




2022 ANNUAL RESEARCH REPORT



SAMS

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Front cover

October Medical Mission 2022 in Hospital in Amman - © SAMS, Jordan.

Back cover

January Medical Mission 2023 in Jordan - © SAMS, Zaatari camp.





SYRIAN AMERICAN MEDICAL SOCIETY

✓ **About SAMS**

The Syrian American Medical Society (SAMS) was founded in 1998 as a professional society to provide networking and educational opportunities to medical professionals of Syrian descent across the United States. The charitable arm of SAMS, SAMS Foundation, was launched in 2007. With the eruption of the conflict in Syria, SAMS Foundation has become one of the most active medical relief organizations working on the front lines of crisis relief in Syria, neighboring countries, and beyond.

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✓ **Our Mission**

Is dedicated to delivering life-saving services, revitalizing health systems during crisis, and promoting medical education via a network of humanitarians in Syria, the US, and beyond.

✓ **Our Vision**

Is to strengthen the future of Syria's healthcare, delivering dignified medical relief where needed, fortified by a dedicated medical community.



◆ Preface

I am delighted to present our first research activities report on the Syrian crisis, which provides a comprehensive overview of the research conducted by the Syrian American Medical Society (SAMS) to support healthcare provision, protection of healthcare workers, and rebuilding the health system within Syria.

As you are well aware, this crisis has been marked by atrocities against civilians, IHL violations, forced displacement, economic deterioration, communicable disease outbreaks, and natural disasters occurring simultaneously.

In the midst of all this chaos, the Syrian American Medical Society (SAMS) has been preoccupied with providing healthcare, protecting healthcare workers, and rebuilding the health systems within Syria's borders. To achieve these goals, it has been crucial to conduct quality research that can provide evidence-based support for decision-making, advocacy with policymakers, and sharing knowledge and best practices to increase the effectiveness of our response. In addition, this research helps document health data to serve as a baseline for comparison with future interventions and tells the story of what is happening in Syria.

However, conducting research in crisis settings is always challenging, and Syria is no exception. Collecting data and conducting research in such a situation is a task that is challenged by time, resources, ethics, security, and logistical constraints. Nevertheless, over several years, SAMS has invested in building its research capacity by establishing a research committee composed of a range of researchers who brought with them skills, research, and links with academic institutions. In 2022, we are proud that this has culminated in the launch of a dedicated research department.

The role of health research related to Syria is increasingly important, and SAMS is at the forefront, leading this transition. Although some may see this as shifting from our key role in relief and development, we see it as going back to our origins as a responsible Medical Society that had its research agenda and an established, dedicated journal years before the conflict began.

This is a significant challenge, but we are ready to meet it, together with the help and support of all our members, to make a difference. We hope this report will provide insight into the situation in Syria and encourage further research and support for those in need

Dr. Amjad Rass

President - Syrian American Medical Society



◆ **About this report**

This report aims to highlight the incremental developments in SAMS' research activities during 2022, notably since the creation of a dedicated Research and Development Department under the Foundation. This department aims to strengthen SAMS' organizational capacity to conduct primary research and build essential partnerships. The establishment of this department is a significant milestone in promoting SAMS' research, enabling it to dedicate more resources and attention to research activities, leading to important advancements in healthcare and the broader scientific community.

In 2022, SAMS conducted various primary research activities in various areas of healthcare, including epidemiology, infectious diseases, and oncology. The department also supported the building of partnerships with universities, research institutions, and healthcare providers, enhancing knowledge sharing and collaboration.

Moving forward, SAMS will continue to dedicate resources to research activities and strengthen partnerships to promote knowledge sharing and collaboration in the scientific community to advance healthcare research in the Syrian crisis.

◆ **Reform in health research**

SAMS' leadership convened in Costa Mesa for a retreat in February 2022 to discuss a new research strategy proposed by the Research Committee aimed at advancing SAMS' research objectives. The retreat resulted in the following recommendations: (1) increased investment in research infrastructure and capacity building for the organization, (2) forging stronger external research partnerships and exploring options for greater research collaboration, (3) building a sustainable infrastructure for research efforts, and (4) enhancing the operational impact and dissemination of research outputs.

As a result, SAMS' leadership approved the creation of a Research and Development Department with an allocated fund from SAMS, which enabled the hiring of permanent staff dedicated solely to research. This initiative would secure additional research funding, facilitate conference attendance to increase research impact, promote research capacity building, and support advocacy efforts.

The Research and Development Department was officially launched in August 2022 with the appointment of a research manager. Since then, the committee's research strategy, operational plan, committee charter, and procedures have undergone updates and revisions to consolidate internal processes and infrastructure. The establishment of this department will enable SAMS to make significant strides in promoting research and advancing healthcare for the benefit of society.





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Appeared papers in 2022



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Appeared evidence based advocacy reports in 2022



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Events and Conference participations in 2022

2022 RESEARCH AT A GLANCE

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New Collaboration, MoUs, and partnerships



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In-progress research papers and reports



Thematic priorities for health research in Syria in 2022

SAMS focuses on impactful and operational research with the goal of benefiting vulnerable populations in Syria. Through a diverse range of projects, SAMS aims to build research capacity both within the organization and among Syrian researchers. A study¹ by Abouzeid et al. in 2021 identified the main themes that health research on Syria has focused on, including war strategies, mortality, health determinants and risks, humanitarian assistance, response or needs, health system, and health status.

SAMS' existing research projects align with these themes, with a particular focus on war strategies and alleged IHL violations, health status, and the protection of health workers in 2022. The maturation of SAMS' databases has allowed for analysis related to health status, contributing to the literature on maternal health, pediatric health, communicable and non-communicable diseases, mental health, and oncology care among others. The successful dissemination of these projects in high-impact journals and academic and humanitarian conferences demonstrates their value. Looking forward, SAMS expects to continue this trend with the quality and availability of medical health databases from SAMS facilities in Syria since 2018.

