A Survey of National Physicians Working in an Active Conflict Zone: The Challenges of Emergency Medical Care in Iraq

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Abbreviations:
ACLS: Advanced Cardiac Life Support
ATLS: Advanced Trauma Life Support
ED: Emergency Department
EM: Emergency Medicine

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Abstract

Introduction: There has been limited research on the perspectives and needs of national caregivers when confronted with large-scale societal violence. In Iraq, although the security situation has improved from its nadir in 2006-2007, intermittent bombings, and other hostilities continue. National workers remain the primary health resource for the affected populace.

Problem: To assess the status and challenges of national physicians working in the Emergency Departments of an active conflict area.

Methods: This study was a survey of civilian Iraqi doctors working in Emergency Departments (EDs) across Iraq, via a convenience sample of physicians taking the International Medical Corps (IMC) Doctor Course in Emergency Medicine, given in Baghdad from December 2008 through August 2009.

Results: The 148 physician respondents came from 11 provinces and over 50 hospitals in Iraq. They described cardiovascular disease, road traffic injuries, and blast and bullet injuries as the main causes of death and reasons for ED utilization. Eighty percent reported having been assaulted by a patient or their family member at least once within the last year; 38% reported they were threatened with a gun. Doctors reported seeing a median of 7.5 patients per hour, with only 19% indicating that their EDs had adequate physician staffing. Only 19% of respondents were aware of an established triage system for their hospital, and only a minority had taken courses covering ACLS- (16%) or ATLS-related (24%) material. Respondents reported a wide diversity of prior training, with only 3% having some type of specialized emergency medicine degree.

Conclusions: The results of this study describe some of the challenges faced by national health workers providing emergency care to a violence-stricken populace. Study findings demonstrate high levels of violent behavior directed toward doctors in Iraqi Emergency Departments, as well as staffing shortages and a lack of formal training in emergency medical care.

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Introduction

Armed conflict has been a major cause of morbidity and mortality for most of human history.[1] Individuals entangled in group violence face health risks directly from injury and indirectly via the ills associated with societal breakdown, such as an increased spread of infectious disease and a lack of essential resources.[2-6] However, despite considerable health consequences, large-scale group conflict has received limited attention from public health researchers.[1]

In Iraq, although there have been numerous setbacks, and intermittent bombings persist, the security situation in general has improved from its nadir in 2006-2007.[7,8] However, the non-conventional and protracted nature of this conflict has weakened significantly the public health infrastructure, with acts of group violence continuing to threaten the populace on an almost daily basis. Despite a breakdown of traditional surveillance mechanisms, several studies have attempted to quantify the increased mortality in Iraq from such violence.[9-15]

Similar to other conflict-stricken areas, Iraq's national health services have suffered significant deterioration due to this violence.[16] Indeed, insurgents and criminal gangs have purposefully targeted Iraqi physicians in the past, causing a significant exodus from the country.[16] The Iraqi Ministry of Health estimated that, at the end of 2006, over half of the 34,000 Iraqi doctors registered in 1990 had fled, while over 2000 doctors had been killed, and 250 had been kidnapped.[8,17]

However, despite the profound disruption of the health care system, in Iraq and in many other conflict areas, national health workers remain one of the greatest resources for maintaining and improving the health of their affected populaces. A primary role of humanitarian aid organizations and other international actors should be to provide strong support to these local caregivers. Unfortunately, most international publicity and research regarding such areas focuses on outside humanitarian intervention, ignoring the fundamental role of the local providers and health systems. This oversight can, in turn, lead to the establishment of parallel healthcare systems with disjointed and unsustainable care.[18]

To date, there has been limited organized research on the perspectives and needs of national physicians when confronted with ongoing violence. The objective of this study was to provide an assessment of national caregivers in an area of active conflict, and to provide information to support the healthcare system in the country and in other areas with large-scale group violence.

Methods

This study was a convenience sample of physicians taking the International Medical Corps (IMC) Doctor Course in Emergency Medicine, given in Baghdad from December 2008 through August 2009. The Iraqi Ministry of Health selected physicians involved in emergency medical care across Iraq to travel to the capital to take this intensive one-month course covering advanced airway instruction and related material provided by ACLS and ATLS training. In addition to didactics, the class included practice on mannequins, an animal (sheep) lab, and a clinical component with real patients.

