

## **Medical Capacity-Building in War-Torn Nations: Kurdistan, Iraq as a Model**

Renas Zibari, BS <sup>1</sup>, Thai Lagraff <sup>2</sup>, Quyen D. Chu, MD, MBA <sup>1</sup>, Anand Annamalai, MD <sup>3</sup>, Sachin “Sunny” Jha, MD, MS <sup>4</sup>, Lou Smith, MD <sup>5</sup>, Bharat Guthikonda, MD <sup>6</sup>, Hosein Shokouh-Amiri, MD <sup>7</sup>, Gazi B. Zibari, MD <sup>7</sup>

<sup>1</sup> Departments of Surgery at Ochsner-LSU, Shreveport, Louisiana

<sup>2</sup> Union College at Schenectady, NY

<sup>3</sup> Department of Transplant and Cancer at House Medicine, Los Angeles, California

<sup>4</sup> Department of Anesthesiology, University of Southern California,

<sup>5</sup> Department of Surgery, UTHSC, Knoxville, Tennessee

<sup>6</sup> Department of Neurosurgery, Ochsner-LSU, Shreveport, Louisiana

<sup>7</sup> John C. McDonald Regional Transplant Center, Willis-Knighton Health System, Shreveport, LA

\*Corresponding Author:

Gazi B. Zibari, MD, FACS

John C. McDonald Regional Transplant Center

Willis-Knighton Health System

Shreveport, Louisiana

gzibari@wkhs.com

**Key Words:** Kurdistan, Iraq, Capacity Building, Surgery, Humanitarian

This paper was presented at the 15th Annual Academic Surgical Congress, February 4-6, 2020 in Orlando, FL.

## **Abstract**

**Introduction:** Medical capacity building is an arduous endeavor, particularly in war-torn, politically unstable regions. Regardless, medical capacity can be built through perseverance and careful deliberation. We present our 28-year experience of capacity building in Kurdistan, Iraq.

**Methods:** We annotated our experience with surgical and medical capacity building in Kurdistan, Iraq since 1992. Annually, one to two trips were undertaken. Prior to each trip, colleagues with desired surgical expertise were invited. A symposium was also organized at the end of each trip.

**Results:** Over 80% of cholecystectomies are now done laparoscopically. None were performed prior to our arrival in 1992. Other advanced laparoscopic operations include adrenalectomy, splenectomy, nephrectomy, Nissen fundoplication, and gynecologic procedures. More than 3,000 renal transplantations have taken place since 2004. Even complex neurosurgical procedures such as craniotomy, spinal decompression / stabilization, and complex hepato-pancreato-biliary and surgical oncology operations such as Whipple's, liver resections, gastrectomies, and pelvic exenterations are now routinely performed. Care of trauma patients includes prehospital patient care, mass casualty triage, and management of patients exposed to chemical weapons. Other accomplishments include helping local surgeons to gain membership to the American College of Surgeons, supporting the establishment of a medical journal, and assisting with the creation of a new medical school.

## **Conclusion**

With steadfast dedication, it is possible to empower war-torn nations to build advanced surgical programs with minimal resources. What we have achieved in Kurdistan over almost three decades is a testament to effective and meaningful collaboration with major stakeholders.

*“I can do things you cannot; you can do things I cannot; together we can do great things”*

*Mother Teresa*

## **Introduction**

Medical capacity building is necessary to improve global health, but is a very challenging endeavor, particularly in war-torn, politically unstable regions. This involves training physician’s procedural and clinical management skills that they otherwise would not have learned on their own and most importantly, tasks that can continue independent of outside involvement and participation. Surgical and medical capacity can be built through perseverance, careful deliberation, and empowering the local medical community. We present our 28-year experience of surgical and medical capacity building in Kurdistan, Iraq, a war-torn region of the world.

