

EVALUATION OF

THE GAZA AND MOSUL
RECONSTRUCTIVE SURGERY
PROJECTS

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DISCLAIMER

The authors' views expressed in this publication do not necessarily reflect the views of Médecins sans Frontières and the Stockholm Evaluation Unit.

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ACRONYMS

AAH	Al Awda Hospital (Gaza)
ABR	Antibiotic Resistance
ABS	Antibiotic Stewardship Committee
ADLs	Activities of Daily Living
AIM-T	Activity Independence Measure – Trauma
ALPC	Artificial Limb and Polio Center
ARO	Annual Review of Operations
BOR	Bed Occupancy Rate
COM	Chronic Osteomyelitis
CPOC	Center for Post-Operative Care
DoH	Department of Health (Mosul)
EMR	Electronic Medical Record
EQ – 5D	European Quality of Life 5-Dimensional instrument
FU	Follow – up
GMR	Great March of Return
HDU	High Dependency Unit
HI	Humanity and Inclusion
HQ	Headquarters
ICRC	International Committee of the Red Cross
ICU	Intensive Care Unit
IPC	Infection Prevention & Control
IPD	In-patient Department
IS	Islamic State
KIIs	Key informant interviews
LL	Lower Limb
LMIC	Low- and Middle-Income Countries
LRS	Limb Reconstructive Surgery
MAM	Medical Activity Manager
MDT	Multi-Disciplinary Team
MHPSS	Mental Health and Psychosocial Support
MoH	Ministry of Health (Gaza)
MRSA	Methicillin Resistant Staphylococcus Aureus
MSF-AAH	MSF Al-Awda Hospital
MUST	Mobile Surgical Unit
NAM	Nursing Activity Manager
NGO	Non-Governmental Organization
OCB	Operational Center Brussels
OCP	Operational Center Paris
OECD	Organization for Economic Cooperation and Development
OPD	Out-patient Department
OT	Operation Theater
PBT	Performance Based Test
PPE	Personal Protective Equipment
PT	Physiotherapy
RS	Reconstructive Surgery
SEU	Stockholm Evaluation Unit
SF-12	Short Form - 12
SRH	Sexual and Reproductive Health
SSI	Surgical Site Infection
TOC	Tertiary Orthopedic Center
ToR	Terms of Reference
UHWC	Union of Health Workers Committees
UL	Upper Limb
WHOQOL	World Health Organization Quality of Life instrument

EXECUTIVE SUMMARY

Background: MSF OCB's projects in Mosul and Gaza began in 2017 and 2018, respectively, as a means to alleviate the burden of war trauma injuries, which the local health care systems were ill-equipped to handle. MSF OCB partnered with local organizations and constructed well-equipped facilities to provide free reconstructive surgery in a multidisciplinary manner with MSF IPC and ABR protocols in place. With the end of the GMR protests, the number of “fresh” war wounded patients declined leading the projects to pivot and broaden their admission criteria to include non-violent and accidental injuries. The current evaluation was aimed to assess the relevance, appropriateness, effectiveness, efficiency, and impact of these projects, and also gain insights that could improve functioning of present and future reconstructive surgery projects.

Methodology: A case study using a mixed methods approach was used to conduct an in-depth exploration of each project site. Document reviews and key informant and patient interviews (n=99) provided the data, which was analyzed thematically using triangulation. Site visits could not be carried out due to the COVID pandemic. Separate field debriefing sessions were held for Gaza and Mosul; a co-creation workshop was held to collaboratively develop the recommendations.

Findings & Conclusions: Both projects were highly relevant in meeting the needs of the conflict afflicted populations and have adapted well to the changing local contexts. They pivoted to become COVID treatment facilities during 2020 and have expanded their admission criteria. However, both projects lack a clear understanding and definition of reconstructive surgery, which is reflected in their operations. Projects are coherent with MSF's philosophy and focus on trauma care, but internal coherence with other MSF partners (and with each other) is weak. Both projects occupy a unique niche in the local health care system and provide services that are not readily available.

It was challenging to definitively assess efficiency, effectiveness, and impact of both projects. Qualitative evidence strongly suggested that both projects were effective, and to a lesser extent, efficient. Anecdotal evidence of “good quality” was universally reported by patients and staff in both projects, as was the perception that both projects could make better use of resources and staff. However, strong objective data to attest to these findings was lacking. Both projects collect large amounts of data, however, it was not ‘fit for purpose’ – both projects could improve in converting data into actionable information.

It was quite clear that both projects would not be able to continue at the same level if MSF OCB were to withdraw; but at present, there was no discussion of an ‘exit strategy’. Site specific findings were that physiotherapy was weak especially in Mosul, while HR challenges remained unresolved in Gaza.

Recommendations:

- 1) Establish a definition of reconstructive surgery that can be applied across projects. Communicate it clearly to all staff and stakeholders.
 - a. Ensure that orthopedic surgeons associated with the project have the requisite reconstructive surgery training/skills.
 - b. Streamline procurement processes for RS equipment and materials.
- 2) Increase knowledge exchange between the two sites, and with OCP Amman. These can start informally (online exchanges etc.) and if there is interest, can be formalized (regular meetings, personnel exchange, etc.).
- 3) Ensure data collected are 'fit for purpose'.
 - a. Indicators should be of two types: routine monitoring of operations, and for evaluation of outcomes/impacts.
 - i. Whenever possible, indicator baselines should be evidence-based.
 - ii. The MSF OCB standard indicator list is a good starting point for routine monitoring indicators. The MSF OCB Standard Indicator lists the indicators, for IPD surgery, operating department and physiotherapy, which should be considered.
 - iii. Evaluation/impact indicators can be project (or intervention) specific; ideally, they should allow for comparisons across projects. Consideration should be given to measuring Quality of Life (e.g., the EQ-5D tool has been used successfully in Gaza by MAP UK and Godwin et al, or other validated and translated tools such as SF-12, WHOQoL).
 - b. Indicators should be harmonized across the two projects. The appointment of the MIO in Beirut offers an opportunity to proceed in this direction.
- 4) Strengthen patient follow up to ensure loss to follow up is minimal. Patients should be followed up till their treatment is complete so that outcomes can be documented.
- 5) Strategically, address the emergency vs. development debate
 - a. MSF OCB should be careful not overextend itself, as the need/demand for RS is very large but the resources to provide quality care (human, material, technical and financial) are limited.
 - b. Develop a long-term strategy for both projects and communicate it clearly to all stakeholders.
- 6) For future projects:
 - a. Partner with MoH (i.e., integrate with existing health care system) in politically sensitive contexts.
 - b. Increase focus on local skills development (e.g., residency training for surgeons).
 - c. Increase length of expat staff deployment to ensure continuity.
 - d. Plan for and implement RS activities from the outset.
- 7) Site specific:
 - a. Strengthen physiotherapy services in Mosul by addition of staff with suitable rehabilitation background, and necessary equipment and space.
 - b. Address the HR issues facing local staff in Gaza.

INTRODUCTION

Mosul:¹ The capital of Ninewa Governorate, Mosul is Iraq’s second largest city and is divided in two parts (East/left and West/right) by the Tigris River. Its current population is estimated to be 1.6 – 1.8 million (compared to approximately 2.3 million before the takeover by the Islamic State (IS)).² This predominantly Sunni Arab city had long perceived itself to be marginalized by Baghdad’s Shia dominated government in the years following Saddam Hussein’s fall in 2003. Mosul and its surroundings gradually became a stronghold of Al Qaeda and its offshoot IS and by June 2014 the IS was deeply entrenched in the city.

The battle to eject IS from Mosul began in October 2016 and culminated in July 2017. It had a steep cost – an estimated 900,000 civilians (including 705,000 from West Mosul) fled the city to refugee camps (mostly in Ninewa and the Kurdistan Region of Iraq), and the city suffered extensive damage to its infrastructure.³ Reliable figures for the civilian death toll are scarce but the casualty toll is estimated to be high.

Gaza:⁴ Gaza is an urban setting with a very high population density; approximately 66% of its inhabitants are refugees.⁵ Since 1990, Israel has imposed movement restrictions on Palestinians living in Gaza and has imposed a strict blockade since 2006. This has resulted in deterioration of its infrastructure and healthcare system, negatively impacting living conditions and subsequently, population health. The protracted crisis with waves of acute conflicts has led to limited access to clean water, life-threatening power cuts, a siege mentality amongst the population with closure of its borders and lack of access to essential medications.

In March 2018, Palestinians started the “Great March of Return” (GMR) demonstrations marking the 70th Nakba anniversary, asking for the right of return for refugees and the end of the Israeli blockade. This lasted until the end of 2019, resulting in over 35,000 Palestinian injuries and more than 325 deaths.⁶ Although the GMR has ended, hostilities can resume at any time. For example, a fresh round of fighting in May 2021 led to 242 deaths and over 1900 injured Palestinians.⁷

¹ This section is based on Project Document – Mosul. Ninewa Governorate. MSF OCB Iraq Mission, 2019 and respondent interviews. ² Ibid. pg. 4.

² Ibid. pg. 4.

³ Ibid. pg. 4.

⁴ This section is based on MSF OCB Medical Narrative. 2021 OPT Gaza (compiled by MedCo, October 2020) and respondent interviews.

⁵ Ibid. pg. 3.

⁶ Humanitarian Snapshot: Casualties in the Context of Demonstrations and Hostilities in Gaza, 30 March 2018 – 31 October 2019. OCHA.

⁷ United Nations Office for the Coordination of Humanitarian Affairs. UN releases US\$22.5M for rising humanitarian needs in Gaza. <https://www.unocha.org/story/un-releases-us225m-rising-humanitarian-needs-gaza>.