THEMATIC PRIORITIES

For Health Research

1. HEALTH RESEARCH IN CONFLICT

This theme would cover different medical specialities and topics , including Pediatrics and Maternal Health , dental care , Non-communicable diseases, Communicable diseases , Mental and psychological health , tritinary health care for Nephrology and Oncology. Etc.



2. HEALTH SYSTEMS AND THE TRIPLE NEXUS

In order to address topics such as cost effectiveness of health care, models of care, sustainability planning, novel/ forward thinking interventions themes.

3. ATTACKS ON HEALTH AND IHL VIOLATION

SAMS has developed and been working on this theme with multiple partners, including John Hopkins, Harvard, and Berkley. Areas of intrest typically included: documenting attacks on health systems, work on deconfliction and advocacy, violations of IHL, impacts of attacks on health access, and Humanitarian Relief Operation under siege.



4. HEALTH WORKFORCE, MEDICAL EDUCATION

Studying Syria health force status in asylum as well in different areas of control inside Syria. Assess the gap size in health workforce, ways to promote medical education to address the gap.

¹ Abouzeid, M., Elzalabany, M.K., Nuwayhid, I. et al. Conflict-related health research in Syria, 2011-2019: a scoping review for The Lancet - AUB Commission on Syria. Confl Health 15, 92 (2021). <https://doi.org/10.1186/s13031-021-00384-3>

Distinguished research committee

SAMS is proud of its research committee, which is composed of experienced health professionals from diverse backgrounds and holds scientific affiliations at top institutions in the United States and the United Kingdom. In addition to the newly established Research and Development Department, the research committee works alongside other committees, such as the Oncology Committee, the Nephrology Committee, the Education Committee, and others.

The research committee's role is to support the Research and Development Department in several ways, including reviewing potential research proposals, providing scientific guidance, supporting research projects, and representing SAMS at international conferences. With their capacity and skills, the research committee plays a vital role in advancing SAMS' research objectives and contributing to the organization's overall mission.

Aula Abbara



Chair

Imperial College, London

Consultant in Infectious Diseases

Dr Abbara is an infectious diseases consultant at Imperial NHS and an Honorary Senior Clinical Lecturer at Imperial College, London where she leads the Global Health Challenges Module for the MPH and supports a module on the Syrian conflict for the Global Health BSc. She is co-founder and committee member of the Syria Public Health Network and advisor to the R4HSSS research collaboration at King's College, London. She is editor for Plos Global Health and Conflict and Health journals

Ahmad Tarakji



Deputy Chair

Affiliation

Cardiothoracic surgeon

Dr. Ahmad Tarakji is a cardiothoracic surgeon based in California, USA. He was the former president of the Syrian American Medical Society (SAMS), Dr. Tarakji has been involved in multiple medical missions to Syria and has been a vocal advocate for the protection of medical facilities and workers in the conflict..

Lina Murad



Core Committee Member

Affiliation

Nephrologist

Dr. Lina Murad is an internal medicine physician based in Washington, DC. She previously served as a board member for SAMS and continues to be involved in medical relief efforts in northwest Syria, where she helps develop internal medicine curricula. Dr. Murad is also the founder of the Syrian National Kidney Foundation and has been active with the International Nephrology Society. Her work has focused on improving access to care for patients with kidney disease, particularly those affected by the conflict in Syria.





Wareef Kabbani

Research committee member,
SAMS board of directors
member

Methodist Health System

director of Cytopathology of the
laboratory

Dr. Wareef is the director of Cytopathology of the laboratory at Methodist Richardson Medical Center. He holds a Residency in Anatomical and Clinical Pathology, and two fellowships in Oncological Surgical Pathology and Cytopathology, he was also a former Associate Professor of Pathology at UT Southwestern. His research interests focus on genitourinary pathology and cytopathology , the application of digital pathology, and AI algorithms to enhance diagnosis accuracy and outcome predication.



Hend Azhary

Affiliation

Core Committee Member/
Board Member

Dr. Hend Azhary is a family physician who currently practices at the Family Health Center and the Sparrow/ MSU Family Medicine Residency Program’s Mason Clinic. She is involved in teaching medical students and has a research interest in diabetes and cardiovascular studies. She also completed a geriatric fellowship at the State University of New York, Buffalo. In addition to her work in the US, Dr. Azhary is active in SAMS medical missions.



Fares Alahdab

Research Scientist
Assistant Research Professor of
Cardiology
Assistant Research Member
Houston Methodist Academic
Institute
DeBakey Heart and Vascular
Center

Dr. Fares Alahdab is an Assistant Professor of Medicine and works at the evidence-based Practice Center at the Mayo Clinic in Rochester, MN. Interested in research related to evidence-based medicine, deep learning (DL), artificial intelligence (AI), and machine learning (ML).



Waseem Akhter

Affiliation

Core Committee Member

Cardiologist/ Researcher

Dr. Akhter is an Interventional Cardiologist and Vascular Medicine specialist who currently practices within the Corewell Health system in Michigan. Previously he has was faculty at the University of Massachusetts in Worcester, MA and Duke University in Durham, NC. He has published in multiple peer-reviewed journals (NEJM, Circulation, JACC, etc.) and has presented at multiple international forums & conferences. He has a Master of Science in Global Health (from Duke University) and he has contributed extensively to medical relief efforts through the Syrian American Medical Society (SAMS) in Jordan, Lebanon, Egypt and Greece. His focus is on examining the impact of non-communicable diseases on displaced populations. His research involves evaluating health care delivery models for such groups to build resiliency in those communities. He is also interested in the current trends to decolonize global health and to incorporate ethical standards in research during humanitarian crises.





Mohamed Hamze

Research manager At SAMS

DDS , Periodontist , MSc. Health

Periodontist with master degree in health, with field experience in health response and a deepened understanding of the contextual dynamics and the humanitarian response structure, and a vast experience in Advocacy within the Syrian crisis on the topics of public health, Protection and IHL.



