The Health System Surge Capacity and

Response to Sudden Conflict

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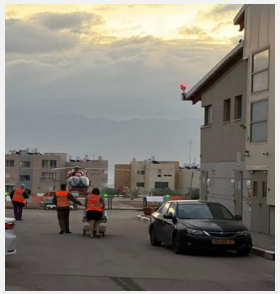
MoH – General Medical Division (GMD) – Emergency Operation Center (EOC)

- GMD is responsible for hospitals' routine work and expanded emergency responsibilities.
- Provide adequate care according to hospital capabilities based on daily Situation Report (Sitrap).
- GMD- EOC is responsible for organizing the hospitals and EMS to receive and mobilize casualties /patients, including secondary evacuation.
- EOC coordinates Triage Hospitals' function.



- Bilateral understandings with other countries for casualties ' evacuation in case of prolonged events.

Emergency SOP

01 GMD Centralizes the health system's management.

02 Designation of all health institutes as national resources.

03 All general hospitals are on constantly alert and have a mechanism for immediate response to absorb at least 20% of their surge capacity.

04 All general hospitals are prepared for self supply for the first 72 hours of the war.

05 MCI/ Mega MCI protocols related to management, workforces, medical algorithms, and best practices.

October 7th attack

- On 7 October 2023, Hamas forces attacked southern Israel;
  - About 1,500 people were killed,
  - 239 people were taken hostage,
  - About 1,455 people were wounded*,
  - All from 45 civilian and military sites.

- At least 3,000 rockets launched against Israel.

* Alpert EA, Assaf J, Nama A, Pliner R, Jaffe E. Secondary ambulance transfers during the mass-casualty terrorist attack in Israel on October 7, 2023. Prehospital Disaster Med. 2024;39(2):224–227)

Communities that were attacked on 7-8/10/23

- 2 Cities.
- 39 settlements.
- 12 Military bases.
- Other “open spaces”

- The first 2 MCs to receive the casualties;

- Barzilai MC, located in Ashkelon,
- Soroka MC, located in Beer Sheva.

MoH- GMD- EOC activity on October 7

- The EOC is located at the MoH offices in the country's center.
- The EOC communication and information system can be swiftly activated remotely in an emergency.
- The first remote activation of the system was at 07:24.
- The MoH CEO and the Director of the GMD arrived at the EOC at 08:00.
- Most of the GMD's staff arrived quickly, activated all EOC systems, and connected to all MCs.
- At 08:00, the EOC liaison officer arrived at the MDA (EMS) dispatch.
- The EOC liaison officer arrived at SMC at 14:00 after receiving security clearance from the MoH security officer and got permission to travel.
- Because BMC was near the battle zone, no EOC liaison officer was allowed to be sent to the hospital.

SMC

MCs situation at the beginning of the event 1

- The first casualties arrived at the ED at 7:37.*
- At 09:00, there were about 59 casualties in the ED.*
- About 5 hours from the beginning of the MCI, 281 casualties were admitted.*
- Within 5 hours, volunteers reinforced the workforce.
- 190 hospitalized patients were released to the community to make room for the casualties. **
- At 21:00, the number of casualties climbed to 572.*
- Within 24 hours, the number of casualties was 674; of them, 137 casualties were critical, 131 were moderated, 11 were declared DOA, and 18 were declared dead while treated**.
- About 185 casualties were transferred to other hospitals in the country's center**.
- Total casualties number on 7-8/10: 756**.

* October 7th, 2023 attacks in Israel: frontline experience of a single tertiary center Shlomi Codish1,5, Amit Frenkel2,5, Moti Klein2,5, Alex Geftler3,5, Jacob Dreiher1,5, and Dan

MCs situation at the beginning of the event 2

BMC

- 250 casualties arrived in on October 7 at BMC.
- Mass evacuation of the dead (approximately 90) who were brought from the settlements, the roads, and open spaces by civilians in private cars and created an overload in the hospital morgue.
- BMC applied to the EOC and requested assistance with the casualties' secondary evacuation at 09:00.
- First wave of casualties evacuation to other MCs in the country left at 09:30 by bus.
- A large number of casualties were brought in private vehicles in the afternoon when it was possible to leave the besieged settlements.

