

**MSF**

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# Changes in medical practice in Syria

Dilemmas and adaptations in medical facilities continually threatened by attack



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Syria © MSF

# Executive summary

Over what has now been nearly six years of war, Syrians have suffered immeasurably. Amidst the brutality of the Syrian conflict, violence against medical facilities, staff and patients has become horrifyingly routine. In 2016 alone, 81 medical facilities have been damaged or destroyed in Azaz and Aleppo districts, some repeatedly.<sup>1</sup> This follows 94 attacks on MSF-supported facilities in 2015, which killed 81 healthcare staff.<sup>2</sup>

Attacks, and the ever-present threat of attacks, not only deny the population access to medical facilities, but also affect the scope and effectiveness of the medical care that still can be provided. This paper seeks to detail some of the ways in which the provision of medical care has been compromised or forced to adapt in light of this threat.

Many Syrians must weigh up the risks to their own safety with choices they make every day, including the choice to seek healthcare. Time spent in a medical facility in a context where such locations are undoubtedly targeted by various parties is one of these risks. Spaces which should offer refuge for those in need of medical care in conflict have now become spaces to be feared. Patients and families are forced to choose between risking their own safety within medical facilities and enduring unattended suffering.

While Médecins Sans Frontières (MSF) has been able to find ways of providing healthcare in many parts of Syria, this has not been without significant challenges. MSF continues to struggle to directly provide, or support the provision of, critical medical care. This has also forced MSF to both question its standard intervention models and concurrently find ways to adapt its operations and medical practices to the brutal reality of the Syrian conflict.

This report examines the direct and indirect factors that are driving changes in medical practice in Syria. Though their influence is less direct (and presents issues not necessarily unique to Syria), the severe reduction in the healthcare workforce and the interruption of services due to insecurity significantly limit the overall scope of medical care that can be offered. More directly, the time available within a facility for the treatment of each patient, the possibility of follow-up care and evolution toward decentralised or home-based care, and the availability of specific medications all affect patients individually. These also point to broader challenges for medical programmes on the whole, particularly the tension between the obligation to provide the best available medical care and the reality of what is possible in such a context.

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<sup>1</sup> Based on MSF's internal tracking of attacks on medical facilities in Syria. The exact number of facilities damaged or destroyed is impossible to confirm. However, this can be considered a reasonably reliable estimate of the overall figure, and highlights the well-documented dramatic increase in the number of attacks on medical facilities in Syria.

<sup>2</sup> *Syria 2015: Documenting war-wounded and war-dead in MSF-supported medical facilities in Syria*; MSF, February 2016, [http://www.msf.org/sites/msf.org/files/syria\\_2015\\_war-dead\\_and\\_war-wounded\\_report\\_en.pdf](http://www.msf.org/sites/msf.org/files/syria_2015_war-dead_and_war-wounded_report_en.pdf)

Attacks on medical facilities have dramatically reduced the overall availability of medical care. Countless medical facilities have been destroyed, and untold numbers of healthcare staff have been killed or forced to flee. Where facilities continue to operate –often literally and figuratively underground– the range of medical services offered has been drastically diminished, at a time when there has been a surge in medical needs, particularly acute trauma care. Non-emergency services are now scarce, turning previously avoidable or treatable health issues into life-threatening illnesses.

The need to protect the remaining medical facilities and staff from attack has hampered their capacity to provide care in some instances. MSF and others face constant dilemmas, where exposure to risks –inside or around medical facilities, or in ambulances– must be weighed against the constant and urgent needs of patients.

For patients, minimising exposure to the risk of attacks on medical facilities inevitably entails minimising time spent inside medical facilities. This often forces healthcare staff to work quickly, limit procedures, make clinical decisions without adequate diagnostics or observation, and change prescriptions or treatments. Patients must assume greater risks, and caretakers assume greater roles in patient monitoring and support, as patients attempt to recover at home rather than in a medical facility. This has driven an unavoidable shift toward home-based care, which presents major challenges for post-operative care and the prospective outcomes for a large proportion of patients.

As there is no end in sight to the conflict in Syria, nor to the threat against medical facilities, MSF continues to pursue further adaptations –decentralised care enabled by mobile technologies, more remote support, amongst others– to try to deliver medical care as best as possible under the circumstances. Some of these current and future adaptations can genuinely improve the quality of and access to care, while others sadly reflect the harsh limitations of what can be done for populations living within a brutal conflict.

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## About this report

This report aims to document the adaptations forced by the threat of attacks on medical facilities in Syria

Though the recent spate of attacks on medical facilities has by no means been confined to Syria<sup>3</sup>, this report focuses on Syria due to the scale of both the conflict and MSF's medical programmes, and the staggering number of attacks on the medical facilities over the past five-plus years of conflict.