## **Magnitude of the Global Surgical Burden:**

Approximately five billion people or two thirds of the world’s population lack access to safe, consistent, affordable surgical and anesthetic care. Almost one third of all these medical conditions can be managed and addressed by surgical teams. Of the 313 million procedures that are performed globally each year, only six percent are performed in the poorest countries. These statistics underscore the need for intensive capacity building in many parts of the world. <sup>1,2</sup>

The autonomous Kurdistan Regional Government (KRG) is located at the heartland of ancient Mesopotamia, the cradle of civilization (Figure 1) <sup>2</sup>. After many decades of wars and oppression, the people of Kurdistan have sought to build an independent nation and strived to build a self-sustaining health care system with limited resources. This article describes how several volunteering American surgeons and physicians traveled to war-torn Kurdistan (1992-2020), in order to support a motivated, yet resource depleted local Kurdish medical community. These volunteers also took care of the refugees and the wounded Kurdish

Peshmerga (soldiers), victims from the Islamic State of Iraq and Syria (ISIS). Our goal of surgical and medical capacity building revolves around Southern (Bashur) Kurdistan, Iraq.<sup>2</sup>

### **Background on Kurdistan:**

The Kurds are an Aryan race and their language is that of Indo-European origin. Most scholars believe that the Kurds are descendants of the Medes, an ancient people who overthrew Nineveh in 612 B.C. Also, many believe that Kardouchoi who gave Xenophon and his 10,000 mauling as they retreated from Persia in 400 B.C., were the ancestor of the Kurds.<sup>3</sup> Kurdistan covers around 190,000 sq. km. (73,000 sq. mi.) and is as big as Colorado, USA. The Kurds are the largest ethnic group on earth without a homeland. They comprise between 45-50 million inhabitants who live in the upper Mesopotamia region of Ararat Mountain, an area where both the Tigris and Euphrates Rivers originate and borders with Turkey, Iran, Iraq and Syria. Of the 45-50 million Kurds, roughly 6.5 - 7.0 million reside in Kurdistan, Iraq.

Current Kurdistan, surrounded by neighboring states, is a byproduct of colonial powers controlling the Middle East post World War-I.<sup>4</sup> The KRG is in northern Iraq. The current borders of Iraq were drawn in 1920 under the Treaty of Sevres, which allowed the league of Nations to partition the collapsed Ottoman Empire.<sup>5,6</sup> For Iraq, the treaty had essentially amalgamated three different groups of people- the Arab Sunni, Arab Shiite and Kurds- into one nation. Other minorities such as Assyrian and Chaldinian, as well as Turks and Yazidi Kurds, also inhabit the country<sup>2</sup>. The Yazidi Kurds practice their ancient religion, Zoroastrianism, and have been persecuted over the centuries. In many ways, Kurdistan is a land of tolerance with a plurality of religions being practiced safely. Kurds have their own culture, language and their history demonstrated fierce resistance against Arab Expansion in the sixth century. In June of 1992, for the first time in its history, Kurdistan formed its own parliament and had a “No Fly Zone” in a region in Kurdistan, Iraq that was under NATO’s protection. Members of the parliament were democratically elected, and the government had appointed a cabinet under a

ratified constitution. However, the Kurdish people continued to suffer under the Saddam Hussein government. Ultimately, with Operation Iraqi Freedom, the Kurds were finally liberated from Saddam's control. However, in 2014, as Kurdistan's economy and infrastructure began to flourish, a new specter emerged, Islamic State of Iraq and Syria (ISIS). However, fighting side by side with American soldiers, the Kurdish armies (Peshmerga) were able to liberate Kurdistan, Iraq. Now that peace and stability has improved in the region, the Kurds can now focus on repairing their lands from the years of conflict.

### **Why Kurdistan was the First Outreach Destination?**

The Iraqi people, in general, and the people of Kurdistan went through multiple governmental changes, military coups and suffered numerous lengthy and protracted vicious wars (Table –1). During a decade long Iraqi -Iran war in the 1980's, over one million lives were lost on both sides, with over 10 million land mines still remaining near the borders between the two countries. Both countries suffered catastrophically, both economically and environmentally. Subsequently, Kurds were subjected to chemical warfare and Anfal Campaign by Baghdad Government in 1988. Millions of Kurds had to take refuge abroad (Figures 2). Following the second Gulf War, over 500 mass graves of civilian Kurds had been identified all over Iraq. Lastly, Kurdistan had suffered significantly from the double embargo, one imposed by the UN on Iraq as a whole, and one imposed by Saddam Husain on the KRG. It was impossible for even Doctors without Borders to travel to Kurdistan because Baghdad, Turkey, Iran and Syria prohibited international health care personnel to enter Kurdistan of Iraq.

