EMERGENCY & SURGICAL CARE RAPID ASSESSMENT REPORT
POST-CONFLICT ESCALATION
GAZA, MAY 2021

Acronyms

CT	Computed tomography
ED	Emergency Department
EGH	European Gaza Hospital
EJ	East Jerusalem
EMT	Emergency Medical Team
EMTCC	Emergency Medical Teams Coordination Cell
EMS	Emergency Medical Services
GMR	Great March of Return
ICU	Intensive care unit
IPD	Inpatient department
MCM	Mass Casualty Management
MHPSS	Mental Health Psychosocial Support Services
MOH	Ministry of Health
MSF-F	Médecins Sans Frontières – France
NMC	Nasser Medical Complex
OB/GYN	Obstetrics and Gynaecology
OCHA	United Nationals Office for the Coordination of Humanitarian Affairs
PFA	Psychosocial First Aid
PRCS	Palestine Red Crescent Society
SDC	Swiss Agency for Development and Cooperation
UHWC	Union of Health Workers Committee
WHO	World Health Organization

Introduction

Escalation in the occupied Palestinian territory since the start of Ramadan 2021 has resulted in a substantial number of fatalities and casualties, placing considerable strain on an already overwhelmed health system responding to the global health emergency of COVID-19.

In the **Gaza Strip**, the significant escalation started on **May 10th, 2021**, when in response to the unrest in E. Jerusalem, Hamas began launching rockets into Israel on May 9, to which the Israeli Army Force has responded with airstrikes. The ceasefire came to effect on **May 21st, 2021**, at 2 AM.

The functioning of health care in Gaza and the public health of the population has been affected by damage and destruction to buildings, including health facilities, and essential infrastructure. Extensive damage to roads is obstructing ambulance access while lack of electricity and the cost of fuel for generators has meant the closure of a hospital providing essential care to cancer patients. Destruction of water and sanitation structures, along with the displacement of 72,000 Palestinians including 58,000 seeking shelter in UNRWA schools across the Gaza Strip as of 19 May. Since the announcement of the ceasefire, all population returned home from the temporary shelters.

The health authorities in Gaza reported more than 1,900 people injured, and an estimated 254 people were killed. At least 295 people required hospitalization, and the MOH is trying to refer 41 patients abroad to continue their treatment. Initial estimates are that around 100 hospitalized patients need limb reconstruction. Moreover, 3 medical staff were killed and 1 severely wounded while he was providing telemedicine services at Al-Rimal clinic.

This surge of casualties comes on top of a multitude of humanitarian needs, caused by two distinct waves of COVID-19 (2020-2021) and the Great March of Return (GMR) (2018-2020). This document summarises a rapid qualitative and quantitative assessment of the Emergency Departments and surgical services of seven central MOH Hospitals distributed in Gaza strip. It is based on personal, structured, interviews from **May 23rd, 24th, and 25th, 2021**, with hospital directors, heads of emergency departments, and heads of surgical departments. As well, interviews were conducted at Jabalia's Palestine Red Crescent Society (PRCS) ambulance station, Al-Quds & Al-Amal Hospitals (PRCS), Al-Awda Hospital UHWC (Union of Health Workers Committee), Al-Ahli Arab Hospital, and the Médecins Sans Frontières France Gaza Clinic.

This report's primary audience is WHO, Gaza MoH and UN agencies, and secondarily relevant health partners. The overall objective is to identify best practices that enhanced the Health system response during this hostilities' escalation, as well as weaknesses, that have to be addressed, to improve preparedness and response capacity for any future similar incident.

The adopted methodology for this assessment is a mixed qualitative-quantitative approach. For the Prehospital level of care, unstructured interviews with focal groups took place. For the Hospital level of care, interviews were structured. The tool used for these structured interviews is a modified version of the World Health Organization Emergency Unit Assessment Tool (table 8), from the World Health Organization's Emergency Care System Assessment Programme. The modifications were to contextualize the tool for Gaza[1]. Overall, for the tertiary level of care, the questions addressed are those needed for an optimal trauma response as per the World Health Organization's "Guidelines for Essential Trauma Care"[2].

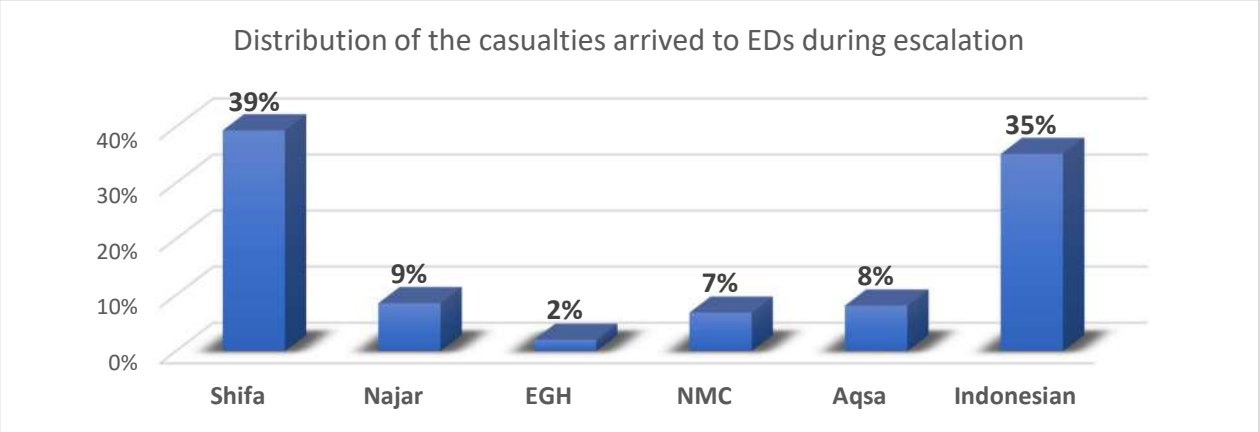
[1] [i]https://www.who.int/docs/default-source/emergencies-trauma-care/who-tools-for-strengthening-emergency-care-systems---feb-2020.pdf?sfvrsn=56f2ccf3_2

