Qualitative perspectives (on incoming medical teams during conflict) from surgeons in the Middle East and North Africa

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Abstract

Introduction: The international community has for many years offered support and medical services at times of conflict, crisis or disaster, but their ability to do so effectively has come under increasing scrutiny in recent years. This study examines the relationship between local surgeons and incoming medical teams, incoming diaspora surgeons as a subgroup and international non-governmental organisations (iNGOs).

Methods: A cross-sectional study using qualitative methods was adopted. Study participants were in-country based medically qualified personnel performing surgery during conflicts in the Middle East and North Africa, who had worked in these settings before the onset or escalation of conflict. Participants were identified through a pre-interview questionnaire distributed via the Royal College of Surgeons of England and other targeted networks. A structured guide was used to conduct in-depth interviews with 21 surgeons from 8 countries; and a thematic analysis was undertaken.

Results

Local surgeons generally had positive working relationships with expert visiting surgeons, but not universally. Some experienced frustration with inexperienced incoming surgeons and others had no access to incoming teams. A need for coordination, timely intervention and less ' playing the hero' was noted in relation to iNGOs. Diaspora surgeons often played a significant role in supporting local surgeons clinically and via equipment procurement and training.

Conclusions

Incoming medical teams travelling to conflict areas should be experts in their field and work collaboratively with local surgeons. Increased communication and collaboration between iNGOs and local surgeons will to reduce duplication and improve services.

Introduction

Humanitarian emergencies require a time-critical response from local health workers and the international community. Conflict and armed violence kills more than 526,000 people per year.(1) Contemporary conflicts often focus heavy fighting in civilian areas, leading to a high injury burden amongst local populations and making healthcare delivery a major global health challenge.(2–4) The World Bank reports that there are two billion people currently residing in conflict zones.(5) In recent years, conflict zones have become larger, weapons more destructive, and timescales more protracted.(6) Furthermore, the long-term sequelae of conflict injuries can be lifelong, incurring significant disability, morbidity and loss of economic prosperity.(7)

Many international humanitarian organisations and altruistic individuals are dedicated to providing assistance to medical systems which are overwhelmed by natural disasters and conflicts. Surgeons often travel to areas of conflict as part of incoming medical teams, which are often associated with international non-governmental organisations (iNGOs). There has been a historical assumption that any such effort was of value and traditionally the utility of such endeavours was unquestioned. However, since the 2010 Haiti earthquake, there has been greater scrutiny of short-term incoming medical teams during humanitarian emergencies, particularly citing inexperienced workforce, lack of collaboration and failure to include collaborate with local health workers.(8,9)

The local surgical workforce is essential for the management of traumatic injuries during humanitarian emergencies, as well as managing ongoing cancer care, emergency surgery, burns and infections. The World Health Organisation stipulates that "*the most timely and cost effective response to trauma is the one mobilized by the affected country itself*".(10) Given that the international response to a crisis is likely to involve a 48-72 hour delay, and may struggle to access crisis locations, local surgeons are likely to be required to perform a significant amount of time-critical surgery.(11,12)

Collecting primary data during conflicts is extremely challenging, leading to data paucity concerning surgical practice in these conditions.(2) Currently published research often pertains to, and is authored by, foreign medical teams, offering a limited perspective on the challenges faced by the local surgical workforce.(13)

Some previous studies have highlighted the negative consequence of conflict on health workers' education and safety, leading to high levels of migration out of conflict areas.(14–16) Breakdown of supply chains, loss of infrastructure and poor governance all contribute to significant challenges for health systems.(17,18) While there is little evidence on the impact of conflict on surgical training and care delivery to the local workforce, studies have demonstrated significant training disruption in other crisis situations such as the COVID-19 pandemic.(19) Damage to systems of health workforce replenishment are likely to have a long term impact on population health.

