Syrian American Medical Society

Disrupted Health Care In Syria

The State of Reproductive Health

December 2018

About the Syrian American Medical Society (SAMS)

SAMS is a global medical relief organization that is working on the frontlines of crisis relief in Syria, neighboring countries, and beyond to alleviate suffering and save lives.

SAMS was founded in 1998 as a professional society, working to provide physicians of Syrian descent with networking, educational, cultural, and professional services. SAMS facilitates opportunities for its members to stay connected to Syria through medical missions, conferences, and charitable activities. SAMS currently has over 1,500 grassroots members in the United States, who help lead 25 chapters nationwide.

When the conflict in Syria began in 2011, SAMS expanded its capacity significantly to meet the growing needs and challenges of the medical crisis. SAMS has since supported healthcare throughout Syria, sponsoring hospitals and ambulances, training and paying the salaries of Syrian medical personnel who are risking their lives to save others, and sending life saving humanitarian aid and medical equipment to where it is needed most. SAMS also supports Syrian refugees in neighboring countries and Greece with critical psychosocial support, medical and dental care, art therapy programs, and more.

Cover Photos

Top: Succesful quadruplet delivery at a SAMS hospital in Idlib

Bottom: Newborn babies in incubators with blue lights at a SAMS facility

Acknowledgements

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Foreword

As the Syrian conflict enters its eighth year, it continues to decimate the country's infrastructure and society. Essential civilian structures have not been spared. For the healthcare system, the impact is staggering. Medical facilities have been deliberately and systematically targeted. Many physicians have fled the country and hundreds have been killed or arrested. This has left a deeply depleted health sector in which the remaining medical staff are struggling to fill the gaps. The conflict has also caused critical shortages of medical equipment and supplies, pushing medical personnel to seek alternative means of providing adequate treatment to patients in need.

This grim reality has exacted a heavy toll on the provision of reproductive healthcare in particular. While the conflict has affected populations across gender, age, political and religious affiliation, for women especially, the challenges are tremendous. In the Syrian context, expectant women struggle to maintain healthy pregnancies and to give birth safely amidst the war's persistently corrosive effects on reproductive healthcare, which largely impede access to adequate services and family planning.

This report by the Syrian American Medical Society (SAMS) documents the impact of the Syrian conflict on the provision of reproductive health. It recounts the challenges faced by medical workers and patients in Dara'a, Idlib, and East Ghouta, and highlights the resilience demonstrated by reproductive health providers in the face of adversity.

Many families have lost loved ones in the Syrian war, resulting not only in traumatized and grieving women, men and children, but also impairing family and communal structures with consequences that threaten to last for generations to come. SAMS, as many other organizations, remains committed to help Syrians, alleviate their suffering, and provide them with dignified services and care.

Amjad Rass, MD
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Food baskets distribution to address malnutrition in East Ghouta in 2017

Introduction and Methodology

Since 2011, around 500,000 people are estimated to have been killed, and more than 12 million Syrians, half the country's pre-conflict population, have been displaced internally or outside Syria.[1] Violence, displacement, impoverishment, besiegement and many other atrocities have unraveled the country's social fabric.

Studies on health in conflicts across the world revealed that women and children are the most affected by conflicts and experience a disproportionate health impact, often because emergency contexts exacerbate pre-existing inequalities between men and women, as well as across geographic regions, social class, and ethnic or religious division.[2] The deterioration of the provision of reproductive health (RH) in Syria has had detrimental effects on all members of the society. RH encompasses many dimensions of women and men's health.[3] However, for the purpose of this report, our research focuses mostly on women and infants.

This report relies on two primary sources of information. We utilized quantitative data from records collected by the Syria American Medical Society (SAMS) staff and medical workers in the Dara'a, Idlib, and East Ghouta regions of Syria between September 2017 and March 2018. Gathering data in the Syrian context, however, presents significant challenges, and figures remain scarce, incomplete and often uncertain, and data on pre-conflict baseline indicators are often unavailable. Data used in this report includes various reproductive health indicators including rates of delivery and data on postnatal and prenatal care for 10 facilities in Idlib governorate, Dara'a governorate and East Ghouta.

SAMS also conducted 21 semi-structured, key informant interviews (KIIs) with reproductive healthcare providers at SAMS facilities in these three regions. Regionally, 11, 7 and 3 interviews were conducted respectively with personnel in Dara'a, Idlib, and East Ghouta. In total, interviews were conducted with 8 midwives, 6 obstetricians-gynecologists (OBGYN), 6 physicians serving as OBGYNs (3 of whom also serve as facility directors) and 1 nurse between November 29, 2017 and October 22, 2018.

In East Ghouta, interviews with personnel took place on January 31, 2018 and February 1, 2018. Subsequent interviews and research in the then-besieged enclave could not be pursued as a result of the military campaign that began in February 2018 and the ensuing population evacuation.

During the writing and editing of this report, a military offensive began in the southern province of Dara'a. The data and stories included in this report reflect the state of reproductive health in Dara'a prior to the June 2018 offensive. Subsequent interviews and research were made impossible by the offensive.

Data including that which was collected from facilities, open source-data, and SAMS reports on attacks on healthcare were used to cross-check claims made in interviews. In order to protect the identity of the personnel interviewed, we did not disclose the names of facilities, and replaced actual names with pseudonyms.