[2] WHO | Guidelines for essential trauma care. *WHO*. 2016. http://www.who.int/violence_injury_prevention/publications/services/guidelines_traumacar e/en/

Situation

The 11-day conflict escalation in Gaza revealed that while many partners provide health services, the MOH has to cope with the biggest part of the surge of casualties in times of crisis. Throughout Gaza, the MOH emergency and surgical departments have provided services to more than 1,900 people. These patients reached the emergency departments by ambulances or other means.

Table 1: Percentage of casualties managed in the MoH Emergency departments, 9th to 21st of May 2021



Background

Evaluating the efficiency of the emergency departments is not easy. There are no agreed emergency department performance indicators, and no specific indicators seem better than others. In April 2019, the World Bank issued its "Final Project Report Strengthening Emergency Care in Palestine". Overcrowding was one of the major issues identified in the MOH's emergency departments[i] in times of non-conflict. During conflicts, to optimaly manage the surge of casualties,hospital emergency departments are to be expanded, and primary triage stations are set up outside each one to make sure only those in most need, get access to the limited available resources, inside the emergency departments.

The MOH hospitals have had expansion plans for a long time. During the Great March of Return, WHO Trauma & Emergency Care Programme supported the MOH to standardize their response. Moreover, WHO has been investing in trauma preparedness in the Gaza Strip since 2018. Activities targeting the prehospital level were generously funded by the Foreign, Commonwealth & Development Office (FCDO UK), the Spanish Agency for International Cooperation for Development (AECID), the French Government, the Swiss Agency for Development and Cooperation (SDC), and the United Nationals Office for the Coordination of Humanitarian Affairs (OCHA). Investment in hospital-level preparedness was graciously provided by the EU Humanitarian Aid (ECHO) and the Swiss Agency for Development and Cooperation (SDC).

Table 2: MoH Hospitals assessed

Hospital Name	Address / Governorate
Beit Hanoun Hospital	North Gaza
Indonesian Hospital	North Gaza
Al-Shifa Hospital	Gaza
Al-Aqsa Hospital	Middle Area
Nasser Hospital	Khanyounis
European Gaza Hospital	Khanyounis
Al-Najar Hospital.	Rafah

Table 3: Non-governmental facilities assessed

Facility Name	Address / Governorate
Al-Awda Hospital	North Gaza
Ahli Arab Hospital	Gaza
Al-Quds Hospital	Gaza
Al-Amal Hospital	Khan Younis
MSF- France Gaza Clinic	Gaza
Jabalia's PRCS ambulance station	North Gaza

Prehospital level of care

Emergency medical services (Pre-hospital)

MOH/EMS (Ambulances)

- MOH/EMS mandate is to accommodate patients' transportation among MOH facilities. During the last escalation, as well as with all recent emergencies, MOH/EMS supported PRCS (first responder) to manage and evacuate the casualties from the field to emergency departments.
- There are 72 MoH ambulances in all five Gaza governorates.
- The total number of EMS staff reaches 122 health workers.
- The total number of EMS missions is 3442, from the 09.05.2021 to 21.05.21. This includes emergency respons to field needs, (739), essential interhospital transportation of patients (1813), COVID-19 relevant cases (230), and administrative support (660).
  It is important ot highlight that administrative support means that MoH ambulances were used to assist health workers to come for work, and get to their homes, or shelters, after the end of their shift.

PRCS/EMS (Ambulances)

- PRCS/EMS is the first responder to emergencies in the Gaza field. During the last escalation, as with all crises in Palestine, PRCS is the leading humanitarian organization that provides the prehospital emergency medical services in need for victims of conflict, across all of oPt.
- PRCS works not only through the provision of ambulance services, but through emergency advanced medical posts, as well as at the PRCS hospitals.
- There are 5 main ambulance stations for PRCS ambulances in all five Gaza governorates, and at least 4 additional sub-stations.
- There are 44 PRCS ambulances available, 8 per each governorate, apart of 12 for north Gaza in Jabalia station.
- From the 7th of May to the 20th of May 2021, PRCS medical teams provided first aid services to 899 wounded in the Gaza Strip. PRCS teams also evacuated 82 Palestinians killed during the reporting period.
- From the 7th to the 20th of May 2021, 95 trauma patients were referred to PRCS hospitals in Gaza and Khan Younis.
- From the 15th to the 26th of May 2021, 950 families in the Gaza Strip received relief non-food items, after being displaced from their homes. In addition, PRCS distributed food parcels to 946 families.
- PRCS has provided psycho social first aid support to an estimate of 7061 affected persons including 3992 children.
- Since the 10th of May 2021, 4 PRCS centers and facilities have sustained partial damage affecting its operations. In addition, one ambulance sustained damages in Beit Hanoun while on duty
- PRCS radio communication equipment and ambulances equipment remain old and obsolete, and it was one of the significant systematic weaknesses highlighted.