PROJECT BACKGROUND

Mosul: Prior to the conflict, there were three hospitals which were equipped for orthopaedic surgeries - Mosul General, Al-Salam and Al-Jumhoori, with the last being the only hospital doing plastic surgeries in the city. All three were significantly damaged during the conflict, forcing them to drastically curtail all activities. According to the WHO, almost 20,449 wounded were treated during the battle for Mosul and most of these patients had no post-operative care owing to shortage of beds during the emergency. MSF OCB deployed its Mobile Surgical Unit (MUST) outside Mosul during the hostilities; its task was to provide basic life saving surgical care and support of patients initially stabilized in the field and/or central Mosul hospitals. This was part of the WHO-coordinated Mosul trauma pathway, which was a novel approach to organizing humanitarian organizations into a pathway to provide care for injured civilians.⁸

Soon after the hostilities ended, many NGOs left. Post-conflict rehabilitation of hospital and health care facilities proceeded at a slow pace due to lack of resources, including financial, material, medications and equipment. These gaps affected the number and quality of the services given.

Patients requiring reconstructive surgery were often referred to MSF's Amman facility, but the wait list grew quickly and exceeded Amman's capacity. As a way of addressing these gaps, MSF OCB entered into a partnership with the Al-Salam Hospital to establish a facility in its compound to provide reconstructive surgery. Construction of operating theatres (OTs) and a hospital ward started in 2017 and the facility became operational in April 2018 as the Center for Post-Operative Care (CPOC) with 23 beds. It is now renamed as the Al-Wahda Orthopedic Hospital and comprises of 2 OTs (one for clean and one for infected cases), a 40-bed hospital ward along with 4 high demand unit (HDU) beds.

Key milestones along the way included the implementation of an antibiotic stewardship (ABS) committee in 2019, a significant pause of surgical activities in 2020 due to the COVID pandemic,⁹ and the implementation of the surgical site infection (SSI) bundle care in 2021. These facility upgrades and bed additions were supplemented by the application of standard MSF infection prevention and control (IPC) protocols.

Concomitantly, as seen in other chronic conflicts in the region there was a change in the patient population, with a decreasing number of "fresh" war wounded patients and an increasing number of accidental trauma and other surgical pathology. Currently, the hospital provides care to victims of accidental or violent trauma who have no access to proper orthopedic trauma care.¹⁰ The list of Objectively Verifiable Indicators (from the project logframe) pertaining to the reconstructive surgery component are listed in Annex 4.

⁸ Garber, K., et al., *Applying trauma systems concepts to humanitarian battlefield care: a qualitative analysis of the Mosul trauma pathway*. *Conf Health*, 2020. **14**: p. 5.

⁹ The hospital had 975 COVID admissions during this period.

¹⁰ Including post-traumatic complications, non-union, malunion and osteomyelitis.

Gaza: In order to provide care to the GMR injured, MSF OCB teamed up with a local NGO (UHWC - Union of Health Work Committees) in May 2018 to support its hospital (Al-Awda) located in North Gaza. Al-Awda is an 80-bed hospital with four OTs, two of which have been shared with MSF OCB since spring 2018, providing mainly orthopaedic and limb reconstructive surgery. Two new operating theatres have been built and have been in use since February 2020;¹¹ the current MSF OCB in-patient department (IPD) has 32 beds. Patients admitted to the MSF OCB wing are those who have been previously operated and post-acute stabilized war-wounded. The facility offers in-patient surgical management including reconstructive plastic and orthopaedic surgery with MSF IPC protocols, and out-patient follow-up including mental health and physiotherapy services. According to the Third Quarter Report 2021, *“since the beginning of the project (2018-18), 1,229 patients were admitted in MSF--Al Awda Hospital (AAH) including 1027 adults (844 GMR patients) and 202 paediatric patients.”*¹²

With the end of the GMR protests in December 2019, the project entered a transition period. Starting in June 2020 admission criteria were widened in response to an MoH request to include acute paediatric orthopaedic trauma.¹³ MoH requests in May 2020 (to support MoH hospitals during COVID) and in August 2021 (to support the Indonesian Hospital) led to the expansion of the limb reconstruction surgery (LRS) admission criteria to include non-GMR cases.¹⁴ The list of Objectively Verifiable Indicators (from the project logframe) pertaining to the reconstructive surgery component are listed in Annex 4.

Overall, Gaza remains a challenging environment to work in security-wise, and importing goods and supplies is dependent on the permission of the Israeli authorities. The table below summarizes key milestones at each project site.

¹¹ OTs were constructed by the UHWC and MSF equipped the inside of the building.

¹² MSF OCB Gaza Project. 3rd Quarter Report, 2021.

¹³ In addition, the nearby pediatric hospital had been badly affected by COVID and had to temporarily shut down; MSF OCB took over the affected patients.

¹⁴ The cases included non-GMR violent trauma and non-violent trauma including both open and closed fractures, malunion, non-union, and chronic osteomyelitis in patients not injured in the GMR, and isolated congenital anomalies of the hands and limbs.

Table 1. Key milestones

	MOSUL	GAZA
2017	<ul style="list-style-type: none"> - MUST deployed. - Partnership with Al-Salam Hospital; construction of OTs and ward started. - Focus on treatment of burns and provision of post-operative care. 	
2018	<ul style="list-style-type: none"> - CPOC opens in April with 23 beds. - Renamed Al-Wahda Orthopedic Hospital. - Cessation of hostilities leads to less “fresh” cases. 	<ul style="list-style-type: none"> - Partnership with Al-Awda Hospital initiated. - Use of 2 OTs by MSF. - Provide care to GMR injured population.
2019	<ul style="list-style-type: none"> - Admission criteria broadened to include sub-acute cases. - Increasing number of accidental trauma being treated. - ABS committee initiated. 	<ul style="list-style-type: none"> - MSF OCB receives own registration with MoH. - GMR ends December 2019. - “Simple” reconstructive surgery being performed.
2020	<ul style="list-style-type: none"> - Pause in surgical activities; pivot to providing COVID care. - Infix added to admission criteria. - 2 OTs, 40 bed hospital, 4 HDUs operational. 	<ul style="list-style-type: none"> - Construction and use of 2 additional OTs by MSF. - GMR patients requiring surgery decrease. - Nasser (MoH) Hospital for LRS opens; further decreasing LRS patients to MSF. - Admission criteria broadened; now include non-GMR cases and pediatric patients. - SSI surveillance started
2021	<ul style="list-style-type: none"> - SSI bundle care initiated. - Wait list shuffled to fast track urgent cases. - “Basic” reconstructive surgery included in admission criteria. - 7 LRS sets procured and used. 	

EVALUATION SCOPE

As per the evaluation Terms of Reference (ToR), “MSF currently operates four programs in the Middle East with a reconstructive surgery component. This type of medical activity is relatively new to MSF OCB... (and) there is an organizational desire to increase knowledge on this topic.” This evaluation is an “.... opportunity to gain insight and potentially cross-fertilize existing projects.”

The overall objective of the evaluation is in line with what the ToR specifies – “to assess the relevance, appropriateness, effectiveness, efficiency, and impact of MSF OCB’s reconstructive surgery project interventions in Gaza and Mosul.”

The intended use is thus to inform the two projects’ “main orientation for the next few years, including potential adaptations in Mosul and Gaza.”¹⁵

¹⁵ RECON Terms of Reference, September 3, 2021.

EVALUATION FOCUS

Given the differences between the contexts of Gaza and Mosul, each site was evaluated independently, with overarching conclusions drawn at a co-creation workshop with key stakeholders from both sites and HQ. The focus was strictly on the reconstructive surgery (RS) activities with the aim of identifying transversal findings that could be applicable to future RS projects at large, and also help improve the functioning of the existing projects. For Mosul, the evaluation covers the period from 2017 (when MSF OCB initiated its surgical activities in Mosul) to the first quarter of 2022; for Gaza the starting point is 2018 (when the GMR began). For both projects the Objectively Verifiable Indicators (and their associated Expected Results – see Annex 4) were also examined to assess the OECD criteria, especially effectiveness and efficiency.

CONCEPTUAL MODEL

The figure below is a simplified conceptual model of the evaluation team’s interpretation of the specific objectives described in the ToR. It can be thought of as a simple results chain that links the evaluation questions. The evaluation questions were reframed and modified keeping the revised OCED DAC criteria.¹⁶

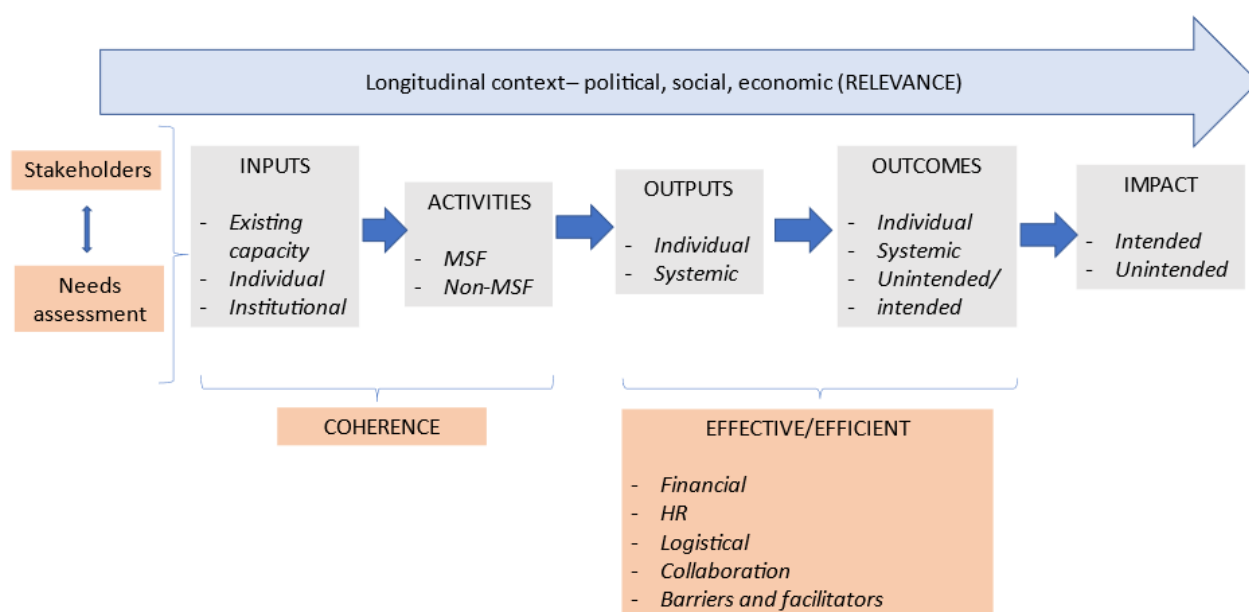


Figure 1. Conceptual Model

In the ToR, ‘Appropriateness’ (EQ1) and ‘Relevance’ (EQ2) are listed as separate questions. In light of the revised OECD DAC criteria, these are better considered together under the revised definition of ‘Relevance’.¹⁷ The needs assessment and stakeholder analyses undergird the required inputs and determine the project activities, which will be assessed for ‘Coherence’.¹⁸ This can be internal (i.e., fit of