Empowerment and reinforcement of professional team

- Following the attack on southern Israel, a major concern was related to the option of personnel absence from SMC and BMC.

- The Workforce EOC manages volunteer databases to assist hospitals in case of a staff shortage in emergencies;
  - Staff mobilization domestically is based on stakeholder cooperation,
  - Backup and staff mobilization within a few hours.

- During ongoing events, the Workforce EOC actively recruits international medical, nursing, and paramedical staff volunteers for health services, ensuring a diverse and skilled workforce during emergencies.

The health system preparation for the escalation of the fighting - “Iron Swords” war

- Fearing an escalation in the northern part of the country, the MoH instructed all hospitals to prepare for potential casualties from the north.
- Northern hospitals requested to identify admitted patients for secondary evacuation.
- The ability of hospitals to provide adequate care is estimated according to the daily Sitrap referred to the EOC.
- Casualties’ evacuation by ambulances, helicopters, and private ambulance companies, coordinated by the EOC.

Casualties' management 1

- Expending surge capacity and mobilizing patients to protected sites.

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Casualties' management 2

01
Respond according to capabilities.

02
Expanding capabilities in response to increased needs.

03
Issuing daily orders as a basis for operations.

04
Control of evacuation destinations.

05
Secondary referral for efficient management of hospital resources.

06
The load index as a basis for casualties evacuation.

“Iron Swords” - Load index critical care beds 1

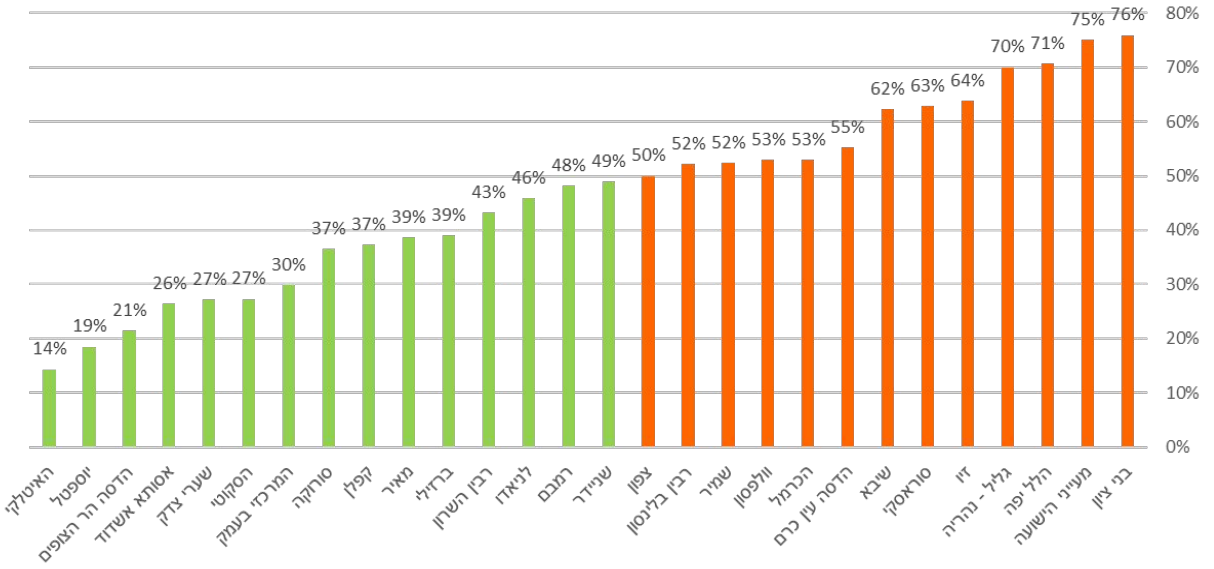
Calculation of the Load Index

Numerator

Total occupancy of the critical care beds in the hospital (not including neurosurgery and recovery).

Denominator

Total critical care beds in the hospital (not including neurosurgery, 70% of recovery beds).



Casualties' distribution 1

- Organizing the distribution of casualties to hospitals according to the definitions of trauma centers:

- Local TC/ Regional TC/ Level One TC.