Table 4: Percentage of MoH and PRCS EMS Missions per governorate from the 10th to the 21st of May

	North Gaza	Gaza	Middle Area	Khanyonis	Rafah
MOH	19%	46%	9%	17%	9%
PRCS	66%	16%	7%	8%	2%

Primary level of care

PHCC emergency response and role during the recent escalation:

- During last escalation, 25 PHCCs were activated from 16th to 20th of May to manage conflict and non-conflict related cases including NCDs.
  - **North Gaza**: Beit Hanoun, Jabaliya & Al Shaimaa PHCCs
  - **Gaza**: Sheikh Radwan, Sabha, Al-Rimal, Al Falah, Al Zeitoun & Horia PHCCs
  - **Middle**: Old Nuseirat, New Nuseirat, Zawaida, Dir Balah, New Bureij, Old Bureij, Birka & Khawalda PHCCs
  - **Khanyounis**: Bani Sohaila, Qarara, Abassan Saghira, Abassan Kabira, Khoza, Jourt Lout
  - **Rafah**: Rafah & Tal Sultan PHCCs
- The 25 PHCCs received the conflict trauma patients for follow up and dressings.
- 130 people were vaccinated in two working days.
- The central lab at Al-Rimal clinic still did not return to the normal level of work due to damages that happen in the last escalation.

Table 5: Services delivered from the 16th to the 20th of May 2021:

Area	General Medicine	Dental	Family planning	Pre-natal	Physio-therapy	Vaccination	C-19 Rapid test	C-19 vaccination	TOTAL
Gaza	793	36	20	10	5	114	56	130	**1164**
North	613	24	20	20	0	45	23	0	**745**
Middle	1105	10	7	6	0	33	23	0	**1184**
Khanyounis	1089	10	2	11	0	99	78	0	**1289**
Rafah	817	22	12	9	0	44	39	0	**943**
TOTAL	**4417**	**102**	**61**	**56**	**5**	**335**	**219**	**130**	**5325**

Secondary-tertiary level of care:

MOH Hospitals

Common findings:

- Fortunately, the seven major hospitals did not sustain a significant damage. There was minor damage to the Indonesian Hospital (broken windowpanes and a roof fell off).
- All seven health facilities activated their contingency plans to manage the surge of casualties.
- All hospitals put a triage point outside the emergency departments.
- All hospitals expanded their emergency departments to provide different spaces for walking patients, keeping emergency departments for non-walking patients.
- Six of the hospitals used tents that WHO had earlier provided to the MOH.
- All the hospitals had some pre-positioned equipment, supplies, drugs, and consumables from the hospital stock, not from a separate stock.
- All of the hospitals adopted a four-color triage system.
- All of the hospitals adapted their plans accordingly to support a one-way patient flow.
- All of the hospitals coordinated with the MOH emergency committee to standardize their response.
- Emergency Medical Teams Coordination Cell (EMT-CC) played a vital role to address specialized medical needs.
- According to MOH sources, health providers who were previously trained in Mass Casualty Management (MCM) by WHO showed exceptional performance compared to non-trained personnel.
- Al-Shifa Medical Complex and Indonesian Hospital were the two MOH facilities that received the biggest number of trauma casualties.
- The referral process from emergency departments to other hospital departments was smooth and coordinated, against the absence of enough porters.
- Referral from the MOH to MOH facilities was smooth and well-coordinated.
- There was a prediction for backup hospitals that prove beneficial.
- Non-governmental hospitals were used for the referral of acute, non-conflict related patients (e.g. cases of acute abdominal pain) leaving spaces for trauma cases at MOH hospitals.
- Clinical staff presented themselves to work despite the heavy shelling and the deep feelings of insecurity as a result of the conflict escalation.

Common MOH challenges:

Coordination, planning and management

- The poor coordination with the pre-hospital ambulance services increases the burden over the ED staff, and therefore the receiving emergency department is unaware of the number of casualties arriving by ambulance or their severity. A part of it is related to the absence of radio communication between the ambulances and the emergency departments.
- Inexistence of radio communication between PRCS (first responder) and the MOH ambulance services.
- All facilities highlighted that while the hospitals have their security, they were insufficient during the conflict, which resulted in colossal crowd management issues.
- While the emergency department expansion has repeatedly proven to be beneficial, some MOH hospital administrative managers are reluctant to adopt it, even though the MOH dictates it.
- The contingency plans for each hospital had missing parts, such as the evacuation plan, re-purposing of spaces, and triage criteria. Only Al-Najar Hospital has an inclusive facility evacuation plan.
- There is a common complaint of emergency department design that is fundamentaly ineffective. The Ministry of Health's position is that infrastructure change is needed to meet MCM needs.
- The tents used for the expansion of emergency departments were not protecting against debris and shelling.
- Access to the emergency departments was problematic because of the shelling, fear, and the ruined streets.

Availability of drugs, disposables and medical equipment

- While WHO supported the pre-positioning of equipment and supplies, these were not stored in the emergency departments as a "no-touch stock". This is related to the absence of specialized, reserved stocking space, only for the emergency departments.
- There were some items of drugs and disposables commonly identified as missing from all visited MOH Hospitals, such as:
    - Bougies for intubation
    - Cricothyrotomy kit
    - Extrication collars for adults and children
    - Minor surgical procedures sets (multi-use)
    - Single-use surgical gowns
    - Items for the optimal Mass Casualty Management, like triage kits.

Standard Operating Procedures and protocols

- The four-color triage system is not standardized and doesn't make part of the written contingency plan. Each hospital is based on the presence of a senior clinician to perform the triage.
- Not a single facility adopts the WHO Trauma Checklist after a trauma patient is discharged, or referred, from the emergency department.
- Some physicians highlighted the need to better assure the quality of care during such a surge of casualties.