Prior to starting the course, on the first day of orientation, class organizers distributed the survey. Organizers provided both verbal and written explanations of the survey, and those participants who volunteered gave their written consent. There were no incentives for taking the survey and no consequences for opting out. No unique identifiers were collected, except for the consent form that organizers immediately separated from the survey sheet.

After gathering the completed survey forms, IMC staff entered the anonymous survey data into an SPSS database (Version 12.0, SPSS Inc., Chicago, Illinois USA). A descriptive analysis using SPSS software was then performed. The John F. Wolf Human Subjects Committee at the Los Angeles Biomedical Institute approved this study (Project Number: 13756-01).

Results

Characteristics of survey respondents' practice environments are shown in Table 1. The respondents represented over 50 hospitals from across 11 provinces in Iraq. They were primarily from Baghdad (72%), teaching hospitals (67%), and urban areas (94%). Most physician income was from the government (94%) vs. private patients (6%). Respondents felt that cardiovascular disease, road traffic injuries, and blast and bullet injuries were the main causes of death and reasons for ED utilization.

Overall, respondents felt safe at home (63% agreed/strongly agreed), but less so in the hospital, excluding the ED (46%), and were split over safety during their commute to work (27%) (Table 2). Most did not feel safe while in the ED (37% disagreed/strongly disagreed).

Question	Respondents N (%)
What is the type of hospital?	
Government non-teaching hospital	48 (33)
Government teaching hospital	99 (67)
Total	147 (100)
What is the setting for this hospital?	
Rural	3 (2)
Around a city (suburban)	6 (4)
In a city (urban)	139 (94)
Total	148 (100)
Estimate the percentage of your total income from:	
Government Salary	94%
Private Patients	6%
What do you think are the top three causes of mortality in where you live?	
Cardiovascular Disease	46 (20)
Road Traffic Accidents	39 (17)
Blast Injuries	39 (17)
Bullet Injuries	28 (12)
Cancer	21 (9)
CVA	16 (7)
Pediatric Infections	10 (4)
Diarrheal Disease	4 (2)
Fires	4 (2)
Genitourinary Diseases	4 (2)
Maternal Conditions	5 (2)
Respiratory Infections	2 (1)
COPD/Asthma	3 (1)
Diabetes Mellitus	2 (1)
Perinatal Conditions	3 (1)
Total	230 (100)

Table 1. Practice environment *(continued)*

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Question	Respondents N (%)
What do you think are the top three reasons for visits to the emergency department where you work?	
Cardiovascular Disease	40 (18)
Road Traffic Accidents	36 (16)
Blast Injuries	21 (9)
Bullet Injuries	19 (9)
Diarrheal Disease	19 (9)
Pediatric Infections	10 (4)
COPD/Asthma	9 (4)
Respiratory Infections	8 (8)
Gastrointestinal Disease	8 (4)
Headaches	8 (4)
Genitourinary Diseases	7 (3)
CVA	5 (2)
Diabetes mellitus	5 (2)
Maternal Conditions	5 (2)
Cancer	4 (2)
Panic Disorder	4 (2)
Falls	3 (1)
Fires	2 (1)
Poisonings	3 (1)
Psychiatric	2 (1)
Skin Disease	2 (1)
Total	223 (100)

Table 1 *(continued).* Practice environment

Specifically within the ED, 80% of respondents reported being assaulted by a patient or their family member at least once within the last year, and 38% reported they had been threatened with a gun. Sixty percent of respondents knew a medical colleague at their hospital who had been injured by violence at work in the last year, and 14% had a colleague killed at work within the last year. Only a small minority of physicians felt that the security in the ED was adequate (9% agreed/strongly agreed).

On average, there were three hospitals with ED services per regional area, 25 beds per ED, and a 20% admit rate (Table 3). Pediatric patients represented 30% and geriatrics 20% of the total patient population. Respondents noted that 97% of ED patients waited <30 minutes on average to see a doctor. Of their hospitals, only 27% had a formal trauma team. The majority (63%) of EDs were broken into separate medical and surgical sections.