¹⁶ OECD, *Applying Evaluation Criteria Thoughtfully. 2021*; OECD/DAC Network on Development Evaluation, *Better Criteria for Better Evaluation. Revised Evaluation Criteria Definitions and Principles for Use. 2019*, OECD.

¹⁷ “The extent to which the intervention objectives and design respond to beneficiaries, global, country, and partner/institution needs, policies, and priorities, and continue to do so if circumstances change.” Ibid.

¹⁸ “The compatibility of the intervention with other interventions in a country, sector or institution.” Ibid.

activities with other MSF projects and activities) or external (fit with activities of other organizations/providers in the area). The activities result in outputs, outcomes and longer term ‘Impacts’¹⁹ (EQ5) that are achieved in an ‘Effective’²⁰ (EQ3) and ‘Efficient’²¹ (EQ4) manner. The Evaluation Matrix (Annex 1) elaborates the evaluation questions in greater depth.

METHODOLOGY

The evaluation used a case study approach which allowed the team to conduct an in-depth exploration of each project site.²² Green and Thorogood define a case study as an “in-depth study undertaken of one particular ‘case’, which could be a site, individual or policy;²³ for this evaluation a ‘case’ was the reconstructive surgery project at each site. Case studies have been used successfully in health program evaluations, including developing countries.²⁴ The conceptual framework described above guided the evaluation and facilitated the development of the Evaluation Matrix. The evaluation used a mixed methods approach to primary and secondary data collection and analysis.²⁵ Primary data was collected primarily through key informant interviews; secondary data was collected from document reviews and synopses of routinely collected data. The key informant interviews allowed participants to share their perspectives on each project and allowed the evaluation team to dig deeper into specific issues; the document reviews and data synopses presented objective evidence of the project’s status and achievements. Interpolating both data sources allowed for a richer and more nuanced understanding.

A set of evaluation questions were developed, and data collection and analyses were conducted for each as detailed in the Evaluation Matrix (Annex 1).

DATA COLLECTION

Data was triangulated from the following sources:

- a) Document reviews – a document library was created using SharePoint with assistance from the MSF evaluation focal point. This ½ gigabyte library had 211 documents in 27 folders, and included project reports, annual reports, research reports, end of mission reports, log frames, sitreps, planning documents, presentations, etc. for the period 2018 - 2022. Additional documents were requested (and

¹⁹ “The extent to which the intervention has generated or is expected to generate significant positive or negative, intended or unintended, higher-level effects.” Ibid.

²⁰ “The extent to which the intervention achieved, or is expected to achieve, its objectives, and its results, including any differential results across groups.” Ibid.

²¹ “The extent to which the intervention delivers, or is likely to deliver, results in an economic and timely way.” Ibid.

²² Yin, R.K., *Validity and generalization in future case study evaluations*. Evaluation, 2013. **19**(3): p. 321-332; Yin, R.K., *Applications of case study research*. 2011: Sage.

²³ Green, J. and N. Thorogood, *Qualitative methods for health research*. 2018: Sage.

²⁴ Crowe, S., et al., *The case study approach*. BMC medical research methodology, 2011. **11**(1): p. 1-9; O'Brien, L., L. Broom, and M.M. Ullah, *Outcomes and participant experience of an online train-the-trainer program for Bangladeshi health professionals: a case study evaluation*. J Contin Educ Health Prof, 2015. **35**(1): p. 46-56.; Zhang, H.L., et al., *Challenges of Maintaining Good Clinical Laboratory Practices in Low-Resource Settings: A Health Program Evaluation Framework Case Study From East Africa*. Am J Clin Pathol, 2016. **146**(2): p. 199-206.

²⁵ Teddlie, C. and A. Tashakkori, *Foundations of mixed methods research: Integrating quantitative and qualitative approaches in the social and behavioral sciences*. 2009: Sage.

received) as interviews progressed.

- b) Key informant interviews – 99 interviews were conducted in total across the two sites. Interviews were conducted remotely using WhatsApp from May 8 – 20, 2022 (Mosul) and August 9 – 18, 2022 (Gaza). A standard semi-structured interview script with probes was used (Annex 2). Interviews were not recorded but detailed notes were taken. Annex 3 lists the key informants.
 - I. Key informant interviews (KIIs) n=54. Respondents were national and expatriate MSF personnel and stakeholders at the local, regional and HQ level. Sampling of MSF key informants was purposive and was based on an initial list of stakeholders provided by MSF. Snowballing was used to add names to the initial interview list.
 - II. Patient interviews n=45.²⁶ Patient interviews were not purposive - all patients currently admitted in the IPD and all out-patients present in the OPD during the interview period were interviewed. Patient interviews were conducted in Arabic by one of the evaluation team members.
- c) Routinely collected data – based on the logframe of each project, the Objectively Verifiable Indicators pertinent to the evaluation questions were examined (Annex 4).

DATA ANALYSIS AND SYNTHESIS

All documents and interview notes were read, analysed and coded thematically according to their contribution to answering specific evaluation question(s). To ensure internal validity, triangulation was done across data collection tools (document review and key informant interviews) and between key informants.²⁷ This quality assurance mechanism enabled the evaluation team to identify substantive findings (including divergent ones) and the approximate degree of support for that finding. Due to the divergent skill sets and background of the evaluation team members, reflexivity and member checking was periodically conducted to eliminate bias. Saturation was achieved with the information set.

Analysis of the routinely collected project data was based on the logframes of each project and the Objectively Verifiable Indicators pertinent to the evaluation question(s). We examined the indicator definitions and conducted a year-by-year analyses of the available indicators.

A field debriefing session was conducted remotely on June 7, 2022, to present and validate the results of the Mosul evaluation. The Gaza debrief was held in a similar manner on September 5, 2022. A co-creation workshop with the consultative group and key MSF stakeholders was held remotely on October 3, 2022.

²⁶ Mosul - 29 patients (17 OPD and 12 IPD); Gaza – 16 patients (11 OPD and 5 IPD).

²⁷ Campbell, R., et al., *Assessing Triangulation Across Methodologies, Methods, and Stakeholder Groups: The Joys, Woes, and Politics of Interpreting Convergent and Divergent Data*. American Journal of Evaluation, 2018. 41(1): p. 125-144.

ETHICS

The evaluation was conducted in accordance with SEU Ethical Guidelines and the norms specified by the UNEG Norms and Standards for Evaluation, especially Norm 6 (Ethics).²⁸ All evaluators signed the SEU Ethical Guidelines.

All interviewees were selected without any consideration for age, gender, religion, etc. The criteria for inclusion were whether the interviewee could contribute any information on the specific evaluation question(s) from their local, regional or international perspective. There was no selection of patients – all patients admitted to the in-patient ward and all patients attending the OPD on the four designated patient interview days were approached.

Verbal informed consent was obtained from all interviewees after providing them background information about the evaluation, its purpose, assurance of confidentiality of information and protection of anonymity. Interviewees were informed that their participation was entirely voluntary, and they could stop and withdraw from the interview at any time; additionally, their answers would not affect their relationship (or treatment) with MSF in any way. Interviews were conducted remotely in English and Arabic by the evaluation team members without recourse to interpreters.²⁹

Credibility of the evaluation findings was ensured by regular meetings of the evaluation team during the interview and data analyses phase to discuss the findings and interpretation. This ensured reflexivity and minimized any bias that could have been introduced. Findings were discussed at two debriefing meetings (one each for Gaza and Mosul) to ensure member checking and assuring validity of the findings.

LIMITATIONS

- Due to visa and travel challenges, field visits could not be conducted. All interviews were therefore conducted remotely, and direct observation of the facilities could not be done. However, interviewing a broad range of stakeholders and respondents mitigated this challenge to a great extent.
- Recall and confirmation bias could pose a challenge. In addition, staff frequently rotate through the projects, so the interviewees may not have had an accurate picture of the period when they were not involved with the projects. Confirmation bias could be especially challenging when interviewing patients, who may not want to say anything negative about the (free) care they receive. These biases were mitigated to a large extent by interviewing a broad range of stakeholders and respondents.
- Longitudinal data and indicator information was limited. There was no uniformity in indicators being reported year-on-year (as the logframe indicators were changed), documentation clearly defining each indicator was limited and definitions of indicators across the two sites were not consistent, limiting cross site comparisons.

²⁸ United Nations Evaluation Group, *Norms & Standards for Evaluation*. 2016, UNEG: New York.

²⁹ See Annex 2 for the standard language used.

FINDINGS

PART A – TRANSVERSAL FINDINGS

RELEVANCE

EQ1: To what extent is the project design culturally, medically and contextually relevant in each site?