- Response according to:

- Professional capabilities, including specialties and availability
- Ambulances vs. helicopter evacuation.
- Secondary casualties' transfer.

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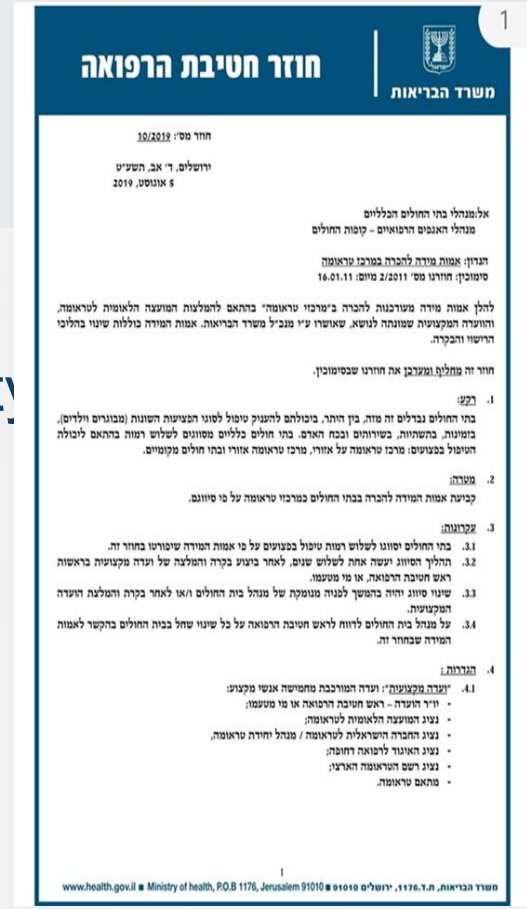

חוזר חטיבת הרפואה

משרד הבריאות

חוזר מס': 10/2019

ירושלים, ד' אב, תשע"ט
5 אוגוסט, 2019

אל: מנהלי בתי החולים הכלליים
מנהלי האגפים הרפואיים – קופות החולים

הנדון: אמות מידה להכרה במרכז טראומה
סימוכין: חוזרנו מס' 2/2011 מיום: 16.01.11

להלן אמות מידה משודכנות להכרה ב"מרכזי טראומה" בהתאם להמלצות המועצה הלאומית לטראומה, והוועדה המקצועית שמונתה לנושא, שאושרו ע"י מנכ"ל משרד הבריאות. אמות המידה כוללות שינוי בהליכי הרישוי והבקרה.

חוזר זה מחליף ומעדכן את חוזרנו שבסימוכין.

1. רקע:
בתי החולים נבדלים זה מזה, בין היתר, ביכולתם להעניק טיפול לסוגי הפציעות השונות (מבוגרים וילדים), בזמינות, בהשתייות, בשיוריהם ובכמה האדם. בתי חולים כלליים מסווגים לשלוש רמות בהתאם ליכולת הטיפול בפציעים: מרכז טראומה על אזורי, מרכז טראומה אזורי ובתי חולים מקומיים.

2. מטרה:
קביעת אמות המידה להכרה בבתי החולים כמרכזי טראומה על פי סיווגם.

3. עקרונות:
3.1 בתי החולים יסווגו לשלוש רמות טיפול בפציעים על פי אמות המידה שיפורטו בחוזר זה.
3.2 התליך הסיווג יעשה אחת לשלוש שנים, לאחר ביצוע בקרה והמלצה של ועדה מקצועית בראשות ראש חטיבת הרפואה, או מי מטעמו.
3.3 שינוי סיווג יהיה בהמשך לבניה מנומקת של מנהל בית החולים ו/או לאחר בקרה והמלצה הועדה המקצועית.
3.4 על מנהל בית החולים לדווח לראש חטיבת הרפואה על כל שינוי שחל בבית החולים בהקשר לאמות המידה שבחוזר זה.

4. הגדרות:
4.1 "ועדה מקצועית": ועדה המורכבת מחמישה אנשי מקצוע:
- יו"ר הועדה – ראש חטיבת הרפואה או מי מטעמו;
- נציג המועצה הלאומית לטראומה;
- נציג החברה הישראלית לטראומה / מנהל יחידת טראומה.
- נציג האיגוד לרפואה דחופה;
- נציג רשם הטראומה הארצי;
- מזכיר טראומה.

