Original Investigation

Lessons From Analyzing the Medical Costs
of Civilian Terror Victims: Planning
Resources Allocation for a New Era of
Confrontations

EYTAN ELLENBERG,^{*} MARK I. TARAGIN,^{*}
JAY R. HOFFMAN,[†] OSNAT COHEN,^{*}
DANIELLA LUFT-AFIK,[‡] ZVIA BAR-ON,^{*}
and ISHAY OSTFELD^{*}

^{*}National Insurance Institute of Israel; [†]University of Central Florida;
[‡]Medintec

Policy Points:

- Across the globe, the threat from terrorist attacks is rising, which requires a careful assessment of long-term medical support.
- We found 3 major sources of costs: hospital expenditures, mental health services dedicated to acute stress reactions, and ambulatory follow-up. During the first year, most of the costs were related to hospitalization and support for stress relief. During the second year, ambulatory and rehabilitation costs continued to grow.
- Public health specialists should consider these major components of costs and their evolution over time to properly advise the medical and social authorities on allocating resources for the medical and nonmedical support of civilian casualties resulting from war or terror.

Context: Across the globe, the threat from terrorist attacks is rising, which requires a careful assessment of long-term medical support. Based on an 18-month follow-up of the Israeli civilian population following the 2014 war in Gaza, we describe and analyze the medical costs associated with rocket attacks and review the demography of the victims who filed claims for disability

compensation. We then propose practical lessons to help health care authorities prepare for future confrontations.

Method: Using the National Insurance Institute of Israel's (NII) database, we conducted descriptive and comparative analyses using statistical tests (Fisher's Exact Test, chi-square test, and students' t-tests). The costs were updated until March 30, 2016, and are presented in US dollars. We included only civilian expenses in our analysis.

Findings: We identified 5,189 victims, 3,236 of whom presented with acute stress reactions during the conflict. Eighteen months after the conflict, the victims' total medical costs reached \$4.4 million. The NII reimbursed \$2,541,053 for associated medical costs and \$1,921,792 for associated mental health costs. A total of 709 victims filed claims with the NII for further support, including rehabilitation, medical devices, and disability pensions.

Conclusion: We found 3 major sources of costs: hospital expenditures, mental health services dedicated to acute stress reactions, and ambulatory follow-up. During the first year, most of the costs were related to hospitalization and support for stress relief. During the second year, ambulatory and rehabilitation costs continued to grow. Public health specialists should consider these major components of costs and their evolution over time to properly advise the medical and social authorities on allocating resources for the medical and nonmedical support of civilian casualties resulting from war or terror.

Keywords: terrorism, war, disaster, post-health services.

INTERNATIONAL TERRORISM AND WAR WITH EXTREMIST organizations are growing. The number of civilian victims is rising, both in the combat zone and at home. The number of deaths resulting from terrorism has risen ninefold compared with that in 2000, with a significant increase in the proportion of private citizens.¹ These mass casualty incidents (MCI) have led to a new demand for resource allocations from health organizations that receive public funding (government hospitals, publicly funded HMOs). This is especially true for countries that have experienced large-scale or repetitive terror attacks on their soil or that have had a large number of veterans returning from operation zones of the global war on terror. Since the attacks in the United States on September 11, 2001, MCI have been considered human-caused disasters, which could rapidly "overwhelm the local healthcare system in a very short time."^{2,3} Indeed, the Institute for Economics and Peace (IEP) estimated that in 2014, injuries from terror attacks in

162 countries cost US\$918 million.^{1,4} In this new era of confrontation, in which the battlefield is often on our streets, health care organizations should be prepared to rapidly tackle, efficiently and over the long term, the medical impact of terror.