Kurdistan is landlocked by these neighboring states. There were no airports in Kurdistan until after the Second Gulf War, and only after then was one built in the KRG capital city, Erbil (Hawler). Unfortunately for the people of Kurdistan, just when things were beginning to become more settled, the emergence of ISIS led to atrocities over large parts of Syria and Iraq. ISIS targeted and massacred the Yazidi Kurds in city of Shinghal, and the Christians in the plains of Nineveh. Fortunately, NATO provided air coverage while also arming and

training the Kurdish Peshmerga to defeat ISIS. Unfortunately, the war with ISIS led to over two million refugees to Iraqi Kurdistan. The city of Duhok's populations doubled, from one million to 2.2 million in a matter of months. This put a significant strain on an already tenuous health system, as the Kurdish physicians were overwhelmed with the number of refugees, wounded Peshmerga and Iraqi soldiers. Thus, the Kurdish health system sought help from the international medical community, the World Health Organization (WHO) and the United Nations. It was at this point that our team answered their call and assembled a robust and comprehensive surgical and medical team to travel to Kurdistan via the new Erbil (Hawler) airport (Figure 3).

### **Early Medical Outreach Trips to Kurdistan “No Fly Zone”**

Dr. G. B. Zibari, the senior co-author of this article, was one of the fortunate Kurds who survived Saddam Hussein's atrocities. More than 50% of his high school classmates, including one of his first cousins, were killed during the Iraq – Iran war and Iraq – Kurdish War. On May 1, 1976, Dr. Zibari took refuge in the USA after graduating from high school in an Iraqi Kurdish refugee camp in Kurdish Iran.

However, after 16 years in absentia and immediately after the first Gulf War, Dr. Zibari returned to Kurdistan in the June of 1992, after completing a solid abdominal organ transplant fellowship at Johns Hopkins. His return was only possible because NATO had created a “No Fly Zone” over Kurdistan of Iraq. Dr. Zibari's initial visit to Kurdistan in 1992 was a fact-finding medical mission. It was a historic time for the region, as 1992 was the first year that the Kurds could vote freely and elect a Kurdish Parliament (Figure 4). At that time, Dr. Zibari visited the only public hospital in Duhok, a city that is 50 miles north of Mosul, a city that later became a stronghold for ISIS. The Azadi Hospital of Duhok, formerly known as Saddam Hussein Hospital, became the main center of Dr. Zibari's humanitarian medical outreach program for almost three decades.

As would be expected following decades of war, the Kurdish medical community was isolated and had a severe lack of resources and outdated infrastructure. By Dr. Zibari's estimates, the Kurdistan medical system was at least three decades, if not more, behind that of US's health care system.

Several challenges that needed to be addressed included: refilling empty pharmacies, updating antiquated ultrasound and X-ray machines; establishing blood banks and improving the availability of laboratory testing. The health system needed to replace obsolete medical texts and journals for all the medical, dental, nursing, and allied health schools. Also, they did not have any air ambulances. Pre-hospital care and ambulance transportation was non-existence. There was no such thing as a level one trauma center, cancer center, cardiovascular unit, neonatal unit, or an OBGYN hospitals <sup>2</sup>. Furthermore, the central government in Baghdad, which was still maintained by Mr. Saddam Hussein at that time, had refused to pay salaries to any government employees who lived in the “No Fly Zone”, despite a UN mandate that Baghdad pay the salaries of all employees and give the Kurds their allotment of resources under the UN Oil for Food Program. Despite these obstacles, the Kurdish medical community was enthusiastic to revitalize and rebuild their health care system. With the assistance of U.S. volunteers, they were able to make great strides in achieving their goals <sup>2</sup>.

### **Building Local Team and Establishing a Foundation for Future Outreach Trips:**

Most of the earlier trips to Kurdistan were spent meeting and achieving buy-in from key stakeholders, such as the local health care leaders, the governor of the province, the Kurdish political leadership, and members of the KRG <sup>2</sup>. Dr. Zibari sought advice from these parties and supported the founding committee for the creation of the Duhok Medical School. The Governor of Duhok and the Prime Minister of the Kurdish regional government (Mr. Nichervan Barzani) donated a significant portion of land to the Azadi Hospital of Duhok to build the medical school and allow for future medical center expansion. Six years later, in June 1998, Dr. Zibari attended the first graduation ceremony for the medical school. These successes led to the establishment of the University of Duhok, which now comprises twelve colleges.