Finding 1: *The project design was highly relevant in meeting the needs of the conflict afflicted populations.*

As a humanitarian organization, MSF aims to respond quickly to the needs of conflict afflicted regions and its deployment in Mosul and Gaza was along these established principles.

Given the destruction of the health care system during the battle for Mosul, providing support to the health system was contextually and medically relevant, facilitated by the deployment of a mix of expatriate and local personnel. Entry into Mosul was partially clouded the circumstances of MSF's departure from Basra a few years ago, and relations with the federal authorities were cordial at best during the first year in Mosul.³⁰ MSF OCB was given the responsibility of providing post-operative care away from the front lines, which it did by deploying the Mobile Surgical Unit (MUST). Project documents noted that a hospital was supposed to be functional by December 2017 but due to unavoidable delays was only opened in April 2018. Documents also noted that during this delay, a medical needs assessment was conducted (by the orthopedic referent and Head of Programs at the mission level) the results of which corroborated that unmet need for such a facility remained high.³¹

Deployment to Gaza occurred in response to a call for assistance from a local NGO (the Union of Health Workers Committee) to help take care of the injured patients following the Great March of Return (GMR) that began in March 2018. The Israeli response to these protests led to a large number of traumatic lower limb injuries which the Gazan health care system was ill-equipped to handle. Many international organizations responded to this call for help, and MSF OCB teamed up with the Union to assist and use its facilities and staff at Al Awda Hospital.

MSF OCB had to overcome a set of unique challenges upon its entry – Gaza was (and still is) an intensely political space with the Ministry of Health (MoH) exercising a great degree of control over the treatment of the GMR victims through the establishment of the GMR Injured Committee. MSF OCB did not have a registration in 2018, so it was forced to work under MSF-France's registration, an arrangement that led to some friction (vide infra). In addition, Al Awda hospital was not a MoH facility, which hampered efficient coordination with the MoH. Despite these challenges, MSF persevered and provided much needed clinical

³⁰ MSF established a facility in Basra in 2011 but reportedly did not inform the appropriate authorities upon its departure a few years later.

³¹ As reported in *Mosul medical strategy_final_SS*, 2018; *East Mosul Comprehensive Post-Operative Care Hospital. Annual Report*, 2018.

support to the health care system; documents state that it saw nearly “50% of the total number of gunshot injuries in 2018.”³²

Reconstructive surgery (RS) was not well established in either location in the first year as the priority was to provide care for relatively “fresh” war/trauma wounded. For example, the patient pathway for Gaza in 2018 called for referral to MAP UK/MoH for reconstructive surgery,³³ and RS was added to OCB’s intervention response only later.³⁴

EQ2: To what extent is the project implementation (initial and ongoing) culturally, medically and contextually relevant in each site?

Finding 2: Project implementation has adapted well to the local contexts including adjusting its admission criteria as the patient case mix changed, assisting the local health care system during the COVID pandemic, and working with bureaucratic delays.

The evaluation team found strong evidence that the project was highly responsive to the changing context and local needs. In Mosul, while use of the MUST was necessary to ensure a speedy deployment, it quickly became apparent that the OT space was inadequate for a number of procedures.³⁵ Following a request by the Iraqi government for NGOs to provide more advanced tertiary care, discussions were initiated with the Al-Salam Hospital to build a more permanent structure on its grounds for use by MSF OCB. Despite delays due to bureaucracy and importation challenges, a 40-bed hospital with 2 OTs was ready by September 2020.

This responsiveness was demonstrated again during the COVID pandemic, when for most of 2020 the MSF OCB facility stopped performing surgical operations but instead became a COVID treatment hospital. But perhaps the definitive evidence of adaptation is the response to the changing patient population (insofar as trauma surgery is concerned). The cessation hostilities in 2017 led to a gradual decrease in “fresh” trauma cases, and the existing pool of such cases was being treated in local and regional hospitals. For example, internal MSF OCB data suggests a 52% decrease in violent trauma cases and a 35% increase in accidental trauma cases between 2019 and 2020, most likely due to the violent trauma cases having sought (and received) treatment elsewhere (Figure 2).

The need to adjust and revise admission criteria were noted in many documents.³⁶ From initially treating burns cases and providing post-operative care during the conflict and its immediate aftermath,³⁷ the admission criteria were changed to include sub-acute cases (2019), patients requiring internal fixation (2020) and a re-shuffling of the waiting list (into red/yellow/blue categories) to identify and fast-track

³² Gaza Annual Report 2018, pg. 4.

³³ Ibid, pg. 7. Discussions about “basic reconstructive surgery” and the “proposed reconstructive surgery program” appear in the *MSFOCB Medical Narrative 2019 North Gaza*; this document also notes that “in our current pool of cases that we are seeing we have only 17 cases....that will undergo simple limb reconstruction surgery and 6 cases of malunion.”

³⁴ *MSFOCB Medical Narrative, 2021 OPT Gaza*, October 2020.

³⁵ MUST could only accommodate wound debridement and external fixations.

³⁶ See for example, *Admission criteria evolution over time_farah 02-2019.doc*; *Mosul final admission Criteria MSF-OCB_(2) review age 08_01_2019*

³⁷ Burns are no longer on the admission criteria.

urgent cases, and inclusion of cases requiring basic reconstructive surgery (2021).³⁸ Seven limb reconstruction surgery (LRS) systems were procured from Germany in late 2021 and were rapidly used up to treat bone gaps in patients.³⁹

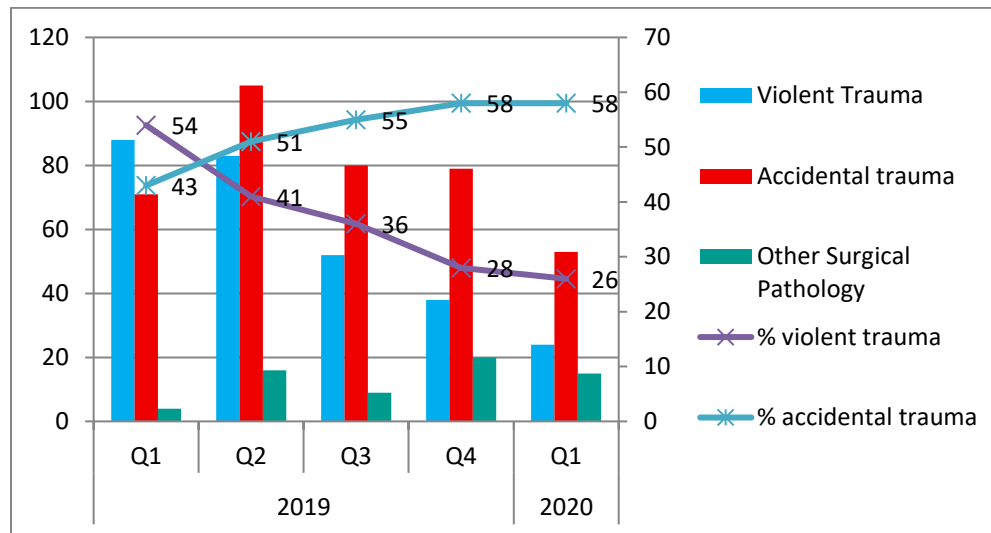


Figure 2. Comparison of causes of trauma cases of inpatients at the CPOC facility of MSF-OCB Mosul Project for 2019 and Q1 2020⁴⁰

Relations with the authorities (both with the MoH in Baghdad and with the Department of Health of Ninewa Directorate) have improved significantly in the past few years.

A similar trajectory can be seen in Gaza, where the project had to overcome a number of hurdles. Lack of its own registration meant that MSF OCB had to operate under MSF-France’s registration with the MoH for the better part of its first year in Gaza. While this led to cooperation with the already established OCP programs at the technical and operational level, it did lead to a perception of “competition” for the GMR patients despite an agreement to have different geographic catchment areas.⁴¹ The Al Awda hospital was not a MoH facility, which hampered smooth relations with the MoH at the outset, and obtaining clinical data about the GMR cohort (to facilitate needs assessment, planning and patient recruitment) was difficult.⁴² In addition, the initial expatriate surgical staff were mainly war/trauma surgeons and not reconstructive surgery specialists. This was not ideal as initial care for the GMR injured was provided in MoH facilities and patients were referred to the OCB facility only after being stabilized for specialized procedures. There was increasing realization at this early stage that the OCB patient cohort would require reconstructive surgery in the coming months/years, and this should be planned for.⁴³

³⁸ Such as cemented nails and bone grafting.

³⁹ According to an expatriate surgeon, three local surgeons were trained on this and are now responsible for following up these patients. S/he also noted that there are more patients who could benefit from the LRS, but presently there are not enough materials to use it.

⁴⁰ Taken from the *Project Document – Mosul. Ninewa Governorate. MSF OCB Iraq Mission, 2019.*

⁴¹ By virtue of its location in the North, OCB would take care of GMR patients from the North; OCP would provide care for the GMR injured in Central and South Gaza.

⁴² *Gaza Project 2020, MSFOCB* (PowerPoint presentation, 2020). A few respondents noted that the past ideology of the UHWC was a perceived barrier to effective MoH collaboration.

⁴³ For example, see *End of Mission Report – Dr. Innocent Nyaruhirira, 2018* and *Limb Reconstruction in Gaza, August 2018*. It was only towards the end of the first year that it was decided that it would be better to train and deploy local orthopedic surgeons.