Dana Townsend

Core Committee Member

MMH , Mental Health specialist

Dana Townsend is an MHPSS (Mental Health and Psychosocial Support) specialist who works in humanitarian contexts. She has extensive experience in the field of mental health and psychosocial support in emergencies, including in conflict zones and natural disasters. Dana holds a Master's degree in Mental Health Counseling from Boston College and works with SAMS to provide of mental health services to populations affected by conflict and displacement. Her work focuses on the integration of mental health and psychosocial support into humanitarian response,



Lara Zakaria

Affiliation

**Core Committee Member/
Board Member**

Pharmasict, Nutritionist

Lara Zakaria is a pharmacist based in NYC, and she is also a former member of the Board of Directors of SAMS. Currently, she is pursuing a Master of Public Health degree at George Washington University



Publications and conferences participations

Various peer-reviewed and high-impact research publications

Six peer-reviewed journal publications that had contributions from both SAMS Research Committee and Research and Development Department were published in 2022. These included papers in prestigious journals such as British Medical Journal Global Health, Oxford Journal of Public Health, Journal of Clinical Oncology, Kidney International, Conflict and Health, and SAMS' own journal, the Avicenna Journal of Medicine.





Main theme [Health research in conflict](#)

Sub-theme [Maternal and child health](#)

Research title [Protracted armed conflict and maternal health: A scoping review of literature and a retrospective analysis of primary data from northwest Syria.](#)

Authors [Basha, S., Socarras, A., Akhter, M. W., Hamze, M., Albaik, A., Hussein, I., Tarakji, A., Hamadeh, M., Loutfi, R., Kewara, M., Alahdab, F., & Abbara, A.](#)

Journal [\(2022\). BMJ Global Health, 7\(8\), e008001.](#)

Doi <https://doi.org/10.1136/bmjgh-2021-008001>

The study titled "Protracted armed conflict and maternal health: A scoping review of literature and a retrospective analysis of primary data from northwest Syria" was conducted by a team of researchers including S. Basha, et al. The study was published in BMJ Global Health in 2022.

The study aimed to understand the state of maternal health in Syria, particularly focusing on underage pregnancy and caesarean sections. The researchers performed a scoping review of academic and grey literature on the state of maternal health across Syria since the onset of conflict in March 2011. Out of 2824 articles, only 21 remained after screening, with main themes related to maternal mortality rates, caesarean sections, maternal age, and perinatal care. The review identified 12 studies that reported caesarean section rates, which varied from 16% to 64% of all births across different regions.

In addition to the scoping review, the researchers performed a retrospective quantitative analysis of maternal health data from the Syrian American Medical Society's (SAMS) facilities in a microcontext in northwest Syria between March 2017 and July 2020. The analysis revealed a decrease in the proportion of caesarean section births from 35% in March 2017 to 23% in July 2020 across SAMS facilities. Girls under 18 years accounted for 10% of births and had a lower proportion of caesarean section births. The study also noted notable geographical and interfacility variation in the findings.

The study concludes that research which explores microcontexts in Syria is important, given the different effects of conflict across the country and the fragmented health system. Despite limitations, this study adds to sparse literature on this important topic.



Main theme [Health research in conflict](#)

Sub-theme [Maternal and child health](#)

Research title [The impacts of the Syrian conflict on child and adolescent health: A scoping review.](#)

Authors [Kampalath, V., Tarakji, A., Hamze, M., Loutfi, R., Cohn, K., & Abbara, A.](#)

Journal [\(2022\). Journal of Public Health \(Oxford, England\), fdac132.](#)

Doi <https://doi.org/10.1093/pubmed/fdac132>

This study titled "The Impacts of the Syrian Conflict on child and adolescent health: A scoping review" was conducted by Kampalath et al. and published in the Journal of Public Health. The aim of the study was to examine the range and extent of literature on the health effects of the Syrian conflict on children and adolescents. The researchers utilized the Preferred Reporting Items for Systematic Reviews and Meta-Analyses—Extension for Scoping Reviews methodology and performed qualitative thematic analyses to identify patterns of morbidity and mortality, as well as gaps in evidence. Out of 982 articles that met the search criteria between 2011 and 2021, 16 studies were ultimately selected for full-text analysis, revealing four recurring themes: violent injury, communicable diseases, malnutrition and micronutrient deficiency, and mental health impacts. The study concludes that the Syrian conflict has had a profound impact on the health of children and adolescents, primarily due to indiscriminate attacks against civilians, human rights violations, and the disintegration of the national healthcare system. The authors suggest that these findings can help inform health programming priorities for aid organizations, while also noting that the literature was lacking in information on neonates.



Main theme [Health research in conflict](#)

Sub-theme [Oncology care](#)

Research title [Cancer Diagnoses during Active Conflict: Experience from a Cancer Program in Northwest Syria.](#)

Authors [Atassi, B., Tse, G., Mkhallalati, H., Debel, J., Jemmo, A., Khalil, M., Alrahal, Y., Almalki, M., Hamadeh, M., Tarakji, A., & Abbara, A.](#)

Journal [\(2022\). Avicenna Journal of Medicine, 12\(4\), 157-161.](#)

Doi <https://doi.org/10.1055/s-0042-1755331>

This study titled "Cancer Diagnoses during Active Conflict: Experience from a Cancer Program in Northwest Syria" was conducted by a team of researchers including Atassi, B., Tse, G., Mkhallalati, H., Debel, J., Jemmo, A., Khalil, M., Alrahal, Y., Almalki, M., Hamadeh, M., Tarakji, A., & Abbara, A. The study was published in the Avicenna Journal of Medicine in 2022. The study aimed to shed light on the diagnosis and treatment of cancer during ongoing conflict and humanitarian crises in Northwest Syria.

The researchers retrospectively reviewed all pathology reports from January to December 2020, which reported a diagnosis of cancer from a pathology department in Northwest Syria. A total of 397 new cancers were diagnosed during 2020, with bladder cancer (15.7%) and skin cancers (14.7%) being the most common cancers in men, and breast cancer (38.3%) being the most common cancer in women. Among the total number of cases, 20 were diagnosed in children aged 17 years or under, accounting for 5% of all new cancer cases.