With each subsequent medical capacity building trip, Dr. Zibari assembled a cadre of volunteers from different disciplines. This team included general surgeons, ophthalmologists, surgical oncologists, transplant surgeons, hepato-pancreato-biliary (HPB) surgeons, laparoscopic surgeons, traumatologists, otolaryngology–

head and neck (ENT) surgeons, neurosurgeons, emergency physicians, medical oncologists, nephrologists, cardiologists, anesthesiologists, obstetric and gynecologists, ophthalmologist & optometrist, plastic surgeon, podiatrist, residents and fellows, physician extenders, paramedics and nurses. On each trip, we also organized an academic surgical symposium where each volunteer gave a formal presentation on a specific topic. We also invited local surgeons to speak on a topic of their choice. The symposium was well-attended and stimulated interesting discussion. (Figures 5) <sup>2</sup>. Each trip to Kurdistan was roughly about 10 days. After the introduction and discussion with the leaders of Duhok Hospital, the physicians split into several groups: neurosurgery (Figures 6); trauma/emergency care, otolaryngology (Figures 7), ophthalmology, pediatric surgery (Figures 8) general surgery, laparoscopy, HPB, transplant, and surgical oncology (Figures 9) <sup>2</sup>. We treated many cases with varied complexity. Between cases, the teams assess patients and perform pre- and postoperative evaluations (Figures 10). Like many regions of the developing world, patients would arrive with their medical records in-hand <sup>2</sup>.

Unlike U.S. health care facilities, a centralized area dedicated to maintaining medical records does not exist in Kurdistan. Unfortunately, we would often assess patients who we simply did not have the resources or expertise to treat specifically those with major orthopedic, chronic pain and gynecologic disorders. Even though not all could receive treatment, the patients were grateful that we had taken the time to assess them. Many patients had traveled far distances to be evaluated by the “doctors from the U. S.” (Figures 11). In fact, as a testament to the skill and dedication of our Kurdish colleagues, many patients were already on the correct treatment course for their chronic disease and the patient simply required reassurance <sup>2</sup>.

After each exhausting day, we would break bread with our Kurdish colleagues. This was one of our most enjoyable moments because this enabled us to personalize our relationships to a larger degree <sup>2</sup>. On each trip, our Kurdish colleagues would reserve time for us to visit General Babakir Zibari, who has been very supportive of our outreach work in Kurdistan. (Figures 12). On our more recent trips, we visited refugee camps

to care for the people who had escaped ISIS. We employed a telehealth platform to consult with our colleagues in the USA. (Figures 13) <sup>2</sup>.

### **How to go about Medical Capacity Building?**

International health, with the goal of medical capacity building, is substantially and fundamentally different from most medical missions. We are working alongside our colleagues, sharing medical and non-medical knowledge, educating and training the local care teams, and using the tactics and techniques they will be able to continue independent of our availability and involvement <sup>7-12</sup>. For many years, Dr. Zibari had spent his vacation time traveling to Duhok to assist the medical community with capacity building. It was not until Mr. Hussein's toppling that he felt comfortable enough traveling to the country to solicit help from medical colleagues who could provide the support needed to launch a capacity-building effort. For more than a decade, Dr. Zibari has consistently brought a dedicated and committed team of 15-20 clinicians to assist with capacity building.

The team works closely with the most skilled physicians at the Azadi Teaching Hospital and ensures their competency by serving more-or-less as a highly skilled assistant who then provides critical management advice or technical skills training through the procedure. The Kurdish trainees are also present and participating in many aspects of the surgical mission, such as preparing and presenting cases as well as intraoperative participation. By ensuring competence in the attending physicians, we ensure that subsequent generations of physicians can learn the lessons from our work and thus propagate the skills further in the Kurdish region.

More specifically, with our renal transplant system, we first helped with patient selection and started living related transplants. With each donor nephrectomy and re-implant, we limited our participation until finally, we were able to wean ourselves entirely from the operating room and thus enabled the surgeons to be entirely self-sufficient. We then approached hospital and governmental health officials to inform them of the Kurdish surgeon's competency and requested to allow them to create a renal transplant program (which was

quickly approved). They then selected transplant fellows for a two-year training program which has now graduated several classes. Aspects of the same strategy were employed across numerous procedures such as laparoscopic cholecystectomies. Throughout the process, volunteered surgeons were intimately involved with assessing competency of the local surgeons and made recommendations to the senior surgeons of the institution.

