



## Report from the Field

**Cite this article:** Mizrachi M, Levy E, Dror AA, et al. Humanitarian Outpatient Pediatric Endeavor (HOPE): A novel specialist ambulatory health-care concept in conflict areas. *Disaster Med Public Health Prep.* 17(e498), 1–5. doi: <https://doi.org/10.1017/dmp.2023.137>.

**Keywords:** crisis; disaster; conflict; Syrian civil war; pediatric health care

**Corresponding authors:**  
Matti Mizrachi,  
Email: [mattimizrachi@gmail.com](mailto:mattimizrachi@gmail.com);  
Maayan Gruber,  
Email: [maayang@gmc.gov.il](mailto:maayang@gmc.gov.il).

# Humanitarian Outpatient Pediatric Endeavor (HOPE): A Novel Specialist Ambulatory Health-Care Concept in Conflict Areas

Matti Mizrachi MD<sup>1,2</sup> , Einat Levy MD MSc<sup>1,2</sup>, Amiel A. Dror MD PhD<sup>1,2</sup>, Eyal Sela MD<sup>1,2</sup>, Sergey Kutikov MD<sup>3</sup>, Masad Barhoum MD MHA<sup>2,4</sup>, Ohad Ronen MD<sup>1,2</sup>  and Maayan Gruber MD<sup>1,2</sup>

<sup>1</sup>Department of Otolaryngology – Head and Neck Surgery, Galilee Medical Center, Nahariya, Israel; <sup>2</sup>Azrieli Faculty of Medicine, Bar-Ilan University, Safed, Israel; <sup>3</sup>Israel Defense Forces and <sup>4</sup>Administration, Galilee Medical Center, Nahariya, Israel

## Abstract

With the collapse of the medical system in Syria, Israel began providing Syrians with humanitarian aid, first to the war-injured and then general medical treatment. We developed a novel specialist ambulatory care concept to provide medical care for Syrian children. Children with their caregivers were transported by bus across the border from Syria to our medical center in Israel for day-stay outpatient-clinic advanced evaluation and treatment due to coordination between Syrian, Red Cross, and Israeli authorities, including Israeli Defense Forces. This retrospective field report includes 371 Syrian children treated as outpatients at Galilee Medical Center between January 2016 and September 2018. In our experience, this novel pediatric ambulatory care concept has been feasible, efficient, and successful in providing specialist care for children in a crisis region devoid of access to health care. We believe it can also serve adult patients and be implemented in other crises and disasters scenarios.

The Syrian civil war has raged on since March 2011, with millions of men, women, and children displaced, injured, or killed during what has become known as the largest humanitarian crisis of the 21st century.<sup>1</sup>

Humanitarian needs throughout the country have steadily increased for close to a decade due to repeated displacement of populations, severely damaged health systems, the displacement of medical professionals, and restricted access for humanitarian organizations.<sup>2</sup> The health-care system's ability to offer proper ambulatory service has, therefore, been severely damaged, and there is an ongoing demand for solutions to the provision of medical facilities and services.<sup>3</sup>

Children, in particular, are extremely vulnerable in humanitarian emergencies.<sup>4,5</sup> Living in an environment of armed conflict can negatively affect a child's health status, whether directly from traumatic events of war, or indirectly: the worsening of chronic illness control, food insecurity, and limited and altered access to routine health care.<sup>6</sup>