Protocols have been introduced in hospitals detailing preparedness or readiness, based on a number of studies describing terror-related patterns of injuries.⁵⁻¹³ French physicians confronted with the 2015 attacks in Paris confirmed that managing victims of terror “is the civil application of war medicine.” They also stressed that “report[ing] the details of the medical cost” is another way of learning about these events.¹⁴

Although the costs of treating wounded soldiers have been published by military medical forces and the US Veterans Administration,¹⁵⁻¹⁸ we know little about the costs of treating injured civilians. In a 2011 report, the Israel National Center for Trauma reported that victims of terror (including civilians, police officers, soldiers, and tourists) required more expensive hospital resources and were hospitalized for twice as long as were trauma patients who were not victims of terror.¹⁹ This report, however, focused on hospital stays and did not detail medical costs (hospital and ambulatory). In addition, it included noncivilians (ie, tactical personnel). In 2002, the hospital costs for treating 158 wounded Israeli victims of terror during the second Palestinian intifada was US\$611,700, with the mean cost per injured victim estimated at US\$3,200, which is 25% higher than the costs for victims suffering from other trauma causes.²⁰ For the 2002, 2003, and 2005 suicide bombing attacks in Bali and Jakarta, the total hospital costs for the victims were \$450,412 ($n = 15$), \$354,710 ($n = 14$), and \$22,667 ($n = 2$), respectively.²¹ A Turkish study conducted during the Syrian civil war estimated that the mean cost per patient was \$1,298,²² while the direct and indirect costs of the 2013 Boston Marathon bombings in a single hospital and for one-week stays were estimated at \$776,051 for 36 victims.²³

Another cost to be considered is the economic loss to hospitals operating under such circumstances. During the second Lebanon war in 2006 (which lasted for one month), the reduction in the daily activities (those not associated with combat casualties) in hospitals in the state of Israel had a major financial impact based on the dramatic decrease in revenue from the daily non-war-related medical procedures and visits.

The number of surgeries was estimated to have been reduced by 40% to 60% (a loss of approximately \$11.6 million).²⁴

In addition to the greater costs of hospitalization associated with terror attacks, there are greater outpatient costs as well. Researchers have found that during the 2000-2002 intifada in Jerusalem, the rate of monthly visits to general practitioners and the number of monthly ambulance and hotline calls increased by almost 50%.²⁵⁻²⁷ Schwartz found that victims of terror spent longer periods in rehabilitation than the nonterror group (the mean length of stay of terror victims was 218 ± 131 days, compared with the control group's 152 ± 114 days [$p < 0.01$]).²⁸ Unfortunately, these studies did not estimate cost.

The US Office for Victims of Crime (OVC) reported that the compensation claimed by victims of terror in 2009-2010 ($n = 276$) totaled \$1,324,124 (an average of approximately \$4,800 per person for costs related to medical and dental care, counseling, funeral and burial costs, and lost wages).²⁹ This program is administered in every state by the OVC's support crime victim compensation programs. The costs related to medical and dental care represent more than 50% of the total costs reimbursed, followed by funeral and burial costs, and then financial and mental health support. No distinction was made between terror and other types of assaults. In another report,³⁰ the costs for 12 victims of international terrorism were \$9,771 for medical bills (roughly \$814 per victim) and \$9,373 for mental health treatments (approximately \$781 per victim). As the global threat of terrorism continues to grow, the need to allocate money to provide adequate medical resources, supplies, and social support in the long run will grow as well.

Israel has a unique way to identify and track the victims of terror and war. The Ministry of Defense is empowered to confirm if an assault should be legally considered as either a terror attack or an act of war. For this study, we chose to use both terms, "war" and "terror," to describe the rocket attacks that directly target Israeli civilians. But whatever the distinction, the Israeli authorities do not discriminate between whether a civilian has been injured by a rocket fired from Gaza or is the victim of stabbing for nationalistic reasons (terror) in Jerusalem: all result in medical and nonmedical costs. These medical and nonmedical (disability) costs are coordinated and reimbursed by the National Insurance Institute of Israel (NII).³¹ Medical treatments, including mental health treatments, can be carried out in public hospitals or through

4 health maintenance organizations that run Israel's hospitals, clinics, and outpatient services. These services are later reimbursed after approval by the NII. In addition, since the second war in Lebanon (2006), Israel has operated a special outpatient support system dedicated to stress management. This systems provides help to those in need and relieves hospitals from this "burden." The service is free and available throughout the country and offers a specific number of sessions (usually 12).³² Afterward, if the victim is still injured or found disabled, he or she can file a claim with the NII for damages (a lump-sum payment or a disability pension).