The authors note that this preliminary analysis is the first report of cancer types and demographics in areas outside of government control in Syria since the onset of the conflict. Despite the limitations, this study provides some indication of the burden of oncological diagnoses in the region. However, the study's findings are limited by the underresourced and understaffed conditions of the hospital, which make it difficult to provide a more detailed report.

Given ongoing attacks and severe underfunding, further research is essential to describe and address the burden of cancer on populations under ongoing conflict and humanitarian crises, especially in Northwest Syria. There is a particular need to investigate how best to apply interventions and support health systems and cancer services within settings of conflict. The authors emphasize the importance of allocating more resources and support to cancer centers with long-term health partnership models.



Main theme [Health research in conflict](#)

Sub-theme [Refugees health , Oncology care](#)

Research title [Investment in Cancer Prevention and Care for Forcibly Displaced Syrians Is an Urgent Priority](#)

Authors [John W. Carew , MPH; Mohamed Hamze , DDS; Bassel Atassi, MD; Aula Abbara, MD; and Kaveh Khoshnood , PhD](#)

Journal [JCO Global Oncology. \(n.d.\). Retrieved February 17, 2023](#)

Doi <https://ascopubs.org/doi/10.1200/GO.22.00382>

A commentary that is published to raise awareness about the failure in help the displaced Syrians with cancer prevention and care. Despite the significant burden that cancer and other noncommunicable diseases (NCDs) weigh on internally displaced people (IDPs) and refugee populations. The commentary identifies vulnerable groups among the displaced, reveal a Disproportionately High Rates of Carcinogen Exposure among Forcibly Displaced Syrians, suggest preventive public health measures as key interventions for refugees. And report on missed Cancer Diagnoses among Forcibly Displaced Syrians in hosting countries.

This commentary titled "Investment in Cancer Prevention and Care for Forcibly Displaced Syrians Is an Urgent Priority" was written by John W. Carew et al. It was published in JCO Global Oncology and aims to raise awareness about the failure to provide cancer prevention and care to forcibly displaced Syrians. Despite the heavy burden of cancer and other non-communicable diseases (NCDs) on internally displaced people (IDPs) and refugee populations, little attention has been paid to addressing this critical issue. The commentary identifies vulnerable groups among the displaced, revealing disproportionately high rates of carcinogen exposure among forcibly displaced Syrians. The authors suggest that preventive public health measures are key interventions for refugees and report on missed cancer diagnoses among forcibly displaced Syrians in hosting countries.

The authors highlight the challenges faced by displaced Syrians in accessing adequate healthcare and the need for investment in cancer prevention and care. They argue that the failure to address this issue can lead to preventable deaths and unnecessary suffering. Emphasizing the need for increased funding to support cancer research, prevention, and treatment programs for forcibly displaced Syrians. The authors call for international organizations, governments, and other stakeholders to prioritize cancer prevention and care for forcibly displaced Syrians, including investments in infrastructure, research, and treatment programs. And urging the global community to recognize the urgency of this issue and to take action to ensure that all people, regardless of their status or location, have access to quality cancer care.



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Main theme [Attacks on health and IHL violation](#)

Sub-theme [Refugees health , Oncology care](#)

Research title [Just responses of the kidney community in man-made crises.](#)

Authors [Sekkarie, M., Al-Makki, A., Kaysi, S., & Isreb, M.](#)

Journal [\(2022\) Kidney International, 102\(6\), 1427.](#)

Doi <https://doi.org/10.1016/j.kint.2022.08.033>

This letter to the editor, titled "Just Responses of the Kidney Community in Man-Made Crises", was published in late 2022 at the Kidney International journal. The authors, members of SAMS' kidney committee, responded to a previous paper that mainly discussed the situation in Ukraine, and called for more attention to be given to the health needs of populations affected by man-made crises. Specifically, they highlighted the dire situation of kidney care in Syria, and called for more action and support to be directed towards this issue. The authors emphasized the importance of collecting data and conducting research to better understand the needs of affected populations and develop targeted interventions. They also underscored the need for a just and equitable response to the crisis, which prioritizes the needs of the most vulnerable and marginalized individuals. Overall, this letter provides a critical and timely call to action for the kidney community to address the urgent needs of populations affected by man-made crises, particularly in Syria.





Conflict and Health

Main theme	Health systems and the triple Nexus
Sub-theme	Innovation nexus and Tele-medicine
Research title	Telemedicine interventions in six conflict-affected countries in the WHO Eastern Mediterranean region: A systematic review
Authors	Parkes, P., Pillay, T. D., Bdaiwi, Y., Simpson, R., Almoshmosh, N., Murad, L., & Abbara, A.
Journal	(2022). Conflict and Health, 16(1), 64
Doi	https://doi.org/10.1186/s13031-022-00493-7

The article titled "Telemedicine interventions in six conflict-affected countries in the WHO Eastern Mediterranean region: A systematic review" investigates the use and efficacy of telemedicine in conflict-affected areas of the Eastern Mediterranean region. The authors note that while the COVID-19 pandemic has led to a rise in telemedicine use, this technology has been utilized in conflict-affected areas for years. The authors identify and analyze twenty-one peer-reviewed and three grey literature sources that met their inclusion criteria, and describe the context, intervention, and evaluation of telemedicine use in six conflict-affected countries graded as WHO Health Emergencies: Afghanistan, Gaza, Iraq, Libya, Syria, and Yemen.

The study showed that tele-ICU interventions in Syria included different medical specialties. Including intensive care (ICU), cardiology, radiology, nephrology and mental health. In both tele-ICU and tele-cardiology, remote providers triaged, interpreted test results, and created management plans for acutely ill patients in real-time using instant messaging and video-calls. In one tele-mental health intervention, a remote provider video-called a single local provider to discuss treatment-resistant patients [33], while other mental-health interventions involved multiple local providers submitting cases to a referral system for review by a remote provider.