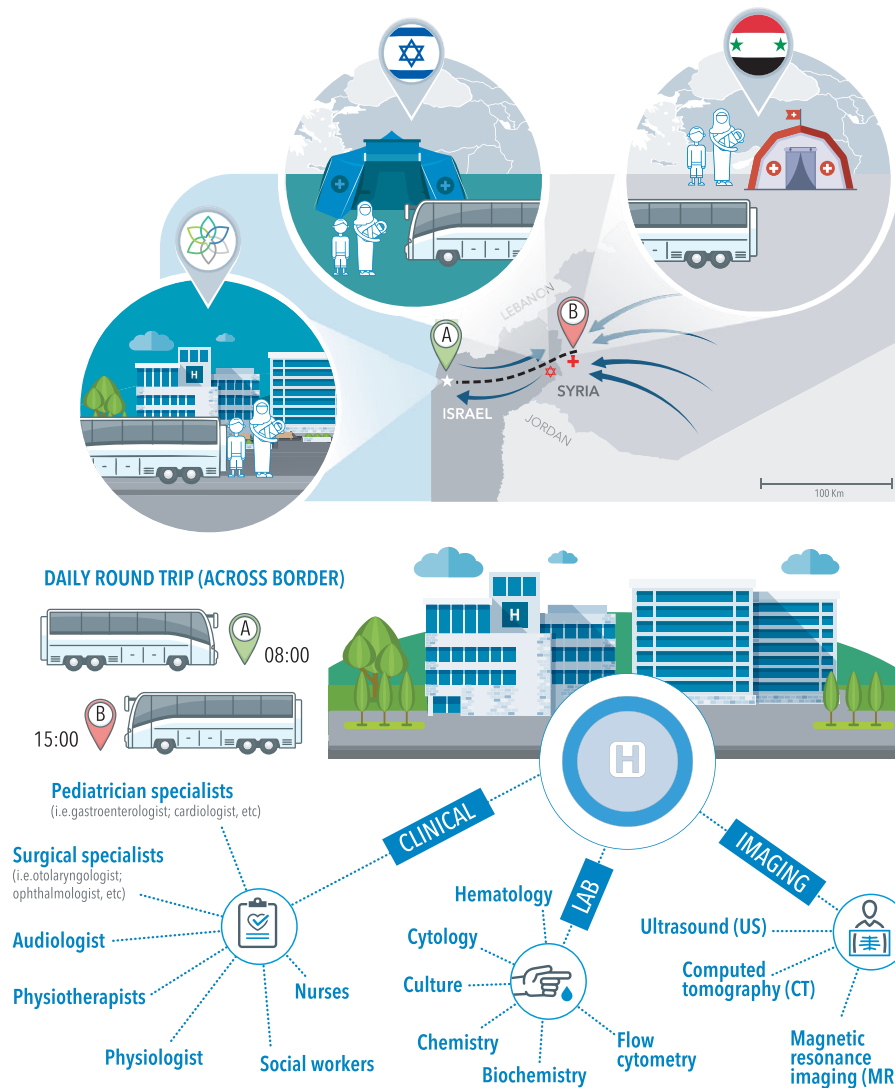
The working concept of Doctors Without Borders is a well-accepted paradigm for the treatment of people in disaster areas, based on the principle of sending medical personnel and equipment to areas in need where emergency care can be administered locally. In such situations, medical treatment requiring advanced equipment, large pharmaceutical inventory, or a wide range of specialists limit doctors' ability to properly address a patient's needs.<sup>5,7</sup>

Since the start of the conflict, more than 5.5 million dispersed in countries near or around Syria.<sup>1</sup> There are varied reports of the quality of accessible health care and treatment options for the refugee population in those host countries,<sup>8–10</sup> while Syrians inside the country continue to experience the failure of the global health community to address their pressing needs, as borders are not always open and functioning, hindering the flow of humanitarian aid to catastrophic levels.<sup>2</sup>

Given the ongoing humanitarian crisis and the unique diplomatic red-tape surrounding health-care related efforts described above, Israel has developed a novel, inside-out approach under the concept “*patients without borders.*”

Israel and Syria have been in perpetual war since the establishment of the State of Israel in 1948. Over time including recent years, there were many escalations. Among others were the first, second, and fourth Arab-Israeli wars in 1948, 1967, and 1973, respectively. There are no diplomatic relations between the 2 countries, and neither Israeli nor Syrian passports are valid for entry into the other country. Moreover, Syria has never recognized Israel as a legal state. The 76-kilometer land border they share is under United Nations (UN) supervision and that of the Syrian and Israeli armed forces.

© The Author(s), 2023. Published by Cambridge University Press on behalf of Society for Disaster Medicine and Public Health. This is an Open Access article, distributed under the terms of the Creative Commons Attribution licence (<http://creativecommons.org/licenses/by/4.0/>), which permits unrestricted re-use, distribution and reproduction, provided the original article is properly cited.