This paper explores the relationship between incoming surgical teams and local surgeons in the provision of surgical care during conflicts, focusing on the perspective of surgeons practicing in conflict regions

Methods

The Middle East and North African region has experienced a wide range of conflicts in the past 30 years, with some of these described in appendix A. There is a scarcity of research focus on the regions' surgical workforce or systems.(20) However, the variety of conflicts and health systems present in this region offers an opportunity to better understand the variation of experiences by local surgical workforce. This study included only conflict, rather than other forms of crisis, such as natural disasters, given the large range of conflict situations present in the region.

Study design

A cross sectional, qualitative study was designed to elucidate the challenges facing the surgical workforce in conflict settings. Qualitative methodology was chosen due to the paucity of evidence in this area, as well as the benefits of an inductive process where emerging themes can be elucidated directly from the discussions.(21) Qualitative methodology also allowed for a familiarity to develop between the interviewer and participant, which enabled a greater depth of information to be gathered. This was especially helpful given the distressing nature of the subject matter and sometimes the perceived political ramifications to the participant, of sharing such information.

Study population

Medically qualified personnel performing surgery in the Middle East or North Africa during a conflict, and who worked in these settings before the onset of conflict, or before an acute escalation of conflict in areas of ongoing violence, between 1992 and 2022 were identified and invited to take part in this study. Participants were fully qualified surgeons, surgical trainees, or those who had finished a medical degree but did not have formal surgical training. A pre-interview questionnaire (see appendix B) was used to recruit participants through direct advertising with the Royal College of Surgeons of England Department of Global Affairs, personal connections of the research team and colleagues in the Humanitarian Surgery Initiative. A literature search also identified authors who have written about surgery in this region in the last ten years. Corresponding authors were contacted by email and other authors via Researchgate. After identification of initial participants, snowballing was used to identify further suitable participants. Particular countries were targeted such as Yemen, Iraq, Libya, Syria and Palestine, aiming for a range of participants in terms of seniority, surgical subspecialty and migration status. Health workers who had not performed

clinical work for more than 5 years were excluded, as were non-diaspora surgeons who provided only short-term humanitarian relief missions.

Study methodology

Interviews were conducted using a structured discussion guide. A literature review was performed to determine relevant themes and topics which informed the design of the interview guide.(2,14,20,22–25) The discussions explored participants' perceptions of the quality of surgical care provided pre conflict, the limitations of the health system in terms of accessibility, equipment, staff training and educational opportunities and their surgical volumes and case mix. Following these general discussions, participants' experiences in the acute crisis phase of conflict(22) were explored – whether they used resources to learn new skills to deal with different caseloads, their relationships with incoming medical teams and problem areas. Further questions explored their confidence in dealing with trauma caseloads. Finally, if and when they left the area of conflict, what factors affected this decision and their future career plans.

Study procedures

Interviews were conducted online via video calling and lasted between 45 and 80 minutes. Interviews were mainly conducted in English, but Arabic translators were used for two interviews. In these instances, the interview guide and consent form were also translated. Participants were able to conduct the interview at a date and time of their choosing and in settings that ensured privacy and confidentiality. Ethical approval for this research was received from the London School of Economics and Political Sciences' Research Ethics Policy and Procedure (reference number 72864). Participants were informed that they could withdraw from the research at any time up to completion of the analysis. An information sheet was shared with participants in English or Arabic. Oral informed consent was obtained before proceeding with virtual interviews and an online consent form was also shared and returned by participants. Participants were contacted by email to ask if they would like their name to be included in the acknowledgements, but anonymity was requested by some of those involved.

Data management

Interviews were recorded and transcribed verbatim. The transcribed texts were then transferred to NVIVO (v.16.1) qualitative data analysis software. Line-by-line coding was completed by two independent coders (IM and DS) and was used to categorise emerging themes. Memoing was performed at each stage (interviewing, transcribing and coding) and the notes incorporated in the results and discussions.