To a lesser extent, MSF OCB in Gaza curtailed its activities temporarily during the COVID crisis, decreasing elective surgeries for a period of two months. With the cessation of the GMR protests in December 2019, the inflow of fresh injured patients dried up, and the numbers in the GMR cohort requiring reconstructive surgery progressively dwindled. The project broadened its admission criteria (for example, it started accepting acutely injured pediatric patients in June 2020, and in August 2020 started to accept “cold cases” from OCP such as old burns and trauma) to continue providing RS services and alleviate the burden on the Gazan health care system.⁴⁴

Currently, both projects remain highly relevant as unmet need exists because of very poor surgical quality and outcomes in the MoH (and private facilities in Mosul), along with lack of basic IPC measures which lead to a high prevalence of infected limbs (often with multidrug resistant organisms).⁴⁵ In Mosul very few facilities provide reconstructive surgery, care for chronic osteomyelitis or specialized procedures such as internal fixation at a reasonable charge.⁴⁶ In terms of Gaza there are currently two facilities providing RS – MSF OCB and the WHO supported Nasser Hospital - but the reported quality at Nasser is not perceived to be very high.⁴⁷

Finding 3: *There is a lack of clarity and understanding about reconstructive surgery, which has downstream implications.*

The evaluation team was not able to ascertain how the two projects defined ‘reconstructive surgery’, with neither documents nor interviewees (save for a few surgeons) being able to define it. Respondents and documents attempted to define it in terms of the procedures being done in the OTs.⁴⁸ One orthopedic surgeon did attempt to develop a clear definition for use in these programs but has not been successful in getting it approved. See Annex 6 for a discussion of definitional issues.

As there is no emergency room in both locations, both facilities do not receive/treat acute (or ‘fresh’) trauma cases. Such cases are provided initial management elsewhere and are then referred to the OCB facility. The case mix at both sites is a combination of sub-acute trauma and reconstructive surgery.

The evaluation team noted the implications of the lack of a clear understanding of the definition, breadth and scope of RS. There was an underlying assumption that the skill sets required to treat acute/sub-acute

⁴⁴ MSFOCB Medical Narrative, 2021 OPT Gaza, October 2020.

⁴⁵ Mosul does not have a trauma center, and surgeons in the DoH facilities are reported to liberally use antibiotic cocktails with steroids, resulting in infections with resistant organisms. The MRSA rate is quite high in clinical isolates, as evidenced from the 2019 Annual Report. Similarly, a respondent stated that the MRSA positivity rate in samples from Gaza was around 65%; the MSFOCB Medical Narrative, 2021 OPT Gaza, October 2020 notes that “unpublished data from the Islamic University of Gaza shows that 70% of healthcare workers in Gazan hospitals are positive for MRSA”.

⁴⁶ Such surgery reportedly costs close to US\$ 1000 in Mosul, which is beyond the reach of many.

⁴⁷ OCP was involved in provision of osteomyelitis care at the outset of GMR and later became part of the centralization of RS services at Nasser Hospital; they have recently ceased doing RS and are focusing only on burns now. During the interviews (August 2022), a few respondents spoke about the possibility of WHO ending its support to Nasser Hospital in the near future. Were this to occur, the widespread perception is that the MoH lacks sufficient resources to operate it on its own; in which case OCB would be the only facility doing RS in Gaza. At the time of this report (October 2022) it seems that WHO is indeed pulling out of Nasser Hospital.

⁴⁸ The confusion may come from the fact that reconstruction techniques such as internal fixation are used in the management of “fresh injuries” and thus labelled as “reconstruction.” Technically, reconstruction can only occur after construction has failed.

injuries and perform reconstructive surgeries were interchangeable (when they clearly are not). The surgeries scheduled are dependent on the specific skill sets of the orthopedic surgeons available at the time. Many, if not most RS cases involve chronic infection of bone and surrounding soft tissues. Almost no orthopedic surgeon from resource-rich countries is exposed to this type of pathology during training, except anecdotally; very few of them bring significant added value to local/national/regional/ surgeons with orders of magnitude more experience. An additional issue is the logistical challenges in ordering and procuring RS equipment, as it is considered an MSF non-standard item.⁴⁹

A similar issue was noted with respect to the definition of acute osteomyelitis – it seemed that the projects were labeling any infected wound with exposed bone as ‘acute osteomyelitis’.

COHERENCE

EQ3: How compatible are the project activities with other similar activities in the organization?

Finding 4: Knowledge sharing and exchange among the reconstructive surgery projects in Gaza, Mosul and Amman is limited.

Internally, the projects are aligned with many of MSF’s priorities, especially the focus on trauma care, antibiotic resistance, and medical services provision in ‘middle income countries’.⁵⁰ Mosul and Gaza are two (of the four) locations where RS projects are being currently undertaken.⁵¹

In the early phases of the Mosul project (when RS had not been fully launched), some patients were referred to Amman and Tripoli for reconstructive surgery.⁵² However, this came to an end when the wait lists for Amman exceeded its capacity; Mosul then started doing such procedures locally. Mosul respondents mentioned the possibility of staff visits to/from Amman for training and sharing of supplies, but the evaluation team did not see any evidence that such exchange visits occurred in a systematic manner.⁵³

In Gaza, collaboration with OCP was a necessity in the beginning as OCB operated under the OCP registration. RS cases from North Gaza came under the purview of OCB, while OCP was responsible for Middle and South Gaza cases.⁵⁴ Relations with OCP were a mixed bag – some operational areas reported

⁴⁹ Many respondents described the increasingly complex requirements for ordering RS equipment – e.g., each nail in a set had to be entered separately as order, which required a huge amount of time.

⁵⁰ IQ135 2021 Project Document Mosul. 2019

⁵¹ Mosul, Gaza, Amman and Yemen are the four locations.

⁵² The 2018 Mosul Annual Report notes that 104 patients were referred to OCP Amman but only 13 reportedly arrived there. Seventeen patients were referred to the ICRC Tripoli hospital, but the report noted that only 2 planned to travel there.

⁵³ The OCP Amman Medco was reported to have visited Mosul in 2021, but the outcome of the visit was unclear.

⁵⁴ The 2018 Gaza Annual Report states that “MSF submitted 28 medical files to Amman, 5 were approved, 16 postponed, 2 defaulted or went abroad to seek surgery, and 5 are waiting for an answer from Amman.” It is unclear how many were OCB patients.

working well,⁵⁵ but others reported challenges;⁵⁶ these were marked at the senior/strategic levels.⁵⁷ Relations did seem to improve once OCB received its own registration. Similar to Mosul, it seems that the experience of MSF in Amman was not shared/utilized in the Gaza project.⁵⁸

The evaluation team did not see any evidence for a formal mechanism to share knowledge, experiences, or personnel between the two locations. Staff exchange occurs in a serendipitous manner; for example, upon completion of her term in Gaza, the MAM was being posted to Mosul. The contexts, case mix, available skill sets, and surgical procedures performed are broadly similar between Mosul and Gaza and opportunities exist for increasing cooperation and collaboration between all four RS projects.

EQ4: How compatible are the project activities with other similar activities in the region?

Finding 5: *The MSF OCB facilities occupy a unique niche in both Mosul and Gaza and has introduced the concept of orthoplastic surgery in both sites.*

At the operational level, the MSF OCB facility in Mosul links to certain players in the health care system. For example, patients are referred to the International Committee of the Red Cross (ICRC) for prosthetics after amputation. Post-operative physiotherapy was provided by Humanity and Inclusion (HI) until 2021, when MSF OCB was decided to bring it in-house. Microbiology is being done by a central laboratory in Erbil; it is anticipated that it will soon be done locally in Mosul upon the completion of an MSF supported facility at the Mosul Central laboratory. Interactions with local hospitals (besides Al-Salam) are limited. Case transfers occur from Al-Salam once ER patients are stabilized; the MSF facility uses Al-Salam's ICU as and when needed.

The situation is broadly similar in Gaza. The OCB facility seems to be integrated into the local health care system. Outreach is conducted to raise awareness among the local hospital Heads of Departments about the admission criteria to ensure patient referrals; and a key decision-maker from the MoH is on board. Two local organizations collaborate on amputations and stump revisions,⁵⁹ and training activities and patient exchanges occur with the other facility providing RS in Gaza (Nasser Hospital). OCB attends the meetings of the Trauma Working Group, and the surgical teams liaise via a dedicated WhatsApp group.

Overall, in terms of the level of care provided, the OCB facilities occupy a unique niche that is above and beyond the capacity of the local health system. One very important contribution of these projects is the introduction of the orthoplastic concept, which is more than a plastic and an orthopedic surgeon working together at the same time, but a multidisciplinary and holistic approach in the evaluation, planning, treatment, recovery and rehabilitation of these patients with chronic complex problems. The type of

⁵⁵ Also evidenced by reports. For example, *MSFOCB Medical Narrative 2019 North Gaza* – “The previous and current working collaboration with the OCP project pharmacist is exemplary” and “The collaboration and openness of the OCP managers to accept our team is rewarding.” OCP also provided training in hand physiotherapy to Al Awda physiotherapists in 2020 (noted in *MSFOCB Medical Narrative, 2021 OPT Gaza*, October 2020).

⁵⁶ *Visit Report, Geraldine Taeymans*, 2019.

⁵⁷ *End of Mission report, Diedre Nunan*, 2019.

⁵⁸ *Ibid.*

⁵⁹ Hamad Hospital for above knee amputations and Artificial Limb and Polio Center (ALPC) for below knee amputations.

surgeries performed (especially RS), the strict adherence to IPC protocols and provision of high-quality care at zero cost to the patients is a cut above what local health facilities can offer. As such, it is the ‘go to’ place for orthopaedic surgery in Mosul and is also looked upon quite favourably in Gaza.

EFFICIENCY

EQ5: To what extent did the projects utilize resources satisfactorily?

Finding 6: Resources are being used well in Mosul; a similar assessment for Gaza was difficult to make. The number of RS being performed at each site seemed to be on the lower side.

Table 2 (Mosul) and Table 3 (Gaza) below are the evaluation team’s attempts to identify comparable indicators across both projects to assess project activities.