**Figure 1.** The Humanitarian Outpatient Pediatric Endeavor (HOPE) model process.

After February 2013, when 7 war-injured Syrian citizens approached the border seeking medical help, the Israeli government decided to provide and fund emergency and humanitarian medical aid to a steady flow of critically wounded Syrians in Israeli hospitals, despite diplomatic hostilities.<sup>11</sup>

Since then, Syrians have been crossing the closed border seeking not only emergency care for war injuries but also more conventional medical and surgical care.<sup>12</sup> Galilee Medical Center, located in relatively close proximity to Israel's Syrian border, has been the largest health-care provider for this initiative. The Israeli Defense Force (IDF) has coordinated this humanitarian aid effort, aptly named "The Good Neighbor Program."<sup>12</sup>

Several interventions for the Syrian population and in other crisis zones have been described. Most health service delivery programs for the local community are located inside the war zones or in refugee camps. Apart from logistic and financial problems, there are many other barriers to providing high-quality medicine: language barriers between the patients and the medical staff, discontinued medical care or follow-up,<sup>13</sup> gaps between the humanitarian system and the national health system, shortages of health-care workers, trust issues between the community and the

medical providers,<sup>14</sup> and security for the humanitarian actors and the patients.<sup>14,15</sup>

As far as we know, thorough literature review has shown that no similar system has been documented elsewhere for providing high-quality ambulatory health services for civilians in areas of armed conflict. In an article published in 2019, Zarka wrote of the unique Israeli intervention to help the diverse medical needs of the Syrian people trapped in a conflict zone.<sup>12</sup>

In this study, we describe a novel specialist ambulatory care concept developed to provide advanced pediatric medical care for Syrian children during the ongoing humanitarian crisis in that country.

### Narrative

The Humanitarian Outpatient Pediatric Endeavor (HOPE) model process is detailed in [Figure 1](#).

Our HOPE model was a 1-stop-shop service for nonacute presentations: children were ambulated by bus across the border from Syria into Israel to tertiary hospital care for the provision of high-quality pediatric medical care on a day-stay basis, returning

back home across the border on the same day. This complex operation involved cooperation and sophisticated coordination between the Israeli Defense Forces, the senior staff of Galilee Medical Center, on-site Syrian health providers, and the International Red Cross. Patient recruitment from Syria was performed by various non-government organizations (NGOs) and local Syrian medical staff. Children included in the HOPE program suffered ambulatory non-urgent medical conditions that required clinical evaluations, treatments, and/or additional expert opinions. It is important to note that other health-aid programs specialized in treating various patient profiles were simultaneously operated. Children as young as several weeks old and up to 18 y of age, together with their adult caretakers, were brought to the Syrian-Israeli border. All Syrian patients and their caregivers voluntarily elected to cross the border to receive our medical treatment. From that point, they were transported by bus mainly to the Galilee Medical Center, triaged and complete as many necessary evaluations as possible in a single day, including specialist examinations, blood tests, advanced imaging modalities (CT, MRI, and ultrasound), audiology, and additional testing. For each child, a treatment plan was tailored; some were hospitalized for advanced care or surgical interventions while others received clinic-based interventions such as fitting of hearing or visual aids. Children needing invasive interventions were scheduled for elective surgeries and brought back at a later date for that purpose. Children needing follow-up received it; the Israeli medical coordinator at the border delivered each patient's relevant medical information and recommendations to local Syrian medical staff, and there was an open communication channel between them. All patients received clinical notes in Arabic. Following initial evaluation and treatment, the HOPE clinics have provided ambulatory follow-up service if needed, where children were again escorted into Israel in the same manner, to ensure continuity of medical care. Medical follow-ups in our institution were available as long as the HOPE program was running.

A total of 4163 Syrians were treated in Israel during the humanitarian endeavor named "The Good Neighbor Program."<sup>12</sup> Among these, 417 children with their caregivers were transported by bus across the border from Syria to Galilee Medical Center and treated as outpatients between January 2016 and September 2018. Detailed report about patient's demographic and clinical data, including evaluation and interventions made, attached in the supplementary form.

The study was approved by our medical center institutional review board.

## Discussion

Humanitarian crises create a variety of health-care challenges. Health-care programs and medical staff in crisis areas endure a variety of barriers to successful treatment including limited access to advanced medical technologies and medical facilities which can lead to delays in diagnosis and treatments<sup>5,7</sup> and worsen (or aggravate) prognosis.<sup>13</sup> Humanitarian health-care workers and the facilities in which they work may be the target of violent attacks.<sup>15</sup> As such, public health-related care in crisis areas vary according to context, but often need to include a wide array of interventions such as mental health services, food security, surgical care, nutrition, water, sanitation, hygiene, infectious disease control, and more.<sup>16</sup> Many such interventions have been previously documented within specific medical disciplines across multiple crisis zones or refugee camps.<sup>13,14</sup> The use of mobile clinics inside the war

zone, recruitment of local people to build trust relationships with the medical team, promotion of community-based services to increase awareness, and delivery of concentrated services at 1 visit are different reported strategies solutions for inaccessibility and low-quality primary care.<sup>13,14</sup> Coping with limited infrastructure, shortages of high-tech medical equipment, availability of medical expertise, and the risk of violence against the population and the medical teams remain significant, which the HOPE program can resolve.