MSF OCBA<sup>4</sup> maintains a significant volume of medical activities in Syria, which continue to operate under the threat of attacks. These activities are concentrated in east Aleppo City and Azaz district in northern Syria, as well as Busra district in Dara'a governorate in the south, areas controlled by armed opposition groups and therefore cut off from the Syrian Ministry of Health.<sup>5</sup> At one time, MSF directly ran medical facilities in east Aleppo City, which were later forced to close for security reasons. MSF continues to run Al-Salamah hospital near the Turkish border and play an active role in the medical networks in the areas where it operates, providing material, clinical and technical support to other medical facilities, as well as ensuring referrals of patients both to Al-Salamah hospital and towards Turkey. Therefore, the challenges and adaptations covered in this report refer both to MSF's direct experience in Aleppo district (earlier in the conflict) and at Al-Salameh Hospital, as well as to the experience of the MSF-supported facilities with which MSF has a constant dialogue and technical exchange.

This report does not seek to thoroughly examine the patterns, methods or perpetrators of attacks on medical facilities in Syria. Rather it seeks, to document how the looming threat of violence –intentional or indiscriminate– against medical facilities, vehicles, staff and patients affects the medical care that can still be provided under these circumstances.

Specifically, this report aims to document the adaptations forced by the threat of attacks on medical facilities in Syria. It focuses on the direct medical adaptations, while also covering operational adaptations that have affected the delivery of patient care at MSF medical facilities and MSF-supported medical facilities.<sup>6</sup>

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<sup>3</sup> Since October 2015, MSF medical facilities in Afghanistan, South Sudan, Yemen and Syria have been attacked. See <http://www.msf.org/topics/medical-care-under-fire> for more information on attacks on medical facilities around the world and *Attacks on medical missions: overview of a polymorphous reality: the case of Médecins Sans Frontières, Abu Sa'Da C., Duroch F., Taithe B., International Review of the Red Cross*, vol. 95 (890), p.309-330 for background and analysis.

<sup>4</sup> This report is based on the medical activities of MSF Operational Centre Barcelona Athens (OCBA), one of five operational centres within the MSF Movement. See <http://www.msf.org/en/msf-movement> for an overview of MSF's structure. Unless otherwise explicitly noted, MSF refers to MSF OCBA throughout this report.

<sup>5</sup> MSF has never successfully obtained permission from the Syrian government to work in government-controlled areas.

<sup>6</sup> 'MSF-supported medical facilities' refers to medical facilities that are not directly operated by MSF, but receive medical materials, clinical, and/or technical support from MSF.

## Methodology

This report is based on a series of interviews with current and former MSF staff involved in its operations in Syria operations. These included international and local staff, both medical and non-medical.<sup>7</sup> It also relies on public and internal documentation relating to MSF's activities in Syria and attacks on medical care in Syria and elsewhere.<sup>8</sup>

Given the ongoing intense conflict in Syria –and particularly in Aleppo City and Azaz districts where many of MSF OCBA's activities are based– and the impossibility of compiling thorough and comparable medical data in such circumstances, this report does not attempt to comprehensively document specific medical cases or quantify trends.

Therefore, the reflections summarised here are inevitably generalised. This is also to protect the confidentiality of patients, healthcare staff and the very medical facilities which continue to provide healthcare under the ever-present threat of attack.

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<sup>7</sup> Direct input from patients who use the medical services discussed here has not been included solely due to the limited access of MSF staff to most affected areas (particularly east Aleppo), and the impracticality of conducting patient interviews and/or surveys under the current circumstances.

<sup>8</sup> As MSF's activities are concentrated in areas not under the control of the government of Syria, this report is not intended to refer to areas under government control.

## Providing medical care under fire

Attacks on medical facilities have become shockingly commonplace

Remaining hospitals in east Aleppo have all been damaged by airstrikes since July 2016, some as many as five times

MSF and others –most obviously medics themselves living amidst conflict– have long provided medical care in war zones. This has always carried risks. But in the past year, medical personnel, facilities and their patients have been subjected to a deplorable level of violence around the world.<sup>9</sup> This section presents a brief background on violence against healthcare in Syria, how it affects perceptions of safety, and summarises MSF’s work in Syria and the healthcare needs it seeks to address.

### Wanton violence against healthcare in Syria

Amidst the persistent and escalating brutality of the Syrian conflict, attacks on medical facilities have become shockingly commonplace. Though the motivations remain known only to the perpetrators, it is not hard to discern a pattern seemingly intended to target the most vulnerable and inflict broad and indiscriminate suffering upon their enemies.<sup>10</sup> This amounts to a ceaseless and inescapable threat of violence against medical facilities. Though attacks can be attributed to nearly all armed groups, the government of Syria and its allies have utilised this strategy with brutal regularity<sup>11</sup>, aligning with the cruel reality of health facilities being ‘a favoured target in a context of total war.’<sup>12</sup>

Violence against healthcare workers and facilities comes in many forms<sup>13</sup>, though in Syria bombings have been the most common. These bombs have targeted clinics, hospitals and ambulances, and killed or injured countless patients, staff and caretakers.<sup>14</sup> All remaining hospitals in east Aleppo have been damaged by airstrikes since the beginning of the de facto siege in July 2016, with some affected as many as five times.