The authors found that telemedicine interventions using low-cost, accessible technologies were feasible in these conflict-affected settings, with a range of specialties represented including radiology, histopathology, dermatology, mental health, and intensive care. However, the authors note that few implemented interventions reported on evaluation strategies or had these built-in, and that the ad hoc nature of some of the interventions, which relied on volunteers without sustained financial or academic investment, could pose challenges to quality and sustainability. Additionally, the authors found little exploration of confidentiality, ethical standards, data storage, or local healthcare worker and patient acceptability. Overall, the study highlights the potential of telemedicine in conflict-affected areas but also identifies key gaps in knowledge and areas for improvement.



◆ Evidence based advocacy reports in 2022

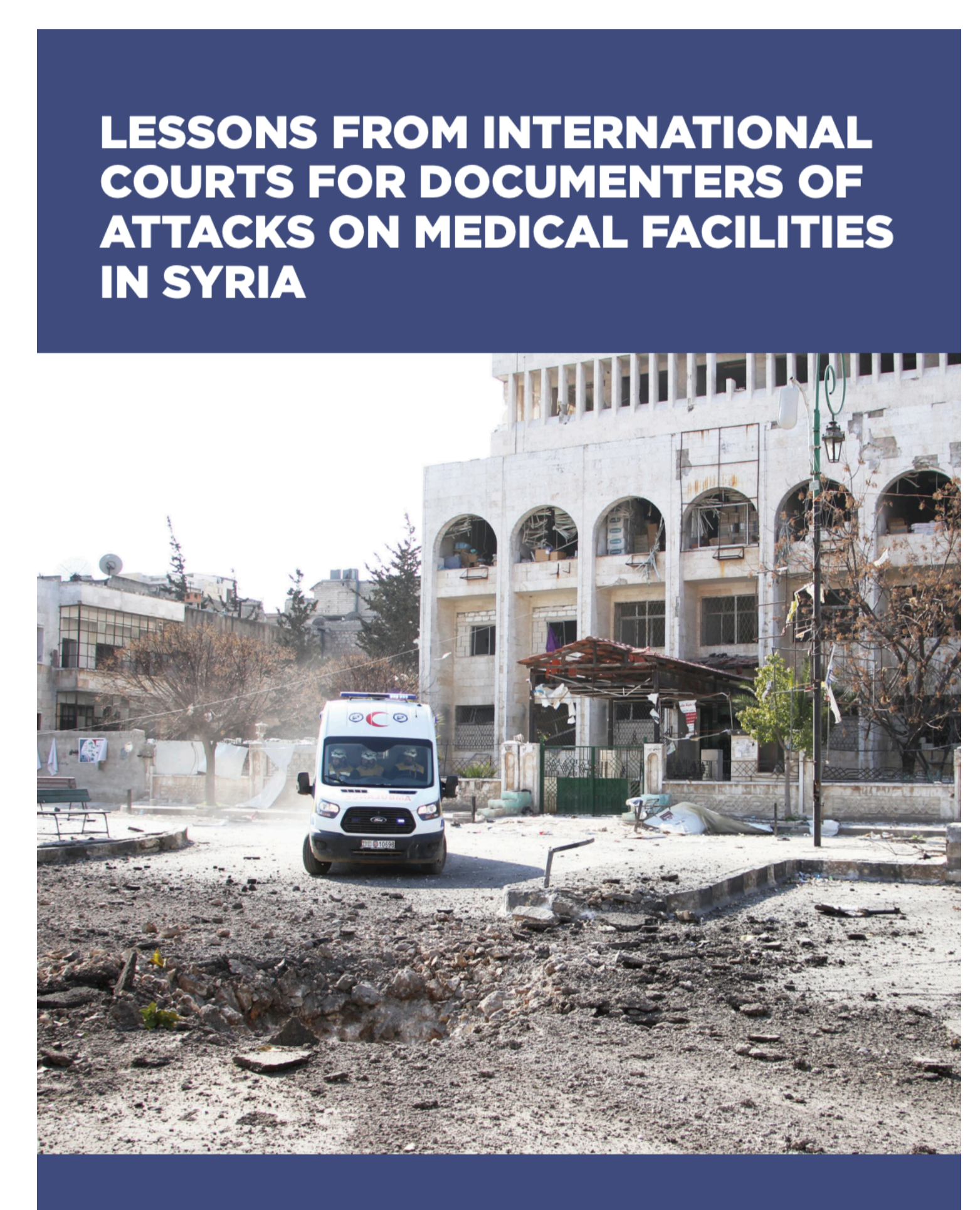
In 2022, a series of evidence-based advocacy reports emerged, focusing on accountability for attacks on healthcare in Syria. These reports utilized rigorous methodology, using cleaned and verified data for attacks on health that SAMS had collected over the years, and brought in expertise from International Humanitarian Law (IHL) experts from other contexts. They highlighted the need for accountability for attacks on health facilities and workers, which are violations of international humanitarian law. These reports were critical in raising awareness and advocating for justice for victims of these attacks, as well as holding perpetrators accountable. Evidence-based advocacy is an essential tool in ensuring that such attacks do not continue with impunity. The reports also remind us of the ongoing humanitarian crisis in Syria, where civilians bear the brunt of violence and instability. SAMS plays a crucial role in protecting health workers and advocating for accountability for attacks on healthcare in Syria.



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A HEAVY PRICE TO PAY, ATTACKS ON HEALTH CARE SYSTEMS IN SYRIA 2015-2021

Main theme	Attacks on health and IHL violation
Sub-theme	-
Report title	1st report: A Heavy Price to Pay: Attacks on Healthcare Systems in Syria 2015-2021 (May 2022)
Publication date	2022, May 17
Link	https://reliefweb.int/report/syrian-arab-republic/heavy-price-pay-attacks-healthcare-systems-syria-2015-2021-may-2022

The report titled "A Heavy Price to Pay: Attacks on Healthcare Systems in Syria 2015-2021" published on May 17, 2022, sheds light on the disturbing reality of how healthcare systems in Syria have been systematically targeted by perpetrators of violence since the beginning of the conflict. This report, which is the first in a series of evidence-based advocacy reports, was published by SAMS. SAMS has always called for accountability for perpetrators who carry out attacks in violation of their international legal obligations.