The Impact of the Conflict on Reproductive Health

The current context in Syria and continued deterioration of the country's reproductive healthcare system threatens to further entrench devastating outcomes for families in both the immediate future and the longer term. Destruction wrought by violence targets healthcare facilities and is echoed in severe economic declines. The reproductive healthcare providers that have remained are handicapped by shortages in personnel, resources, and adequate training, and patients—women, infants, and their entire families—suffer the consequences.

The Burden of War

Attacks on healthcare facilities. One of the hallmarks of the Syrian conflict has been the deliberate and repeated targeting of the health system by most parties to the conflict. As of November 2017, 492 facilities were attacked and 847 personnel killed, according to Physicians for Human Rights (PHR).[4] Attacks on healthcare have had devastating effects on medical personnel and patients alike.

For reproductive health, the situation is no different. Facilities providing reproductive health services have been systematically targeted. In 2017, 12 SAMS facilities, 6 of which provided RH services, were forced to close either temporarily or permanently as a result of targeted attacks.[5]

Prior to the attack, Al Salam Hospital's medical staff were conducting 100–150 consultations a day, and delivering more than 500 babies per month.[6] The attacks forced it to close temporarily after most of the hospital was destroyed. When the hospital reopened a month later, its capacity was severely reduced. In addition, the number of patients served has declined sharply, to less than half of the pre-strike capacity. Among the 20 incubators that the hospital used to nurse preterm babies or ill newborn babies back to health, only 3 could be used after the strike.[7] Al Ma'ara National Hospital was also a major RH services facility. Before the February 2018 attack, it provided an average of 620 consultations and 60 deliveries monthly.

More recently, on August 10, 2018, an airstrike on a facility providing RH services in Tarmalah, in the countryside of Idlib, forced it to close for four days.

Attacks on healthcare disrupt and halt critical reproductive health services. The direct and systematic

Staff in East Ghouta checking debris after a SAMS hospital was destroyed in March 2018

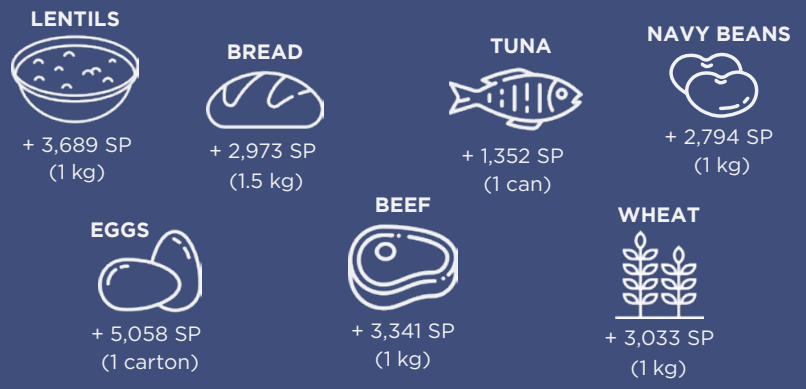
Attacks continued in 2018. At least 126 separate attacks on healthcare were reported in the first 6 months of 2018, more than for the whole of 2017 according to the World Health Organization (WHO).[8] On January 3, 2018, Al Salam Hospital in Ma'arat al-Numan city, in Idlib province, was attacked three times in four days, killing five people, including an infant and her father, and forcing the hospital to close temporarily.[9] A month later, in the same city, Al-Ma'ara National Hospital was partially destroyed by three airstrikes. Civil defense workers (also known as the White Helmets) in the area removed preterm babies from their incubators and carried them from the rubble on stretchers.[10]

bombardment of medical facilities prevents pregnant women in particular from seeking services at hospitals. More generally, violence has dissuaded them from taking on the risks involved in transportation.[11] Whether periodic or persistent, the threat of airstrikes impedes the ability of patients to attend scheduled appointments. Medical personnel also have to face this dire reality. Until the end of the siege of East Ghouta in March 2018, all reproductive health personnel at one facility in the enclave worked 24-hour shifts.[12] In all three areas surveyed in this report, medical workers slept in facilities to minimize transportation and the associated risks.[13]

Economic deterioration. Beyond the devastating impact of aerial attacks, the economic destruction inherent in any protracted conflict has contributed to some of the greatest challenges facing RH in Syria. Prices throughout the country have skyrocketed in recent years, rendering basic commodities unaffordable for many families. The lack of available nutritional items is particularly hazardous for pregnant women and new mothers, who may be unable to acquire the nutrients and vitamins necessary to maintain a healthy pregnancy or produce breast milk after giving birth. Dr. Maha, an OBGYN working in northern Syria reported significant rates of anemia among her patients, increasingly common as families lack the resources to maintain a balanced diet with sufficient nutrients.[14]

Economic hardship also affects the affordability of fuel and transportation, discouraging visits to the hospitals for anything other than emergency situations. In northern Syria, medical personnel have reported high costs for all transportation options. Renting a car in northern Syria, explained Maram, a midwife working in a major RH hospital in Idlib, is approximately 15,000 Syrian Pounds ($29), which most families—whose average monthly income is between $100 and $300—cannot afford.[15] In southern Syria, personnel have described the cost of renting a car to transport newborns to the closest facility with incubators as approximately 10,000 Syrian Pounds ($20), in an area where most families monthly income is less than 77,000 Syrian Pounds ($150).[17] Similarly, taxi prices are far outside the range of affordability for most women and their families.

