

A new primary health-care system in the Syrian opposition territories: Good effort but far from being perfect

Tarek Alsaied, Abdullah Mawas¹, Fatima Al Sayah², Abdulrazzak Kental³, Maher Saqqur⁴

Department of Pediatric Cardiology, Cincinnati Children's Hospital Medical Center, Cincinnati Children's Heart Institute, Cincinnati, OH, USA, ¹Department of Neurology, West Suffolk Hospital, Bury St Edmunds IP33 2QZ, UK, ²Department of Epidemiology, School of Public Health, University of Alberta, ⁴Department of Neurology, Clinical Associate Professor, University of Alberta, Senior consultant Hamad Medical Corporation, Doha, Qatar, ³Union of Medical Care and Relief Organizations, Turkey

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ABSTRACT

Objectives: The primary health-care system in Syria has suffered a great deal of damage over the past 6 years. A large number of physicians and health-care providers have left the country. The objectives of this study are to describe our experience in establishing a primary health-care system in the opposition territories (OTs) in Syria and report the most common treated diseases. **Methods:** The administrative databases of ten primary care centers in the OT from January 2014 to December 2015 were reviewed. All patients' encounters, including children and adults, in these centers were included in the study. **Results:** Within the study period, the ten centers served 46,039 patients encounter per month (and average of 4600 patients encounters per center per month). A high number of communicable diseases were noted. Cutaneous leishmaniasis was the most common communicable disease (1170 cases a month). Tuberculosis was treated in 14 patients a month. Other infectious diseases that were almost eradicated before the crises were seen increasingly (29 mumps cases/month, 6 measles cases/month, and 34 cases of typhoid fever/month). **Conclusion:** The primary health-care system in Syria has been greatly damaged, and tremendous efforts are ongoing to provide access to various basic health-care services including primary care services. Despite these efforts, the current system is very vulnerable and not sustainable. This study summarizes basic health services provided by primary health-care centers in Syrian OTs.

Key words: Medical relief, primary care, Syrian conflict

INTRODUCTION

Over the past 6 years of the Syrian crises, most hospitals and clinics were closed due to the armed conflict.^[1] More than 300,000 citizens were killed, 2 million wounded, and millions lost their homes.^[2] The current refugee crises led to a significant media attention.^[3] In fact, a significant number of the refugees are health-care professionals who fled the country as their workplaces were destroyed.^[4,5] According to a new report, 682 health-care professionals have been killed between 2011 and

September 2016.^[6] This number is likely an underestimation as there are many nondocumented cases. In 2016, there were 199 documented attacks on health-care facilities and 42,000 physicians have already fled the country.^[6,7]

Syria is now divided into three territories according to the governing forces. These territories are the self-proclaimed

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Address for correspondence: Dr. Tarek Alsaied, Department of Pediatric Cardiology, Cincinnati Children's Hospital Medical Center, 3333 Burnet Avenue, ML 5018, Cincinnati, OH 45229, USA.
E-mail: tarek.alseed@gmail.com

Islamic State of Iraq and Syria (ISIS), the government of Syria (GoS), and the opposition territory (OT). The OT is a large heavily populated geographic area including large cities such as Aleppo and Idlib by the time of the data collection and suffers a severe lack of resources and infrastructure.^[1,8] Of note, Aleppo is currently under the GoS since the end of 2016.

Major relief organizations such as UNICEF office have had limited access to OT. The OT region was heavily attacked by the other two regional forces.^[1,8]

This paper aims to provide an overview about the structure and operations of the primary care clinics in the OT and to highlight the present medical problems and needs.

METHODS

Study design

This is a retrospective observational study that involved reviewing and extracting data from the medical record system of the primary care centers operating in the OT. We excluded areas under ISIS and GoS as we were not able to obtain reliable data from these areas. In an outstanding effort to respond to the medical and humanitarian crises in Syria, the Union of Medical Care and Relief Organizations (UOSSM) was established in 2012 as a humanitarian medical relief organization (<http://www.uossm.org/>). UOSSM is a coalition of humanitarian, nongovernmental, and medical organizations from the United States, Canada, United Kingdom, France, Germany, Netherlands, Switzerland, and Turkey, who pool their resources and coordinate efforts to provide independent and impartial relief and medical care to victims of war in Syria. Given the geopolitical situation in Syria, the UOSSM was able to only establish connections inside OT to support local physicians and health-care providers. This collaboration resulted in establishing 11 primary care centers inside the OT area serving a population of at least 2 millions. Two of the 11 centers were recently declared out of service, one was destroyed by the forces involved in the armed conflict and one was closed due to the lack of resources and staffing, leaving a total of nine centers. These centers are funded by the European Union and by donations from to the UOSSM individual organizations.