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<sup>9</sup> See *Report on Attacks on Health Care in Emergencies*, World Health Organisation, 2016.

<sup>10</sup> *Aleppo: Medical Aid Besieged*, p.8, MSF, 2014, <http://www.msf.org/en/article/syria-report-aleppo-medical-aid-besieged>.

<sup>11</sup> See *Syria 2015: Documenting war wounded and war dead in MSF supported medical facilities in Syria*, MSF, February 2016, [http://www.msf.org/sites/msf.org/files/syria\\_2015\\_war-dead\\_and\\_war-wounded\\_report\\_en.pdf](http://www.msf.org/sites/msf.org/files/syria_2015_war-dead_and_war-wounded_report_en.pdf).  
See also *Aleppo: Medical Aid Besieged*.

<sup>12</sup> *Attacks on medical missions: overview of a polymorphous reality: the case of Médecins Sans Frontières*, p. 320, Abu Sa’Da C., Duroch F., Taihe B., *International Review of the Red Cross*, vol. 95 (890), p.309-330.

<sup>13</sup> “Other types of incidents involved interferences by armed groups with human resources, medical procedures and intrusions to health facilities demanding preferential medical treatment or complaining about the services.”  
*Aleppo: Medical Aid Besieged*, p. 17.

<sup>14</sup> Given the current circumstances in Syria, and the continued bombing of health facilities, the exact number of casualties is impossible to determine.

Healthcare workers have also been shot for who they are, who they treat or for who they are perceived to support. Facilities have been damaged or destroyed, sometimes through multiple direct attacks, seemingly intended to ensure their complete destruction.

The impact of violence against healthcare extends far beyond each attack. It changes how patients view healthcare facilities and providers, restricts the availability of healthcare, and alters how medical facilities and staff treat patients.

### **Perceptions of risk: patients, caretakers and staff**

When patients and staff do not feel safe within a medical facility, the capacity of a facility to care for those in need becomes irrelevant

It is not only the confirmed attacks, nor their intentionality, that affect the provision of medical care. Nearby attacks, attempted attacks and threats can all affect the safety of medical facilities and workers and, crucially, the perception of insecurity in or around a medical facility.<sup>15</sup> When patients and staff do not feel safe within a medical facility or are unwilling to assume the risks required to seek care, the capacity of a facility to care for those in need becomes irrelevant.

In urban areas, the threat of attacks on medical facilities can endanger neighbours, as well. At times, this has rendered medical facilities unwelcome and complicated the relationship between communities and healthcare providers, including MSF. In some instances, this has forced communities to choose between access to healthcare and distancing themselves from known potential targets, as well as accepting the risk of travelling long distances for healthcare.

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<sup>15</sup> See *Aleppo: Medical Aid Besieged*, p. 3.

## MSF in Syria

When patients or staff do not feel safe within a medical facility, the capacity of a facility to care for those in need becomes irrelevant

MSF's medical programmes in Syria have grown and evolved over the course of the five-year conflict.<sup>16</sup> Medical facilities have been forced to move in response to population movements and as a result of the violence against or around them, while also trying to cope with increasing needs and the diminishing local medical capacity.

MSF's response in Syria began with the usual directly implemented medical programmes. MSF established a number of standalone medical facilities in the first two years of the conflict, run by a mix of national and international staff. However, as the conflict escalated and access for international staff was drastically reduced, a far larger share of MSF's support became indirect, through the provision of drugs, supplies and other support to local medical facilities including the facilitation of medical referrals. As MSF has long made proximity to patients and the direct implementation of medical care a key tenet of its interventions around the world, the move to donation programmes has not been without controversy within the MSF Movement. However, support to existing medical facilities and networks has always been a key part of MSF's intervention in Syria, and will remain so in light of the exceptional circumstances there, and the sheer magnitude of medical needs.

### Healthcare in Syria

Prior to the beginning of the conflict in 2011, as a middle income country, Syria had a healthcare system more advanced than many other conflict-affected countries, including most of those where MSF operates. Well-educated and trained staff worked in relatively well-resourced hospitals and clinics, with modern diagnostic tools, equipment, medications and supplies. However, not all Syrians had equal access to these services.

Most Syrians were used to medical facility-based care, and had expectations of tangible medical interventions, in the form of diagnostic tests, procedures and medications. The conflict and subsequent devastation of the Syrian health system has forced these expectations to change, and the remaining Syrian healthcare staff to adapt.

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<sup>16</sup> As of October 2016, the MSF Movement runs six medical facilities across northern Syria and supports more than 150 health centres and hospitals across the country. See <http://www.msf.org/en/where-we-work/syria> for more information.

**MSF's pragmatic and simplified approach to medical care in conflict zones has become increasingly appropriate in Syria**

**Medical needs persist, new needs emerge**

**Measles outbreaks have become common, malnutrition has emerged, and polio has reappeared long after it was eradicated**

Much of MSF's collective experience in conflict comes from impoverished parts of sub-Saharan Africa. There, not only are expectations different, but the capacities of existing health systems are far below the pre-war Syrian system. Most local healthcare staff in these countries have not had access to the education, training or resources that were once available in Syria. Therefore, MSF has also had to adapt in Syria, to try and find common ground with Syrian capacities and expectations.

