



**FIELD READY**



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# Independent Evaluation

**Creating Hope  
in Conflict**

**Making Essential Items in Syria**

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March 2022



FIELD READY

# Executive Summary

This report summarizes the final evaluation of the program “Making Essential Items” in Syria, a life-saving and innovative effort supported by the Humanitarian Grand Challenge: Creating Hope in Conflict. This program’s theory of change is that locally manufacturing medical equipment and healthcare devices will more effectively save lives, reduce suffering and increase resilience in Syria’s conflict-affected communities.

This report aims to present the independent assessment’s key findings in a digestible format for a range of stakeholders. When compared to traditional supply-chain methods, Field Ready’s localized approach is assessed to be “better, faster and cheaper.” These key findings include:

- a 66% reduction in cost
- a 44% improvement in time (from device pick up to delivery)
- a 85% of facilities seeing enhanced patient-care abilities as a direct result of the project
- more than 90% of health care facilities confirmed that they are either “fully satisfied” or “satisfied” with Field Ready’s work

This report serves as a case study for wider, global application of this approach.





# Introduction

A decade ago, we set out to create a transformational solution to one of the main challenges that plagues international aid – people simply don't have what they need, when and where they need it. I knew we could create an organization that pioneered ways to make aid that is better, faster and cheaper than existing methods. And, importantly, that this could be done in ways that build on existing capacity at the local level.

This report represents a fulfillment of that vision. With thanks to the NextFab Foundation for initial support and essential funding from the Humanitarian Grand Challenge, our innovative approach has successfully redefined this aspect of healthcare programming in Northwest Syria. We honor all those who have suffered, as well as the sacrifices of those who have come to the aid of others in that war. As the conflict continues in Syria, so do our activities – and we remain committed to scaling solutions evidenced here wherever they are needed.

*Eric James, Ph.D.  
Executive Director  
Field Ready*

As a manager of aid programs, I've tended to run humanitarian healthcare operations in highly challenging circumstances. Hospitals have loads of broken equipment, incubators, oxygen concentrators and other valuable and life-saving equipment that is doing nothing because parts are broken. How I wished Field Ready was working where I ran the hospitals! I've seen the same challenges in all of the many places I've worked overseas.

Imagine a world where humanitarians bought locally. Imagine how much better people would feel about foreign agencies if they put money into the local economy as a first priority over importations. Imagine that this was the new normal; local employment, local jobs, local economy prioritized – and then factor in the cost savings, the environmental savings, the time savings. This is the future we need.

We are proud to support Field Ready and their special approach. I hope you will, too.

*Chris Houston  
Director of Humanitarian Innovation  
Humanitarian Grand Challenge*