Data analysis

Following coding, a full list of themes was available for categorization within a hierarchical framework of main and sub-themes. Many themes emerged from the

interview process, but some had been determined a priori. A combination of inductive and deductive analysis was therefore used. The thematic framework was then systematically applied to all the interview transcripts. Patterns and associations of themes were compared and contrasted within and between the surgeons in different countries, specialties and seniority.

Comparison was used to examine patterns and relationships within and across codes and categories.

Results

Overview of study participants

Seventy health workers completed the pre-interview questionnaire, of whom 40 met the inclusion criteria. Those excluded were external to the region or not medically qualified. Twenty-two participants agreed to be interviewed and 21 completed the interview. Participants represented eight countries, eight surgical specialties and varying seniority, as demonstrated in Table 1. Participants had experienced a wide range of conflict situations, with further information provided in Appendix A.

Key themes emerged and have been described relating to the nature of the incoming medical teams. Different themes were found to pertain to incoming surgeons, iNGOs and non-resident diaspora surgeons as a subgroup. Sub-themes pertaining to each group are listed. These will be further discussed below.

Table 1: Participant demographics

Country of practice	Specialty	Seniority at onset (or escalation) of conflict	Gender
•5 Syria •4 Iraq •3 Palestine •3 Libya •2 Egypt •2 Yemen •1 Lebanon •1 Sudan	•1 Cardiothoracic •1 ENT •10 General Surgeons •1 Maxillofacial •1 Neurosurgeon •1 Orthopaedic •1 Paediatric •3 Plastic •2 Vascular	•8 early career •8 mid career •5 senior	•2 female •19 male

Relationships with incoming surgeons

Participants were, in general, positive about their relationships with incoming surgeons on an individual level, and appreciated the high levels of motivation that surgeons could maintain on short mission trips. One surgeon described incoming surgeons as *"giving us the hope of life, to thrive even." (Senior General Surgeon, Palestine)* A feeling of shared humanity and collaboration was also described:

"It was amazing that you feel that people are leaving their countries to come to support you. And, and it's not, they come (pause) to the safe, like safe area or secure area. No, they were living with us, they were living the same feelings. And that was amazing for

me… They were always positive. I would say it's not about the belief. It's not religion here, it's the belief of humanity." (Junior General Surgeon, Syria)

Some participants collaborated in research projects, which they felt were helpful for highlighting their situation and developing their careers. Relationships were also easier to build when incoming surgeons spoke the same language – a Yemeni surgeon described strong relationships with surgeons from Uzbekistan as both had studied in Belarus and spoke the same language.

Incoming Surgeon Seniority

Participants appreciated input from *"very specialized"* surgeons in dealing with novel injury modalities, such as white phosphorous burns, and over time established friendships and close working relationships. Whilst highly valuing visiting missions from senior specialist surgeons, participants had mixed views on younger surgeons, some of whom "can't find work in (their) country)" or came to "*reduce (their) taxes*" by coming "*on a foreign mission in the low-middle income country*" *(Junior Plastic Surgeon, Palestine)*.

Perceptions of iNGOs

Surgeons described different factors when discussing iNGO structures as opposed to individual incoming surgeons. There was a sense that "*everyone wants to be the hero*", which was sometimes more apparent on the organizational level than the individual. One surgeon described how "*These organizations want to be by name as a hero" (Middle Grade General Surgeon, Iraq),* and wrote reports inferring that they did *"everything"* themselves, when this was not the case.

Coordination and Logistics

Lack of coordination between different iNGOs was a widely cited problem. One participant described a patient being directed to multiple hospitals belonging to different iNGOs. *"Some organisations are not working with WHO, they are working alone… there is no coordination." (Middle grade general surgeon, Iraq)*

Interdisciplinary logistical involvement was perceived to be critical for ensuring appropriate coordination of humanitarian efforts, with one surgeon describing an iNGO setting up an obstetric unit next to a hospital which already had sufficient capacity.