The expansion and maturation of MSF's medical programmes has helped bridge this gap in care, which sadly was becoming wider with the continued involuntary decline of the Syrian medical system. As a result, MSF's pragmatic and simplified approach to medical care in conflict zones has become increasingly appropriate, and Syrian healthcare staff have regrettably gained more and more experience in lower-resourced and simplified care.

This convergence is notable, not to suggest that MSF has sought lower standards of care, but to illustrate a critical challenge for MSF's adaption to the Syrian context. MSF seeks to achieve the best level of care possible in any context. However, this level is unavoidably found somewhere between the optimal level of care and what is feasible in a given situation. This balance is not easy to achieve, for individual patients or for entire medical programmes.

Of course, non-conflict related and pre-existing healthcare needs remain. And as the conflict persists, poverty increases, nutrition gets worse and other coping mechanisms suffer, dramatically worsening the overall health of the population.<sup>17</sup> Besides the massive surge in acute trauma cases, measles outbreaks have become common, malnutrition has emerged, and polio has reappeared long after it was eradicated in Syria.

In Syria, and in much of the Middle East, non-communicable and other chronic conditions make up a large portion of the overall burden of disease. While Syria is not the first context where MSF has encountered such health needs, the prevalence of such chronic conditions within a conflict setting poses a daunting challenge. Such conditions require constant management and regular consultations with medical professionals. Many medications became scarce even at the

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<sup>17</sup> *Aleppo: Medical Aid Besieged*, p. 9.

Medical services have necessarily prioritised acute trauma care, and the capacity for preventative and non-emergency care has been drastically reduced

early stages of the conflict. Some national programmes, such as those providing care for tuberculosis and leishmaniasis have stopped functioning. Medical services have necessarily prioritised acute trauma care, and capacity for preventative and non-emergency care has been drastically reduced.<sup>18</sup> In addition, patients and caretakers must weigh the risks of each visit to a medical facility.

In addition to the pervasive war-related injuries affecting combatants and civilians alike, the use of chemical weapons in Syria has also presented new and horrific challenges for healthcare staff.<sup>19</sup> The suffering inflicted by such proscribed weaponry can be devastating not only to those targeted, but also to those who treat them and may be exposed to the toxic substances themselves.

Proximity and community relations usually enable MSF to develop and maintain an understanding of the healthcare needs of a population. In Syria, widespread violence and a lack of access for healthcare staff to the communities they serve make a thorough understanding the healthcare needs of the population very difficult.

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<sup>18</sup> This limitation in the range of medical services offered runs counter to the overall progression of MSF's approach globally, further highlighting the unmet medical needs in Syria and impeding MSF's medical intentions. MSF, as well as other medical providers, have moved beyond a public health-focused approach, seeking to address a broader range of morbidities with a more patient-centred approach. This is in part a product of the evolution of the organisation and its expanded capacity for complex and longer-term medical interventions, such as antiretroviral treatment for HIV patients. It is also in part a response to the growing prevalence of non-communicable and other chronic conditions worldwide.

<sup>19</sup> *Aleppo: Medical Aid Besieged*, p. 21-22.

## Drivers of change in medical practice

The following section examines the direct and indirect factors driving changes in medical practice in Syria. Indirect factors (most of which are not necessarily unique to Syria) include limited access for or availability of skilled staff, interruption of services and the need for security infrastructure. These bear mentioning as they can, individually or collectively, significantly alter the medical care that can be offered. More direct factors, such as the time available within a facility for the treatment of each patient, the possibility of follow-up care or the availability of specific medications, are then detailed. These affect patients individually, but also point to broader challenges for medical programmes overall.

## Limited access to healthcare: changes to healthcare services

In addition to access to healthcare being greatly limited as a result of the destruction of many facilities, access to specific medical services within still functional facilities has also been reduced. Non-emergency services, such as vaccinations, family planning, mental health care, and routine care for chronic conditions are no longer accessible for many. MSF's support to other medical facilities has evolved in step with the services still available, toward more trauma-specific resources and medical kits tailored for specific medical services that remain available.

Some medical services have been forced to repeatedly relocate out of harm's way, sometimes pre-emptively, and at other times in response to attacks

Some medical services have been forced to repeatedly relocate out of harm's way, sometimes pre-emptively, and at other times in response to attacks. Many have been literally driven underground – into basements, bunkers, even caves. Not only has this interrupted the delivery of medical care, but also redirected management and operational resources, as medical and non-medical staff have needed to repeatedly allocate time and resources to negotiation, reconstruction and reorganisation, amongst other things, rather than on the direct management of programmes and delivery of care.<sup>20</sup>

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<sup>20</sup> "MSF, aware of the complexity and volatility of the conflict, endeavoured to carefully design and regularly review its operations, weighing every decision against all known and conceivable potential risks, particularly with regards to national staff, reaching levels of detail and intricacy like no other MSF mission." *Aleppo: Medical Aid Besieged*, p. 32.