What is particularly noteworthy about this report is that SAMS has worked on cross-matching its data with the data coming from Physicians for Human Rights (PHR), which has the most quoted number of attacks on healthcare facilities (601 attacks). SAMS has concluded that more incidents have occurred in Syria, raising the overall number to 1070. This report provides a comprehensive analysis of this data through a legal lens, revealing the need for further investigation into whether crimes against humanity or war crimes have taken place.

The report also highlights the repetitive attacks on deconflicted health facilities in Syria, where perpetrators deliberately target facilities that are supposed to be protected under international humanitarian law. This is a grave violation of the Geneva Conventions and has caused immense harm to healthcare workers and patients in Syria.



THE USE OF INDISCRIMINATE WEAPONS IN SYRIA

Main theme	Attacks on health and IHL violation
Sub-theme	-
Report title	The use of indiscriminate weapons in Syria
Publication date	2022, October 7
Link	https://reliefweb.int/report/syrian-arab-republic/use-indiscriminate-weapons-syria-september-2022

The second report in SAMS accountability series, titled "The use of indiscriminate weapons in Syria," was published on October 7th, 2022. The report highlights the use of alleged indiscriminate weapons by warring parties in Syria, including barrel bombs, improvised explosive devices, chemical weapons, and cluster munitions, which have resulted in devastating consequences for civilians and healthcare systems. SAMS data identifies the government of Syria as the alleged perpetrator of 84 incidents of barrel bombs impacting healthcare systems. The report aims to present the issues that courts might consider when evaluating allegations of the use of such weapons violating international humanitarian law, which justifies criminal accountability. While the Security Council has condemned the use of barrel bombs in Syria, OHCHR has opined that the dispositive issue under IHL is how those bombs are used. The report provides crucial insights into the impact of indiscriminate warfare on healthcare systems and calls for further efforts to protect civilians and healthcare workers.



LESSONS FROM INTERNATIONAL COURTS FOR DOCUMENTERS OF ATTACKS ON MEDICAL FACILITIES IN SYRIA

Main theme	Attacks on health and IHL violation
Sub-theme	-
Report title	Lessons from International Courts for documenters of attacks on medical facilities in Syria
Publication date	2022, August 5
Link	https://reliefweb.int/report/syrian-arab-republic/lessons-international-courts-documenters-attacks-medical-facilities-syria

The report titled "Lessons from International Courts for Documenters of Attacks on Medical Facilities in Syria" is the third and final report in SAMS' accountability series, which was published on August 5th, 2022. The report outlines the principles of International Humanitarian Law (IHL) that protect medical personnel and facilities, which can be broken down into two principles. First, medical workers exclusively assigned to medical duties and medical facilities are protected, entitled to be treated as neutral, spared from direct attack, and have their work facilitated where possible. Second, if medical workers participate in hostilities or medical facilities are used for military purposes, they lose their protection and may be attacked.

The report highlights that attacks and threats of attack against hospitals and protected persons in relation to hospitals (such as medical workers and patients) are violations of IHL unless that legal protection has been forfeited. These core principles have been further defined through trials and written judgments at international courts, including the International Criminal Tribunal for the former Yugoslavia (ICTY) and the International Criminal Court (ICC). It also reviews a case study in which a Trial Chamber at ICTY analyzed evidence related to the use of a "modified air bomb," which hit a medical facility in Sarajevo, Bosnia and Herzegovina, on June 16, 1995.





Presenting SAMS' work on accountability to state representatives at the UN Headquarters in New York. The event was sponsored by the Permanent Mission of Canada, and the Netherlands

Conferences and international events

SAMS' board members, research committee members, and the research manager have actively participated in various national and international meetings focused on research for advocacy in the conflict and global health spheres. Their goal has been to promote the findings of SAMS' research to guide policies on healthcare within the Syrian conflict. The accountability series, in particular, has benefited from a side-event held ahead of Syria Brussels' pledging conference in May 2022. The panelists included Prof. Len Rubenstein from John Hopkins Bloomberg School of Public Health, Dr. Zahra Al-Barazi, an expert in international humanitarian law, and Dr. Amani Ballour from Eastern Ghouta, who had firsthand experience in attacks on healthcare. The event was introduced with remarks from Lisa Peterson, principal deputy assistant secretary, bureau of democracy, human rights, and labor, US State department.

Another crucial event was held at the United Nations Headquarters in New York, sponsored by the Canadian mission, USUN, Netherlands mission, and Liechtenstein mission. The purpose was to brief attendees from different countries on SAMS'.

efforts highlighting accountability and to discuss the findings of the report and policy recommendations to pursue accountability for attacks on health in Syria.



In June 2022, a key tour in Europe was conducted, led by SAMS ex-president Dr. Mufaddal Hamadeh. The team had multiple meetings with UN human rights bodies, including the UN High Commissioner for Human Rights, Michelle Bachelet, and Mme. Linnea Arvidsson, Head of the Secretariat at the Commission of Inquiry - Syria (CoI), for violations of human rights in Syria. They also met with other offices, including the Office of the Special Rapporteur for the Right to Health, The International, Impartial and Independent Mechanism - Syria (IIIM), and Global Protection Cluster.

SAMS has continued to analyze its routinely collected data in close collaboration with its team in Turkey. They have supported talented Syrian researchers in developing skills, presenting their work, and supporting advocacy efforts. An example of this was the participation of Maryam Ahmad, a talented MPH student from Imperial College of London, in the highly competitive conference Fourth Health in the Syrian Conflict Conference 2022, held in Kings' College in London in November 2022. Under the supervision of Dr. Aula Abbara, Ahmad represented the findings of a study conducted at SAMS's primary health care centers over more than 2 million consultations of non-communicable diseases in Northwest Syria.



SAMS meets with UN Human Rights commissioner, Michelle Bachelet in Geneva to emphasize accountability efforts.



◆ Partnership

As you are well aware, this crisis has been marked by atrocities against civilians, IHL violations, forced displacement, economic deterioration, communicable disease outbreaks, and natural disasters occurring simultaneously.