During the summer of 2014, a military conflict broke out between Israel and the Hamas terrorist organization in Gaza. Hamas launched approximately 4,000 missiles against Israeli civilian population centers.³³ Civilians were injured by these rockets, which typically landed far from where direct military confrontations were taking place in Gaza and significantly damaged the surrounding infrastructure as well.³⁴ Hamas also fired mortars at a shorter distance from the theater of war and injured civilians living closer to the Gaza border. The rush to sheltered areas while air-raid sirens, warning of the approaching rockets, were sounding also contributed to acute and chronic stress reactions.³⁴

In this article, we describe and summarize the medical costs associated with the 2014 war in Gaza, focusing on the demography of victims who filed a claim for disability compensation. Our summary is based on an 18-month follow-up on the Israeli civilian population. In addition, we discuss the specific medical costs associated with this conflict, including mental health costs, hospitalization costs, and ambulatory costs, and when possible, we compare the victims and the type of injury with previous research.

Methods

Our database includes details on all medical costs (based on hospital and ambulatory invoices) related to terror attacks and provides associated principal diagnoses (ICD 9) for the civilian victims. A centralized database recorded all claims, using a centralized, patient-based medical record. These records were updated in real time as each invoice and/or external medical record was received. Importantly, the database also includes information about victims who are suffering from acute

stress reactions (ASR) resulting from terrorist attacks and who were reimbursed for mental health services.

Using this database, we conducted descriptive analyses of medical and nonmedical costs and compared them with the available Israeli databases using the relevant statistical tests (Fisher's Exact Test, chi-square test, and students' t-tests). We compared our population's main characteristics (age and gender) with those of the national 2014 Israeli official census³⁵ and with the 2011 data published by the National Center for Trauma and Emergency Medicine Research¹⁹ comparing terror/warfare victims with victims of other traumas. We included all victims injured between July 1, 2014, and September 1, 2014 (because rockets continued to fall after the August 26, 2014, cease-fire, we included ASR until the end of the month), and we updated the costs until March 30, 2016. (Some patients are still receiving various therapies, and the administration of invoices thus could lead to some delay. Therefore, we included data only when an 18-month follow-up was available.) The costs are strictly limited to Israeli civilians injured during the 2014 war and, for convenience, are given in US dollars (at the time of our analysis US\$1 = NIS3.8 [new Israeli shekels]).

Results

We identified 5,189 victims who were injured during the conflict. Some were injured on multiple occasions: 4,079 victims were injured by one attack, 884 by two, 171 by three, 40 by four, and 15 by five. Of these casualties, 3,236 presented with ASR during the war, and 2,064 (63.7%) of these victims suffered solely from ASR without any other physical injury. These individuals were followed for 12 stress relief sessions. Patients affected by more than one event suffered mostly from anxiety and simple contusions. Of the 164 injured victims who were hospitalized, 20 required rehabilitation and eventually nursing home care. Table 1 lists the characteristics of the casualties.

We found 432 different types of principal diagnoses (30% fractures, 11% abrasions or contusions, 8% open wounds). Our analysis revealed that 295 patients (12.7% of all those injured) had one or more fractures, 66% of which involved the upper body, and 34% of which involved the lower body. We noted 13 head injuries (8% of hospitalized

Table 1. Victims' Characteristics

Characteristics	Victims No.	Mean Age (SD)	Female No. (%)	Male No. (%)
All victims	5,189	35.7 (22.1)	3,269 (63%) ^a	1,919 (37%)
Victims hospitalized ^b	164	49.8 (25.2)	97 (59%) ^a	67 (41%)
Victims in rehabilitation or nursing home	20	69.8 (23)	12 (60%)	8 (40%)
ASR population	3,236	27.4 (20.6) ^c	2,071 (64%) ^a	1,165 (36%)

Abbreviations: ASR, acute stress reaction.

^aGender distribution is significantly different from the global population and from the terror 2011 population.

^bCharacteristics of population who were not hospitalized and did not suffer from ASR ($n = 1,953$) were not presented because of heterogeneity and missing data, except for hospitalization, rehabilitation, or nursing home stay.

^cAge distribution differs for 5-14 years compared to other population.

victims), all of whom suffered from a subsequent hemorrhage (subdural, subarachnoid, etc.).