## Balancing security and patient care

The most critical emergency services –operating theatres, intensive care units, emergency rooms– are commonly placed in the most secure areas, usually basements

Many medical facilities within Syria, including many of those supported by MSF, operate out of unusual, inconspicuous locations, if not entirely clandestinely, to minimise the risk of attacks. This runs contrary to the need for hospitals to be very public, well-known institutions, and presents challenges for the services they provide.<sup>21</sup>

Most medical facilities have been forced to mitigate against the potential impact of attacks through increased physical protections and the pre-emptive relocation of services. This 'bunkerisation' has in some locations included the installation of secured pedestrian and vehicle entrances and the reinforcement of external walls and windows, amongst other modifications. More critically though, it has forced most facilities to use only ground-level and underground space for most medical activities, thereby considerably reducing the space available for patient care. This reduction in bed capacity and overall space has contributed to the de-prioritisation of non-emergency care. In one facility, MSF was unable to install winterised tents for a mass casualty contingency plan as they would be too visible from above. In another, remaining space for physiotherapy and orthopaedic care –both essential services– was insufficient. At times, security installations have had to be limited in order to avoid drawing undue attention to otherwise inconspicuous facilities.

The most critical emergency services –operating theatres, intensive care units, emergency rooms– are commonly placed in the most secure areas, usually basements. In some instances, such facilities have also been set up in schools, farms, caves and other ordinarily unsuitable locations. In basements, substandard ventilation, poor lighting and the necessary reinforced windows can hamper infection control measures and complicate care. The negatives of working in such spaces are further compounded where heating systems (locally available oil burners at some facilities) are required, presenting additional air quality and safety risks. At times, water shortages have also limited infection control measures.

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<sup>21</sup> MSF provides the GPS coordinates of its fully managed hospitals, but not those of supported facilities, as it is the choice of their independent management teams to do so or not. Notably, no MSF-supported medical facility in Syria has chosen to share its GPS coordinates with the warring parties because of a lack of trust in this protection mechanism. Rather, health facilities in Syria feel that facilitating their location will further expose them to attack, thus defeating the whole purpose of this traditional mechanism. In the case of Syria, the logic behind not identifying health facilities because of the trend of attacks on healthcare has resulted in an unprecedented protection dilemma." *Review of Attack on Al Quds hospital in Aleppo City*, p. 33, MSF, Sept 2016, [http://www.msf.org/sites/msf.org/files/al\\_quds\\_report.pdf](http://www.msf.org/sites/msf.org/files/al_quds_report.pdf)

The scope of care available in some locations has been further limited by the loss of critical diagnostic tools, such as x-ray machines and CT scanners (which themselves present a very significant risk of radiation exposure when damaged). Whereas healthcare staff could previously refer patients to other facilities for such diagnostics, now such options are greatly reduced, if available at all. Physicians have had to treat trauma patients without x-rays, relying solely on physical examinations, increasing the risk of inaccuracies in treatment and of future complications.

## Changing healthcare workforce

Those who remain assume enormous risks, and face impossible choices in the allocation of care

Medical activities have had to adapt to the capacities, meaning not only a drastic overall reduction in the scope and scale of services, but also to the level of care

The makeup of the healthcare workforce in Syria has drastically changed over the course of the conflict. Attacks on medical facilities have killed or injured many healthcare personnel in Syria. Many untold medical personnel have been lost in the violence outside of medical facilities or have fled fearing for their safety. Those who remain assume enormous risks as they work, and face impossible choices in the allocation of the care they provide, as the needs far outstrip their capacity.

Medical activities have had to adapt to the capacities at hand. This has meant not only a drastic overall reduction in the scope and scale of medical services available, but also significant changes in the level of care that can be provided. Syria had significant numbers of specialised and experienced healthcare staff prior to the onset of the conflict. Now medical facilities continue to function with a bare minimum of fully trained and experienced staff<sup>22</sup>, reliant primarily on junior doctors, medical students, and paramedical volunteers. Dedicated as they may be, they cannot replace the knowledge and experience lost. Therefore, the complexity of some medical services has had to change, such as the provision of long complex surgical procedures which require the presence of an experienced anaesthetist. Most facilities now only have staff capable of administering ketamine as an anaesthetic.

As healthcare staff have become increasingly scarce, and as facilities and equipment have been destroyed or otherwise rendered inoperable, many (particularly specialised healthcare staff) now divide their time between numerous facilities.<sup>23</sup> This helps to make medical services as accessible as possible across different areas, but cannot address the vast reductions in the overall availability of such specialised

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<sup>22</sup> For example, as of October 2016, east Aleppo has only 29 doctors.

<sup>23</sup> For example, as of October 2016, only two paediatricians cover the five remaining hospitals in east Aleppo.

## Without appropriate maintenance to equipment, clinical staff can be forced to treat patients without necessary tools

services. Possibilities for referring patients requiring complex care, either within Syria or to neighbouring countries, have also been drastically reduced due to the ongoing violence, particularly during the siege of east Aleppo.