משרד הבריאות, ת.ד.1176, ירושלים 91010 ■ Ministry of health, P.O.B 1176, Jerusalem 91010 ■ www.health.gov.il

Casualties' transfer

The ambulance's evacuation to MC is near the combat zone. 01

Helicopter evacuation was prioritized to central MC.

Deteriorated casualties may refer by helicopter to the nearby MC.

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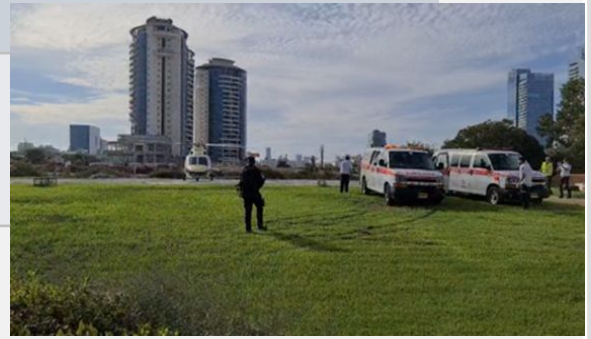
A physician on the helicopter may change the destination in case of a casualty 's deterioration. 04

It may be necessary to evacuate simultaneously from two war zones by ambulance and helicopter 05

EOC and HFC determine air evacuation according to MOH directives.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Considerations in Determining Evacuation Destinations

First priority: evacuation to a Level one trauma center.	01
MC's proximity to the site.	02
Casualties condition / deterioration of the casualties during the transfer.	03
Situation update of the casualties received in the MC.	04
Hospital load index.	05
Transferred casualties to the MC from another site at the same time.	06
Distribution of critical casualties among MC evenly over time.	07
Other limitations (weather…)	08

Evacuation policy based on a daily directive

- Daily orders are based on the above accumulated and updated data.
- Up to four urgent casualties will be transported by helicopter to a level one TC or two urgent casualties to another hospital.
- Ambulances will be carried out to proximate level one TC distant from the war zone.

Secondary evacuation from one MC to another MC

- All MCs are considered national resources and provide parallel care to casualties and other patients.

- All evacuation means, including private ambulances, are considered resources and centrally managed by MoH- EOC.

- Evacuation of hospitalized patients to prepare a place for war casualties

- Reduce the number of patients in the hospital by transferring them to the community, private institutions, or designated public areas.

©Yossi ambulance

Casualties' evacuation from primary receiving MC

- Evacuation from Triage Hospital.
- Activation of the command for airplane evacuation.
- Secondary transfer includes prisoners and humanitarian patients in the hospitals.
- Need for registration and tracking the casualty's route in and out of the hospitals.

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*Casualties evacuation report by MDA