The HOPE project aims to help the local community remaining inside a war or other crisis zones. However, during a disaster, a considerable part of the local community escaped and were defined as refugees, a weakened population with different hindrances. Most Syrian refugees live in host communities across the border in Turkey, Lebanon, and Jordan.<sup>1,10</sup> Although not pediatric-oriented, a representative example of the ambulatory medical programs in those host countries, published by Akik et al. reviewing their interventions for noncommunicable diseases (NCD). Generally, registered refugees could seek medical help for NCD in primary health-care centers, hospitals, NGOs, community pharmacies, mobile medical units, and home-based medical providers. The primary barrier to accessing health care was the cost of medications and secondary and tertiary care services. More reported barriers were complex health systems without appropriate local guidance and limited health facility capacity.<sup>10</sup> Concerning Syrian pediatric refugees with chronic diseases, Karadağ et al. and Erdem et al. describe their experience of treating Syrian refugee children with rheumatic diseases and beta-thalassemia, respectively. Those children referred to the Medical centers (rheumatologic centers and pediatric hematology-oncology centers) from primary centers close to the refugee camps, although without a description of the exact referral process.<sup>17,18</sup> The use of an official translator to overcome the language barrier has been reported, although children were primarily fluent in Turkish and acted as a translator between their families and the medical staff.<sup>18</sup> Other barriers reported were social and cultural gaps and irregular clinic follow-up.<sup>17</sup> HOPE is a unique program aiming to overcome various barriers to those previously reported interventions.

A review of specific humanitarian interventions during the Syrian war demonstrates a delay in the coordination of humanitarian health-care programs which ultimately hindered optimal delivery of the medical interventions. It also highlights the prioritization in the time of crisis, with chronic and ambulatory health needs naturally taking lower priority to trauma and infectious disease control treatment.<sup>19</sup> When a crisis is ongoing and lasts months and even years, these chronic conditions can deteriorate to create permanent and irreversible health damage.

The lack of proper ambulatory intervention for Syrian citizens within the war zone led Israel to generate a new humanitarian health-care program. In 2013, despite the long-standing hostilities between Israel and Syria, the Israel government extended humanitarian assistance under special security conditions, allowing war-injured Syrian patients to be admitted to Israeli hospitals in a novel method published elsewhere.<sup>12</sup>

The HOPE model is a novel ambulatory medical treatment concept that can be implemented in a variety of crisis scenarios. This concept was introduced for a period of 32 mo to the Syrian pediatric population for whom the appropriate medical treatment was unavailable due to the continued violence and civil war, and halted only when the hostile Syrian government reaffirmed its tight control over the area.

A previous study<sup>14</sup> highlights the potential obstacle of a weakened community's trust in foreign medical staff. The situation of transport across the border and receiving medical treatment in a country that has been an enemy for so many years can be a significant barrier. During the HOPE project, patient recruitment from Syria was performed by various nongovernment organizations and local Syrian medical staff. It is important to note that all Syrian patients and their caregivers voluntarily elected to cross the border during an active war crisis to receive our medical treatment. Also, it should be noted that the HOPE program for pediatric ambulatory patients started in 2016, 3 y after the first war-injured Syrian citizen reached our medical institution to seek advanced treatment. Hence, the experience of the previous injured Syrian patients who returned home was positive and reflected on the local population. Confidence was based on such previous positive experiences, and this allowed parents to feel that crossing the border with their loved ones may significantly improve their chances for healing. Moreover, when it comes to children, probably the parental health concern is superior to the relatively unknown status and there was an accompanier with each patient, as well as an approximate schedule for the visit.

The HOPE model offered a solution to the disadvantages posed by the crisis in Syria: limited access to medical technologies for diagnosis and treatment, limited specialist availability, proper pharmaceutical supply, and safety of the patients and the medical staff.

Although this model was established to provide access to primary and advanced medical treatment within the concept of a 1-stop-shop service, it was not devoid of obstacles. It necessitated direct contact with nongovernment organizations, local medical staff, and local Syrian doctors to recruit patients and continue follow-up as needed and faced an immense number of administrative barriers.