PRICES IN EAST GHOUTA COMPARED TO IDLIB



ITEM	DARA'A	IDLIB	EAST GHOUTA
Bread (1.5 kg)	131 SP/$0.25	227 SP/$0.44	3,200 SP/$7.50
Chickpeas (1 kg)	399 SP/$0.77	377 SP/$0.73	4,000 SP/$7.80
Lentils (1 kg)	370 SP/$0.72	311 SP/$0.60	4,000 SP/$7.80
Beef (1 kg)	3,806 SP/$7.39	2,659 SP/$5.16	6,000 SP/$11.7
Eggs (1 carton)	1,008 SP/$1.96	942 SP/$1.83	500 SP/$1 per 1 egg
Tuna (1 can)	389 SP/$0.76	348 SP/$0.68	1,700 SP/$3.32
Wheat Flour (1 kg)	204 SP/$0.40	167 SP/$0.32	3,200 SP/$6.24
Navy Beans (1 kg)	339 SP/$0.66	206 SP/$0.40	3,000 SP/$5.85

Prices of main commodities as of March 2018[16] SP = Syrian Pound

Families in the East Ghouta region relied on a small number of reproductive health centers and needed to travel across dangerous routes to access care. Renting a taxi from Al Marj RH hospital in Masraba to the city of Douma where incubators were available, cost 12,000 Syrian Pounds ($23) at the time interviews were conducted. An expectant woman walked 12 kilometers (7.4 miles) from her home in Nashabiyeh to the hospital in Masraba during her ninth month of pregnancy.[18]

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Price inflation and the economic consequences of war were particularly acute in besieged areas. Malnutrition struck East Ghouta where, until March 2018, around 400,000 people were trapped.[19] The rampant malnutrition added yet another layer to the challenges facing the reproductive

OBGYN conducting an ultrasound at a SAMS facility in Idlib

health of its residents as food, vitamins and nutrients essential for a healthy pregnancy were scarce or unavailable. The 3 medical workers in East Ghouta interviewed reported seeing cases of malnourished expectant and new mothers.

"Very rarely a pregnant women could afford to eat three meals a day," said midwife Farah. "One pregnant patient was eating once daily to be able to feed her children."[20]

The Strains and Drains of the Medical Sector

Shortage and attrition of specialized trained personnel. In the face of continued violence and threat of attack, coupled with the economic fallout of persistent conflict, at least half of Syria's pre-conflict medical personnel have fled the country, and hundreds have been killed or detained.[21]

According to Dr. Majed, a hospital director in Dara'a, there were more than 1,000 physicians in southern Syria before the war broke out in 2011. Today, only 150 of them are estimated to have remained.[22] However, when Dara'a was still controlled by non-state armed groups, many medical workers often chose not to work in public or NGO-supported hospitals for either economic or political reasons. Yet, for many Syrian families—whose average income didn't exceed $150—a C-section in a private facility is out of reach due to its high costs (around 100,000 Syrian Pounds or close to $200), explained Dr. Majed.[23]

"Very rarely a pregnant women could afford to eat three meals a day. One pregnant patient was eating once daily to be able to feed her children," said Farah, SAMS Midwife in East Ghouta.

This has led to a severe shortage of qualified and specialized medical providers. As a result, students who started but did not complete their training as OBGYNs, or physicians with some surgical background were forced to take on the responsibilities of an experienced OBGYN, performing several C-sections every week.[24]

The 2017 Sphere Minimum Standards in Health Action outlines thresholds for the number of health facilities and personnel required to meet essential health needs of populations in disaster contexts, outlining the minimum standards for the provision of health services at the onset of an emergency situation as well as more comprehensive methods of healthcare provision as the emergency context progresses and stabilizes. The Sphere Standards mandate that at least one team of a nurse, doctor, midwife, and anesthetist have to be on duty 24 hours a day and 7 days a week for a population of 500,000.[25]

However, most often, the hospitals surveyed in this report didn't meet these standards, either due to lack of funding or lack of medical personnel. In northern Syria, because of many restraints including budget limitations, only one anesthesiologist was contracted at a hospital to cover all anesthesia-related needs for patients.[26] The absence of an anesthetic technician hinders the safe provision of all kinds of medical care,

reproductive and otherwise. The hospital's OBGYN, Dr. Nada, recounts one case in which a pregnant patient arrived at the hospital, already in late stages of hypertension and placental abruption after being referred by another nearby hospital that didn't have the necessary resources to perform the required emergency surgery. Dr. Nada and her team operated on the patient immediately, unfortunately, she and her child died on the table. It was already too late by the time the patient got to the hospital. "I strongly believe that had there been an anesthesiologist there in the room, there would have been a far greater chance of survival. But there wasn't. And there was nothing we could do to save her life and her baby," said Dr. Nada.[27] A lack of qualified staff in a healthcare facility can significantly impact the chance of a positive outcome for reproductive health patients.