"The field has to be assessed properly by professional people. Not physicians only, sometimes army, sometimes other people will tell you where to go and what are the real needs." (Senior General Surgeon, Lebanon)

Some also described issues with the relevance of equipment offered by international organisations: *"as far as organizations that they want to help, they should agree in basic*

kits that they are with them. They (should) assess the nature of the conflict there. Because if you move into a country that people are fighting with stabbing, it's different from moving to where people are shelling with rockets, or whatever it is, then you can deliver" (Senior General Surgeon, Lebanon)

Time Delays

Time delays and budget constraints within the international response were noted and commented on by local surgeons, with secondary care not being a priority:

"We had a meeting at that time, with the person from Geneva, from the headquarters,…they didn't start their field hospital and there was no plan in the near future to start for one or two months. And we told him that we need this hospital and it would be very helpful. Then they told us they don't have the budget to cover everything." (Junior General Surgeon, Iraq)

Informal networks were often developed by local surgeons to supply medical equipment and medications in the interim to support surgical services, often assisted by diaspora surgeons, as will be discussed further in the section 'Relationships with non-resident diaspora surgeons'.

"Mainly at the beginning of the war there was like no electricity, so sometimes we do like operations under simple light, not operation light, like headlight like domestic light, like any source of light, without suctioning, without the catheterization without… like just our hands, scalpel and retractors and so, it happened many times. But after, we can say one year or two years of the war, the International and national NGOs is starting supporting the hospitals by fuel and water also." (Senior General Surgeon, Iraq)

Prioritisation of services

Local surgeons felt that it was particularly difficult to get iNGO support for surgical care, due to the association with trauma care and active combatants:

"They didn't want to support the surgical hospitals, particularly, because they think this might be supporting terrorism… while they were offering big support for the women programs and for contraceptives" (Senior General Surgeon, Syria)

Lack of development strategy

Participants felt that there was a need for iNGOs to go beyond emergency interventions towards supporting systematic development, to maintain the local health workforce and prevent burnout.

"Most of the support is going now for emergency interventions; medications, instruments like that. But for developmental, it is like few very little intervention regarding the developmental support. So I think we have to move in both directions, emergency and humanitarian actions, plus developmental to build capacity of the

team, to protect the team, to avoid, like, burn out of the team and losing their capacity and motivation." (Middle grade General Surgeon, Yemen)

Geographical Isolation from Incoming Medical Teams

Four participants from three countries described no contact with incoming medical teams whatsoever. This was partly due to the political context of the conflict situations. One participant from Syria described how his neighbourhood near Damascus was under siege for almost 6 years:

"Some medical teams tried to come to us, but they didn't make it. The road was not accessible at all, no ordinary roads. It was really sort of military roads." (Junior Vascular Surgeon, Syria)

Others perceived this as a feature of developing countries with authoritarian governments:

"Sometimes in developing countries, authorities does not allow foreigners to come during disasters, or during conflict situations, for political reasons... So I think that it is restricted in our world, developing countries" (Senior General Surgeon, Egypt)

Others described working in areas too dangerous or too close to the front line for foreign NGOs to access.

Relationship with non-resident diaspora surgeons

Some participants described different experiences of incoming workforce, dependent on whether they had a pre-existing connection to the conflict region, such as those who had trained there, left and then returned at the time of conflict, defined as 'diaspora surgeons'. For the diaspora surgeons interviewed, a sense of duty towards their home and community was cited as a reason to return:

"Originally, I'm from there, the people whose affected is my family, my neighbours, my hometown, people and the whole of Libya, my country, actually. So that's the reason. Just also humanitarian. I thought there was something I could help with." (Senior ENT surgeon, Libya).