The age distribution of all terror victims was not significantly different ($p = 0.48$) from that of the general population (Figure 1) but did differ ($p < 0.01$) from the "all traumas population" in the 2011 registry. As expected, the proportion of children aged under 14 years was significantly ($p = 0.01$) greater than that of other ages in the ASR population. We identified fewer victims 15 to 24 years old than represented in the 2011 data, though not significantly fewer.¹⁹ Females made up 63% of all victims in our study and 64% in the ASR population, compared with 50.4% in the global population (chi-square test $p < 0.01$).

The total direct medical costs were \$4,462,845. The NII reimbursed \$2,541,052 (56% of total costs) for hospitalization, ambulatory, and emergency costs, and \$1,921,792 (44% of total costs) for mental health costs. The breakdown of these costs is detailed in Table 2. The average cost per case was \$860, and the median cost was \$217. In addition, 71% of the victims ($n = 3,692$) cost less than \$1,116. The 5 most "costly"

Table 2. Medical and Mental Health Costs

Type of Cost (No. of Patients)	Total (US\$)	Percentage of Total Cost
Total cost	4,462,842	100
Mental health, incl. ASR (3,236)	1,921,792	43
Hospitalization (164)	1,718,684	39
Ambulatory visits (2,523)	401,053	9
Emergency visits (1,375)	370,000	8
Medical devices (no data)	51,316	1

patients, whose combined treatments came to \$507,802, accounted for 20% of all medical costs. These patients had suffered from multiple and severe traumas. The 295 patients who presented with one or more fractures cost \$1,742,427, and the 13 patients who suffered head injuries cost \$337,339.

Those victims who were hospitalized numbered 164 (\$10,291 per injured case); Figure 2 shows the breakdown of hospital costs.

Figure 2. Breakdown of Hospitalization Costs

$n = 164$; average length of stay (LOS) = 6 days; SD 9; median 3.

The distribution of costs varied over time: 61% of expenses (mostly for hospitalization and emergency visits) occurred during the first year, and 39% of the remaining expenses (mostly for ambulatory, medical devices, and the follow-up of acute stress reactions) occurred during the final 6 months of our analysis (Table 3).

Compensation Claims

Altogether, 709 victims (13.6% of total victims) filed a claim with the NII for further support, including rehabilitation, medical devices, lump-sum payments, or a disability pension. Of these claims, 585 were physical injuries, and 79% of the injured presented at least two diagnoses (26% fractures and 7% head trauma). The remaining 124 claimants suffered from chronic stress, of which 106 (3% of all 3,236 acute stress reactions) were diagnosed with post-traumatic stress disorder (PTSD) by a medical commission. Claimants of PTSD were significantly older (the mean age was 42 versus 32, $p < 0.05$) and faced more events (81% witnessed two or more attacks, compared with 3.7% of nonclaimants). The mean number of events was 1.8 versus 1.2 ($p < 0.05$, compared

Table 3. Costs Over Time, 2014-2016

Cost Categories	Costs After 12 Months (US\$)	Percentage of Costs for First Year Over Total of 18 Months	Costs After 18 Months (US\$)
Hospitalization	1,283,158 (47%)	75	1,718,684 (39%)
Mental health	1,032,368 (38%)	54	1,921,792 (43%)
Emergency visits	358,684 (13%)	97	370,000 (8%)
Ambulatory	61,842 (2%)	15	409,053 (9%)
Medical devices	—	0	51,316 (1%)
Total cost	2,735,526 (100%)	61	4,462,845 (100)

with casualties with ASR who did not file a claim). Only 13.6% of all the casualties filed a claim, but they accounted for 24% of the medical costs. The claimants' medical cost per case was \$1,333, compared with \$668 for the injured who did not file a claim.