MHPSS

- Mental Health Psychosocial Support Services (MHPSS) were missing from all emergency departments. We speculate that during the shelling, fear for thyself prevented MHPSS trained health personnel to present themselves to work.
- Clinical staff presented increased stress and fear, not only for themselves, but for the lives of their beloved ones. Continuous shelling made everyone think that there was not a safe space available.

Additional findings:

Acute surgical cases nonrelated to the conflict were referred from the MOH to NGO hospitals like Al-Awda in the north, Al-Quds (Palestine Red Crescent Society) in Gaza City, and Al-Ahli Arab Hospital in Gaza city.

Re-purposing available ED spaces: The MOH facilities were able to effectively re-purpose spaces, to address the needs of the Triage and the optimal patients' management. The available spaces were used for different needs, eg: walking patients, family spaces etc.

While in the previous escalations, ICRC was coordinating with the Israeli forces, and moving ambulances was relatively secured, this time, it was impossible. This caused a critical limitation in the movements of PRCS ambulances.

The transportation of personnel working in the hospitals was problematic because of the shelling; shifts for too many lasted longer than predicted.

Patients' data registration: The conflict amplified well-known issues related to the electronic registration and the paper charts used in the ED.

Special mention has to be done for the MoH Limb Reconstruction Centre, in Nasser Medical Complex. Until the 21st of May one patient in need of limb reconstruction had already been referred there from MoH Hospitals. MoH estimates that at least 100 more patients are in need of Limb Reconstruction, and will be referred to the LRC after their initial treatment.

Findings per facility

Beit Hanoun Hospital (Jabalia, North of Gaza)

- A small hospital, with a specific overall objective to stabilize the incoming patients and refer them to higher levels of care, using MOH ambulances.
- The emergency department infrastructure is not in support of an optimal response against any Mass Casualty Incident.
- Not enough unlicensed doctors are available to support the senior ones during the escalation.
- There are needs in surgical equipment and supplies, and there is no specific stock to be used in times of crisis.
- There is a need to upgrade the hospital contingency plan and train personnel in Mass Casualty Management.
- A standard 42 m^2 tent was deployed as a walking patients' management area.

Indonesian Hospital (North of Gaza)

- Along with Al-Shifa, it received the biggest number of incoming patients.
- It sustained some minor damages: broken glass and a false roof, already fixed at the time of the visit.
- Selected items of surgical equipment are missing, and the personnel expresses complaints regarding the infrastructure.
- Some of the personnel have participated in the Mass Casualty Management training course that was provided by WHO, something that was evident in the management of incoming casualties. The primary triage differentiates incoming as walking VS non-walking, something that WHO guidelines highly encourage. Nevertheless, Mass Casualty Management training is needed for a larger group of clinicians. This has to be better reflected in the hospital's contingency plan.
- There is a need to pre-position equipment and supplies, as a "no-touch stock", for times of crisis.
- No tent was deployed due to fear of shrapnel and debris.

Al-Shifa Hospital (Gaza City)

- The most prominent hospital in Gaza. The emergency department received the biggest number of patients (table 1).
- As with the rest of the facilities that were assessed, the existing contingency policies are not written, and they are basing themselves on people's knowledge from previous surge incidents.
- Highlighted the absence of enough Mental Health Psychosocial Support Services.
- There is a need for additional security during a crisis.
- Specific items of surgical and anesthesia equipment are missing.
- They confirmed that they are in the process of drafting a new floorplan for their emergency department, and they need to upgrade their operation theatre.
- They have noticed the difference in the management performance between the clinicians that have participated in the WHO provided MCM training, compared to those who have not. They request to scale up this activity and include more personnel in this training.
- While they identify the value of crowd control, they are not able to optimize it; more human resources are needed.
- They have deployed one WHO-supplied tent.

Al-Aqsa Hospital (Middle Area)

- They received a comparatively small number of casualties.
- Their contingency plan is activated based on the recent GMR experience.
- Items for the optimal triage and specific items of surgical equipment are missing.
- This hospital was the only one to request support to upgrade their dead-body management capacity: their fridge can sustain only four dead bodies – insufficient in times of crisis.
- Additional MCM training is needed for those who have not participated in the previous one.
- They have deployed two WHO-supplied tents for the triage and management of the walking patients.

Nasser Medical Complex (Khanyounis)

- Received a relatively small number of casualties.
- They have a contingency plan with specific conceptual spaces, and they have implemented it. A contingency plan has to be upgraded to include triage criteria.
- Identified missing surgical and anesthesia items.
- MCM kits are missing.
- A floor plan with the changes they plan to implement in their emergency department is available. They also recognize the value of pre-positioned supplies and equipment for the emergency department to be used only during a crisis.
- They have explained the increased stress their personnel witnessed during the escalation.
- They have deployed one big inflatable tent provided by WHO as an investment in preparedness.

European Gaza Hospital (Khanyounis, towards Rafah)

- It used to be a COVID-19 designated hospital, and the escalation made the MOH re-purpose its emergency department to respond to the crisis.
- They have several surgical items missing.
- They requested support for their sterilization department.
- They request tailored training on Mass Casualty Management and specific clinical skills.
- They request a pacing defibrillator for the emergency department.
- The MOH intends to re-dedicate the hospital as COVID-19 specific, but the emergency department is always operational while this report is drafted.
- They have deployed two tents provided by WHO to triage incoming patients and the management of walking patients.