Table 2. Mosul: Summary of activities 2018 – 2021 (Source: Annual Reports)

INDICATOR	2018	2019	2020	2021
# OPD encounters	1186	3186	1560	7888
# IPD admissions	144	326	185	872
Violence related admissions	41.5%	48.4%	4.5%	69%
Accident related		51.6%		
# Interventions	274	575	297	1304
IPC measures				
Hand hygiene	66%	79%	79%	72%
PPE	86%	90%	92%	78%
Surface cleaning	51%	70%	71%	

Data reported in the Annual Reports from Mosul attests to the fact that the resources are being used to generate an increasing amount of output. As Table 1 shows, OPD encounters, IPD admissions and the number of interventions has increased significantly as the project matured from 2018 to 2021. The decrease in numbers in 2020 was due to the facility being converted to treat COVID patients. The number of violence related admissions has increased a bit while the IPC measures fluctuate from year to year but remain relatively high. It is unclear if these variations are due to incomplete data recording (as is the case with accident-related admissions which are reported only for 2019), poor data quality or a reflection of ‘true’ practice. It was challenging to assess the number of RS procedures being done as the data was not reported consistently. The first quarter report for 2022 stated that “21 reconstructive surgeries (RS) were performed in Q 1 2022”;⁶⁰ this report also listed that “the definition of RS was consolidated: RS is one of (OB - Bone graft, OBC - Bone cement or substitute placement, OM - Muscle / fascia flaps, OT – Osteotomies). Patients with RS treatment typically come for repeated OT sessions”,⁶¹ but in later sections lists “Introduction to RS” as a priority for Q2 2022. No RS data were available for the preceding years.

Qualitatively, there was a strong perception from a large number of interviewees that resources and staff could be used better. A common refrain was the underutilization of the OTs with a relatively low number

⁶⁰ Q1 2022 Medical Report, Mosul.

⁶¹ The evaluators note that while this is a start at defining RS, it can be improved considerably.

of surgeries per day, primarily due to delays in starting in the morning and the large down time between patients.⁶² Another challenge was the varying skill sets and availability of the expatriate staff, which when coupled with equipment importation challenges,⁶³ hampered optimal scheduling and use of the OT. A few respondents also commented on the relatively large staff complement for the number of beds. The evaluation team noted the hiring restrictions imposed by the local authorities – only DoH staff could be hired, leading to their time and energies being split between their DoH, MSF (and often private practice) commitments.

Table 3. Gaza: Summary of activities 2018 – 2021 (Source: Annual Reports)

INDICATOR	2018	2019	2020	2021
# OPD encounters		9287	7039	8934
# IPD admissions	8024 ⁶⁴	634	436	501
Violence related admissions	44%			
Accident related				
# Interventions	1759	751	556	675
IPC measures				
Hand hygiene			84%	74%
PPE				
Surface cleaning				

Table 3 exemplifies the challenge of making an assessment in Gaza. Quite a lot of data is not available, and the 2018 data appears to include all MSF supported hospitals in Gaza, rendering it non-comparable to the later years. The 2019 and 2020 numbers were extracted from the 2021 Final Report,⁶⁵ the 2021 report appears to be a hybrid between the Annual and Quarterly Report.

During the interview phase (early August 2022), the evaluators noted only 5 patients in the IPD.⁶⁶ Actual numbers of reconstructive surgeries done seems to be low. As per reports, RS accounted for only 7% (n=90) of the total admissions for the period May 2018 – Sep 2021; of these, 14 were pediatric patients and 76 adults (63 from the GMR cohort).⁶⁷

RS volumes seem to ebb and flow with the level of political violence and patient flows remain dependent on the goodwill of the MoH. Constant efforts have to be made to keep communication channels open as MoH personnel change and links have to be re-established; similarly, changes in MSF expatriate personnel sometimes requires establishing relationships with local organizations afresh. In addition, the International Cooperation Department (ICD) is responsible for disseminating MSF's revised admission criteria but follow up with local hospitals is often required in this regard. A revised referral pathway had recently been approved by the MoH and it was expected that publicizing this to the Heads of various Departments in Gaza hospitals would lead to increased referrals and patient volumes in the future.

⁶² Mosul respondent - "The first case is done by 10 AM but the next case starts at 12."

⁶³ Reportedly the last restock was in October 2021, as per an interviewee.

⁶⁴ This number seems to be the total of all MSF supported hospitals and includes burns.

⁶⁵ See Figure 9. However, the evaluators' calculations using the 2020 report (that also included 2019 data) gave figures of 432 (2019) and 362 (2020).

⁶⁶ This was explained to be the result of stopping all routine surgeries and readying the hospital to receive casualties from the latest round of violence that occurred in July 2022.

⁶⁷ MSF-OCB Gaza Project. 3rd Quarter Report, 2021. Additionally, one respondent noted that "only one infix has been done till now."

Qualitatively, Gaza respondents felt that their activities were efficient. There was a perception that more could be done – the OT is currently run only 3 days/week and many respondents felt that with the addition of more staff, it could be possible to run it 5 days/week. The quality of the local national staff was perceived to be very high, and many respondents noted that more positions could be nationalized (rather than being staffed by expensive expatriates), saving resources and providing more continuity at the same time. As noted above, patient numbers are dependent on maintaining functional relationships with the MoH and spike during tensions with Israel, so there are periods when operations are at a low ebb.⁶⁸

EFFECTIVENESS

EQ6: To what extent have the projects achieved their expected results?

Finding 7: *There is widespread subjective perception that the project provides high quality care, but objective evidence is lacking.*

Tables 2 (Mosul) and 3 (Gaza) are the evaluation team’s attempt to construct a year-by-year narrative based on indicators reported in the Annual and Quarterly reports for the two sites. While a majority of the Objectively Verifiable Indicators were output (or process) oriented, a few could be considered as outcome (or performance) indicators.⁶⁹

All interviewees unanimously asserted that the MSF OCB facility provided the highest quality care in Mosul. Comments included “*this is the best orthopedic hospital in Northern Iraq*”, to local surgeons declaring that should they ever have an accident they would want to be treated at this facility.⁷⁰ Patients hear about the MSF facility by word of mouth in their community and are drawn to it, reportedly even from distant governorates such as Kirkuk, Salahdin, Sinjar, Tal Afar, Kurdistan and Baghdad. The evaluators observed a strong sense of pride and achievement especially among the local staff.

However, it was not possible to obtain objective measures of this perception. While the initial logframes of both sites had detailed indicators specified for each expected result,⁷¹ these were not reported on consistently. Respondents in Mosul were largely unaware of the logframe or if any changes had been made to it.

Table 4. Mosul: Objectively Verifiable Indicators 2018 – 2022 (Q1) (Sources: Annual and quarterly reports)

INDICATOR	2018	2019	2020	2021	2022 (Q1)
> 80% BOR	41.5%	68.4%	55.2%	69%	60%
> 90% admissions within criteria			63.2%		
< 1% perioperative mortality			0%		
> 65% surgeries with loco-regional anaesthesia		2%	47.8%	49%	51%
< 1% SSI	3.6%	0%	0%	0.91%	

⁶⁸ MSFOCB Medical Narrative, 2021 OPT Gaza, October 2020.

⁶⁹ A possible reason for this could be that the initial logframe was reported to be constructed by the Operations department with minimal input from the medical section, as per a respondent.

⁷⁰ A respondent noted that the Director of a local private hospital had also elected to receive care at the MSF facility after his accident.

⁷¹ Annex 4 lists the Objectively Verifiable Indicators.

Table 4 suggests that these indicators are inconsistently reported, especially those that can truly be considered an outcome indicator (i.e., perioperative mortality and SSI). Interviewees stated that indicators to be included in reports were changed when personnel changes occurred;⁷² moreover, the evaluation team was not able to identify any documentation of indicator definitions or standard data management procedures.⁷³

There are a multitude of databases in different formats for different purposes that are not very well linked. Routine data from the OPD, IPD and OT are collated by the Data Officer and entered in the DHIS-2 database,⁷⁴ from which monthly reports are generated. Patients scheduled for surgery (and their planned post-operative follow-up) are noted on a whiteboard and also in an Excel file in the Medical Activity Manager's (MAM) laptop.

There does not seem to be a concerted effort to collect data (outcome or otherwise) on patients being followed up in the OPD post-discharge. Documentation of functional recovery is under the purview of the physiotherapists following the patient, but a proper follow-up documentation and database seems to be lacking.⁷⁵ Respondents said that an electronic medical record (EMR) is planned to be implemented in the coming months, and there is hope that it will alleviate some of the current concerns.

Table 5 presents the comparable indicators for Gaza. There is a difference in the indicators collected between the two sites – for example, the percent of admissions within admission criteria and the percent of surgeries are not collected; the SSI indicator is subdivided between wound and pin infections. Data for 2018 and 2019 are not available, and the data quality for the SSI indicator in 2021 and 2022(Q1) is questionable as there is a wide dissonance between the wound and pin infections for the same year.⁷⁶

Table 5. Gaza: Objectively Verifiable Indicators 2018 – 2022 (Q1) (Sources: Annual and quarterly reports)

INDICATOR	2018	2019	2020	2021	2022 (Q1)
> 80% BOR			31.3%	60%	36%
> 90% admissions within criteria					
< 1% perioperative mortality			0%	0%	
> 65% surgeries with loco-regional anaesthesia					
SSI					
<3% wound			2.2%	13%	15%
<5% pins			17.7%	2.7%	0%

Qualitative interviews gave the impression that a lot of data is being collected in Gaza in a systematic way,⁷⁷ but it was not clear if the data were “fit for purpose.”⁷⁸ It is reported regularly in the monthly, quarterly and Annual reports, but many respondents were not able to describe how it was used.⁷⁹ It

⁷² When specifically asked about this, a respondent replied, “welcome to the MSF world”.

⁷³ For example, there is no guideline for how to report missing data nor how it is to be treated in indicator calculations.