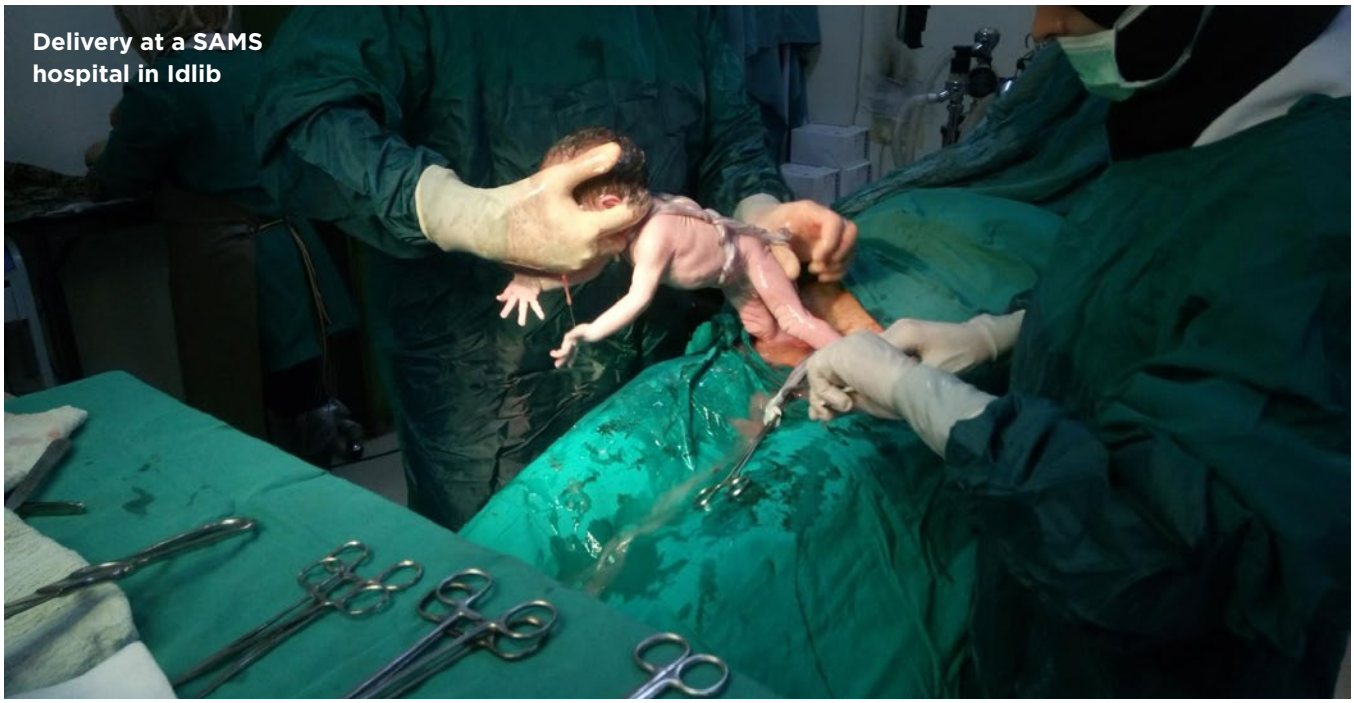
In East Ghouta, Dr. Maher, a urologist, was forced to perform C-sections and other reproductive health procedures in one of the Damascus suburb's facilities despite his lack of experience with such procedures due to severe shortages of OBGYNs.[28] Similarly, Dr. Karim, a thoracic surgeon at a hospital in southern Syria took on the role of an OBGYN to meet patients' needs. He had not performed C-sections or other reproductive health procedures before the conflict began, but he now performs 8–10 C-sections a week.[29]

Performing surgeries outside of their specialization causes physicians persistent stress, and their lack of experience in reproductive health can be dangerous, and in some cases life threatening to an expectant mother or her baby. However, Dr. Maher explained, "Given the dire circumstances we live in, it is our humanitarian and professional duty to perform these surgeries."[30]

In addition to the general lack of OBGYNs—or doctors taking on the role of OBGYN in medical facilities—across Syria, there is a particularly acute scarcity of female OBGYNs and midwives. Given religious beliefs and cultural traditions, many Syrian women prefer to seek out female OBGYNs. Four of the medical personnel interviewed claimed that some patients refused to be seen by a male OBGYN, and did not see a doctor as a result.[31] Others pay the expensive fees associated with traveling to the next closest reproductive healthcare facility with a female doctor, and some walk long distances to seek out a female physician.

Midwives have filled an important gap. In many centers, they are responsible for leading the provision of reproductive healthcare for the communities, which has in turn put enormous pressures on them. Some midwives are well-trained and had been practicing for years when the conflict started. They also transferred their experience and knowledge to a pool of more recently trained midwives. Still, some newly-graduated midwives are forced to complete procedures without adequate training, and others are providing reproductive healthcare without even having completed their studies. Limited training among midwives can have significant detrimental effects such as the misuse of equipment, misunderstanding of particular symptoms, or mismanagement of the patient.

According to Dina, an experienced midwife working in southern Syria, "a midwife's work is a doctor's work with the exception of surgery. Through training and



Delivery at a SAMS hospital in Idlib

A SAMS midwifery training school in Idlib

experience, if there's a woman with a rupture, I stitch it; if there's a woman with high blood pressure, I know what to do; if a woman has diabetes, I know how to treat her. A trainee might not know how to deal with these cases."[32]

In one case, a young midwife failed to completely remove the placenta during a home birth and was unable to diagnose complications stemming from the patient's retroverted uterus. As a result, the patient was taken to the hospital after a significant delay and arrived in critical condition. A urologist was able to repair damage to the patient's ureter, but Dr. Mona acting in the capacity of an OBGYN, who herself was not trained in the specialization, was forced to remove the patient's uterus. She recounts, "There was a patient that came in with uterine issues and we had to remove her entire uterus. … An inexperienced midwife had damaged the uterus during a home delivery. But thank God the patient survived and we could send her to another hospital to recover."[33]

"Before the war, I could give a patient my full attention and focus, 100 percent. I can't do this anymore. Often, I can't follow up with a woman after a vaginal birth or a C-section delivery. In some cases, I even forgot to give the patient basic post-delivery advice," said Dina, SAMS Midwife in Dara'a