Diaspora surgeons also described a straightforward transition to working within the local health system: "*I studied there, I worked there. So most of the people are my colleagues and my school mates if you like. So that's make it for me much easier to slot in." (Senior ENT surgeon, Libya).*

Medical equipment and supply chains

Diaspora surgeons had a role in upholding equipment and medication supply chains, which were heavily impacted by the onset of conflict. Some participants described the establishment of informal supply chains which were fast and flexible, sometimes

funded by surgeons themselves, or else by local community members or diaspora clinicians supporting from overseas. They were often willing to take on significant personal risk:

> *"in the first stage, the one I described to you with secret hospitals, we were sending them mainly drugs and blood bags.... It was very dangerous to transfer any medical material... After that, when there were liberated areas, they opened official hospitals, but also hidden and not disclosed to all the people... And then, we started supplying them with real medical materials, especially in the north.." (Senior General Surgeon, Syria)*

Informal medical equipment supply chains were often replaced over time by formal networks including international NGOs and the World Health Organisation, but this process could take several years, as described above in the "Time Delays" subheading.

Discussion

This paper describes the perceptions of local surgeons in the Middle East and North Africa towards incoming medical teams and iNGOs. Whilst incoming medical teams play a role in providing surgical care in areas of crisis, this study suggests that there is much that could be improved in terms of supporting the local surgical workforce. In line with previous literature, this study demonstrates that better coordination between iNGOs is required, with less 'playing the hero' and health system fragmentation.(15) Authors have illuminated the importance of iNGOs funding health directorates, centering governance and accountability in their responses.(15) It is clear from this work that such approaches are valued by local surgeons, beyond simple missions which can be mistimed and/or misplaced for optimum effectiveness.

Although many surgeons from high income countries have reported their experience of participating in humanitarian surgery missions, little has been published regarding the experience and views of surgeons practising in conflict areas. This study suggests that non-resident diaspora surgeons can be a helpful link between local surgeons and coordinated international responses, given their better understanding of local systems and nuances and also their ability to work outside established norms of international humanitarian response. Whilst iNGOs have a duty of care to their volunteer surgeons, and have to abide by established norms of international engagement, informal networks between former colleagues offer greater flexibility, can be established quicker and adapt to a changing frontline. This has been demonstrated in the recent escalation of violence in Gaza where diaspora and local surgeons have collaborated to create telemedicine networks and research groups.(23,24) However, ad hoc groups based on volunteers can also raise questions regarding quality and sustainability.(25)

This study also highlighted the work of diaspora surgeons in supporting health system strengthening over a greater time period than the 'traditional' humanitarian response. In the aftermath of conflict in Northern Syria, diaspora surgeons played a key role in rebuilding training structures, providing technical and financial support and more long-term assistance than other NGOs. Diaspora organisations such as the Syrian Expatriate Medical Association (SEMA) organised courses to train surgical and anaesthesia assistants and the Syrian American Medical Society (SAMS) provided enduring financial and professional support, as well as medical equipment and supplies.

An important theme elucidated in this study was the importance of time-sensitive responses to humanitarian surgical crises. Traumatic injuries often require immediate resuscitation and treatment close to the frontline to increase the chance of survival. Areas can be too dangerous to reach by incoming medical teams, or inaccessible due to political motivations. Development of iNGO-led hospitals with adequate facilities to deliver surgical care often take months or years to complete, or are beyond budget constraints, leaving local surgeons to develop strategies to cope with large injury burdens. Lack of access to frontline areas has been frequently highlighted in the current conflict in Gaza, and recent studies have highlighted the need for non-traditional approaches to supporting surgical services, such as telemedicine.(25)

Incoming surgeons can offer large benefits to local surgeons, providing rest, support and collaborative opportunities. Senior expert surgeons were preferred and provided the most value to local surgeons. However, for the interventions of iNGOs to be successful in conflict settings requires an adjustment of expectations of incoming medical teams regarding case mix is also necessary. Incoming surgeons may be more likely to deal with non-traumatic surgical disease burden, or delayed survivable trauma that has already undergone critical operation nearer to the frontline. Surgeons with an interest in supporting efforts in humanitarian emergencies may also consider other avenues, such as supporting research capacity and building collaborations with local surgeons.(26)

This study offers evidence from surgeons active and local to conflict, gathered via interview with fellow surgeons, which helped building rapport and trust. It presents with several limitations. Information was collected by participants recalling their experiences of conflict, increasing the likelihood of recall bias. The 19:2 male: female ratio is reflective of the composition of the surgical workforce in these regions. In addition, although the methodology triangulated ideas from multiple sources, not all viewpoints could be corroborated. Efforts were made to include non-English speakers using translators, however this created difficulties with building rapport. Using one participant to translate for another gave a potential researcher bias, but this was countered by re-checking understanding of the respondent to ensure the question was asked correctly.