A critical aspect of the success and sustainability of this team with our Kurdish counterparts is funding. We have been able to form reliable partnerships that help offset the costs associated with these missions. These teams have been co-sponsored by the Americas-Hepato-Pancreato- Biliary Association (AHPBA), the International Hepato-Pancreato-Biliary Association (IHPBA), Operation Hope, the World Surgical Foundation (WSF), the American Kurdish Medical Group, the Kurdish Regional Government (KRG), and other organizations; However, most financial help was provided by Mr. Nichervan Barzani's Health Foundation. Through the years, the team has been able to achieve several notable accomplishments, including the following:<sup>2</sup>

1. Developed the resources, personnel, and facilities needed to offer basic and advanced laparoscopic operations. The first laparoscopic cholecystectomy was performed in Duhok in early 2000. Now, Laparoscopic cholecystectomies are performed more than 80 percent of the time over open cholecystectomies. Other advanced laparoscopic operations now include adrenalectomy, splenectomy, nephrectomy, Nissen fundoplication, gastric sleeve resection, and gynecologic procedures.
2. Established a living-related renal transplantation program. More than 3000 renal transplantations have been performed since Dr. Zibari established the program (one in Duhok and one in Erbil) in June 2004. Today, an average of two renal transplants are done weekly in Duhok, and four are done in Erbil. They have established their own fellowships (Figures 14) <sup>2</sup>.
3. Trained local surgeons to perform complex neurosurgical procedures such as craniotomy for temporal lobe tumor, resection of sphenoid wing meningioma, and spinal decompression/ stabilization for traumatic fracture/dislocation.

4. Trained local surgeons to perform complex HPB and oncologic operations such as the Whipple procedure, major liver resections (central hepatectomy, formal lobectomy), radical cholecystectomy, esophagectomy, and gastrectomy with lymphadenectomy; and the team introduced them to modern technology and surgical devices such as the Ligasure, Harmonic, Sono-incision, staplers, and modern laparoscopic instruments, Radio-Frequency Ablation (RFA); Book Walter and Sonosites.
5. Supported the first medical journal in Duhok, Duhok Medical Journal.
6. Engaged surgeons in the global surgical community by assisting them with obtaining membership to professional organization such as the ACS and AHPBA. Of note, to our knowledge there was not a single surgeon in Kurdistan who had ACS Fellowship and now they have in excess of 35 ACS Fellows among Kurdistan Surgeons.
7. Established an annual Joint AHPBA, Operation Hope and World Surgical Foundation Surgical Symposium, IHPBA to update the medical community on innovations and technologies.
8. Established a trauma team—composed of trauma surgeons, critical care clinicians, neurosurgeons, and an emergency medicine clinician, who taught the local surgeons prehospital patient care, mass casualty triage, and management of patients exposed to chemical weapons. Also, they taught mini ATLS courses and Ultrasound for surgeons like FAST. (Figures 15).<sup>9-13</sup>
9. Anesthesiologists have employed advanced pain management practices such as nerve blocks, epidurals and enhanced recovery pathways to improve perioperative outcomes.<sup>7,8</sup>

At present, efforts are under way to establish telemedicine and tele-fellowship programs. We have also continued our scholarly collaborations remotely, with clinical case reports and case collaborations being shared on a routine basis between our respective physicians.<sup>2,7,8</sup>

## **Lessons Learned Through the Decades of Medical Outreach and Capacity Building:**

During our efforts in Kurdistan, we have learned several lessons that may be of value to other health care professionals interested in providing surgical care to patients in underdeveloped countries, including the following <sup>2</sup>:

- 1- Plan far in advance (at least nine months to a year).
- 2- Start with a fact-finding mission to assess patient needs to determine the specialties that are in greatest demand.
- 3- Have a reliable contact person at the host institution.
- 4- Travel with the support of a recognized health care outreach organization, such as the ACS Operation Giving Back Program, AHPBA, Operation Hope, or World Surgical Operation.
- 5- Do your homework and contact the state department and the embassy. Make sure to inform the U.S. embassy once you arrive at your destination.
- 6- Obtain adequate vaccinations and go to the state department Web page to learn more about the host country.
- 7- Obtain medical/airlift insurance in case of an emergency medical evacuation.
- 8- Learn as much as possible about the culture and customs of the country where you will be providing care. The last thing you want to do is to offend the patients whom you are trying to help.
- 9- Ship supplies ahead of your scheduled arrival, and make sure a contact person in the host country can verify that necessary equipment clears customs and is available for use. Carry any must-have devices (such as reusable instruments, electrocautery devices, and retractors) and keep a list of supplies/equipment to bring on subsequent trips.
- 10- Know the host institution's infrastructure and resource capacity before tackling big cases.
- 11- Start with straightforward, low-risk cases initially to build confidence and trust among your hosts.
- 12- Seek help and advice from local government, as well as from the health care system leadership.
- 13- Empower the local medical team, and get its members involved from the start. This effort

will ensure the establishment of great relations with your counterpart health care community.