Al-Najar (Rafah)

- A small hospital with an inclusive contingency plan.
- The only hospital with an evacuation plan for the staff and the patients.
- MCM-specific items missing.
- Specific surgical items missing.
- The triage kit is missing.
- The emergency department is old and obsolete, not supporting one–way patient flow.
- They request specific MCM and tailored clinical skills training for the emergency department personnel and other relevant supporting clinical staff.
- They have deployed two tents provided by WHO to triage incoming patients and the management of walking patients.

NGO facilities

- Worth noting that the visited NGO hospitals are officially backup hospitals for the MoH. They are to be receiving referred acute surgical cases during times of crisis. During such times, services are provided free of charge for their beneficiaries.

PRCS/Al-Quds hospital (Gaza)

PRCS Al Quds Hospital Accident & Emergency entry

- Al-Quds hospital is the main hospital for PRCS, located at Gaza city, provide primary, secondary, and tertiary services. Services available: Accident & Emergency, Cardiology, Orthopedic, General Surgery, medical imaging, ICU, NICU and others.
- Since th 10th of May, Al-Quds hospital is being prepared to receive casualties and to utilize its operation rooms and intensive care units
- The total number of available hospital beds is 123, there are 13 ICU beds, and 6 operating theaters.
- The hospital provide advance radiological services; 1 MRI, 1 CT, 1 Mammography,1 Panorama, 1 ESWL, 1 fluoroscopy, and 1 X Ray.
- In coordination with the MOH, PRCS has coordinated for referral of some wounded Palestinians from Gaza Strip to public hospitals in the West Bank for advanced specialized treatment. The Jerusalem PRCS medical team transported 2 wounded Palestinians on the 26th of May to Ramallah Public Hospital.
- Al-Quds hospital has positioned the equipment, previously donated by WHO, for trauma stabilization point inside the hospital. It is used as a triage point, to sort and manage the mild casualties. Indoors positioning is deliberate, to protect the patients from incoming shrapnel or debris.
- The hospital managed 60 minor injuries during the last escalation.

PRCS Al Quds Hospital Triage Point

PRCS/Al-Amal hospital (Khanyonis)

- Al-Amal hospital is the second main hospital for PRCS, located at Khanyonis city, provide primary, secondary, and tertiary health care. Services available: Internal medicine, general surgery, orthopedics, pediatrics, rehabilitation and other.
- 100 available beds, 3 operating theatres, no ICU beds.
- The hospital provides advanced radiology services.
- The hospital managed 35 minor injuries during the last escalation.

UHWC/AL-Awda hospital (North Gaza)

- NGO- hospital located in Jabalia, provide secondary and tertiary services (limb reconstruction services) supported by MSF-B.
- Provider of surgical care, obstetric and gynecological services.
- The hospital managed 60 mild and moderate injuries.
- Admitted 2 acute surgical cases during the last escalation.

Al-Ahli Al-Arabi hospital (Gaza)

- NGO-hospital located in Gaza city, provide secondary services.
- Estimated inpatient admission per year: 5000.
- 3 available operation theatres.
- In coordination with the MOH, the hospital has agreed to receive the acute non-conflict related emergencies to leave the conflict related cases for MOH hospitals.
  From the 10th to the 21st of May
  - 446 patients were managed in the ED, 71 of them were burn injuries.
  - 141 surgeries performed (deliveries, minor operations, local anesthesia cases included)

MSF France clinic in Gaza city:

- The clinic has sustained heavy damages due to shelling, the sterilization space is destroyed.
- The clinic was operational 48hrs after the incident, and continues to provide dressing services, as well as patients' screening for the early identification of post-operative complications.

MSF Belgium:

- They work in collaboration with Al Awda hospital, in North Gaza.
- They have managed an estimate of 100 conflict related patients from the 10th to the 21st of May, and they continue to provide surgical services

MAP UK:

- They work supporting MoH to different surgical activities, limb reconstruction activities included.
- They have released and are currently procuring emergency related drugs, disposables and lab reagents worth $ 84,101.23
- They are procuring two US machines for Shifa worth $ 33,000
- They have already prepositioned emergency related drugs, disposables and lab reagents worth $ 57,101.23

Emergency Department expansion tent at Al Aqsa Hospital

Table 6: Data related to hospitals' capacity

	Indonesian	Beit-Hanoun	Al-Shifa	Al-Aqsa	Nasser	EGH	Al-Najar
How many beds are available for conflict-related patients' hospitalization in the Hospital, in total	54	29	220	35	75	89	23
Number of nurses working in ED, per shift	13	7	13	13	12	7	10
Number of physicians working in ED, per shift	13	6	8	6	11	4	4
How many beds are operational in their ED	11	9	46	20	30	12	14
How many resuscitation beds (Crash Room) are operational in their ED	3	2	3	2	4	2	3

Table 7: Data related to casualties and deaths per hospital

UP-TO 24.05. 2021	**Indonesian**	**Beit-Hanoun**	**Al-Shifa**	**Al-Aqsa**	**Nasser**	**EGH**	**Al-Najar**	**TOTAL**
Deaths	46	20	123	21	30	2	12	254
Total injuries	585	300	655	113	114	33	142	1942
Admitted to IPD	51	6	150	18	35	18	17	295
Admitted to ICU	6	0	43	7	5	4	0	65
Conducted surgeries	46	4	108	13	24	14	2	211
Referred from another hospital	0	0	70	0	8	5	0	83
Referred to another hospital	10 (abroad)	8 to Al-Shifa	24 (abroad)	3 (abroad)	3 (abroad)	1 (abroad)	26 (EGH + Nasser)	**41 (abroad)**
	30 (Al-Shifa)	13 to Indonesia	Al-Awda (8)	6 (Shifa)	2 (EGH)	4 (Nasser)		**103 (another hospital)**
	5 (Al-Awda)							
	1 Al-Oyon (Ophthalmology)							