Discussion

Our study, based on more than 5,000 casualties, provides an important contribution to postdisaster health services research. This "real-life" description offers new perspectives to the practitioners and health care authorities allocating money to treat civilians injured during terror and war with extremist organizations. The way these costs are expensed over time through the various branches of the Israeli health care system can help other countries plan their resources for future terrorist events. After 18 months of follow-up, the total medical costs associated with the 2014 Gaza war was \$4.4 million (average cost \$860). We identified 3 major sources of costs: hospital expenditures, mental

health services dedicated to ASR, and ambulatory follow-up. Our data revealed that hospitalization costs occurred predominantly during the first year and that ambulatory-care expenditures (particularly mental health) rose dramatically during the follow-up. The broad support available in Israel (medical, mental, and social), and the experience of facing terror daily, provides important information for creating a model of resources and costs, including its sourcing, distribution, and phasing. Our study reveals trends that should guide state planning in this new era of confrontations with international terrorism. Indeed, because of the increasing threat, there is a clear need for a broad impact analysis, including out-of-hospital services and longer follow-ups for efficient preparedness that is not focused solely on short-term actions.

The global medical response to terror should not be limited to hospital admission for acute injuries; the reality is more complex.^{2,14,27,31} Most studies describe a “simple” path from injury to hospital and then to outpatient. Our study is unique in describing multiple paths and entries into the health care system. After terror attacks, a number of victims visit emergency units, while others are rapidly forwarded to surgical wards. Some of these patients receive ambulatory care without being hospitalized, and others receive acute mental health stress services. Accordingly, we included the heterogeneity of casualties and the unpredictability of their medical costs in our costs model. During the first year, half of all medical costs are paid to hospitals and half to mental health services. During the second year, mental health costs are the major component, but ambulatory rehabilitation is growing. Allocating money based on this model may help create an efficient and fair strategy of supporting victims of terror.

The prevalence and treatment of acute stress reactions should play a major role in planning medical financial support for attacks. Our experience demonstrates that a disproportionate number of medical services were needed by younger female patients suffering from acute stress reactions. The inclusion of an ASR population in our study (ie, young women) might explain the differences observed between the results of this investigation and the 2011 data set published by the Israeli National Center for Trauma and Emergency Medicine Research, which focused on hospitalized injuries.¹⁹ The 2011 data are clearly unique and offer useful information about victims hospitalized for traumatic injuries. However, they do not include the ASR population. Our study is more

consistent with the 2003 Israeli study,²⁷ which showed that ASR and PTSD populations are different and that females are more at risk. Bleich also revealed that the level of exposure to the terror attack was not a risk factor for PTSD.²⁷ Appropriate planning, especially with nonphysicians, to handle this large volume can prevent long-term stress disabilities such as PTSD and free mental health personnel for more serious disorders. This initial “reaching out” offered to victims has been considered more and more as a strong component of terror medical support.³² This approach promoted by the Israeli medical authorities to aggressively offer these services has widely affected our model. Our study clearly shows that a large number of victims benefited from these sessions and that ultimately only a few people filed claims with the NII to be recognized as disabled for PTSD (disability established by a medical commission, including psychiatrists).

The importance of acute stress reaction seems to be comparable to the 1991 Gulf War figures, for which approximately 43% of the 773 victims evacuated to hospitals were suffering from psychological injuries.³⁶ The large number of patients requesting and benefiting from mental health services may be seen as a lesson for other countries facing terror: victims seek mental help early in the process. The terrorist goal of “kill one, terrify a thousand” is relevant here. In their paper, Bar-El and colleagues stressed that hospitals should be prepared to deal with psychological injuries.²⁴ In 2006, when the ASR national relief system was officially launched, 849 victims were treated in Haifa hospitals and among them, 40% were “anxiety” casualties who were mostly discharged without being hospitalized. Finally, in our study, less than 5% of the victims suffering from stress reactions filed a claim for a lump-sum payment or a disability pension relating to PTSD. This percentage is lower than the 9.4% reported in a 2003 study based on a representative Israeli sample.²⁷ The follow-up of victims treated for ASR through the disability social support is also a good way to ascertain the efficiency of the system. This “tail” of ASR unfortunately follows the victims, who suffer long after the attacks, and reveals flares that are reinitiated by recurrent conflicts in the same region. This long-term support is another safety option for patients suffering from recurring stress or PTSD. The medical support for terror casualties never ends.³⁷

Our study strongly suggests that identifying and longitudinally tracking civilians injured in a terror attack through all aspects of the health care system is necessary to understand and plan for efficient health care.