⁷⁴ The DHIS-2 was started in January 2021; prior to that recording was paper or Excel based. These records do not seem to have been ported over to the DHIS-2 database.

⁷⁵ This was noted as early as 2019 in the Annual Report, and in End of Mission reports.

⁷⁶ From a clinical perspective, the 2020 data seem to be more realistic.

⁷⁷ Data collection. MSF Al-Awda hospital, Gaza, Version 3. November 2021. Data collection initially began using Excel sheets but was later shifted to Access and uses relational databases currently.

⁷⁸ Gaza respondent – “1700 data points are collected weekly”.

⁷⁹ A member of the senior management team could not even state what indicators s/he looked for when reviewing these reports.

seemed that data collection was a box checking exercise focusing on routine monitoring data,⁸⁰ responding to requests of individuals/departments without an over arching plan.⁸¹ Indicators, reporting periods and the logframe were constantly being modified without documentation of appropriateness or utility,⁸² and baselines were constructed without evidence to back them up.⁸³ As the tables above demonstrate, the evaluators were unable to identify comparable data between the Gaza and Mosul.

In a manner similar to Mosul, respondents in Gaza attested to the quality of care with anecdotes and subjective assessments. Themes that emerged included “restoration of function”, “better than MoH hospitals”, and “presence of IPC and ABR protocols”. A few respondents alluded to the quality-of-life measures conducted as part of a research project.⁸⁴ Documents indicated that quality of life measures were being collected but the evaluation team was not able to review the actual numbers.⁸⁵

Finding 8: The Activity Independence Measure – Trauma (AIM-T) measure is not fit for purpose as an outcomes assessment tool.

The AIM-T is an outcome measure that consists of battery of tests for upper limbs, lower limbs and core functions that was designed by HI to assess physical function only. This measure seems to have been validated only internally within MSF and there is no peer reviewed publication on its psychometric properties (validity, reliability, and responsiveness).⁸⁶

The AIM-T is administered at admission and at discharge; it was not apparent if this was being administered at any time during the follow-up physiotherapy sessions. The evaluation team was not able to identify any materials/instructions that would allow for its standardized implementation,⁸⁷ and were told by respondents that its application was done in a highly variable manner.⁸⁸

Annex 5 lists a detailed critique of this measure.

⁸⁰ Often without critical examination. For example, it was only recently picked up that the SSI numbers were being reported cumulatively since the project started; the evaluators are at a loss to understand how this simple error could have escaped attention for so long.

⁸¹ A respondent stated that the standard OCB database did not reflect what the project was doing; for example, it was unclear what ‘cured’ meant in terms of RS. This led to the creation of new indicators; but this resulted in “...every PMR, NAM, etc., who came to Gaza asked for data that is useful only to them but not the overall project.....” In addition, many Gaza respondents felt that HQ is focused only on patient numbers and not on quality of life of the patients.

⁸² Gaza respondent – “logframe was used for everything and nothing at the same time.”

⁸³ Gaza respondent – “....is was so difficult for (XYZ) to understand baselines – they don’t want to look bad.....”. On the other hand, the target for perioperative mortality established in the logframe is 0.01% - which is well-nigh impossible to achieve.

⁸⁴ Godwin,Y, Ahmed, A., Shat. HY. *A review of the first wave of lower limb amputees from the Great March of Return in Gaza: Taking stock and preparing for the task ahead.* Injury, 2022. 53(7): p. 2541-2549. This study was limited to a cohort of 103 amputees. One respondent stated that “HQ never understood her work.”

⁸⁵ Data collection. *MSF Al-Awda hospital, Gaza, Version 3.* November 2021. This document suggests that functional scores (AIM-T, hand function, AMP, ADL and Sollerman) along with VAS were collected at admission and discharge; however, it did not contain the results.

⁸⁶ At the time of the finalization of this report, the evaluation team was informed that a manuscript on the validation of the tool had been submitted for publication; however, the evaluation team was not able to independently review it.

⁸⁷ Also noted by Violette Van Bever (expat physiotherapist in Mosul from Oct 2021 – Jan 2022) in her Handover Report.

⁸⁸ In Mosul it is recorded in a separate Excel file and data are added every 2-3 weeks. This is not reported to be linked to any other database at the facility.

Finding 9: Patients are being lost to follow-up, but an accurate number of this loss is unavailable.

Many Mosul respondents reported that patient follow up was a challenge and an “exceedingly high rate of loss to follow up” was noted in the draft Q1 2022 Quarterly Report. Patients do not return for follow-up despite receiving a follow-up date on discharge and repeated reminders via phone. Some surgeons see their job as purely technical and do not adequately follow up their patients. Patients who do not return for follow up obviously have no data recorded for their follow up visit; this absent data is recorded as ‘missing’ and is dropped (or deleted) from the calculations (and hence from the monthly/quarterly reports) leading to an inaccurate picture.⁸⁹

The picture was similar in Gaza – accurate numbers of patients lost to follow up were unclear and many respondents acknowledged that the project was weak on post-discharge follow up.⁹⁰

IMPACT

EQ7: What has been the impact of the project on the patients, staff and community?

Finding 10: Patients and staff are very appreciative of the project; but impact on the community is unclear.

A majority of respondents felt that the impact in both Gaza and Mosul had been uniformly positive, especially when they considered what existed prior to MSF’s arrival.⁹¹ All patients in both locations interviewed were uniformly grateful of the project and especially the care received, and many respondents wished that the services provided be extended to other conditions. A similarly high level of appreciation was reported by the staff, especially the opportunity to broaden their skill sets and practice in a high functioning environment that met the needs of patients.⁹² Staff (especially in Mosul) also made requests to augment available training, especially of surgical skills.

From the patients’ perspective, the community is being served by the provision of high-quality care that is otherwise not available from the existing health care system in both locations. The impact on the health care system is mixed, especially in Mosul, where some local orthopedic surgeons reported that the MSF facility did siphon away some cases that would have come their way, while others said that their practices

⁸⁹ The draft Q1 2022 Quarterly Report for Mosul shows ‘zero’ as the number of patients lost to follow up (see pg. 7).

⁹⁰ A Gaza respondent thought they followed up 80% of their patients for up to 2 years post-discharge. Respondents mentioned that Gaza “is a small place” so they were able to follow patients anecdotally (and even on Facebook).

⁹¹ Gaza respondent – “presence is impact in itself.”

⁹² For example, the negative pressure wound management training done by the Nursing Activity Manager (NAM) in Mosul was highly appreciated by the local staff. Similarly, a local surgeon in Mosul reported how he (and others) were trained by an expatriate surgeon to do plastic surgery, with the result that he has done more than 250 such surgeries since being trained.

were sufficiently different that they were not in competition.⁹³ The impact on DoH hospitals in Mosul also seems to be minimal. For example, a respondent described how s/he wanted to improve IPC practices in his/her hospital by applying the lessons learned at the MSF facility but was stymied at every turn due to lack of equipment and more importantly, interest.

No such negative impacts were reported in Gaza, but a minority of respondents noted that the presence of OCB in the RS space could lead to dependence on part of the MoH and hamper its efforts to develop RS (and associated IPC) skills locally; these respondents felt it might be preferable to let the MoH take over this area.

A definite (but often discounted) impact in both locations is the economic stimulus provided as a result of hiring a number of local staff.

EQ8: To what extent will the impact of the project likely continue in the future?

Finding 11: Long term continuation of impact is highly unlikely in the event of MSF's withdrawal.

Both projects have undeniably provided an opportunity to learn and acquire new skill sets to local personnel, which they will carry into the future. However, as described by one respondent, the context is not fully optimal for the exercise of such skills. For example, the local orthopedic surgeons could perform RS in their practices, but the lack of appropriate IPC, equipment (and physiotherapy in Mosul) may negate their best efforts. A few local staff in Mosul alluded to the local culture, which they felt needed to change before the health system could improve.

Mosul was initially planned as a five-year project and conceived as a 'catalyst of change' imparting training on IPC, ABR, microbiology and RS management. Attempts were made to transform CPOC into a teaching hospital where surgeons could learn RS, but this was stymied by local opposition; currently only junior orthopedic surgeons in training under the Arabic Board can rotate through the facility as observers.⁹⁴ The Gaza RS project started as a response to an acute need and has expanded to cater to non-conflict trauma and be a standby facility in case the political situation leads to more hostilities. There are no discussions at present to convert this to a teaching facility.

Overall, the barrier to sustainability in both projects is financial – especially the wherewithal to procure materials. Technical skills are much less of a sustainability issue.

In both projects, there is currently no exit strategy and respondents were not aware of any discussions regarding this. A few documents do touch upon this briefly, but only suggest handing over to the DoH or another NGO. The Mosul project is currently in the first year of a 3-year plan, and it was unclear to the evaluation team if any serious discussions have taken place about the exit strategy. Gaza will undergo an

⁹³ For example, a large source of income for some the private providers were joint arthroplasties, which the MSF hospital does not do.

⁹⁴ There is no written agreement of this arrangement; this is done solely on the basis of a verbal understanding between the two parties.

Multi-Year Review of Operations (MYRO) in Fall 2022 but discussions on long term strategy were not on its agenda.

LESSONS LEARNED

EQ9: What lessons can be learned for similar projects in the future?

Finding 12: Improvements can be made in planning for reconstructive surgery in MSF surgical deployments.

In Mosul, respondents felt that MUST was inadequate to the task, and that it would have been preferable to partner with a fixed facility to implement the RS project or start with an expandable MUST trailer. A few respondents noted that MSF came in with very high standards and wanted perfection from the outset when it might have been preferable to come in with a basic facility and grow it slowly. Others felt that there were unnecessarily long delays in the project, although they agreed that some factors were beyond MSF's control (for example, the bureaucratic challenges).