For physicians and midwives alike, the personnel shortage has left them with a heavy workload and immense pressure. Personnel are often overwhelmed as they move from one emergency case to the next. Inevitably, the quality of their services is sometimes affected. Comparing the new reality to the pre-conflict situation, Dina explained, "Before the war, I could give a patient my full attention and focus, 100 percent. I can't do this anymore. Often, I can't follow up with a woman after a vaginal birth or a C-section delivery. In some cases, I even forgot to give the patient basic post-delivery advice."[34]

Dr. Mona, echoed this sentiment, recounting how, overcome with work sometimes, she neglected to prescribe medications or order follow-up lab tests.[35]

Several organizations have stepped in to fill gaps left by the attrition of skilled reproductive health providers. SAMS established two midwifery and nursing schools in Idlib in 2017, and previously operated a nursing school in Aleppo. In 2017, SAMS provided continuing medical education to 1,138 students, with eleven midwives graduating from the SAMS-supported Midwifery Institute. Additionally, SAMS supported the only medical institute in East Ghouta since its establishment in October 2015 and until March 2018. Nearly 280 medical students were enrolled at the school.

While the Sphere Standards mandate one qualified health worker for every 50 outpatient consultations per day,[36] many doctors in Syria report seeing more than 50 patients daily, some receiving up to 70 per day.[37] The constant pressure on the limited number of reproductive healthcare personnel requires personal sacrifice as well—several doctors reported seeing their families infrequently, "We basically live here in the hospital. We see patients more than we see our families."[38]

Lack of equipment and supplies. Not only are most medical facilities understaffed, but they are all ill-equipped and undersupplied as a result of the war. Shortages of equipment and supplies have put additional strains on healthcare workers, who operate in dire conditions. In some facilities, even basic requirements are lacking. Dr.

Nada recounted how providing a sterile environment for mothers and newborns is a persistent challenge at the facility where she works.[39] Dr. Mona reported a dearth of labor-inducing drugs including oxytocin in southern Syria.[40] Nearly all medical workers interviewed reported insufficient amounts of methylergonovine maleate and other drugs to stem uterine hemorrhaging.[41]

Similarly, a scarcity or unavailability of incubators represents another challenge in many facilities. Dr. Rami, a family doctor and OBGYN at a health center in southern Syria explained, "My hospital [in southern Syria] has only 2 incubators, never enough to serve all preterm babies. On one occasion, we had 24 babies in need of incubators simultaneously. We had to use the incubators for only the most serious of cases."[42]

In Al Marj hospital in Mesraba, there were no incubators available. As a result, all newborns in need of incubators were transported to the hospital in Douma, 12 km away. In one case, an infant weighing just 2.1 kilograms (approximately 4.6 pounds) was rushed to Douma Hospital. However, heavy bombardment delayed the ambulance by more than half an hour. By the time the infant was put in the incubator, it was too late. The infant died within an hour.[43]

Patients in the Crosshairs

Limited information, knowledge, and awareness. The war has generated emergency priorities for both medical workers and patients. As a result, health knowledge and awareness have lagged behind despite the particularly acute dangers that reproductive health misconceptions and mishandling present. Misinformation or lack of education about their own reproductive health prevents women from recognizing warning signs or symptoms indicating complications during pregnancies.

"My hospital [in southern Syria] has only 2 incubators, never enough to serve all preterm babies. On one occasion, we had 24 babies in need of incubators simultaneously. We had to use the incubators for only the most serious of cases," explained Dr. Rami, a SAMS OBGYN in Dara'a

Notwithstanding gaps and inequalities in Syria before 2011, there were many initiatives, some sponsored by the Ministry of Health, to raise awareness and educate women on health related issues, notably in rural areas. Health workers used to conduct home visits to families and organize small gatherings, bringing women together to discuss critical maternal health knowledge and important aspects and risks of pregnancy.[44]

However, these pre-conflict activities have largely collapsed along with other aspects of the health system in Syria. Spreading awareness and education has become a luxury that most facilities—lacking adequate financial and human resources, and often prioritizing more urgent needs—cannot afford. This has exacerbated an already

A medical worker feeding a newborn in an incubator at a SAMS hospital in Idlib

OBGYN filling information about newborn babies at a SAMS facility in Idlib

dire situation for expectant women. Medical workers reported having seen numerous cases in which expectant mothers visited the hospital without knowing that their fetus had died a month or two months earlier.[45] It has also left many women more susceptible to sexually transmitted diseases. Physicians have noticed cases of trichomoniasis, a sexually transmitted infection (STI) that can increase the risk of preterm delivery and low birth weight.[46] Although the infection is curable if both partners are medicated, in many cases, couples did not understand the full consequences of the infection, and the husbands refused treatment.[47]

Declining Prenatal/Postnatal Care. Prenatal and postnatal care have suffered during the conflict. Among the factors contributing to declining prenatal care are the limited capacity of medical facilities to provide sufficient prenatal medicines and vitamins to pregnant women, as well as economic constraints and disruptions caused by violence.[48] Transportation difficulties also hinder access to prenatal care. Dr. Maha, an OBGYN in northern Syria reported, "Distance has hampered pregnant women's prenatal care. The further the patient lived from the hospital the less she would commit to her follow up visits."[49] Unable to reach the hospital, many patients in the Dara'a and Idlib regions go instead to pharmacies and, in some cases, are prescribed ineffective or even dangerous medications that could have devastating outcomes for their own and their unborn children's health.[50]