The absence of a system to track victims could leave authorities ignorant when attempting to analyze the effectiveness of their health care system. The early and continuous follow-up of victims of terror is important to identify in order to meet their medical, psychological, and social needs. We have found that terror victims need more support and assistance than do similar victims of other causes. Developing methods to track and contact these injured civilians is instrumental for optimal care. The idea of “tracking” has been explored in other systems using new communication technologies³⁸ and should be encouraged. This system of identification needs commitment through a legal, specialized system, as well as manpower planning in order to make it viable and effective. Based on case management, Israeli National Insurance physicians and social workers coordinate with the victims and caregivers (even on a daily basis for the first days or weeks for the severely injured) regarding access to the appropriate treatments and benefits. Thus, we strongly recommend that countries facing terror implement a means of tracking as well as dedicated personnel to coordinate medical and social support at the national level.

Terror should be considered a major public health problem and studied as closely as diabetes, obesity, or cancer. Each citizen has a basic human right to be protected and supported, identical to “the right to the highest attainable standard of health”³⁹ by means of access to hospitals, mental health, and rehabilitation. According to the United Nations, the protection of individuals is a “fundamental obligation of government,” and “from a human rights perspective, support for victims in the context of terrorism is a paramount concern.”⁴⁰ Implementing social support as a determinant of global health for both disabled and nondisabled victims is critical and should not be overlooked.

Limitations

Our study has a number of limitations. The database we used was not specifically compiled for research purposes. We were not able to analyze the relationship between the severity score index and its impact on costs, a key factor when describing injuries from terror attacks.⁶ We calculated our costs 18 months after the conflict while the ambulatory and rehabilitation costs were still increasing. We are currently developing follow-up studies. In addition, our database does not cover other tangible costs such as social benefits and military costs for soldiers

and veterans. Even so, in order to extrapolate future implications, our objective was clearly the global distribution and timing of costs. The generalizability of these results must be carefully addressed, the relevant factors being different populations, the size of the targeted population, the type and the magnitude of attacks, their location (open, semiconfined, or closed environments), the public health care system, and the history and planning of medical support for victims. Other countries' plans could be modified based on this study, including improving their health care support system, and could eventually be reassessed after tracking and experience. Our study also did not look at the impact on public or private infrastructure or the costs for the "other side" (in Gaza), and we did not consider revenue losses to those hospitals under threat following a decrease in medical activity owing to unique conditions.

Conclusion

In conclusion, this new era of confrontation "at home" has introduced to civilian practice various concepts used in military medicine and disaster medicine. The lessons learned from this article could modify the nature, timing, and extent of allocations of public money among the different caregivers (not only hospitals) to support victims of terror. Experts in the public sector should consider what we have learned and provide further analysis in order to properly advise the medical authorities. The tracking of "victims of terror" and centralized coordination allow for better treatment and follow-up. The data provided in our study was based mainly on the results of rockets that fell on Israeli civilians and should be considered an MCI. Other kinds of attacks, using different means of violence (stabbing, gunshots, or suicide bombs), could challenge our description of costs. Our study focused exclusively on the global evaluation of costs and needs further follow-up analyses. National studies and international collaboration in this field should certainly help decision makers build a more robust model.

References

1. Institute for Economics and Peace. *Global Terrorism Index*. 2015;14. <http://economicsandpeace.org/wp-content/uploads/2015/11/Global-Terrorism-Index-2015.pdf>. Accessed August 2016.