Respondents in Gaza felt that it would have been preferable to partner with a MoH facility from the outset, and to have been more aware of the complex political environment. Respondents in both locations felt that the project scope (especially in terms of RS) should have been better defined and communicated better from the outset. Respondents in both locations emphasized more capacity building of local staff (especially on the management side) and if possible, less turnover of MSF staff.

PART B – SITE SPECIFIC FINDINGS

Finding 13: *Physiotherapy (PT) services are very limited in all respects.*

The physiotherapy department is one of the weakest aspects of the reconstructive surgery project. Prior to April 2021 PT services were provided solely by HI when MSF took over service provision.⁹⁵

Challenges exist at multiple levels in the PT department. First, the local staff lack any physiotherapy background since there is no physiotherapy school in Mosul. They are nurses who were trained by MSF or received a rehabilitation training program (1-year) at a local college that is not sufficient to provide knowledge on how to deal with orthopedic trauma cases. This lack of knowledge reflects on the physiotherapists' clinical skills and performance (e.g., passive treatment plans, no exercise-based rehabilitation, etc.). In addition to the lack of physiotherapy knowledge, there is neither a proper physiotherapy space nor any tools (e.g., TheraBand, weights) or equipment (parallel bar, corner stairs) to use in treatment. Lastly, knowledge on the role of physiotherapy in trauma rehabilitation seems to be underappreciated in both patients and local medical staff.

These factors hinder proper PT-treatment planning, and so affect the patients' clinical progression and speed of recovery. Similar issues were noted by the expat physiotherapist in her reports and in the draft Q1 2022 Quarterly Report.⁹⁶

Finding 14: *Human resource issues with Al Awda staff still remain.*

MSF OCB's intervention in Gaza started as a partnership with the UHWC in May 2018, an arrangement that was uncommon for MSF. The initial memorandum of Understanding (MoU) was for an emergency situation for 6 months, with the plan to review at the end of this period and develop a more long-term partnership. During the renewal process, issues of compensation came to the fore, especially the salary differentials between MSF and Al Awda staff.⁹⁷ It seemed that a plan had been developed to reach agreement between all parties, but interviews revealed that there were still unresolved issues of remuneration especially for the assigned staff.⁹⁸

⁹⁵ It was only in March 2022 that physiotherapy services resumed.

⁹⁶ Violette Van Bever, *End of Mission Report (Oct 2021 – Jan 2022) and Handover Report*.

⁹⁷ *Visit Report, Geraldine Taeymans, 2019.*

⁹⁸ Respondents made references to the "Al Awda HR" rules and the "MSF HR" rules; they all preferred to be under the MSF umbrella.

CONCLUSIONS

TRANSVERSAL

MSF OCB's interventions in both Mosul and Gaza were highly **relevant** given the contextual needs. The response was in line with MSF principles, and even though reconstructive surgery was not at the front and center of the initial response, the organization pivoted to provide it when the need became apparent. In both contexts, the response adapted well to the changing needs, whether it was assisting the local health care system during the COVID pandemic, adjusting its admission criteria as the patient case mix changed, and improving its working relationships with key local stakeholders.

Projects were **coherent** in terms of working with external partners, but internal coherence within MSF was weak. MSF OCB occupied a unique niche in the health care systems of Gaza and Mosul and provided a service that few other providers were able to match with the same degree of IPC, ABR and MDT focus. What was surprising to the evaluators was how little the projects interacted and coordinated with each other – there is a wealth of knowledge and experience that can (and should) be shared, which was unfortunately not happening. While cooperation between these projects (which are run from the same Cell) should be happening on a routine basis, cooperation with other MSF OC's should not be discounted. OCP has a wealth of experience arising out of its Amman project, and this can (and should) be usefully tapped.

It was challenging to definitively assess **efficiency** and **effectiveness** of both projects especially without a clear, consistent and accepted definition of RS across the two projects. What is clear, that even using the loosest of definition (and despite being labelled 'reconstructive surgery' projects), the numbers of RS procedures seemed to be quite low. Qualitative evidence strongly suggested that both projects were effective, and to a lesser extent, efficient. Anecdotal evidence of "good quality" was universally reported by patients and staff in both projects, as was the perception that both projects could make better use of resources and staff. However, strong objective data to attest to these findings was lacking. Both projects collect large amounts of data, however, it was not 'fit for purpose' – both projects could improve in converting data into actionable information.⁹⁹

Assessment to **impact** was similarly mixed. Patients were ecstatic and staff highly supportive; but there were no objective metrics to attest to this. Not only was objective assessment of each project's impact difficult but comparing across both projects was impossible. It was clear that both projects would not be able to continue at the same level of performance if MSF OCB were to withdraw – while the technical skills to perform RS existed in both locations, the financial wherewithal to support this resource intensive surgical process and treatment pathway does not currently exist in Gaza or Mosul. There is no clear exit strategy in either location; the evaluators' impression is that MSF OCB is struggling with the question of identity – do we (i.e., MSF) remain an emergency relief organization only or do we move into the

⁹⁹ For example, what was presented as an 'outcomes' assessment (the AIM-T) is an unvalidated measure that was inconsistently administered of purely physical function that evaluates changes between admission and discharge only.

development sphere (where reconstructive surgery arguably resides). Answers to this question are needed to set the strategy for future interventions.

LOCAL

Physiotherapy is a weak link in the treatment pathway in **Mosul**. This had been provided by HI but was brought in-house in the past year. Critical challenges need to be addressed in staffing, skills, and equipment so that the patient treatment-outcomes are not adversely affected.

The HR challenges (especially the differential contracts between MSF and Al Awda staff) in **Gaza** remain unresolved. These have the potential to seriously affect the operations of the project and should be addressed in a timely manner.

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If there is an overarching theme emerging from this evaluation, it is the underlying debate between an emergency intervention vs. a developmental approach. MSF entered both locations in an emergency response mode – which was true to its DNA. It quickly recognized that proper treatment of traumatic war injuries is a long-drawn process and requires many stages of reconstruction, along with supportive care services. MSF OCB endeavoured to develop such a system on the fly in both projects; and despite challenges has done good work and is highly regarded in both locations.

In order to apply the lessons from this evaluation for future interventions, addressing the emergency vs. development debate is a sine qua non for MSF OCB. Reconstructive surgery falls squarely within the ambit of developmental projects, which require considerable effort – in time, money, human resources, and commitment. Moreover, demand for RS in conflict areas is, and will always remain far greater than the ability of organizations to address it effectively, so the ability to plan and commit for the long term is critical.¹⁰⁰

Once the decision to move into this space is taken at a strategic level, then the operational details can follow. The next step is to define RS from MSF OCB's perspective, and then assess the availability of the 4S's – staff, stuff, space and system. As Figure 3 below shows, the package of care that MSF can provide will emerge at the intersection of these two spheres of activity.

The evaluators strongly feel that MSF has the building blocks to undertake this exercise; but this is contingent upon making this a strategic priority.

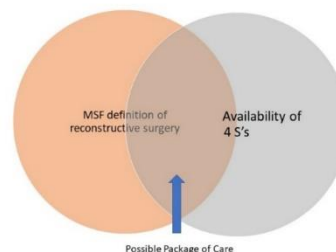


Figure 3. Possible Package of Care

¹⁰⁰ As was amply demonstrated by the ICRC's Weapons Trauma Treatment Center (WTTCC) experience in Tripoli, Lebanon. It was set up to provide care to the war wounded from Syria.

RECOMMENDATIONS

⇒ **Recommendation 1: Establish a definition of reconstructive surgery that can be applied across projects. Communicate it clearly to all staff and stakeholders.**

- a. Ensure that orthopaedic surgeons associated with the project have the requisite reconstructive surgery training/skills.
- b. Streamline procurement processes for RS equipment and materials.

⇒ **Recommendation 2: Increase knowledge exchange between the two sites, and with OCP Amman.**

These can start informally (online exchanges etc.) and if there is interest, can be formalized (regular meetings, personnel exchange, etc.).

⇒ **Recommendation 3: Ensure data collected are ‘fit for purpose’.**

- a. Indicators should be of two types: routine monitoring of operations, and for evaluation of outcomes/impacts.
 - i. Whenever possible, indicator baselines should be evidence-based.
 - ii. The MSF OCB standard indicator list is a good starting point for routine monitoring indicators. The MSF OCB Standard Indicator lists the indicators, for IPD surgery, operating department and physiotherapy, which should be considered.¹
 - iii. Evaluation/impact indicators can be project (or intervention) specific; ideally, they should allow for comparisons across projects. Consideration should be given to measuring Quality of Life (e.g., the EQ-5D tool has been used successfully in Gaza by MAP UK and Godwin et al, or other validated and translated tools such as SF-12, WHOQoL).
- b. Indicators should be harmonized across the two projects. The appointment of the MIO in Beirut offers an opportunity to proceed in this direction.

⇒ **Recommendation 4: Strengthen patient follow up to ensure loss to follow up is minimal.** Patients should be followed up till their treatment is complete so that outcomes can be documented.

⇒ **Recommendation 5: Strategically, address the emergency vs. development debate.**

- a. MSF OCB should be careful not overextend itself, as the need/demand for RS is very large but the resources to provide quality care (human, material, technical and financial) are limited.
- b. Develop a long-term strategy for both projects and communicate it clearly to all stakeholders.

⇒ **Recommendation 6: For future projects:**

Patients should be followed up till their treatment is complete so that outcomes can be documented.

- a. Partner with MoH (i.e., integrate with existing health care system) in politically sensitive contexts.
- b. Increase focus on local skills development (e.g., residency training for surgeons).
- c. Increase length of expat staff deployment to ensure continuity.
- d. Plan for and implement RS activities from the outset.

Recommendation 7: Site specific:

- a. Strengthen physiotherapy services in Mosul by addition of suitable staff and necessary equipment and space.
- b. Address the HR issues facing local staff in Gaza.

Recommendation 7 (of 7)

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