SAMS has continued to build partnerships and collaborations with academic institutions and other research partners around topics and areas of mutual interest. We are grateful for the support and collaboration of Harvard Humanitarian Initiative, with whom we have been analyzing our data from Eastern Ghouta during the siege from 2014 to 2017. We have also maintained our collaboration with Dr. Samer Jabbour at the Lancet-AUB Commission Syria, of which Dr. Ahmad Tarakji is a commissioner. This project has made significant progress in cleaning the data and is expected to be finalized in 2023.

We are proud to be actively engaged in an R2HC funded collaboration with Johns Hopkins University and Berkeley University. Our innovative approach is focused on the Public Health Impact of Attacks on Healthcare in Syria, as well as the experiences of health care providers and their perspectives on the attacks. This topic has garnered international interest, and we are grateful for the contributions of Dr. Aula Abbara, co-PI on this research project, as well as Dr. Ahmad Tarakji, Dr. Mohamed Hamze, Dr. Mohamed Katoob, and others who have provided expert advice and input.

Recently, we have formed a collaboration with Professor Anees Chagpar, a professor of Global Oncology at YALE UNIVERSITY, funded by a MacMillan Grant. Together, we are exploring barriers and solutions to breast cancer care in northwest Syria through SAMS Oncology Committee, led by Dr. Bassel Atassi with the support of the research committee.

In 2022, we also partnered with the WHO sponsored Research4Life platform, enabling us to provide free access to medical journals for medical students, interns, and young researchers at SAMS facilities in Syria. We are proud to partner with non-governmental organizations such as the International Rescue Committee (IRC) and Physicians for Human Rights (PHR), as well as Syrian NGOs including SRD and Shafaq. We work together on research highlighting the impact of attacks on sexual and reproductive health care services in North West Syria.

Lastly, SAMS received support from the Ethelwyn Doolittle Justice and Outreach Fund of The Community Church of New York to produce a report studying the access of persons with disabilities to its health care services in Syria. This report aims to provide policy recommendations on how to improve access for this segment of the population. We thank all our partners for their valuable contribution to our research efforts.





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◆ Acknowledgment

The research conducted by SAMS' research department would not have been possible without the tremendous support and guidance of various individuals and departments. Firstly, we would like to express our gratitude to the SAMS Foundation, SAMS Society, and the relevant board members for their unwavering support and encouragement. Additionally, we extend our sincere appreciation to the Health Information department and the team at SAMS Turkey office for their valuable input and assistance.

We would also like to acknowledge the invaluable contributions of Dr. Randa Loutfi, who has been a constant source of support and guidance for the research department. Her expertise and experience have been critical in shaping the direction of our research.

A special mention goes to Dr. Amjad Rass, SAMS' president, who has been a true advocate for the importance of conducting and promoting research. His leadership and vision have been instrumental in guiding our research agenda and ensuring that our findings are used to improve the health outcomes for Syrians affected by the conflict.

Finally, we express our heartfelt thanks to all our Research Committee Members, and in particular, Dr. Aula Abbara, for their generous contribution of time and expertise. Their commitment to promoting the research agenda for health in Syria has been crucial to the success of our work.



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◆ SAMS related Research Publications in previous years

Theme	Sub-Theme	Year	Research Title
Health research in conflict	<ul style="list-style-type: none"> • Infectious diseases • Water borne diseases • Weaponization of water 	2021	Abbara A, Zakieh O, Rayes D, Collin SM, Almhawish N, Sullivan R, Aladhan I, Tarnas M, Whalen-Browne M, Omar M, Tarakji A, Karah N 2021, Weaponizing water as an instrument of war in Syria: impact on diarrhoeal disease in Idlib and Aleppo governorates, 2011-2019, International Journal of Infectious Diseases, Vol: 108, Pages: 202-208, ISSN: 1201-9712 DOI: 10.1016/j.ijid.2021.05.030
	<ul style="list-style-type: none"> • Vector borne diseases 	2020	Tarnas MC, Desai AN, Lassmann B, Abbara A 2020, Increase in Vector-Borne Disease reporting affecting humans and animals in Syria and neighboring countries before and after the onset of conflict: A ProMED analysis 2003-2018, International Journal of Infectious Diseases, ISSN: 1201-9712
	<ul style="list-style-type: none"> • Communicable diseases • Covid-19 	2020	Marzouk M, Rayes D, Douedari Y, Alkarim T, Mhawish N, Abbara A. Situational brief: Impact of COVID-19 on forcibly displaced persons inside Syria. Lancet Migration and Health. July 2020 https://www.migrationandhealth.org/migration-covid19-briefs
	<ul style="list-style-type: none"> • Infectious diseases • Tuberculosis 	2019	Abbara A, Almalla M, AlMasri I, AlKabbani H, Karah N, El-Amin W, Rajan L, Rahhal I, Alabbas M, Sahloul Z, Tarakji A, Sparrow A 2019, The challenges of tuberculosis control in protracted conflict: the case of Syria, International Journal of Infectious Diseases, ISSN: 1201-9712
	<ul style="list-style-type: none"> • Antimicrobial resistance 	2018	Abbara A, Rawson T, Karah N, El-Amin W, Hatcher J, Tajaldin B, Dar O, Dewachi O, Sub Sitta G, Eric Uhlin B, Sparrow A. Antimicrobial resistance in the context of the Syrian conflict: a summary and appraisal of existing evidence. International Journal of Infectious Diseases June 2018
	<ul style="list-style-type: none"> • Mental health • Refugees health 	2016	A Abbara, A Coutts, F Fouad, SA Ismail, M Orcutt. Mental Health amongst displaced Syrians: findings from the Syria Public Health Network. Journal of the Royal Society of Medicine, January 2016
	<ul style="list-style-type: none"> • Communicable diseases surveillance 	2016	I Sharif, A Abbara, SM Collin, M Orcutt, A Coutts, W Maziak, Z Sahloul, O Dar, T Corrah, F Fouad. Communicable disease surveillance and control in the context of conflict and mass displacement in Syria. International Journal of Infectious Diseases. May 2016