The electronic medical records had to be able to handle the medical data of patients with no formal identification documents. Four hundred seventeen children with their caregivers administered to our hospital as part of the HOPE program, with appropriate personal documentation. There were gaps in the documentations that we received and this was expected given the fact that children were transported from a war zone. After a retrospective inquiry of the patient's electronic files, we excluded from this report 46 patients due to nonuniform documentation, resulting in insufficient recorded data and inadequate information for further statistical analysis for this article.

Although considered a barrier in other reports,<sup>13,18</sup> language, in our experience, was not a fundamental barrier. The Israeli population comprises Jews and Arabs, and the official languages are Hebrew and Arabic. Many of our hospital staff are Israeli-Arabs and speak Arabic as a mother tongue. However, it is important to note that language could be a critical barrier in other contexts, therefore, it is recommended to appoint cultural and language coordinators to bridge language and cultural gaps and improve cooperation, treatment efficiency, and follow-up in the local clinics or across the border.

Security can be a barrier mainly in 2 aspects: inside the war zone, where the patients, caregivers, and staff can be exposed to harmless acts by local forces, and across the border, where the foreign civilians can feel fear or concerns. For the former, it is recommended to keep this type of operation in low profile, mask specific details, while removing any foreign indicators so the patients will not be flagged as "collaborators with the enemy."

For the latter, it is recommended to allow local or familiar accompaniers for each individual or group. Our impression was that the vast majority of our Syrian patients and caregivers were happy to receive our medical treatment and probably did not have any other medical options back then. It is important to note that all Syrian patients in the HOPE project voluntarily elected to cross the border during an active war crisis to receive such medical treatment. Moreover, it is well known that Israel and Syria are considered "enemy states" and this signifies the complexity of the HOPE program. At first, we were surprised to see that Syrian civilians were happy to receive our treatment in view of the common history of both countries, however, the HOPE program was a humanitarian bridge and was considered as such by all participants from both sides of the border. All of our Syrian patients received the same nursing and medical treatment as any other patient in our medical center and we believe they received high quality and efficient medical care.

To improve follow-up abilities, it is recommended to strengthen communication between all administrative and medical factors, as well as with local factors, which will enable an organized an effective system.

We present a different and unique intervention program tailored for crisis areas with overall good objective and subjective experience from the point of view of both patients and medical staff.

To conclude, HOPE, as a novel pediatric ambulatory care concept, can offer advanced medical care for children in disaster areas based on medical teams and facilities in neighboring countries. It has been both feasible and successful in providing specialist care for Syrian children with highly impaired access to medical care. We believe the HOPE concept can also be implemented for adult patients and in other crisis scenarios.

**Supplementary material.** To view supplementary material for this article, please visit <https://doi.org/10.1017/dmp.2023.137>

**Author contributions.** Dr. Matti Mizrachi: Literature review, data collection, writing. Dr. Einat Levy: Literature review, initial draft preparation. Dr. Amiel A. Dror: Create figures, review and editing. Dr. Eyal Sela: Management and coordination. Dr. Sergey Kutikov: Management and coordination. Prof. Masad Barhoum: Management and coordination. Dr. Ohad Ronen: Conceptualization, management, review. Dr. Maayan Gruber: Conceptualization, management, critical review and editing.

## References

1. UNHCR. Syria emergency. Accessed January 12, 2022. <https://www.unhcr.org/syria-emergency.html>
2. Abbara A, Rayes D, Khalil M, et al. Humanitarian catastrophe for civilians in northwest Syria. *BMJ*. 2020;368:m451. doi: [10.1136/bmj.m451](https://doi.org/10.1136/bmj.m451)
3. Aburas R, Najeeb A, Baageel L, et al. The Syrian conflict: a case study of the challenges and acute need for medical humanitarian operations for women and children internally displaced persons. *BMC Med*. 2018; 16(1):65. doi: [10.1186/s12916-018-1041-7](https://doi.org/10.1186/s12916-018-1041-7)
4. Guha-Sapir D, Schlüter B, Rodriguez-Llanes JM, et al. Patterns of civilian and child deaths due to war-related violence in Syria: a comparative analysis from the Violation Documentation Center dataset, 2011–16. *Lancet Glob Health*. 2018;6(1):e103-e110. doi: [10.1016/S2214-109X\(17\)30469-2](https://doi.org/10.1016/S2214-109X(17)30469-2)
5. Meiqari L, Hoetjes M, Baxter L, et al. Impact of war on child health in northern Syria: the experience of Médecins Sans Frontières. *Eur J Pediatr*. 2018;177(3):371-380. doi: [10.1007/s00431-017-3057-y](https://doi.org/10.1007/s00431-017-3057-y)
6. Kadir A, Shenoda S, Goldhagen J. Effects of armed conflict on child health and development: a systematic review. *PLoS One*. 2019;14(1):e0210071. doi: [10.1371/journal.pone.0210071](https://doi.org/10.1371/journal.pone.0210071)