However, while it can at times be very targeted, on the whole violence directed against medical facilities threatens all staff – not to mention patients and caretakers. As a result, the availability of skilled non-healthcare staff has also been reduced. This impacts medical facilities in innumerable ways, most directly through the reduced capacity to maintain or rebuild facilities and equipment. In particular, biomedical equipment requires careful maintenance from skilled technicians to produce reliable diagnostics results or treatments. Without appropriate maintenance to biomedical equipment, clinical staff can be forced to make less informed diagnostic decisions or treat patients without the necessary tools. The remaining equipment must be used selectively. For example, in some of the most affected facilities it is not rare that healthcare staff have to take patients with little chance of survival off ventilators in order to give an opportunity to patients who have a better prognosis.

MSF's medical programmes around the world rely on a combination of national and international staff.<sup>24</sup> However, MSF's ability to have international staff present in Syria has been drastically reduced over the course of the war, to the point where it remains a near-impossibility.<sup>25</sup> This limits MSF's capacity to offset the loss of Syrian expertise, and has contributed to the overall shift in MSF's operations toward providing more support to other medical actors.

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<sup>24</sup> Although 84% (2015) of MSF staff are locally recruited nationals, MSF faces shortages of locally available skilled staff (medical and non-medical) around the world. International staff not only bolster the capacity of medical facilities, but provide essential clinical and managerial expertise. This requires proximity to patients, as does bearing witness, or *temoignage*, an essential element of MSF's mission.

<sup>25</sup> Alongside the threat of attacks on medical facilities, the risk of kidnapping has rendered it practically impossible for international staff to reach most project locations.

## **Avoiding healthcare facilities: changes in health-seeking behaviour**

**Patients and caretakers understandably want to minimise time spent in healthcare facilities threatened by attacks**

**Even where patients can remain in hospital to receive acute care, most do not want to risk staying long enough for sufficient recovery**

Patients and caretakers understandably want to minimise the time spent in healthcare facilities threatened by attacks. This can, however, have dire consequences for the patients themselves. It has also forced MSF and others (most notably the hospitals closer to the frontlines) into uncomfortable deviations from standard medical protocols, particularly in relation to post-operative and follow-up care.

When the need for medical care outweighs the perceived risk of visiting a medical facility, that risk can still be mitigated by limiting the number of visits to and time spent in a medical facility. This arduous but logical choice is well understood by healthcare staff themselves. However, it presents a number of challenges for the provision of care, whether one-off interventions or care requiring multiple interventions or consultations.

Generally, this time limitation can pressure healthcare staff to work hastily, within an already extremely stressful environment. This increases the risk of medical errors or oversights, and places additional stress on overstretched healthcare staff.

Trauma victims, who comprise a significant portion of those who do reach medical facilities, often require multiple surgical interventions, with wounds remaining open between surgical interventions. However, at times such staged surgical interventions may not be possible, or patients may choose to stay elsewhere between surgeries. Without hospital-level infection control measures, this can vastly increase the risk of post-operative infections or other complications.

Even where patients can remain in hospital long enough to receive acute care, most do not want to risk staying long enough for sufficient recovery and observation. Some patients, even those in serious condition, are sometimes only willing to stay long enough to be physically able to leave again. Some only remain in emergency rooms for a few hours, unwilling to risk admission.

For example, while mothers and newborns should ordinarily remain in hospital and under observation for 24 hours, most leave within hours of delivery, or as soon as physically possible. As a result, post-partum complications may not be diagnosed or receive the appropriate care, and newborns may not receive all necessary care. In response, MSF has distributed kits for newborns in some locations to help new mothers to care better for their infants at home.

## Changing prescription practices

### Earlier discharges can force irregular changes from intravenous to oral medications

Caring for severe burns is also greatly inhibited when patients cannot remain under observation and in care. Burns are increasingly common as families are forced to improvise or use unsafe heating methods during the Syrian winter and also due to the increased use of incendiary ammunition in airstrikes.

The unavoidable progression from medical facility-based care to home-based self-care has significant implications for prescribing practices. Even when treatment plans can be adapted, earlier discharges can force otherwise irregular changes from intravenous to oral medications. In some instances, this may not be overly risky, but in others it may force inadvisable changes to the medications due to the unavailability of oral formulations. However, reducing the usage of intravenous antibiotics is not necessarily negative, as their overuse also carries risks.<sup>26</sup>

Even where oral formulations are available, doctors must consider that different methods of delivery have different effects, and the monitoring and management of dosages becomes far more difficult with oral medications consumed without observation. In some cases, this has reportedly led to opioid abuse, as their intake is not professionally monitored. With children, medications may be given in syrup form inside hospitals, and may not be properly or safely diluted outside of medical facilities without proper medical supervision, or without adequate clean water.