Table 8 Modified Emergency Unit Assessment Tool

MODIFIED EMERGENY UNIT ASSESSMENT TOOL GAZA DRAFT 1	Al-Shifa	Al-Najar	EGH	Nasser	Al-Aqsa	Bait Hanoon	Indonesian
1. Facility Characteristics							
1.1 Identifying Information							
1.1.1 Date	23/05/2021	24/05/2022	24.05.2021	25.05.2021	25.05.2021	24.05.2021	24.05.2021
1.1.2 Geographical (WB or Gaza)	Gaza	Gaza	Gaza	Gaza	Gaza	Gaza	Gaza
1.1.3 Name of facility	Al-Shifa	Al-Najar	EGH	NMC	Aqsa	Beit Hanoun	Indonesian
1.1.4 Address of facility (include city, state or province)	Gaza city, Gaza Strip	Rafah, Gaza Strip	Khanyounis, Gaza Strip	Khanyounis, Gaza Strip	Middle are, Gaza strip	Jabalia, North Gaza	North Gaza, Gaza Strip
1.1.5 GPS Reading (if available)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1.1.7 Facility Contact(s)	Dr.Mohammed Abu-Selmiah 0599752514	DR.Ashraf Hejazi 0599791685	Mr.Ataa Al-Gabari 0592015524	Dr.Ayman Al-Astal 0562555066	Dr.Ismaeel Abu-Al-kas 0599616802	Jameel Suliman	Dr.Mohammed Abu-nada
1.1.8 Level of facility* : Health centre or clinic(1) - 1st level hospital(2) - 2nd level hospital(3) - Tertiary hospital(4)- may not be applicable to Gaza	4	3	4	4	3	2	3
1.1.9 Type of facility: Private hospital(1) - NGO hospital(2) - Government hospital(3)	3	3	3	3	3	3	3
1.1.10 Distance to major PHC (level 4)	1.5 KM	2 KM	5 KM	1 KM	1.5 KM	3 KM	2 KM
1.1.11 Is there an area (room, unit, department) specifically designated for emergency care? (Yes - No)	Yes	Yes	yes	yes	yes	yes	yes
1.1.12 Population served by facility	1000000	280000	500000	650000	350000	60000	460000
1.1.13 Interview Start Time (Use 24 hr clock system):	10:50	9:25	11:00	9:20	11:20	9:15	11:00
1.2 Facility Metrics (Numbers)							
1.2.1 Emergency unit visits per year	252,000	107694	128126	255500	228000	62050	84000
1.2.2 Outpatient visits per year (excluding emergency unit visits)	182000	12587	100972	82000	29136	24000	91250
1.2.3 Inpatient admissions per year	25,550	5697	20756	33977	26400	6205	9125

1.2.4 Beds/gurneys dedicated for general emergency care (not including inpatient beds)	32	13	33	30	33	9	15
1.2.5 Inpatient hospital beds	650	103	260	389	216	65	110
1.2.6 Functioning operating theatres (24/7)	22	2	8	7	5	2	4
1.2.7 Functioning high acuity unit (e.g. ICU) beds with capacity for continuous monitoring and mechanical ventilation	37	0	13	21	12	2	10
1.2.8 Emergency operations per year	3000	406	1860	4200	1460	730	1440
Available hours during a crisis							
1.2.9 During which hours is the emergency unit covered by providers who are physically present in the unit?	24/7	24/7	24/7	24/7	24/7	24/7	24/7
1.2.10 During which hours is the emergency unit covered by providers who are on call, inside the facility?	24/7	24/7	24/7	24/7	24/7	24/7	24/7
1.2.11 During which hours is the emergency unit covered by providers who are on call outside the facility?	No	No	24/7	24/7	24/7	24/7	24/7
Availability of services during crisis (YES / NO)							
1.2.12 Emergency Unit	yes	yes	yes	yes	yes	yes	yes
1.2.13 Laboratory	yes	yes	yes	yes	yes	yes	yes
1.2.14 Pharmacy	yes	yes	yes	yes	yes	yes	yes
1.2.15 Radiology	yes	yes	yes	yes	yes	yes	yes
1.2.15.1 Is there a stationary X Ray available?	yes	yes	yes	yes	yes	yes	yes
1.2.15.2 Is there a mobile X Ray available?	no	yes	yes	no	yes	yes	yes
1.2.15.3 Is there Echo available?	no	no	yes	no	yes	yes	yes
1.2.15.4 Is there CT available?	Yes	no	yes	yes	no	no	yes
1.2.16 Operating Theater							
1.2.16.1 How many operating theatres are available and functioning?	22	2	8	7	5	2	4
1.2.16.2 How many operating theatres are available and functioning, without ventilator?	0	0	0	0	0	1	2