The study methods were approved by the primary care data committee at UOSSM.

Patient population and setting

The administrative databases of ten primary care centers in the OT region from January 2014 to December 2015 were reviewed. All patients' encounters, including pediatrics and adults, were included in the study. All centers have a pediatric, a general clinic, and an obstetric clinic. Some centers provide

dental services as well. The internal medicine clinic provides health-care services for common chronic conditions including diabetes, chronic bronchitis, and hypertension in the adult patient population. Most of the centers offer free vaccinations and infant formula to the pediatric patients when available. The obstetric clinic provides prenatal care and family planning services including intrauterine devices. All the centers have a pharmacy that offers medications at no cost for patients when available. The medical services provided by the primary care centers include clinical visits, pharmacy, consultation, laboratory tests, basic plain X-rays, and ultrasounds. Recently, nutritional support and social services were added to these centers [Figure 1].

All members of the medical staff receive periodic training courses to keep up to date with their practice. Educational courses were organized to continue to educate physicians, nurses, paramedics, and midwives. The training in the Northern Province has been conducted at Bab Al Hawa Hospital training center in the North of Syria at the Turkish border. However, in the Middle and Southern Province, the training has been through the internet due to the inability to travel to the besieged areas or due to security reasons. Some of these courses are provided through telemedicine training from the UOSSM and other collaborative organizations. In terms of resources, most primary care center managers often report insufficient resources including human resources.

Data collection and analysis

Data on age, sex, medical diagnosis, medication use, and medical history per patient encounter were available in the database. Trained research assistants extracted the data using a data extraction tool and then entered it into an Excel sheet. Data were analyzed using JMP 12 software (SAS Institute Inc., Cary, NC) and results were reported as frequency and proportion or mean and standard deviation, as appropriate.

RESULTS

Characteristics of the population served at the opposition territory centers

Between January 2014 and December 2015, the centers served 46,039 patients encounter per month (4600 patients



Figure 1: An example of the services provided by one of the centers. (a) The laboratory in one of the centers. (b) Pharmacy providing commonly used medications in one of the centers

encounter per center per month). The estimated number of population served by these centers exceeded 2 million people based on the number of inhabitants in the geographic area covered by the centers [Table 1].^[9]

Most of the patient population was seen in the internal medicine clinic (21,900 patients/month) followed by the pediatric clinic (12,700 patients/month). The obstetrics and gynecology clinic served 10,400 patients/month, and the dental clinic provided services to 1700 patients/month.

In the pediatric clinic, 7% were <1 month old, 42% were between 1 months and 2 years, and 51% were between 2 and 16 years. In the internal medicine clinic, 39% of the patients were male. Diabetes and hypertension represented 12% of the visits to the internal medicine clinic. Most of the visits (75%) were due to acute respiratory and gastrointestinal infections.

Infectious diseases

We noticed a high number of communicable diseases, especially cutaneous leishmaniasis with an average of 1170 cases a month. Tuberculosis was treated in 14 patients a month. Other infectious diseases that were rare before the crises started to be seen increasingly (29 cases of mumps/month, 6 cases of measles/month, and 34 cases of typhoid fever/month) [Figure 2].

Human resources

Human resources are limited. Less than twenty physicians staff these centers. The number of physicians fluctuated during the study period. This includes general practitioners, internists, pediatricians, dentists, and few obstetricians. Many physicians rotate between the centers. Less than fifty nurses and medical assistants work in these centers. Many providers work in two or more different centers at different days of the week to cover the need.

DISCUSSION

The Syrian crisis is one of the worst public health crises in the 21st century.^[2] Before March 29th, 2011, when the Syrian

war started, the health-care system in Syria was comparable to some developed countries.^[10] The primary health-care system is significantly damaged due to the war and to bridge the gap, many primary care centers were established. In this study, we found that the local health-care professionals with some help from humanitarian organizations in Europe and North America were able to establish a primary care system that started to provide basic and limited primary care services to the patients in the OT region despite the limited resources.