2. Baker MS. Casualties of the global war on terror and their future impact on health care and society: a looming public health crisis. *Milit Med*. 2014;179(4):348-355.
3. Ben-Ishay O, Mitaritunno M, Catena F, Sartelli M, Ansaloni L, Kluger Y. Mass casualty incidents—time to engage. *World J Emerg Surg*. 2016;3(11):8.
4. McCollister KE, French MT, Fang H. The cost of crime to society: new crime-specific estimates for policy and program evaluation. *Drug Alcohol Depend*. 2010;(1-2):98-109.
5. Aharonson-Daniel L, Peleg K: Israel Trauma Group. The epidemiology of terrorism casualties. *Scand J Surg*. 2005;94:185-190.
6. Aharonson-Daniel L, Waisman Y, Dannon YL, Peleg K: Israel Trauma Group. Epidemiology of terror-related versus non-terror-related traumatic injury in children. *Pediatrics*. 2003;112:e280.
7. Almogy G, Belzberg H, Mintz Y, Pikarsky AK, Zamir G, Rivkind AI. Suicide bombing attacks: update and modifications to the protocol. *Ann Surg*. 2004;239:295-303.
8. Almogy G, Rivkind AI. Surgical lessons learnt from suicide bombing attacks. *J Am Coll Surg*. 2006;202:313-319.
9. Aylwin CJ, König TC, Brennan NW, et al. Reduction in critical mortality in urban mass casualty incidents: analysis of triage, surge, and resource use after the London bombings on July 7, 2005. *Lancet*. 2006;368:2219-2225.
10. Einav S, Aharonson-Daniel L, Weissman C, Freund HR, Peleg K: Israel Trauma Group. In-hospital resource utilization during multiple casualty incidents. *Ann Surg*. 2006;243:533-540.
11. Gutierrez de Ceballos JP, Turégano Fuentes F, Perez Diaz D, Sanz Sanchez M, Martin Llorente C, Guerrero Sanz JE. Casualties treated at the closest hospital in the Madrid, March 11, terrorist bombings. *Crit Care Med*. 2005;33(Suppl. 1):107-112.
12. Kluger Y, Peleg K, Daniel-Aharonson L, Mayo A: Israeli Trauma Group. The special injury pattern in terrorist bombings. *J Am Coll Surg*. 2004;199:875-879.
13. Peleg K, Aharonson-Daniel L, Michael M, Shapira SC: Israel Trauma Group. Patterns of injury in hospitalized terrorist victims. *Am J Emerg Med*. 2003;21(4):258-262.
14. Hirsch M, Carli P, Nizard R, et al. The medical response to multisite terrorist attacks in Paris. *Lancet*. 2015;386(10012):2535-2538.
15. Edwards DS, Phillip RD, Bosanquet N, Bull AM, Clasper JC. What is the magnitude and long-term economic cost of care of the

- British Military Afghanistan Amputee Cohort? *Clin Orthop Related Res.* 2015;473(9):2848-2855.
16. Geiling J, Rosen JM, Edwards RD. Medical costs of war in 2035: long-term care challenges for veterans of Iraq and Afghanistan. *Milit Med.* 2012;177(11):1235-1244.
 17. Taylor BC, Hagel EM, Carlson KF, Cifu DX, Cutting A, Bidelsbach DE, Sayer NA. Prevalence and costs of co-occurring traumatic brain injury with and without psychiatric disturbance and pain among Afghanistan and Iraq war veteran V.A. users. *Med Care.* 2012;50(4):342-346.
 18. Stewart IJ, Sosnov JA, Howard JT, et al. Retrospective analysis of long-term outcomes after combat injury: a hidden cost of war. *Circulation.* 2015;132(22):2126-2133.
 19. National Center for Trauma and Emergency Medicine Research. A decade of trauma injuries in Israel 2000-2009. *National Report.* 2011. http://www.gertnerinst.org.il/e/health_policy_e/trauma/313.htm. Accessed August 2017.
 20. Mintz Y, Shapira SC, Pikarsky AJ, et al. The experience of one institution dealing with terror: the El Aqsa intifada riots. *Israel Med Assoc J.* 2002;4:554-556.
 21. Chim H, Yew WS, Song C. Managing burn victims of suicide bombing attacks: outcomes, lessons learnt, and changes made from three attacks in Indonesia. *Crit Care.* 2007;11(1): R15.
 22. Karakuş A, Yengil E, Akkücük S, Cevik C, Zeren C, Uruc V. The reflection of the Syrian civil war on the emergency department and assessment of hospital costs. *Ulus Travma Acil Cerr Derg.* 2013;19(5).
 23. Osgood R, Scanlon C, Jotwani R, Rodkey D, Arshanskiy M, Salem D. Shaken but prepared: analysis of disaster response at an academic medical centre following the Boston Marathon bombings. *J Business Continuity Emerg Plann.* 2015-2016;9(2): 177-184.
 24. Bar-El Y, Michaelson M, Hyames G, Skorecki K, Reisner SA, Beyar R. An academic medical center under prolonged rocket attack—organizational, medical, and financial considerations. *Acad Med.* 2009;84(9):1203-1210.
 25. Levav I, Novikov I, Grinshpoon A, Rosenblum J, Ponizovsky A. Health services utilization in Jerusalem under terrorism. *Am J Psychiatry.* 2006;163(8):1355-1361.
 26. Wunsch-Hitzig R, Plapinger J, Draper J, del Campo E. Calls for help after September 11: a community mental health hot line. *J Urban Health.* 2002;79:417-428.