7. Dörnemann J, van den Boogaard W, Van den Bergh R, *et al.* Where technology does not go: specialised neonatal care in resource-poor and conflict-affected contexts. *Public Health Action.* 2017;7(2):168-174. doi: [10.5588/pha.16.0127](https://doi.org/10.5588/pha.16.0127)
8. Ansbro É, Homan T, Merino DP, *et al.* Clinical outcomes in a primary-level noncommunicable disease programme for Syrian refugees and the host population in Jordan: a cohort analysis using routine data. *PLoS Med.* 2021;18(1):e1003279. doi: [10.1371/journal.pmed.1003279](https://doi.org/10.1371/journal.pmed.1003279)
9. Tayfur I, Günaydin M, Suner S. Healthcare service access and utilization among syrian refugees in Turkey. *Ann Glob Health.* 2019;85(1):42. doi: [10.5334/aogh.2353](https://doi.org/10.5334/aogh.2353)
10. Akik C, Ghattas H, Mesmar S, *et al.* Host country responses to non-communicable diseases amongst Syrian refugees: a review. *Confl Health.* 2019;13:8. doi: [10.1186/s13031-019-0192-2](https://doi.org/10.1186/s13031-019-0192-2)
11. Zarka S, Barhoum M, Bader T, *et al.* Israel's medical support to victims of the civil war in Syria. *Isr Med Assoc J.* 2014;16(2):71-72.
12. Zarka S. The humanitarian aid project to the Syrian people. *Isr Med Assoc J.* 2021;23(5):323-324.
13. Jordan K, Lewis TP, Roberts B. Quality in crisis: a systematic review of the quality of health systems in humanitarian settings. *Confl Health.* 2021; 15(1):7. doi: [10.1186/s13031-021-00342-z](https://doi.org/10.1186/s13031-021-00342-z)
14. Singh NS, Atallahjan A, Ndiaye K, *et al.* Delivering health interventions to women, children, and adolescents in conflict settings: what have we learned from ten country case studies? *Lancet.* 2021;397(10273):533-542. doi: [10.1016/S0140-6736\(21\)00132-X](https://doi.org/10.1016/S0140-6736(21)00132-X)
15. Haar RJ, Read R, Fast L, *et al.* Violence against healthcare in conflict: a systematic review of the literature and agenda for future research. *Confl Health.* 2021;15(1):37. doi: [10.1186/s13031-021-00372-7](https://doi.org/10.1186/s13031-021-00372-7)
16. Blanchet K, Ramesh A, Frison S, *et al.* Evidence on public health interventions in humanitarian crises. *Lancet.* 2017;390(10109):2287-2296. doi: [10.1016/S0140-6736\(16\)30768-1](https://doi.org/10.1016/S0140-6736(16)30768-1)
17. Karadağ ŞG, Sönmez HE, Demir F, *et al.* Rheumatic diseases in Syrian refugee children: a retrospective multicentric study in Turkey. *Rheumatol Int.* 2020;40(4):583-589. doi: [10.1007/s00296-020-04534-3](https://doi.org/10.1007/s00296-020-04534-3)
18. Yazal Erdem A, Demir Yenigürbüz F, Pekpak E, *et al.* Refugee children with beta-thalassemia in Turkey: overview of demographic, socioeconomic, and medical characteristics. *Pediatr Blood Cancer.* 2019;66(5):e27636. doi: [10.1002/pbc.27636](https://doi.org/10.1002/pbc.27636)
19. Akik C, Semaan A, Shaker-Berbari L, *et al.* Responding to health needs of women, children and adolescents within Syria during conflict: intervention coverage, challenges and adaptations. *Confl Health.* 2020; 14:37. doi: [10.1186/s13031-020-00263-3](https://doi.org/10.1186/s13031-020-00263-3)