The internally displaced populations fled the conflict to safer areas in the OT forming a big vulnerable community. This population lives under very difficult living conditions.^[11] The economic situation has been very rough for this vulnerable community, and health-care sector has suffered hugely. A large part of the health-care system in OT has been destroyed by the conflict, and many health-care professionals have left the country.^[11] The international humanitarian efforts were faced by the brutality of the conflict and had very limited access to help this population.^[7] Despite the challenges, the facilities are maintained and are receiving financial support by the organizations in North America and Europe, in addition, to support by the European Union.

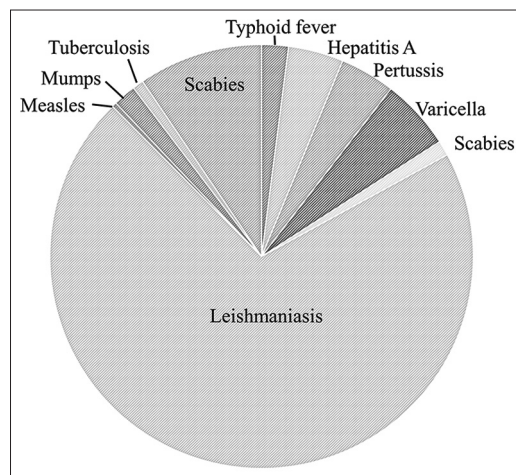


Figure 2: Number and distribution of cases of infectious disease treated monthly by the primary care centers in the opposition territories

Nearest city	Population served	Center#	Center name	Number of patient encounters per month	Pediatric	Internal medicine	Dental	Obstetrics/gynecology
Homs	50,000	1	Zafaraneh	7451	1379	5142		930
Aleppo	150,000	2	Zamar	6804	1078	3945	678	1103
Aleppo	Not available	3	Marja	3129	949	1907		273
Deir ez-Zor	Not available	4	Miadin	4609	1643	994		1972
Edlib	147,000	5	Habeet	2331	1014	1219		98
Latakia	25,000	6	Obeen	1672	893	722		57
Aleppo	Not available	7	Afreen	4382	1245	2354		783
Hama	149,000	8	Madeek castle	4160	1530	1684	1048	946
Edlib	60,000	9	Harem (out of service 2015)	4124	1369	2308		447
Aleppo	1,200,000	10	Manbij	7359	2254	1643		3462

Based on the data collected at these centers, there seems to be an increase in infectious diseases such as leishmaniasis, typhoid fever, and tuberculosis due to the deteriorating living conditions [Figure 2]. The increase in communicable diseases is not surprising as the OT region is heavily populated, and with the destruction of the health-care system, fewer children are being vaccinated. Previous studies highlighted the endemic of cutaneous leishmaniasis.^[12] Other diseases such as measles, mumps, and tuberculosis are also on the rise.^[13] The primary care centers attempt to provide vaccination at no cost to the local community to prevent the spread of these diseases when resources are available.

The challenges facing these primary care centers are numerous. Lack of resources and sustainable financial support to cover the need is one of the biggest challenges. The organizations in North America and Europe depend on local donation for their budget. Despite these serious and tremendous efforts to rebuild the health-care system, these centers were targeted multiple times unfortunately. The attacks on these facilities have caused three of the centers to go out of service in 2015. Destroying of health-care facilities should not be the norm and physicians should not be a target in this conflict.^[5]

This study has a few limitations. Despite the efforts to build electronic databases to capture all medical encounters in these primary care centers, unique patient identifiers were inaccessible, and so, we were unable to identify the total number of patients served, and data were reported by patient encounter. Many patients may have used the primary care system services more than once during the study period, and thus, their multiple encounters were counted in this paper. In addition, there were missing data on many of the variables, and this limits further analyses. Finally, the databases did not capture other aspects of health, such as mental health, that are likely to be severely impacted and require medical attention, and thus, the highlighted conditions are based on data captured in the electronic database.

CONCLUSION

The health-care system in Syria has been greatly damaged, and tremendous efforts are ongoing to provide access to

various health-care services including primary care to the population. Despite these efforts, the current system is very vulnerable and not sustainable. This study summarizes basic health services provided by primary health-care centers and highlights the challenges and scarcity of resources. International medical and humanitarian aids are essential to rebuild the health-care capacity and help people in desperate need in Syria.

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Conflicts of interest

There are no conflicts of interest.

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