1.3 Infrastructure and essential equipment ***Rating: 1 - Generally unavailable, 2 - Some availability, 3 – Adequate , Rating (1-3)*** **Infrastructure Element**							
1.3.1 Clean, running water	3	3	3	2	3	3	3
1.3.1.1 Is there a water tank prepositioned and connected to the facility's water supply system (yes/no)	yes	yes	yes	yes	yes	yes	yes
1.3.2 Electricity source (e.g., wired, generator)	3	3	3	3	3	3	3
1.3.2.1 Is there a generator to be used if the electricity supply is compromised?	yes	yes	yes	yes	yes	yes	yes
1.3.3 Designated telephone or radio for communicating with other facilities and/or prehospital providers	2	2	2	2	2	2	2
1.3.4 Paper-based emergency unit chart	3	3	3	3	3	3	3
1.3.4.1 Is there a paper-based patients' care emergency unit chart to be used in times of crises?	no	no	no	no	no	no	no
1.3.5 Electronic emergency unit chart	1	1	2	1	1	1	1
1.3.7 Easy physical access to emergency unit for those requiring a wheelchair or stretcher	1	1	3	1	3	3	3
1.3.8 Designated waiting area	1	1	1	1	1	3	3
1.3.8.1 How many beds can fit into the waiting area if ED expansion is needed?	20	0	0	0	0	2	0
1.3.9 Designated triage area	2	1	2	2	3	2	2
1.3.9.1 How many beds can fit into the designated Triage area if ED expansion is needed?	20	0	20	4	3		3
1.3.10 Designated resuscitation area	3	3	3	3	3	2	3
1.3.10.1 How many beds are designated for resuscitation in the emergency unit?	7	2	2	4	2	2	2
1.3.11 Personal protective equipment (e.g., hair covers, eye protection, N95 face masks, impermeable gowns, shoe covers, gloves) in a range of sizes	1	1	1	2	3	3	3

1.3.12 Electronic cardiac monitoring in emergency unit	3	2	3	3	3	2	6
1.3.12.1 How many patients' monitors are available in the emergency unit?	13	4	5	12	10	2	2
1.3.13 Crash trolley or code cart with high-acuity equipment and supplies of various sizes in emergency unit	4	2	2	5	3	1	3
1.3.14 Rapid access to a transport ambulance and provider to administer care during transport for patients who need to be transferred to another facility	2	2	2	3	3	2	2
1.3.15 Is there a dedicated mechanism (radio, telephone) for communication with other facilities for transfer of patients?	3	3	3	3	3	2	2
1.3.16 Is there access to storage space within (or with immediate proximity to) the emergency unit, including secure storage for controlled substances?	1	1	1	1	1	1	
1.3.18 Access to toilet facilities for patients and staff	3	3	3	2	3	2	2
1.3.18.1 Is there a provision for toilet facilities during times of crises?	yes	yes	yes	yes	yes	yes	yes
1.3.19 Access to handwashing facilities in each patient care area	3	3	3	3	3		
1.3.20 System for stocking, managing, and dispensing medications in emergency unit	3	3	3	3	3	1	3
1.3.20.1 System for pre-stocking and dispensing medications in emergency unit during crisis	2	1	1	3	3		
1.3.21 Oxygen in emergency unit	3	3	3	3	3		
Which of the following methods supply oxygen in this unit? (Yes, No)							
1.3.22 Oxygen is supplied through a central piped system	yes	yes	yes	yes	yes	Yes	yes
1.3.23 Oxygen is supplied by oxygen concentrator stored on this unit	yes	yes	yes	yes	yes	no	yes
1.3.24 Oxygen is supplied in tanks that are stored on this unit	yes	yes	yes	yes	yes	yes	yes

1.3.25 Emergency unit calls for tank of oxygen from central location if needed	yes	yes	yes	yes	yes	yes	yes
1.3.26 Emergency unit calls for oxygen concentrator from central location if needed	yes	yes	yes	yes	yes	yes	
1.3.26.1 Are there oxygen concentrators for times of crises? How many?	yes	no	yes	no	no	no	Yes
1.3.27 Number of surgical sets available for minor surgical procedures	10	10	10	30	10	3	15
Number of providers assigned to emergency unit in times of crises							
2.1.2 number of nurses per shift?	26	12	5	15	13	4	8
2.1.4 Medical officers (doctors without specialist training) per shift?	12	5	15	11	6	2	3
2.1.5 Emergency medicine specialists per shift?	2	0	0	0	1	3 for the day, 1 for the night	1
2.1.6 Other specialist doctor	6	4	5	6	11		
2.2 Consulting Services Available to the Emergency Unit							
Rating: 1 - Generally unavailable, 2 - Some availability, 3 – Always available, Rating (1-3)							
Consulting Service							
2.2.1 General Surgery	3	3	3	3	3	yes, 5	5
2.2.2 OB/GYN	3	1	1	3	3	no	no
2.2.3 Orthopedics	2	3	3	3	3	no	4
2.2.4 Anesthesia	3	2	2	2	3	(4 physicians 2 with diploma and two gp)	4
2.2.5 Pediatrics	3	3	3	3	3	3 pediatric surgeons and 10 pediatrics	no
2.2.6 Psychiatry	2	1	1	1	1	no	no

2.2.7 Other (Please list):							
3.2 Triage							
3.2.1 Does this facility use a formal triage system in times of crisis? (Yes, No)	yes	no	yes	no	no	There is theoretical knowledge, but no written policy	Yes, written on paper
3.3.6 Trauma care checklist (Yes, No)	No	no	no	no	no	no	no
3.4 Ancillary services							
3.4.1 MHPSS services	yes	no	no	no	no	not available	yes, a psychosocial counselor
3.4.2 Patient transport services (within emergency unit)	no	yes	no	yes	yes	not available, nurses only	yes
3.4.3 Security	yes	yes	yes	no	no	Yes (2) but not enough	yes
4 OBG							
4.10.1 Perform assisted vaginal delivery during crises	No	no	no	yes	no	no	yes
4.10.3 Perform neonatal resuscitation	NO	no	no	yes	no	no	yes
5.0 Essential Resources for Emergency Care: Equipment and Supplies (INSERT HERE)							
5.1 Is there a designated stocking area where equipment and supplies can be stocked, to be used exceptionally in times of crises?	no	no	no	no	no		no
5.2 Are there pre-positioned stretchers/gurneys to be used during times of crises in the emergency unit?	no	no	no	no	no	no	no
5.2.1 How many extra prepositioned beds/stretchers/	30	0	0	0	0	no	40