Conclusions

Incoming medical teams play an important role in humanitarian response, but ought to be experts in their field and work collaboratively with local surgeons. Donors should consider the other pillars required to enable health systems to function in times of crisis, such as governance and supply chains and ensure that work is coordinated with local health leaders. Diaspora surgeons can play an important role in closing the gap between frontline health workers and international organisations, providing flexibility and understanding which is important in complex crisis conditions.

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Appendix A: Conflict situation by country plus standards of surgical training

Country	Years	Description of conflict	Length of general surgery training	Common boards of surgical training
Egypt	Egyptian Revolution 2011	This action was part of the Arab Spring, in which violent clashes occurred between security forces and protesters. At least 846 people killed and over 6,000 injured over a number of weeks resulting in the overthrowing of Egypt's political leaders and democratic elections.	5 years	Arab board Egyptian board
Iraq	Iran-Iraq War 1980-1988 Gulf War 1990-1991 Iraq War 2003-2011 ISIL incursion and other wars 2013-2017 Iraq Insurgency 2017-present	Participants interviewed were describing experiences during the Iraq War - a protracted armed conflict that began with the 2003 invasion of Iraq by the United States-led coalition forces. The invasion toppled Saddam Hussein's government. However, the conflict continued for much of the next decade as an insurgency. An estimated 151,000 to 600,000 or more Iraqis were killed in the first 3–4 years of the conflict. Other participants described subsequent conflicts including the invasion of the Islamic state of Iraq and the Levant (ISIL), a group which rose to prominence when it captured large territories across Northern Iraq in 2014, subsequently losing its territories in 2019 after conflict with the USA, Iraqi and Kurdish forces.	5 years	Arab board Iraq board Royal College of Surgeons of England (Baghdad University Teaching Hospital only)
Lebanon	1975-1990	The Lebanese Civil War was a multifaceted civil war that resulted in an estimated 120,000 deaths. In 2012,	5 years	Arab board American College of

		approximately 76,000 people were still displaced within Lebanon. There was also an exodus of nearly a million people from Lebanon as a result of the war.		Surgeons (American University of Beirut only)
Libya	Libyan civil war 2011 Second Libyan civil war 2014-2020	The Libyan civil war began as part of the Arab spring on 15th February 2011 and resulted in the overthrowing of Colonel Muammar Gaddafi and his government. Between 15000 and 25000 people are thought to have died during this war. The Second Libyan Civil War, was a multilateral civil war which was fought between a number of armed groups within the country. As of 2020 estimates of deaths vary widely but it is thought that over 900000 were in need of humanitarian assistance.(27)	5 years	Arab board
Palestine	1948 - present	The Israel-Palestine conflict is an ongoing political and military conflict. Key issues include the status of Jerusalem, borders, rights to water, Palestinian freedom of movement and Palestinian right of return. Recent increases in violence relevant to study participants were the 2014 war on Gaza in which 2251 Palestinians and 71 Israelis were killed and the Great March of Return in 2018-19, which involved weekly, largely non-violent protests at the Gaza border fence and resulted in 214 deaths and 36,100 injuries.(28,29) Work was carried out before the 2023-2024 Israel-Gaza war.	5 Years	Arab board
Syria	Syrian Civil War 2011-present	The Syrian Civil War began as part of the Arab Spring, a series of popular uprisings in Arab countries in 2010-2011. It is a protracted and multifaceted internal armed conflict, in which several international parties participated. It is fought primarily between the Syrian government led by President Bashar al-Assad, and the armed opposition forces, along with Islamic groups and organizations. Casualty estimates from the UN Human rights office estimate over 306,000 civilians were killed over 10 years.(30)	5 years	Arab board Syria board
Sudan	2011-present	Participants in this study described tribal conflicts that caught the local and medical community unawares, resulting in the closing of streets and public buildings. Such violence included clashes over land disputes and killed between 10s and 100s of people in different escalations.		Arab board
Yemen	2014-present	The Yemeni civil war is an ongoing multilateral civil war that began in late 2014 mainly between the Rashad al-Alimi-led Yemeni government and the Houthi armed movement, along with their supporters and allies. Both claim to	5 years	Arab board