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<sup>26</sup> Earlier discharges have in some circumstances also resulted in more prophylactic prescriptions, or presumptive treatment. This is not inherently negative, but could contribute to the over-prescription of antibiotics; see also *The Syrian Civil War Could Spell the End of Antibiotics*, Newsweek, 14 Sept 2016, <http://europe.newsweek.com/bashar-al-assads-war-syria-could-spell-end-antibiotics-498035?rm=eu>

## Caring for chronic conditions

As acute emergency care demands more of the diminishing capacity of medical facilities, accessible care of chronic diseases has become scarcer

Clinical staff are forced to make ordinarily unadvisable adaptations to treatment plans based on what is available, rather than what is right for the patient

Chronic conditions –such as hypertension, diabetes, or chronic renal failure– are major health concerns throughout the Middle East, including Syria. Caring for patients with chronic diseases usually requires regular consultations with healthcare staff.

But as acute emergency care demands more and more of the diminishing capacity of medical facilities, accessible care of chronic diseases has become much scarcer. Many patients end up only seeking care when their condition deteriorates to an acute state, while other conditions may go entirely undiagnosed.

Chronic diseases also require long-term pharmaceutical treatment, which depends on a reliable supply to specific medications. While the flow of medications and medical supplies to most medical facilities has mostly continued<sup>27</sup>, this supply has understandably been focused on trauma and acute care.

Many Syrians previously depended on private pharmacies for long-term medications. Now supply lines are unpredictable. And when medications are available, they can be in different dosages or formulations. On occasions, this has forced clinical staff to make significant and ordinarily unadvisable adaptations to treatment plans based on what is available, rather than on what is right for the patient.

The availability of follow-up care and medications, along with the risks patients and caretakers must weigh for every visit to a medical facility under threat, also limit the frequency of visits. As a result, when possible, clinical staff have had to adapt treatment plans and prescriptions to accommodate less frequent consultations. Such adapted treatment plans include the provision of medications for longer periods between follow-up visits. This can increase the risk of complications due to such limited monitoring. Patients who have not received adequate or timely follow-up care can also present dire challenges when they do arrive to medical facilities, often with long-neglected conditions. Cases of otherwise avoidable amputations for diabetics and of tuberculosis patients dying for lack of medication have been recorded.

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<sup>27</sup> At the time of writing, however, all of MSF's supply lines into East Aleppo have been cut since early October as a result of the siege and the relentless bombardment of the city.

## Vaccination coverage

Repeated visits required to complete the routine vaccination programme for children present risks for both parents and children

As with the risk inherent in follow-up visits for chronic diseases, the repeated visits required to complete the routine vaccination programme for children present risks for both parents and children. Parents are faced with choosing between minimising exposure to violence and the risks of preventable childhood illnesses. MSF has been able to continue providing routine vaccinations on a condensed timeline in accordance with the WHO's recommended vaccination schedule for emergencies. However, coverage is poor and near-impossible to accurately measure.

In east Aleppo, for instance, the violence directly impeded a measles vaccination campaign during an outbreak, which would ordinarily rely on gathering large numbers of children and parents together. Such public gatherings were deemed too risky amidst the ongoing violence. As the significantly diminished capacity for preventive medical care already lowered vaccination coverage, such emergency vaccination campaigns of limited effectiveness do not suffice.

## Getting patients to health facilities

Even where medical care remains available, getting patients to medical facilities remains dangerous

In many instances, even where medical care remains available, getting patients to medical facilities is still dangerous. The so-called 'double-tap' attacks, where a second (or more) bombs target those who respond to an initial attack, have become another horrendously predictable feature of the Syrian conflict.

Ambulances ideally should be able to quickly stabilise and move patients to improve the outcomes from major injuries. However, the threat of double-tap attacks forces responders to weigh the risk to their own safety against the risks to those already injured. Syrians, whether individuals, groups such as the Syrian Civil Defence (also known as the White Helmets) or others, have unfailingly demonstrated their willingness to choose the wellbeing of the injured over their own safety.

However, this choice is one MSF as an organisation has continually struggled with. The need for immediate first aid and stabilisation, and the impact it can have on the patient's prognosis is clear. But how much risk MSF as an organisation can responsibly ask its own staff to take is more imprecise. Syrian staff have unfailingly pushed for responding to emergencies as quickly as possible, while MSF has attempted to strike a balance between the needs of the injured and its duty of care to its own staff. Other ambulance services have also introduced protocols whereby ambulances wait near to the scene of an attack for five to ten minutes, and check

that the area and sky are clear before actually approaching the scene of the attack. MSF has also developed protocols to expedite the retrieval of patients in order to lessen the amount of time spent at the scene of attacks.

As with the rest of the medical system, emergency and first aid capacity has been greatly reduced.<sup>28</sup> This has resulted in many individuals without proper equipment or training responding to attacks, although fuel shortages have limited their capacity to transport patients. While these efforts are undeniably laudable, the rescue and transportation of the injured by untrained individuals without proper equipment or vehicles implies a serious risk of spinal injuries and other complications. MSF has been able to provide some first aid training to individuals and groups such as the White Helmets, and has also supported some first aid posts set up in urban areas, often clandestinely housed within shops.