5.2.2 How many bedside procedures kits are pre-positioned and available during times of crises?	0	0	0	0	0	no	only disposables, lacking a special kind of pre-stocked supplies
5.2.3 How many tents are pre-positioned and available for the expansion of the emergency unit during times of crises?	1	3	2	2	4	1	2
6.0 Effectiveness of patient flow							
6.1 Is there a plan with the conceptual spaces within the hospital, where specific spaces have to be repurposed to support the emergency unit expansion?	yes	yes	yes	yes	yes	not written, it is only to triage patients and transfer them	there is a plan, not written on paper
6.2 Is there a one-way patient flow in the emergency unit during times of crises?	yes	no	yes	yes	yes	yes	yes, the patient flow is supported
Damage due to conflict	No	No	No	No	No	no	

Recommendations

Policy/legislation

Coordination, planning and management:

- Preparedness proved crucial during this escalation, and should be further enhanced.
- Staff working in the emergency department should be dedicated, at least for the mid-term.
- Look into integration of trauma and emergency care services at the PHC level (as a part of the basic package) and work on the development of the model PHC facility to serve as a centre of excellence.
- WHO encourages the standardization of coordination between Gaza MoH and NGO health facilities like Al Awda Hospital (UHWC), Al Quds Hospital (PRCS) and Al Ahli Arab Hospital. These hospitals worked as backup hospitals not only for trauma cases, but also for acute surgical cases.
- WHO encourages the improved coordination among rehabilitation partners, with the overall objective to keep track of the patients' progress post discharge.
- EMT Coordination Cell proved invaluable during this crisis, and its role within the MoH should be streamlined and institutionalized.
- The MoH Limb Reconstruction Centre will be receiving additional patients in need of limb reconstruction, other partners are encouraged to support its activities and its role within the MoH as a treatment facility has to be further institutionalized.
- Hospital Contingency plans have to be enriched and updated, to include all the information needed for the management of mass casualty incidents and relevant health crises.

Standard Operating Procedures and guidelines:

- While we are aware that different health facilities adopt different Triage protocols for the daily care, adopting a standardized triage in the emergency department for Mass Casualty incidents cannot be sufficiently advised: WHO proposes the Interagency triage tool.
- Adopting a medical equipment maintenance policy is of undisputed value.
- It is crucial to properly document patients entering the emergency department to track the patients' movements/procedures inside the hospital, and to ensure a follow up if needed, after the discharge. During a crisis, we highly encourage adopting proper registration and patients' follow-up. While an electronic system might be more efficient, paper-based documentation can also address all the needs.
- Intensification of Infection-prevention & control policies and infrastructural adaptation for one washbasin/examination bed ratio in the emergency departments.
- Standardization of inter-facility referral pathway.
- The biggest lesson learned from this armed conflict escalation is that preparedness pays back: Preparedness policies, supported with the needed drugs, equipment and supplies, have to be identified as key investments for the Gaza population, and they should be further encouraged.

Clinical

Capacity Building:

- WHO encourages the standardization of First Aid training for the PRCS volunteers, to broaden the spectrum of their interventions and to increase the number of light injuries that can be managed on the field.

- WHO encourages the capacity building for PRCS and MoH paramedics, to standardize their clinical management of trauma.
- WHO encourages the capacity building for PHCC personnel, with two objectives: To improve the PHCC response during mass casualty incidents and to improve the post-operative wound management for patients discharged from MoH Hospitals.
- Support to the existing capacity building on Mass Casualty Management should commence as soon as possible, initially through online training. WHO has already invested in equipment, supplies, drugs, and capacity building to optimize the response against Mass Casualty Incidents. We highly encourage an upscale of the Mass Casualty Management training and other trainings, and include more personnel from the targeted facilities.
- We highly encourage clinical refresher training in Basic Emergency Care for the clinical staff of emergency departments to optimize patients' management for the lightly injured so that they can be discharged from the emergency department and free up space for incoming casualties.
- We highly encourage tailored surgical training, for war injuries, targeting nurses and surgeons from all MoH Hospitals
- We highly encourage a tailored trauma anesthesia training, including modules for regional local anesthesia.
- WHO advices that specific trainings, targeting specialized surgeons have to be intensified. Regional anesthesia for surgeons, ECHO use for clinical assessment has to target not only clinical

Supplies, Equipment and Infrastructure:

- Prepositioning material, equipment, and consumables for optimal Mass Casualty Management are crucial. This has to be done as a "no-touch" stock, replenished appropriately, and available as an immediate resource in times of crisis.
- Providing basic surgical tools, basic anesthesia supplies and relevant equipment through procurement of selected items that were absent or insufficient during this conflict.
- Close follow-up and tracking of the deliveries in the MOH central warehouse and ensure the procured items reach their final users: emergency department personnel and clinical focal persons, like surgeons in the receiving hospitals.
- It has been identified from MoH that Hospitals do not have a "no-touch" stock of drugs, disposables and equipment, to be used in times of crisis. We highly encourage MoH to identify infrastructure needs for the storage of this pre-positioned material.
- Use of Communication devices for coordination during emergency response is an asset to ensure safe handling of casualties between emergency care providers.

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