		constitute the official government of Yemen.		

Appendix B: Pre-Interview Questionnaire

Demographic Information

P*lease answer these questions as fully as possible before the date of the interview. If you are unsure about any of the answers, feel free to get in touch.*
If you are in a region of cyclical or continuous conflict please consider one specific moment when the conflict worsened and use this time to answer the questions below.

Demographics	
Age	
Gender	Male / female / other (please specify)
Marital status	Single / married / separated / divorced / widowed
Training	
Medical School attended - name	
Medical School attended - country	
Number of years at medical school	(drop down – 4, 5, 6, 7, 8, 9)
Year of completing primary medical qualification	(drop down – years)
Funding for medical school	Self-funded / government funded / combination of government and self-funded / other (please specify)
Approximate cost of medical school per year when you were studying (please include currency)	
Which country did you practice medicine in which was affected by conflict?	
How many years of surgical training had you completed by the time of conflict / worsening conflict?	
How was your postgraduate training funded?	Self-funded / government funded / combination / other
If you had finished your training programme in surgery, how many years had you worked as a consultant / attending surgeon before the onset of conflict?	
Did you work in the public, private or charity sector?	Public / Private / Charity Sector / Other (please specify)
Specialisation	
What is your surgical specialty?	Cardiothoracic / General / Obstetrics & Gynaecology / Opthalmology / Orthopaedics / Otolaryngology (ENT) / Neurosurgery / Paediatric / Plastic / Urology / Vascular

Approximately how many cases did you perform in an average week before the conflict?	
Approximately how many cases did you perform in an average week during the conflict?	
If you were still practicing surgery at the same hospital after conflict, approximately how many cases did you perform in an average week after the conflict?	
Facilities: please answer these questions relating to the hospital / facility that you worked in before the conflict. If your place of work moved during the conflict we will discuss this at the interview stage.	
Which of these best describes the hospital in which you were working?	Community Clinic (no overnight facilities) / District hospital / University or Teaching Hospital / Specialist hospital (e.g. cancer, paediatric or other surgical specialty)
How many operating rooms are there in your hospital?	
Do you have access to an intensive care unit on site?	Yes / no
Please describe if there were any issues with the following **<u>before the conflict</u>**: - Water supply - Electricity supply - Equipment sterility - Access to blood (red blood cells) - Access to antimicrobials - Access to X ray imaging - Access to CT imaging	 - Never / sometimes / often / always - Never / sometimes / often / always - Never / sometimes / often / always - Never / sometimes / often / always
Please describe if there were any issues with the following **<u>during the conflict</u>**: - Water supply - Electricity supply - Equipment sterility - Access to blood (red blood cells) - Access to antimicrobials - Access to X ray imaging - Access to CT imaging	 - Never / sometimes / often / always - Never / sometimes / often / always - Never / sometimes / often / always - Never / sometimes / often / always
Please describe if there were any issues with the following **<u>after the conflict</u>**: - Water supply - Electricity supply - Equipment sterility - Access to blood (red blood cells)	 - Never / sometimes / often / always - Never / sometimes / often / always

- Access to antimicrobials - Access to X ray imaging - Access to CT imaging	- Never / sometimes / often / always - Never / sometimes / often / always