Question	Respondents N (%)
You feel safe at home.	
Strongly agree	18 (15)
Agree	59 (48)
Neutral	35 (28)
Disagree	8 (7)
Strongly disagree	3 (2)
Total	123 (100)
You feel safe when commuting to work.	
Strongly agree	5 (4)
Agree	28 (23)
Neutral	57 (46)
Disagree	30 (24)
Strongly disagree	4 (3)
Total	124 (100)
You feel safe when in the emergency department.	
Strongly agree	5 (4)
Agree	16 (13)
Neutral	56 (46)
Disagree	38 (31)
Strongly disagree	8 (7)
Total	123 (100)
You feel safe when in other parts of the hospital (excluding the emergency department).	
Strongly agree	8 (7)
Agree	49 (40)
Neutral	52 (42)
Disagree	12 (10)
Strongly disagree	2 (2)
Total	123 (100)
Have you ever been assaulted by a patient or patient's family member when in the emergency department?	
Never (0)	23 (19)
Once (1)	15 (12)
Twice (2)	22 (18)
3-5 times	26 (21)
5-10 times	18 (15)

Table 2. Safety *(continued)*

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Question	Respondents N (%)
10-20 times	6 (5)
>20 times	12 (10)
Total	122 (100)
Have you ever had a patient or patient's family member threaten you with a gun when in the emergency department?	
Never (0)	76 (62)
Once (1)	26 (21)
Twice (2)	11 (9)
3-5 times	6 (5)
5-10 times	2 (2)
10-20 times	1 (1)
Total	122 (100)
Have any of your medical colleagues at your hospital been injured by violence at work in the last year?	
None (0)	49 (40)
1	24 (20)
2	22 (18)
3-5	19 (15)
5-10	5 (4)
>10	4 (3)
Total	123 (100)
Have any of your medical colleagues at your hospital been killed by violence at work in the last year?	
None (0)	106 (86)
1	6 (5)
2	6 (5)
3-5	5 (4)
Total	123 (100)
The security in the emergency department is adequate.	
Strongly agree	3 (2)
Agree	9 (7)
Neutral	36 (29)
Disagree	46 (37)
Strongly disagree	30 (24)
Total	124 (100)

Table 2 *(continued).* Safety

Question	Median Answer
Hospitals with emergency services in this town/area	3
ED beds	25
Percentage admitted	20%
Percentage pediatrics (<18 years)	30%
Percentage geriatrics (>65 years)	20%
Question	**Respondents N (%)**
How long do patients wait on average to see a doctor after they get to the emergency department?	
<5 Minutes	100 (68)
5-30 minutes	43 (29)
31-60 minutes	3 (2)
61-120 minutes	1 (1)
Total	147 (100)
Does your hospital currently have a trauma resuscitation team that responds to critical trauma patients?	
No	79 (54)
Yes	40 (27)
Not Sure	27 (18)
Total	146 (100)
The emergency department at your hospital can be best described as:	
Divided into medical and surgery sections only	62 (42)
Divided into medical, surgery, OB/GYN, and/or other sub-sect	31 (21)
Unified into one emergency department (with the exception of OB/GYN)	21 (14)
Unified into one emergency department (including pediatrics)	33 (22)
Total	147 (100)
Is there a triage system to sort patients when they arrive to the emergency department?	
No	80 (56)
Yes	27 (19)
Not Sure	37 (26)
Total	144 (100)

Table 3. Emergency Department characteristics *(continued)*

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If there is a triage system, who conducts the triage process?	
Nurse	3 (7)
Physician	41 (91)
Receptionist	1 (2)
Total	45 (100)
Question	**Median Answer**
Patients seen in an average 8-hour period	60
Physicians on in the ED during day	4
Physicians on in ED during night	2
Nurses/other staff on in ED during day	7
Nurses/other staff on in ED during night	4
Question	**Respondents N (%)**
You have an adequate number of nurses in your emergency department.	
Strongly agree	9 (6)
Agree	27 (19)
Neutral	45 (31)
Disagree	44 (31)
Strongly disagree	19 (13)
Total	144 (100)
You have an adequate number of emergency physicians in your emergency department.	
Strongly agree	5 (3)
Agree	23 (16)
Neutral	43 (30)
Disagree	52 (36)
Strongly disagree	22 (15)
Total	145 (100)
The nurses in your emergency department are adequately trained.	
Strongly agree	5 (3)
Agree	31 (22)
Neutral	56 (39)
Disagree	37 (26)
Strongly disagree	15 (10)
Total	144 (100)