14- Prepare to revisit the same destination multiple times to have a meaningful impact on capacity building.

15- Be ready to improvise. The host country may not have all of the equipment and support to which you have grown accustomed in the U.S.

16- If possible, arrange for a host surgeon to visit your medical center, so he or she can see how surgery is practiced in the U.S.

17- Help host surgeons become members of U.S. surgical societies.

18- Plan at least a day for an academic symposium during your visit.

19- Encourage host physicians to publish clinical papers and assist them in establishing their own surgical journal if one is not available, so they can better share their research and best practices.

20- Utilize Telemedicine / Global Communication to building international surgical community

21- Build Cultural Bridges

### **Strength and Weaknesses of Kurdistan Outreach Program**

Not each medical outreach program has the same strengths and weaknesses as one would expect. This goes hand in hand with regional variations in the needs and capacities of different populations. There are a few significant unique strengths of the program developed in Kurdistan compared to others, including; 1. the strong history and relationships between the leadership of the hosts and visitors; 2. the ability to have long standing trust between the teams, the communities, and the country; 3. the understanding and appreciation by the visiting team of the cultural norms; 4. and, the motivation and time spent by the host country to embrace, engage, and share has translated into a robust amount of infrastructural and economic support.

As the Kurdish outreach program has evolved over time there has been an expansion in multiple areas of medical capacity building. This has led to more team members, more hospital sites, and more resources being need. Weaknesses associated with this expansion, include; 1. fragmentation in the system across all key areas

of clinical development; 2. dilution in quality and quantity of training and educational opportunities across specific programs that require key leaders to multi-task more intensely; 3. and, assuming that certain more complex programs can be built without proper preparation.

### **Conclusions:**

With appropriate assistance, time, dedication, and most importantly, perseverance, health care providers can help build advanced surgical programs, such as renal transplantation, advanced laparoscopy, HPB surgery, esophageal surgery as well as complex neurosurgical procedures and trauma in a developing nation. It is important to keep in mind that the care of the patients of the host country should be no different than that in the U.S. It is advisable to provide care only for those cases with which the surgeon is comfortable, and it is also important to ensure that patients can be cared for by the local clinicians when a surgical team, like the one described in this article, has departed the country. The work that we have accomplished in Kurdistan is a testament of the effective and meaningful effect that can be achieved through collaboration with major stakeholders.

### **Team of Health Care Professional Volunteers:**

The following health care volunteers have donated their talents to bringing surgical care to the people of Kurdistan:

Patricia Arledge, MD, FACS

Plastic surgery

Lubbock, TX

Gene Bolles, MD, FACS

Neurosurgery

Boulder, CO

Christine Butts, MD

Emergency medicine

Houma, LA

Andre Carpenter, PA

Transplant & HPB

Shreveport, LA

Quyen Chu, MD, MBA, FACS

Surgical Oncology

Shreveport, LA

Bill Day, MD, FACS

General Surgery

Florence, Oregon

Marc Dean, MD, FACS

Otolaryngology

Fort Worth, TX

Ariel Dubos, MD, FACS

Colorectal surgery

Shreveport, LA

Blaine Enderson, MD, FACS

Critical care surgery

Knoxville, TN

Bharat Guthikonda, MD, FACS

Neurosurgery

Shreveport, LA

Monirul Islam, MD

Critical care medicine

Danville, PA

Sunny Jha, MD, MS

Anesthesiology

Los Angeles, CA

Basil Kasabali, MD

Cardiology

Shreveport, LA

P. Kirk Labor, MD, FACS

Ophthalmology

Grapevine, TX

Thai LaGraff

Union College

Schenectady, NY

Thomas R. McCune, MD

Colonel, U.S. Military

Transplant nephrologist

Norfolk, VA

Michael Moore, MD

Hematology/ Oncology

Shreveport, LA

Ashor Odisho, MD

Family medicine

Shreveport, LA

Deborah Ross, RN

Operating room nurse supervisor

Shreveport, LA

Susan Shattuck, MD, FACOG

Obstetrics/gynecology

Shreveport, LA

Lou Smith, MD, FACS

Trauma/critical care

Knoxville, TN

John Thomas, MD, FACS

Minimally invasive surgery

Lubbock, TX

Nicolas Thompson

Paramedic

Driggs, IA

Lisa Moreno-Walton, MD

Emergency medicine

New Orleans, LA

Karwan Zebari, MBA

Kurdish Mission

Washington, D. C.