◆ SAMS related Research Publications in previous years

Theme	Sub-Theme	Year	Research Title
Health Systems and the triple Nexu	<ul style="list-style-type: none"> • Leadership and gouvernance 	2021	Abbara A, Ekzayez A, 2021, Healthcare leadership in Syria during armed conflict and the pandemic, BMJ Global Health, Vol: 6, ISSN: 2059-7908 DOI: 10.1136/bmjgh-2021-005697
	<ul style="list-style-type: none"> • Health system response to conflict and pandemics • Covid-19 	2020	Abbara A, Rayes D, Fahham O, Alhiraki OA, Khalil M, Alomar A, Tarakji A 2020, Coronavirus 2019 and health systems affected by protracted conflict: the case of Syria, International Journal of Infectious Diseases, Vol:96, ISSN:1201-9712, Pages:192-195
	<ul style="list-style-type: none"> • Impact of Sanctions 	2020	Abbara A, Ekzayez A, Tarakji A, Khalil M, Sullivan R. 2020, Sanctions on Syria. The Lancet Global Health, Vol:8, November 2020 ISSN:2214-109X, Pages: e1369-e1369 DOI: 10.1016/S2214-109X(20)30363-6
	<ul style="list-style-type: none"> • Refugees health system • Access to health 	2020	Joseph L, Ismail S, Gunst M, Jarman K, Prior D, Harris M, Abbara A, 2020, A qualitative research study which explores humanitarian stakeholders' views on healthcare access for refugees in Greece, International Journal of Environmental Research and Public Health, Vol: 17, ISSN: 1660-4601. 2020
	<ul style="list-style-type: none"> • Refugees health system • Access to health 	2019	Gunst M, Jarman K, Yarwood V, Rokadiya S, Capsaskis L, Orcutt M, Abbara, A. Healthcare access for refugees in Greece: Challenges and opportunities. Health Policy. 14th June 2019
	<ul style="list-style-type: none"> • Health care availability • Humanitarian status 	2020	Abbara A, Rayes D, Khalil M, Kewara M, Tarakji A. 2020. Humanitarian catastrophe for civilians in northwest Syria. British Medical Journal. Vol 368. 1756-1833
	<ul style="list-style-type: none"> • Humanitarian aids • Impact of conflict on health system 	2019	Orcutt M, Rayes D, Tarakji A, Katoub M, Spiegel P, Rubenstein L, Jabbour S, Alkhalil M, Alabbas M, Abbara A 2019, International failure in northwest Syria: humanitarian health catastrophe demands action, Lancet, Vol:394, ISSN:0140-6736, Pages:100-103
	<ul style="list-style-type: none"> • Models of care • Refugees health 	2016	A Abbara, K Jarman, M Gunst, M Isreb, Z Sahloul Models Similar to the Refugees' Health Unit Exist in Northern Greece. Lancet 388 (10058), 2352. 2016 Nov 12. (Correspondence)



◆ SAMS related Research Publications in previous years

Theme	Sub-Theme	Year	Research Title
Attacks on health and IHL violation	<ul style="list-style-type: none"> Attacks on health workers Covid-19 	2020	Almhawish N, Karah N, Elferruh Y, Aksh A, Abbara A 2021, Protecting healthcare workers in conflict zones during the COVID-19 pandemic: Northwest Syria, JOURNAL OF INFECTION, Vol: 82, Pages: 216-217, ISSN: 0163-4453 DOI: 10.1016/j.jinf.2021.01.027
	<ul style="list-style-type: none"> Attacks on hospitals 	2020	García-Mingo A, Abbara A, Roy RB, 2020, "You said the hospital can't be bombed". The Lancet Child and Adolescent Health, ISSN:2352-4642
	<ul style="list-style-type: none"> Besiegement Tuberculosis 	2018	Abbara A, Al Kabbani H, Al-Masri I, Sahloul Z, Sparrow A. Populations under siege and in prison require investment by Syria's national tuberculosis program. Accepted by Lancet Respiratory, April 2018
Health workforc, Medical Education	<ul style="list-style-type: none"> Health workers return 	2021	Rayas D, Meiqari L, Yamout R, Abbara A, Nuwayhid I, Jabbour S, Abouzeid M 2021, Policies on return and reintegration of displaced healthcare workers towards rebuilding conflict-affected health systems: a review for The Lancet-AUB Commission on Syria., Confl Health, Vol: 15, Pages: 1-12, ISSN: 1752-1505 DOI: 10.1186/s13031-021-00367-4
	<ul style="list-style-type: none"> Medical education in crisis 	2020	Bdaiwi Y, Rayes D, Sabouni A, Murad L, Fouad F, Zakaria W, Hariri M, Ekzayez A, Tarakji A, Abbara A Challenges of providing healthcare worker education and training in protracted conflict: a focus on non-government controlled areas in north west Syria, Conflict and Health, ISSN:1752-1505. July 2020
	<ul style="list-style-type: none"> Integration of immigrant health workers 	2019	Abbara A, Rayes D, Omar M, et al., Overcoming obstacles along the pathway of integrating Syrian healthcare professionals in Germany, BMJ Global Health. September 2019
	<ul style="list-style-type: none"> Health care workers Weaponization of aids 	2017	Fouad M Fouad, Annie Sparrow, Ahmad Tarakji, Mohamad Alameddine, Prof Fadi El-Jardali, Adam P Coutts, Nour El Arnaout, Lama Bou Karroum, Mohammed Jawad, Sophie Roborgh, Aula Abbara, Fadi Alhalabi, Ibrahim AlMasri, Dr Samer Jabbour. Health workers and the weaponisation of health care in Syria: a preliminary inquiry for The Lancet–American University of Beirut Commission on Syria. Lancet. March 2017
	<ul style="list-style-type: none"> Attacks on health workers Covid-19 		Almhawish N, Karah N, Elferruh Y, Aksh A, Abbara A 2021, Protecting healthcare workers in conflict zones during the COVID-19 pandemic: Northwest Syria, JOURNAL OF INFECTION, Vol: 82, Pages: 216-217, ISSN: 0163-4453 DOI: 10.1016/j.jinf.2021.01.027





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