Table 3. Emergency department characteristics *(continued)*

The physicians in your emergency department are adequately trained.	
Strongly agree	15 (11)
Agree	58 (41)
Neutral	47 (33)
Disagree	18 (13)
Strongly disagree	3 (2)
Total	141 (100)
Necessary medications are immediately available for use during emergencies.	
Strongly agree	2 (2)
Agree	24 (20)
Neutral	44 (36)
Disagree	46 (37)
Strongly disagree	7 (6)
Total	123 (100)
Necessary equipment is immediately available for use during emergencies.	
Strongly agree	2 (2)
Agree	18 (15)
Neutral	51 (41)
Disagree	41 (33)
Strongly disagree	11 (9)
Total	123 (100)
Consulting specialty physicians are available when needed.	
Strongly agree	18 (12)
Agree	64 (44)
Neutral	35 (24)
Disagree	18 (12)
Strongly disagree	10 (7)
Total	145 (100)

Table 3 *(continued)*. Emergency Department characteristics

Only 19% of respondents were aware of an established triage system for their ED. In such systems, primarily physicians (83%) performed triage, as opposed to nurses or other staff.

The average physician evaluated and treated 60 patients in an eight-hour period. The average ED was staffed by four physicians and seven nurses during the day, and two physicians and four nurses at night. Most felt that the physicians in the ED were adequately trained (52% agreed/strongly agreed) and that consulting

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physicians were readily available (57%). However, few respondents felt that they had an adequate number of ED nurses (25% agreed/strongly agreed) or physicians (19%). Additionally, few respondents felt that the nurses were adequately trained (25% agreed/strongly agreed), or that medications (22%) and equipment (17%) would be immediately available during emergencies.

Although 84% of the respondents currently had responsibilities in the ED, with 76% spending over half of their clinical time in the ED, most (78%) also had clinical responsibilities outside the ED (Table 4). Close to three-fourths (74%) had more than five years of post-graduate training, although only a minority had taken courses covering ACLS- (16%) or ATLS-related (24%) material. Only five respondents (3%) had some type of Emergency Medicine (EM) specialty degree.

There was a wide range of training backgrounds, with approximately 20% of respondents consisting of current Iraqi EM residents who were scheduled to take the Arab EM boards upon completion of residency.[16] Of the total respondents, only 63% had performed endotracheal intubation at least once before.

Respondents reported that the majority of ED patients came directly from home or the community (90%) (Table 5). Overall, only a small portion of patients (12%) arrived via ambulance, with the majority arriving on foot (26%), or by private car (30%) or taxi (31%).

Respondents estimated that over 90% of patients could reach an ED within one hour. The majority of respondents (61%) were aware of a universal phone number for ambulance response, although only 28% felt that this number was reliable/very reliable and only 38% felt the average response time was <30 minutes. Only three percent of respondents would themselves use the ambulance system for an ill family member when at home, and only one percent when out in the community.

Question	Respondents N (%)
Do you currently work in the emergency department?	
No	23 (16)
Yes	124 (84)
Total	147 (100)
Do you have clinical responsibilities outside of the emergency department (e.g. operating theater, outside specialty clinics, wards, etc.)?	
No	32 (22)
Yes	115 (78)
Total	147 (100)
What percentage of your current clinical practice do you spend in the emergency department?	
0%	2 (1)
1-10%	7 (5)
10-25%	27 (18)
25-50%	45 (31)
50-75%	45 (31)
75-99%	15 (10)
100%	6 (4)
Total	147 (100)
How many years of training have you had after medical school?	
1 Year	1 (1)
2 Years	3 (2)
3-4 Years	35 (24)
5 or more Years	109 (74)
Total	148 (100)
Have you ever taken Advanced Cardiac Life Support (ACLS) or similar training?	
No	124 (84)
Yes	24 (16)
Total	148 (100)
Have you ever taken Advanced Trauma Life Support (ATLS) or similar training?	
No	111 (76)

Table 4. Clinical background *(continued)*

Discussion

This study is the first attempt to survey physicians working in Iraq. The national physicians came from a wide range of specialties (e.g., general surgery, anesthesia, medicine, etc.) and hospitals around Iraq, with the majority from urban government teaching hospitals.

The findings show that, similar to the Iraqi people, safety is one of the main concerns of Iraqi health workers. Although the direct targeting of physicians by insurgents has now ceased,[16,19] the study results demonstrate that physician security at work continues to be a major concern. In particular, while a large number of physicians felt safe at home and in the general hospital facilities, they found the ED to be particularly unsafe. This is consistent with anecdotal reports of safety concerns within the EDs,[16] now supported by the exceedingly high numbers of reported assaults on ED staff members in our survey.