Gazi B. Zibari, MD, FACS

Transplant & HPB surgeon

Shreveport, LA

Renas Zibari

Medical Student

Louisiana State University Health Sciences Center-Shreveport

Shreveport, LA

**Acknowledgements:**

The authors would like to acknowledge the AHPBA and its Foundation, IHPBA, Operation Hope, the World Surgical Foundation, the Kurdish Regional Government, President Nichervan Barzani's Foundation, Willis-Knighton Medical Center, Louisiana State University Health Sciences Center-Shreveport, Vsee, Eye Consultants of Texas, and our countless host colleagues.

We also want to acknowledge the assistance and support of the following individuals: the late U.S. Army Lieutenant Colonel Mark Weber; Roger Lindley, cinematographer and director and who kindly, included our team in his award winning documentary on Amazon Prime "Kurdish Factor: The Untold Story of Gulf Wars"; Also, we are indebted to Yvette Sanchez; Rhea Whitlock; Beverly Wright; and Shelly Humphrey, who provided technical assistance.

**Table (1):** Recent history of Iraqi wars which lead to significant destruction, war crimes and genocides against people of Kurdistan.

Iraqi-Kurdish Wars intermittently	1961
Iraq – Iran War	1979-1988
Anfal Campaign & Chemical Warfare	1988
First Persian Gulf War	1991
<i>Northern “No Fly Zone”</i> was created	1991
Second Persian Gulf War	2003
Islamic State of Iraq and Syria (ISIS) War	2014

#### References:

1. Meara JG, Leather AJ, Hagandar L, et. Al. Global surgery 2030: Evidence and solutions for achieving health, welfare, and economic development. *Lancet*, 2016; 386 (9993):569-624.
2. Chu QD, Zibari GB, Annamalai AA. Two decades of Humanitarian Surgical Outreach and Capacity Building in Kurdistan. *Bulletin American College of Surgeons*; Oct 2016; pages 33-41.
3. Gunter MM. The Kurds In Turkey: A Political Dilemma. Westview Special Studies on the Middle East. Boulder, Colorado, USA: *Westview Press Inc.* 1990.

4. Wikipedia. List of Middle East Countries by population. Available at:  
[en.wikipedia.org/wiki/list\\_of\\_Middle\\_East\\_countries\\_by\\_population](https://en.wikipedia.org/wiki/list_of_Middle_East_countries_by_population). Accessed April 5, 2016.
5. Lawrence Q. *Invisible Nation. How the Kurds' Quest for Statehood is Shaping Iraq and Middle East*. New York, NY: *Walker & Company*, 2008.
6. Mehrdad R. Izady. *The Kurds. A Concise History and Fact Book*. New York, NY *Taylor and Francis: 1992*.
7. Lee E. Jha S. Medical Capacity-building in Kurdistan, Iraq – A Unique International Health Experience. *ASA Monitor Magazine*. August 2019 Edition.  
<https://monitor.pubs.asahq.org/article.aspx?articleid=2738476>
8. Lee E, Djavaheerian D, Algumrawi M, Jha S, Epidural Only Anesthetic For Open Radical Nephrectomy In A Medically Resource Limited Country, Poster presented at ASA 2019 Annual Meeting, October 2019, Orlando, FL
9. Moreno-Walton L. “Field Report: Iraq”, *Emergency Physicians International*, Issue 19, Spring 2016, p. 12-13.
10. Moreno-Walton L. “Return, Rebuild: One Kurdish Surgeon Brings Healing to Northern Iraq”. *Emergency Physicians International*, Issue 20, Fall 2016, pp.20-22.

11. Butts, C. "A Community of Women Separated by 6,000 Miles" *Emergency Medicine News*, November 2018, Page 27
  
12. Butts, C. "A Story of Ultrasound, Triage, and War" *Emergency Medicine News*, August 2019, Page 14
  
13. Dossani RH, Carr S, Bolles G, Balata R, Guthikonda B. Neurosurgery in Iraqi Kurdistan: An example of International Neurosurgery Capacity Building. *World Neurosurg.* August 2016; Pages 108-112