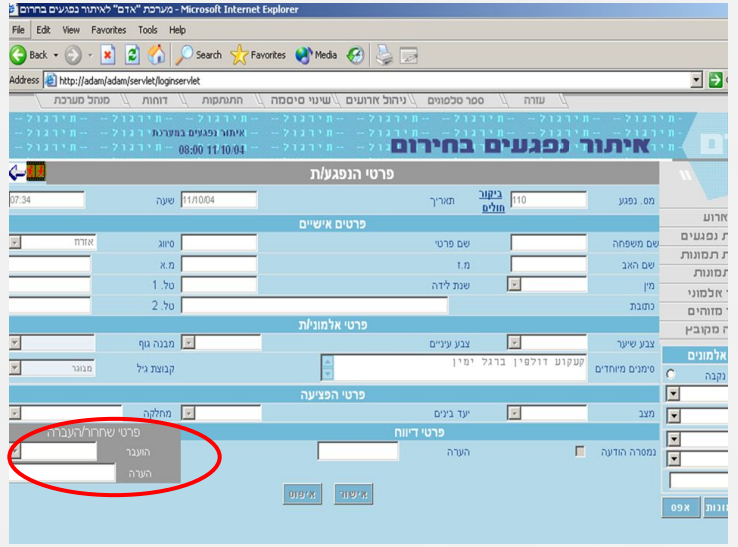
©Explanation- MDA

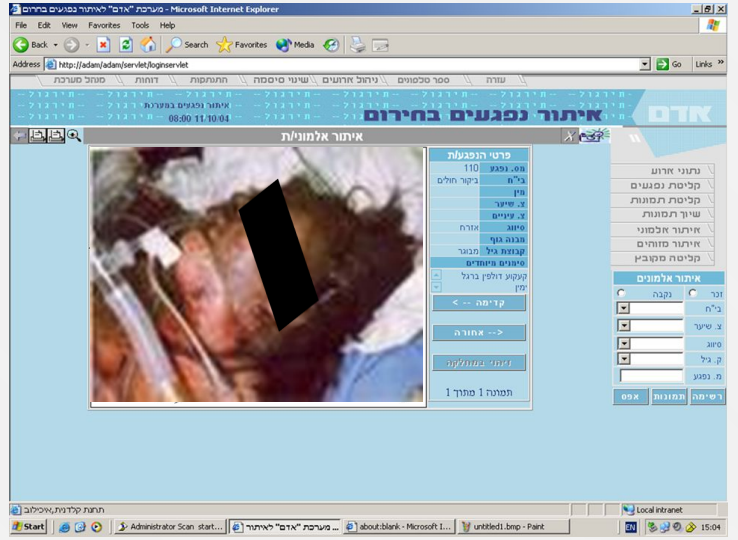
Destinated MC	SMC	BMC
TAMC- 9	26	38
Belinson (Rabin) - 4		
Hadassa ein Cerem –1		
Hadassan Mount Scopus- 1		
Meir - 4		
Shiba -1		
9Shamir-12		
Hilel Yafe-2		
Wolfson- 16		
Carmel-4		
Lanyado-4		
Shaare Zedek-2		
Rambam-3		
Hasharon - 1		
Assuta Ashdos -1		

* Ref: Alpert EA, Assaf J, Nama A, Pliner R, Jaffe E. Secondary ambulance transfers during the mass-casualty terrorist attack in Israel on October 7, 2023. Prehospital Disaster Med. 2024;39(2):224-227)

ADAM – Casualties registration in the hospitals: A nationwide system

- Managed by the hospital's Social workers.
- Input data in ED by clerks.
- Multi-center system.
- Multi workstations.
- Input/output system.
- Online data.
- National spread network.
- Update data ad-hoc.





Casualties evacuation report through Adam system- MoH

Destinated MC	Off them : Air evacuation from both MC	SMC	BMC
TAMC- 28	Air force – 60	102	91
Belinson - 15	MDA- 9		
Hadassa ein Cerem – 5	Ichud Hatzala - 11		
Hadassan Mount Scopus - 1			
Meir - 28			
Shiba -19			
Shamir-12			
Hilel Yafe-7			
Wolfson- 16			
Carmel-4			
Lanyado-4			
Shaare zedek-3			
Rambam-3			
Hasharon - 1			

Lack of adequacy in the various data

Lessons learned

- On October 7, 2023, Israel experienced the worst terror attack in its history.
- The main factor influencing the decision to transfer the casualties to the other hospitals was the availability of ambulances and helicopters.
- The medical condition of the casualties set the priorities for evacuation from the battle zone and primary hospitals to distant hospitals.
- Missing and inaccurate information affects the decision-making process at a local and national level and impacts the MC capabilities.
- In a chaotic situation, there was no capability to monitor all casualties' identification, arrival, disposition, and mobilization;

- Some casualties were not registered in real-time, and the lists were unreliable.

- The existing ADAM system is outdated and cannot provide up-to-date information on extreme events.

Conclusions / recommendations

- It is necessary to improve casualties' flow in and out of the hospitals.
- The existing ADAM system must be updated and refreshed.
- There is a national need to obtain individual information on the casualties to manage the emergency admission system.
- There is a legal issue related to casualty identification needs to be solved with the legal department at the MoH.

Thanks to Dr. Sigal Livernt–Taub

and Katia Keal

MoH