In some cases, the lack of consistent prenatal care caused serious threats to the health of expectant mothers and their babies. Dr. Karim shared the story of an 18-year-old pregnant patient who was rushed to the hospital's intensive care unit (ICU) with severe seizures and difficulty breathing. She was diagnosed with eclampsia, which if left untreated, could endanger her and her unborn child's lives. Doctors were able to perform an emergency C-section, and save both the mother and her baby.[51] However, had routine prenatal care allowed for an earlier diagnosis, her eclampsia would have been treated, preventing it from reaching such a threatening level.[52]

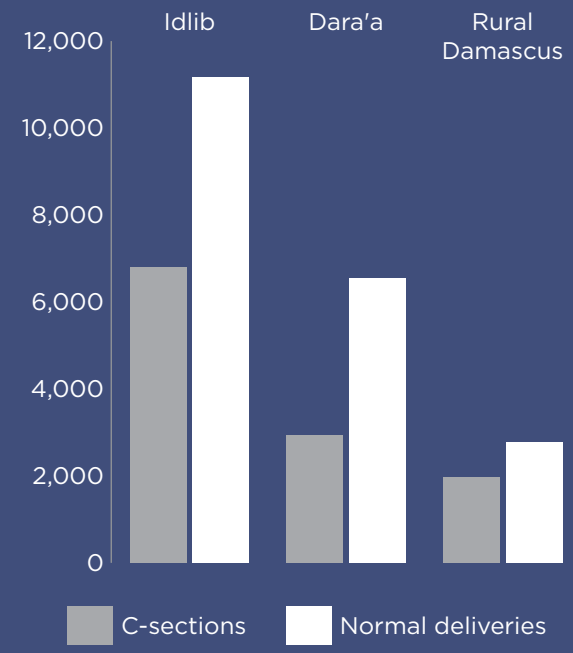
In besieged areas, risks of medical complications for expectant women are even higher. Patients have reportedly visited facilities in East Ghouta with stomach cramps and pain believing they were in labor to discover these were symptoms of poor nutrition.[53] Similarly, high cost and scarcity of medical supplies have prevented some patients from changing bandages or taking anti-inflammatory medications, for instance, leaving them more susceptible to infection and inflammation. Most households in East Ghouta could barely afford food to sustain their families, let alone the vitamins and medicine critical for a healthy pregnancy.[54] As a result, medical workers reported frequent low levels of hemoglobin, and high rates of anemia among patients. Facilities often provided medication and vitamins to patients in need. However, they only did so for short periods of time, not covering the entire period required due to limited resources.[55]

In some cases, physicians had no other choices but to give patients expired medicine and vitamins.[56]

C-Sections. The data provided by SAMS medical facilities for a 6-month time period spanning September 2017 through February 2018 has indicated a high percentage of C-sections compared to the Sphere Standards requirement that C-sections remain between 5% and 15% of total deliveries[57] and the pre-war C-section rate of 26.4% in Syria.[58] In three major RH facilities in northern Syria, C-sections reached 44.63% of total deliveries, and the rate of C-sections reached 39.3% in three facilities in southern Syria and 41.1% in one East Ghouta center.[59]

Data and research remain limited to understand the extent and underlying causes of these observations. However, in the Syrian context, some of the contributing factors include pre-scheduled C-sections to avoid transportation during bombardment, and lack of basic reproductive health equipment and supplies mandated by the Sphere Standards, such as oxytocin or vacuum devices that facilitate vaginal deliveries.[60]

Normal deliveries and C-sections, 2017[63]



Early marriage. Early marriage existed in Syria long before the conflict erupted in 2011; however, conflict-related factors including displacement, worsening economic conditions, instability, and disrupted education for adolescents have compounded this practice. Several reports have shown that child marriage has increased among Syrian refugees.[61] There are reasons to believe that this phenomenon has become more prevalent among Syrians who have been internally displaced. Medical personnel interviewed in southern and northern Syria, as well as in East Ghouta, have noticed an increase in child marriage and teenage pregnancies. As Dr. Majed put it, "The conditions of war have changed people's understanding of things. It has brought a return to early marriage. The economic situation we're living in plays a critical role in this—a family needs to relieve the economic burden where they can… It's a matter of basic survival."[62]

"The conditions of war have changed people's understanding of things. It has brought a return to early marriage. The economic situation we're living in plays a critical role in this—a family needs to relieve the economic burden where they can… It's a matter of basic survival."

According to data from one large facility in southern Syria, between September 2017 and February 2018, 12.2% of pregnancies were among mothers under the age of 18. Across the same 6-month period, a facility in East Ghouta reported that 12.72% of its pregnant patients were under 18. This data is too limited in size to be extrapolated to a broader Syria context. However, this information raises serious concerns about early marriages and ensuing pregnancies. Studies have shown that pregnancy among young women and girls carries significant health risks for mother and child alike. Mothers aged 10–19 are at higher risk for eclampsia, puerperal endometritis, and a variety of infections than mothers aged 20–24. Low birthweight, preterm delivery, and other neonatal conditions are more likely among babies born to mothers under 19 years of age than among babies of mothers aged 20–24.[64] Under-18 mothers at the southern Syria facility made up a disproportionate percentage of C-sections representing 12.2% of total pregnancies among the facility's patients between September 2017 and February 2018, and yet counting for 26.8% of C-sections performed over the same period.