27. Bleich A, Gelkopf M, Solomon Z. Exposure to terrorism, stress-related mental health symptoms, and coping behaviors among a nationally representative sample in Israel. *JAMA*. 2003;290:612-620.
28. Schwartz I, Tsenter J, Shochina M, et al. Rehabilitation outcomes of terror victims with multiple traumas. *Arch Phys Med Rehabil*. 2007;88(4):440-448.
29. Part II: ITVERP assistance and outreach: reporting period of September 2011-September 2012. In: *International Terrorism Victim Expense Reimbursement Program: Report to Congress*. Washington, DC: US Department of Justice Office for Victims of Crime; 2012. Rising to the challenge: a new era in victim service. 2011. https://www.ncjrs.gov/ovc_archives/reporttonation2011/ReporttoNation2011.pdf. Accessed August 2016.
30. US Department of Justice Office for Victims of Crime. http://www.ovc.gov/pubs/itverp_repttocongress/2012/assistance_outreach.html. Accessed August 2016.
31. Shamai M, Ron P. Helping direct and indirect victims of national terror: experiences of Israeli social workers. *Qual Health Res*. 2009;19(1):42-54.
32. Bodas M, Ben-Gershon B, Rubinstein Z, Bergman-Levy T, Peleg K. The evolution of the emergency mental health system in Israel—from the 1980's until today. *Israel J Health Policy Res*. 2015;4:25.
33. Ahmed Q, Avidan AY, Ciechanover A, et al. Israel-Gaza conflict. *Lancet*. 2014;384(9945).
34. Schwartz D, Ostfeld I, Bar-Dayan Y. A single, improvised “kasam” rocket explosion can cause a mass casualty incident: a potential threat for future international terrorism? *Emerg Med J*. 2009;26(4):293-298.
35. Central Bureau of Statistics. Demography including age and gender. http://www.cbs.gov.il/reader/cw_usr_view_SHTML?ID=629. Accessed August 2016.
36. Bleich A, Dycian A, Koslowsky M, Solomon Z, Wiener M. Psychiatric implications of missile attacks on a civilian population: Israeli lessons from the Persian Gulf War. *JAMA*. 1992;268(5):613-615.
37. Gil S, Weinberg M, Or-Chen K, Harel H. Risk factors for DSM 5 PTSD symptoms in Israeli civilians during the Gaza war. *Brain Behav*. 2015;5(4).
38. Marres GMH, Taal L, Bemelman M, Bouman J, Leenen LPH. Online Victim Tracking and Tracing System (ViTTS) for major incident casualties. *Prehospital Disaster Med*. 2013;28(4):1-9.

39. World Health Organization. Health and human rights. Fact sheet no. 323. December 2015. <http://www.who.int/mediacentre/factsheets/fs323/en/>. Accessed November 2006.
40. Office of the United Nations High Commissioner for Human Rights. Human rights, terrorism and counter-terrorism. Fact sheet no. 32. 2008. <http://www.ohchr.org/Documents/Publications/Factsheet32EN.pdf>. Accessed September 12, 2017.

Funding/Support: None.

Conflict of Interest Disclosures: All authors completed the ICMJE Form for Disclosure of Potential Conflicts of Interest. No conflicts were disclosed.

Acknowledgments: None.

Address correspondence to: Eytan Ellenberg, National Insurance Institute of Israel, Medical Direction, Diskin St. 9, Jerusalem, Israel (email: eytane@nioi.gov.il).