In Iraqi EDs, patients and/or their family members had assaulted 80% of the responding physicians over the last year, half of those assaults involving a gun. Sixty percent of respondents knew a medical colleague at their hospital who had been injured by violence at work in the last year, and 14% had a colleague killed at work in the last year. Similar rates of verbal assault have been found previously in accident and EDs in Kuwait,[20] as well as in more developed and international settings.[21-26] However, the incidence of physical violence, as well as violence involving a firearm, was markedly higher in Iraqi EDs as found in this survey.

While prior studies have described violence toward humanitarian aid workers, security at work is a poorly documented concern of national staff providing emergency medical assistance in conflict areas. As the assaults were directly from patients and their family

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Question	Respondents N (%)
Yes	35 (24)
Total	146 (100)
Do you currently hold a diploma or other special degree in emergency medicine?	
No	141 (97)
Yes	5 (3)
Total	146 (100)
Is your background training in:	
Emergency Medicine	20 (14)
General surgery	34 (23)
Anesthesia	3 (2)
Medicine	29 (20)
Surgical sub-specialty	28 (19)
Medical sub-specialty	2 (1)
General practice	22 (15)
No specialty training	7 (5)
Total	145 (100)
Are you currently studying/training to become an emergency physician?	
No	118 (81)
Yes	28 (19)
Total	146 (100)
Do you plan to take the Arab or other board in emergency medicine?	
No	112 (77)
Yes	33 (23)
Total	145 (100)
Have you ever performed endotracheal intubation?	
No	54 (37)
Yes	93 (63)
Total	147 (100)

Table 4 *(continued).* Clinical background

members, as opposed to indiscriminant bombings, these high rates of violence may be partially attributable to an increased access to firearms in the populace. Additionally, sequelae from psychological trauma associated with violence are well documented.[27-29] It may be that frequent exposures to violence within the patient populace have resulted in higher levels of aggression toward national doctors.

Question	Respondents N (%)
Where do emergency patients come from?	
Home or in the community	132 (90)
Doctor's office	2 (1)
Other hospital	11 (8)
Total	146 (100)
Please estimate how patients get to the hospital:	
Walk/Carried	20 (24)
Private Car	30 (35)
Taxi	25 (29)
Police	5 (6)
Public Ambulance	5 (6)
Private Ambulance	0 (0)
Total	85 (100)
What is the average time it takes for a patient in your area to get to the closest hospital in case of emergency?	
<5 minutes	2 (1)
5-30 minutes	67 (46)
31-60 minutes	68 (47)
61-120 minutes	8 (5)
121-180 minutes (2-3 hours)	1 (1)
Total	146 (100)
Is there a universal phone number to call to get an ambulance in your area?	
No	30 (25)
Yes	74 (61)
Not sure	17 (14)
Total	122 (100)
If so, how reliable is this phone number?	
Very reliable	1 (1)
Reliable	30 (28)
Not sure	56 (52)
Not reliable	14 (13)
Almost never working	7 (6)
Total	108 (100)

Table 5. Transportation *(continued)*

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Question	Respondents N (%)
If you called this phone number, how long on average does it take an ambulance to arrive?	
5-30 minutes	36 (38)
31-60 minutes	49 (52)
61-120 minutes	5 (5)
121-180 minutes (2-3 hours)	3 (3)
>3 hours	1 (1)
Total	94 (100)
If a family member became seriously ill at home, how would you seek medical care?	
Keep comfortable/treat at home	9 (7)
Wait for a doctor to arrive at home	1 (1)
Carry to the hospital	28 (23)
Transport to the hospital via private car or taxi	80 (66)
Call for an ambulance	4 (3)
Total	122 (100)
If a family member became seriously ill outside the home, how would you seek medical care?	
Keep comfortable/treat at home	1 (1)
Carry to the hospital	32 (26)
Transport to the hospital via private car or taxi	88 (72)
Call for an ambulance	1 (1)
Total	122 (100)

Table 5 *(continued).* Transportation

In addition to safety issues, our results also revealed several unique challenges facing physicians in Iraqi EDs. Although high rates of patients with cardiovascular disease and road traffic injuries will seem routine to doctors working in most EDs, the inclusion of a high incidence of blast and bullet injures are dramatically different from those seen outside of an active conflict area.

