitchen	Yes	No	Observations/ quantity/Comments/Actions
-	Is there the ability to prepare, serve and			
	distribute meals?			
•	Refrigerators?			
F14	Hygiene & Infection control	Yes	No	Observations/ quantity/Comments/Actions
-	Has the hospital developed and implemented			
	infection prevention and control measures?			
-	Are there written IPC SOPs?			
-	Personal protective equipment (PPE)			
•	Disinfectant			
F15	Medical records	Yes	No	Observations/ quantity/Comments/Actions
-	Are patient records safe and accessible?			
-	Are patient records paper based or automated?			
-	Is there capability to develop and store records			
	for new patients?			
-	Are patient records archives intact?			
F16	Communication	Yes	No	Observations/ quantity/Comments/Actions
-	Is there reliable communication available			
	between the Hospital Emergency Operation			
	Centre (EOC) and all staff and community?			
Staff	availability by department			
F19	Staff Availability	Yes	No	Observations/ quantity/Comments/Actions
	ES, if there is adequate staff available, either present at the			7 F 7 F 7 F 7 F 7 F 7 F 7 F 7 F 7 F 7 F
		ie nospi	lui oi o	n cun una, NO, ij there is insufficient staff.
5	taff by department:	_		
	Emergency Room			
	ICU			
	NICU			
	Operating theatre(s)			
	Sterilization department			
	Dialysis			
	Blood bank			
	Radiology			
	Laboratory			
	Pharmacy	_		
	Support and general services			
	Hygiene & Infection Control			
	Housekeeping & cleaning			
	Medical Records General wards			

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				
Comments: Identify specific areas that are deemed unsafe and immediate action to be taken:						
All the old hospital premises are considered UNSAFE.						

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.

Overall bed capacity of the hospital:			
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		
Staff availability at the hospital:			

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		

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