In addition to the health risks of pregnancies among young mothers, early marriage constitutes a form of gender-based violence (GBV), and girls who marry early are at an increased risk of abuse and domestic violence.[65] For women of all ages, reporting their husbands for violence and abuse against them or their children remains a social taboo, and in most cases, protection and follow up services are very limited. To address some of the psychological trauma, some facilities have resorted to providing psychological support (PSS) and comfort to

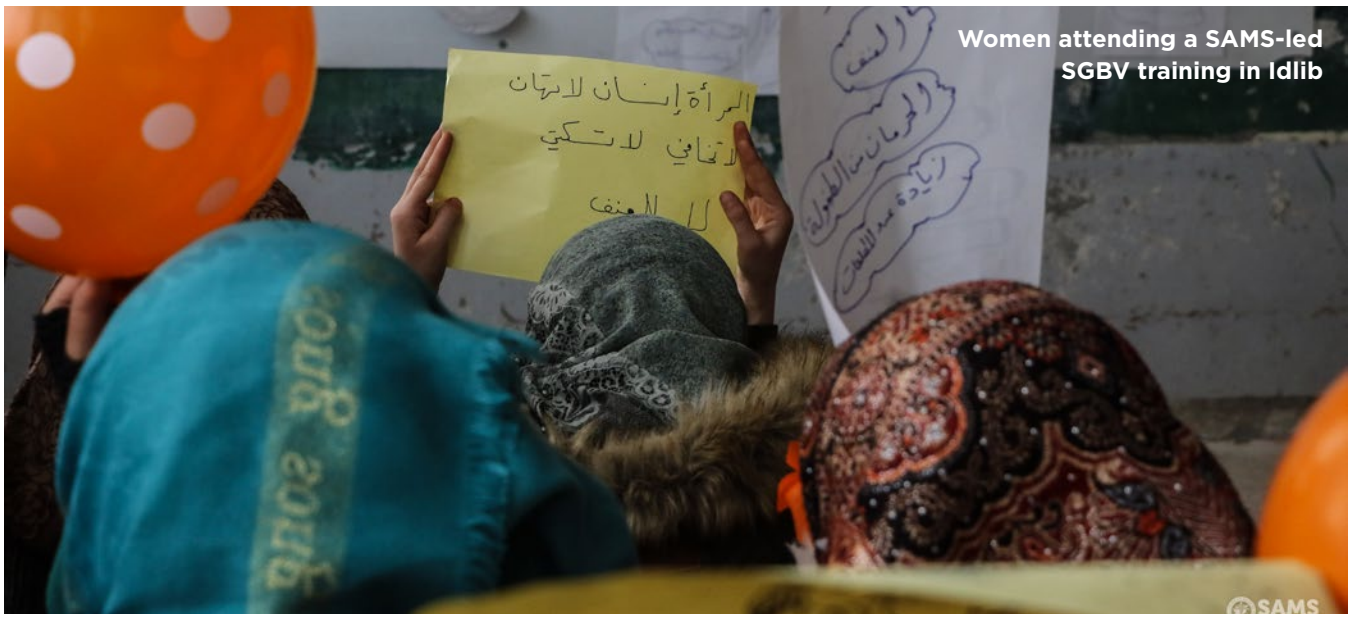
Psycho-Social Support programs at a SAMS maternity center in East Ghouta

victims of domestic abuse led by nurses and midwives.[66] Undoubtedly, these initiatives fill an important gap. Yet, they need to be complemented by providing adequate training in PSS and GBV responses to medical personnel.

Miscarriage, premature and low-weight births. According to research on the effects of humanitarian disasters internationally, the psychological and physical impacts of a constant threat of aerial attack, coupled with the disruption in food and water supply and restricted healthcare provision in war zones, result in damaging impacts on expectant mothers and their babies' health, including premature births, low birthweight, miscarriages, and higher rates of infant mortality.[67] The results of a recent study on the role of psychological stress in causing miscarriages shows that psychological stress before and during pregnancy increases the risk of miscarriage by approximately 42%, with risk of miscarriage increasing in cases where persistent stressors are present and perceived as being uncontrollable.[68] Data on miscarriage in the three regions included in this study remains scarce. Still, the medical personnel interviewed report a significant increase in miscarriage rates during times of heightened bombardment. Amira, a midwife at a facility in northern Syria reports treating an average of two miscarriages per day.[69] Similarly, Dania, a midwife at a reproductive health facility in southern Syria reports seeing approximately 10 miscarriage cases each week.[70] Because most hospitals do not have sufficient lab facilities, physicians are unable to determine the contributing factors to the increased rates of miscarriage.[71]

Before the war, according to the Syrian Ministry of Health data for 2010, 9.2% of children born were of low birth weight, which is defined as being less than 2,500 grams or 5 lbs 8 oz.[72] The data also indicates that infant mortality rate is 17.9 per 1,000 live births. The war seems to have exacerbated these rates. SAMS does not intend to extrapolate data it collected in its facilities to other areas, nor does it seek to draw a general conclusion on the impact of the war on birth weight or mortality rates. However, SAMS facilities reports could serve as an indicator to some of the difficulties during times of war, compounded by the lack of equipment, supplies and personnel.

The East Ghouta medical workers interviewed claimed to have seen a significant rate of low-weight newborns. However, SAMS could not receive data from their medical facilities as the military campaign intensified in the rural enclave in early 2018.