Another dramatic finding was that the case-load for Iraqi ED physicians is exceedingly high compared to international standards, with a median of 7.5 patients per hour (60 per eight-hour shift). This compares to the majority of United States emergency medicine physicians seeing 1.5-2.5 patients per hour.[30] Although an overall lack of documentation requirements and malpractice concerns presumably contributes to expedited patient throughput in Iraq, this is likely a dangerously high number. Indeed, physician respondents felt that staffing levels for their EDs were inadequate, both in regards to nurses/ancillary staff and doctors, in addition to a lack of emergency medications and equipment. Overall, only 19% of respondents felt that their EDs had adequate physician staffing, a likely result of health care breakdown and the exodus of national doctors.[16]

Our results demonstrate that Iraq is in the early development phase of emergency medical care,[31] with the majority of EDs having separate medical and surgical sections, and lacking a formal triage system. In contrast to emergency physicians in developed emergency care systems, most of our respondents had additional clinical responsibilities outside of the ED, and very few had taken courses covering the material in ACLS or ATLS. Approximately one-fifth of the participants were current trainees in the recently established Iraqi EM residency programs that had been initiated with the assistance of IMC.[16] Only a small handful of respondents (five) already had some type of specialized EM degree. These findings highlight the large need for structured emergency medical training in the Iraqi health sector.

Limitations

There are two limitations to this study. First, this survey was conducted using a convenience sample of physicians attending the IMC Doctor Course in Emergency Medicine. The experience of these physicians may not reflect those of the general population of physicians working in Iraq, and thus potentially limits the generalizability of the findings. Second, the vast majority of doctors surveyed worked in an urban setting. Thus, the experiences of these physicians may not reflect that of Iraqi physicians working in other settings, such as rural areas.

Conclusion

This study provides a clearer understanding of the perspectives and needs of national civilian physicians in an area of ongoing conflict, particularly with regards to workplace violence. It describes some of the risks faced by national health care workers in providing emergency care to a violence-stricken populace. It also demonstrates that staffing shortages and a lack of formal training in emergency care are some of the most pressing needs of the national physicians working in hospital EDs in a conflict zone. These findings should help humanitarian aid organizations and other international actors provide specific support to local caregivers, the principal source of health care in both Iraq and many other conflict areas.

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Declaration

RD had full access to all of the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.