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<sup>28</sup> As of October 2016, only 23 ambulances remain in east Aleppo. Due to the ever-increasing scarcity of qualified technicians and spare parts, ambulances that get damaged are now very difficult to repair.

## **Continuing to adapt under fire**

**MSF continues to work to adapt to the brutal reality of Syria and to provide care under the threat of attack**

## **Decentralisation of care and mobile technologies**

While by no means accepting the inevitability of providing medical care under fire – and unrelentingly demanding that medical facilities, staff and patients are adequately protected in conflict – MSF must at the same time adapt to the harsh reality of delivering medical care in many of today's conflicts.

Vast medical needs persist in Syria and the capacity of medical actors to respond continues to decrease as healthcare staff are injured, killed or forced to flee, and facilities are destroyed. And as the prospect of anything closer to peace in Syria remains a long way off, as does the end of attacks on medical facilities, MSF continues to work to adapt to the brutal reality of Syria and to provide care under the threat of attack. This section outlines some of the further adaptations planned by MSF to improve access to medical care in Syria, and the dilemmas faced by MSF, as its proximity to Syrians and its capacity to provide medical care remain a challenges.

If known medical facilities and concentrations of people remain targets of violence, then the decentralisation of medical care may minimise the impact of attacks on medical facilities, while also allowing people to access safer medical facilities more readily.

MSF is in the process of developing plans for the decentralisation of medical services, where specific medical services could be physically separated from each other for their own protection. Critical care services – emergency and intensive care, surgical facilities, and key diagnostic services – would remain centralised in a hospital-like setting, but care for more stable patients could be located elsewhere and less reliant on highly trained or experienced healthcare staff for day-to-day care and observation.

Decentralisation, however, runs contrary to aspects of contingency plans discussed by some imperilled medical communities within Syria. Faced with ever-depleting resources and capacities, the prospect of being forced to consolidate medical services into fewer facilities remains a possibility. In east Aleppo specifically, given the current intense offensive and continued devastation of medical facilities, consolidation may be the only realistic option.

Mobile technologies have great potential to enable decentralisation, while also allowing patients to manage their own health

Telemedicine has shown potential for addressing the drastic reduction in experienced health staff within Syria

Distancing some patients from critical services is not without risk. Risks to patients can never be avoided, but rather weighed, minimised and managed. This would depend on rigorous screening for (potential) complications, alongside solid patient monitoring and a well-functioning referral system. Further, the actual implementation of such a decentralised model in the midst of the Syrian conflict would undoubtedly be a major challenge.

Mobile technologies have great potential to enable such decentralisation, while also potentially allowing patients to manage their own health more independently closer to home. Allowing patients or healthcare staff to remotely monitor symptoms has the potential to significantly minimise their risk of exposure to attacks on medical facilities. Apps that allow patients to compile and keep their personal medical histories could also allow for better follow-up where the availability of health services is unpredictable and populations are repeatedly displaced.

Telemedicine has shown potential for addressing the drastic reduction in experienced health staff within Syria, and has been utilised in a number of locations. However, MSF has not yet been able to implement such systems to the point of facilitating reliable real-time consultations, limiting its effectiveness in acute emergencies. Nevertheless, MSF is in the process of expanding its remote support, with additional specialists being hired in Jordan and with continued efforts to overcome the technological hurdles.

With less time spent inside medical facilities and the lack of experienced medical personnel to care for more complex medical issues, educating patients and caretakers has become increasingly important. This is undeniably an area where continued improvement can be made, in part facilitated by technologies similar to those noted above.

## MSF's evolving role in Syria

In Syria, MSF has found itself in an unfamiliar role. Not only is MSF directly delivering medical care and increasingly providing technical, clinical and resource support to other medical actors, but it is also just one actor within complex and dynamic networks of medical service. While this is not entirely unique to Syria, this latter role is a new and challenging one for MSF in many respects.

Working as part of a networked medical system has not typically been one of MSF's strengths. MSF is often one of the very few providers of healthcare in many contexts, where little semblance of a broader healthcare system exists. Adapting to this role as one medical actor among many, and more as a supporter than a direct provider of care, will continue to challenge MSF in Syria.

MSF also aims to expand its support for other medical facilities beyond supplying drugs and resources. Whereas MSF has initially focused its support on assisting these facilities to continue to function, it will now seek deeper partnerships where the quality of care provided can be monitored and improved.

Some of the adaptations noted above undoubtedly have the potential to improve the effectivity and quality of MSF's medical work, while others are undeniably compromises that undermine the quality of care that MSF would hope to provide in such circumstances.

Inevitably, one of the critical and constant challenges MSF continues to face is the tension between the best available medical care and the reality of what is possible in such a context. Ideally standards should be just that – standard. But while working in an extremely violent and dynamic context – and doing so with limited access – MSF must continuously reassess the effectiveness of its intervention.

One of the critical and constant challenges MSF continues to face is the tension between the best available medical care and the reality of what is possible in such a context