Women attending a SAMS-led SGBV training in Idlib

Resilience in Reproductive Health Service Provision

In the face of unimaginable obstacles, reproductive healthcare personnel—nurses, midwives, and doctors alike—have demonstrated resourceful strategies to overcome challenges and provide dignified care to those in need.

To minimize casualties and damage caused by bombardment, medical staff, in collaboration with Syrian NGOs, have resorted to strengthening and fortifying facilities, and in some cases, moving them to basements, caves, or building underground hospitals to protect health workers and their patients from consistent attacks. In order to adapt to evolving security dynamics, several RH facilities were reconstructed or set up in former schools, office buildings, or other alternative structures lacking typical hospital infrastructure.

Some hospitals and equipment must be reimagined to fill reproductive health needs. One facility in northern Syria was not originally constructed as a hospital but as a temporary medical point. As a result, OBGYNs perform C-section operations and other reproductive health surgeries in tiny spaces, barely enough room to fit the patient and doctor.[73] Doctors at another facility in southern Syria have access to one or two functioning delivery beds at a time, and conduct natural childbirths on the center's additional furniture and sometimes even on the floor.[74]

Medical personnel have also come up with innovative solutions to remedy to the lack of basic equipment. In one northern Syria facility, electric heaters are used to keep the rooms warm and to warm newborns after birth.[75] In East Ghouta, one makeshift reproductive health hospital in the basement of a shelter relied on an electric generator to provide light and electricity for surgical procedures. When the faulty generator cut out, which it often did, doctors completed the procedures by the light emitted from mobile phones.[76] Another facility in East Ghouta could not rely on consistent electricity for sterilizing equipment, and so technicians sterilized equipment instead by placing surgical instruments in fire.[77]

One facility in southern Syria did not have enough of the Vicryl and Chromic sutures they typically use and so resort to stitching external wounds with silk threads.[78] Doctors and nurses at another facility that lacks an umbilical clamp use sutures instead.[79]

At one facility in Ghouta, doctors mixed the limited quantities of the medicines they had in stock to compensate for other critical medicines that were unavailable.[80] Most facilities also lack ultrasound or electronic fetal monitor (EFM) equipment, which are used to record contractions. To compensate for this missing equipment, midwives at facilities in both northern and southern Syria use their hands on a patient's stomach to measure contraction and record the position of the fetus before delivery.[81] In order to hear a fetal heartbeat, midwives at two facilities in southern Syria listen through a tube they place on a patient's belly.

Syrian doctors have also relied on telemedicine to access the expertise of doctors outside of Syria in real time, and better serve communities in the surrounding areas. Telemedicine was first introduced at the underground maternal health clinic in Idlib.[82]

Where facilities lack the medicine or equipment to provide adequate care or resources for pregnant women, mothers, or children, facility personnel work to educate the populations they serve. The lack of medicine and OBGYNs available in and around Nawa city in southern Syria, for example, has forced some RH clinics to launch educational programs instead of treatment centers for women.[83] Their objective is to equip mothers and their families with the knowledge to help them in situations where access to treatment is limited and/or unavailable.

Although personnel would prefer to conduct training or consultations with men as well as women, women typically attend these appointments without their husbands.[84] Those facilities that conduct trainings or educational events for women face challenges. Medical personnel working at the facilities are often overwhelmed with patients' needs, and are forced to cut trainings short when urgent cases are brought to the facility. Fear of attacks on hospitals, combined with the risk and costs associated with transportation, also impede efforts among community members to attend the trainings hosted at the facilities.[85] Several reproductive health facilities in Ghouta and across Dara'a and Idlib provinces offer family planning services and consultations. One facility in northern Syria distributes birth control pills and condoms, and prefers to use intrauterine devices (IUDs) with patients to ensure that the birth control is most effective.[86]

Conclusion and Recommendations

Collecting data regarding health is extremely difficult in a conflict situation like Syria. Many obstacles, including the systematic attacks on healthcare, and the severe shortage in medical personnel, have made reporting data inconsistent at best. Acknowledging this reality, this report focuses on specific facilities where SAMS could access available data and rely on medical personnel to collect information. Thus, this report doesn't draw a picture in its totality, but rather gives a limited insight to some of the challenges facing reproductive health inside Syria. It describes some of the conflict's direct consequences on maternal healthcare. However, the long-term impacts remain uncertain and are likely to last for years to come.

Maternal and child mortality rates have increased by one third in the past seven years in Syria, according to experts.[87] Many of the challenges laid out in this report—including the targeting of healthcare facilities, the shortage of specialized and qualified medical personnel, shortages of medical equipment and supplies, lack of access to quality care, and insufficient awareness and follow up—can explain this sad, grim reality.

The access to quality reproductive healthcare remains a high priority in Syria. Collective efforts are required to address the gaps, and meet the needs of Syrian families for better access to medical care. Needed steps include:

- Allocate funds to establish new RH facilities in Syria and support existing facilities
- Develop specialized training programs to OBGYNs, midwives and other medical personnel in Syria, and ensure availability of training and residency opportunities. This should be a priority for health institutions and medical facilities
- Provide urgently-needed supplies including incubators and oxytocin
- Support research projects about RH in precarious settings, and develop systems/protocol for RH data collection
- Encourage community involvement, including involvement of men in visits and education initiatives
- Integrate psycho-social and GBV programs into RH departments, and develop a set of guidelines and tools that would help health workers appropriately deal with victims of domestic and sexual violence
- Support local family planning initiatives and carry out awareness activities

A family at Al-Nour hospital entrance in Dara'a

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