References

1. Murray CJL, King G, Lopez AD, Tomijima N, Krug EG. Armed conflict as a public health problem. *BMJ*. 2002;324:346-349.
2. Degomme O, Guha-Sapir D. Patterns of mortality rates in Darfur conflict. *Lancet*. 2010;375:294-300.
3. Depoortere E, Checchi F, Broillet F, Gerstl S, Minetti A, et al. Violence and mortality in West Darfur, Sudan (2003-04): epidemiological evidence from four surveys. *Lancet*. 2004;364:1315-1320.
4. Coghlan B, Brennan RJ, Ngoy P, Dofara D, Otto B, et al. Mortality in the Democratic Republic of Congo: a nationwide survey. *Lancet*. 2006;367:44-51.
5. Ahoua L, Tamrat A, Duroch F, Grais RF, Brown V. High mortality in an internally displaced population in Ituri, Democratic Republic of Congo, 2005: results of a rapid assessment under difficult conditions. *Glob Public Health*. 2006;1(3):195-204.
6. Van Herp M, Parque V, Rackley E, Ford N. Mortality, violence and lack of access to health-care in the Democratic Republic of Congo. *Disasters*. 2003;27(2):141-153.
7. Myers SL. Times Topics: Iraq. *New York Times*. http://topics.nytimes.com/topics/news/international/countriesandterritories/iraq/index.html. Accessed February 10, 2009.
8. Bruno G; Council on Foreign Relations. Rebuilding Iraq. http://www.cfr.org/publication/15019/. Accessed February 10, 2009.
9. Awqati NA, Ali MM, Al-Ward NJ, et al. Causes and differentials of childhood mortality in Iraq. *BMC Pediatr*. 2009;22:9-40.
10. Burnham G, Lafta R, Doocy S, Roberts L. Mortality after the 2003 invasion of Iraq: a cross-sectional cluster sample survey. *Lancet*. 2006;368(9545):1421-1428.
11. Alkhuzai AH, Ahmad IJ, Hweel MJ, et al. Iraq Family Health Survey Study Group, Violence-related mortality in Iraq from 2002 to 2006. *N Engl J Med*. 2008;358(5):484-493.
12. Roberts L, Lafta R, Garfield R, Khudhairi J, Burnham G. Mortality before and after the 2003 invasion of Iraq: cluster sample survey. *Lancet*. 2004;364(9448):1857-1864.
13. Siegler A, Roberts L, Balch E, Bargues E, Bhalla A, Bills C, et al. Media coverage of violent deaths in Iraq: an opportunistic capture-recapture assessment. *Prehosp Disaster Med*. 2008;23(4):369-371.
14. Spiegel PB, Salama P. War and mortality in Kosovo, 1998–99: an epidemiological testimony. *Lancet*. 2000;355(9222):2204-2209.
15. Hicks MH, Dardagan H, Serdan GG, Bagnal PM, Sloboda JA, Spagat M. The weapons that kill civilians — deaths of children and noncombatants in Iraq, 2003–2008. *N Engl J Med* 360;16: 1585-1588.
16. Donaldson RI, Hasson T, Aziz S, Ansari W, Evans G. The development of civilian emergency medical care during an insurgency: current status and future outlook in Iraq. *Ann Emerg Med*. 2010;56(2):172-177.
17. Zarocostas J. Exodus of medical staff strains Iraq's health facilities. *BMJ*. 2007;334(7599):865.
18. Ugalde A, Selva-Sutter E, Castillo C, Paz C, Cañas S. The health costs of war: can they be measured? Lessons from El Salvador. *BMJ*. 2000;321:169-172.
19. Voelker R. Iraqi Health Minister works to reform, restore neglected system. *JAMA*. 2008;300(6):639.
20. Al-Sahlawi KS, Zahid MA, Shahid AA, Hatim M, Al-Bader M. A study of violence against doctors in accident and emergency departments. *Eur J Emerg Med*. 1999;6(4):301-304.
21. Carmi-Iluz T, Peleg R, Freud T, Shvartzman P. Verbal and physical violence towards hospital- and community-based physicians in the Negev: an observational study. *BMC Health Serv Res*. 2005;5:54.
22. Kowalenko T, Walters BL, Khare RK, Compton S. Workplace violence: a survey of emergency physicians in the state of Michigan. *Ann Emerg Med*. 2005;46(2):142-147.
23. Ferns T. Violence in the accident and emergency department — an international perspective. *Accid Emerg Nurs*. 2005;13(3):180-185.
24. Ryan D, Maguire J. Aggression and violence — a problem in Irish Accident and Emergency departments? *J Nurs Manag*. 2006;14(2):106-115.
25. Derazon H, Nissimian S, Yosefy C, Peled R, Hay E. Violence in the emergency department in Hebrew. *Harefuah*. 1999;137(3-4):95-101, 175.
26. Lyneham J. Violence in New South Wales emergency departments. *Aust J Adv Nurs*. 2000;18(2):8-17.
27. Steel Z, Chey T, Silove D, Marnane C, Bryant RA, van Ommeren M. Association of torture and other potentially traumatic events with mental health outcomes among populations exposed to mass conflict and displacement: a systematic review and meta-analysis. *JAMA*. 2009;302(5):537-549.
28. Brackbill RM, Hadler JL, DiGrande L, et al. Asthma and posttraumatic stress symptoms 5 to 6 years following exposure to the World Trade Center terrorist attack. *JAMA*. 2009;302(5):502-516.
29. Sonis J, Gibson JL, de Jong JTVM, Field NP, Hean S, Komproe I. Probable posttraumatic stress disorder and disability in Cambodia: associations with perceived justice, desire for revenge, and attitudes toward the Khmer Rouge trials. *JAMA*. 2009;302(5):527-536.
30. Daniel Stern and Associates. 2009 Emergency Physician Salary & Benefit Survey. American College of Emergency Physicians (ACEP) web site. http://www.acep.org/WorkArea/DownloadAsset.aspx?id=45807. Accessed February 26, 2010.
31. Alagappan K, Holliman JC. History of the development of international emergency medicine. *Emerg Med Clin North Am*. 2005;23(1):1-10.