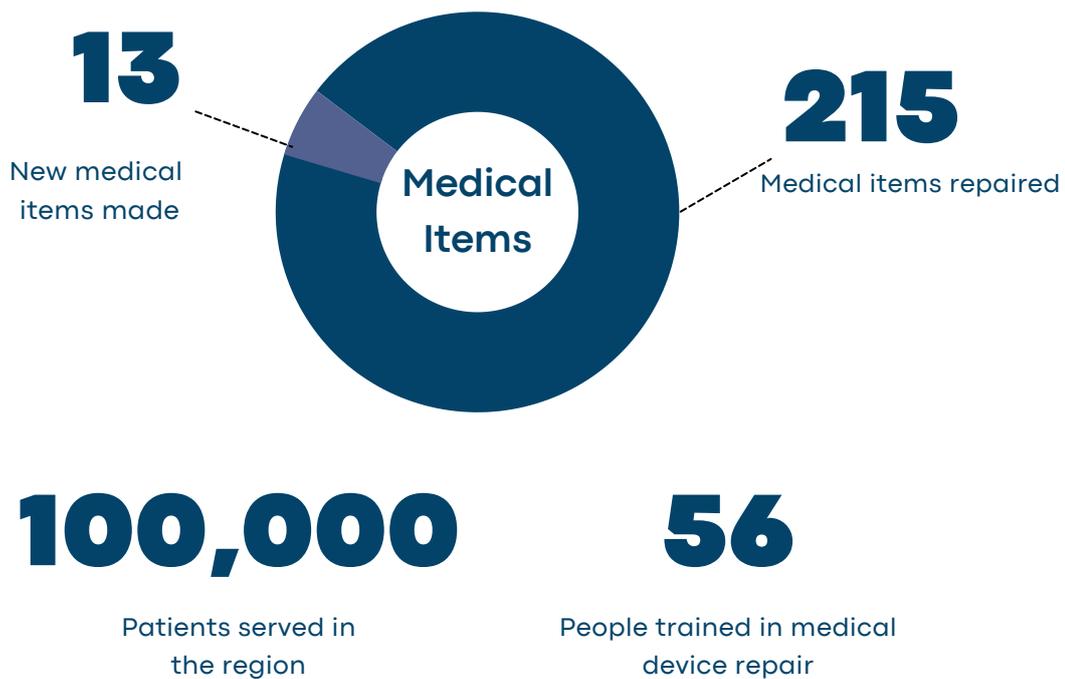
# Program Description

Making Essential Items in Syria

The Syrian civil war has raged for more than a decade. With more than a half-million people dead and 13 million people forcibly displaced, the situation has been described as the world's worst humanitarian catastrophe. Even the most basic supplies are hard to get – which directly leads to increased morbidity, mortality, human suffering and lost opportunities for stability. The impact on healthcare and other social services has been extremely severe, particularly in the country's northwest region.

In response to this situation, Field Ready applied its process to transform logistics by locally manufacturing and/or repairing essential equipment using cutting-edge technology (e.g., 3D printing and laser cutting) and local resources (people, local materials and markets). This region-centered manufacture of spare parts for medical devices needing repair specifically includes assessing broken medical devices and equipment; it prioritizes, repairs and restores critical healthcare equipment in Syria through newly created replacement parts or replacement products.

Field Ready's team of humanitarian engineers in Syria has been active there since late 2016. Their work has included local development and production of search-and-rescue equipment, hydroponics and healthcare devices.



Over the course of the two-year program, according to the initial proposal, the following results were expected:

- Outcome 1: 10,000 lives would be saved or improved as a direct result of the items manufactured
- Outcome 2: 30,000 people would indirectly benefit from the innovation, i.e., people who receive improved medical care provided as a direct result of the items produced

During the project, 215 medical devices and pieces of equipment have been repaired in Syria – which has aided more than 100,000 patients in the region. Several new medical products were developed, including a water-cooling system for use with magnetic resonance imaging (MRI) machines. The team rapidly repaired 83 additional devices, fixing things others could not. Reports from hospitals show that critical medical equipment, damaged during the war and long out of use, has been restored by the Field Ready team.

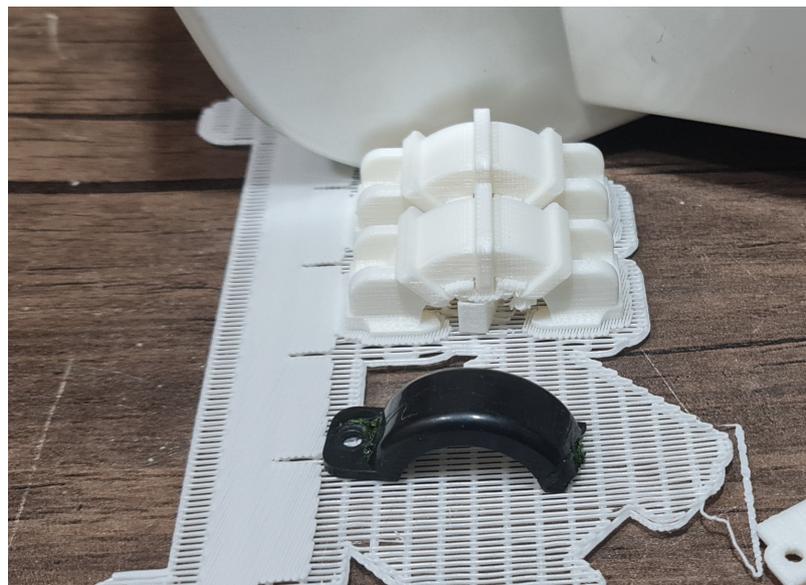
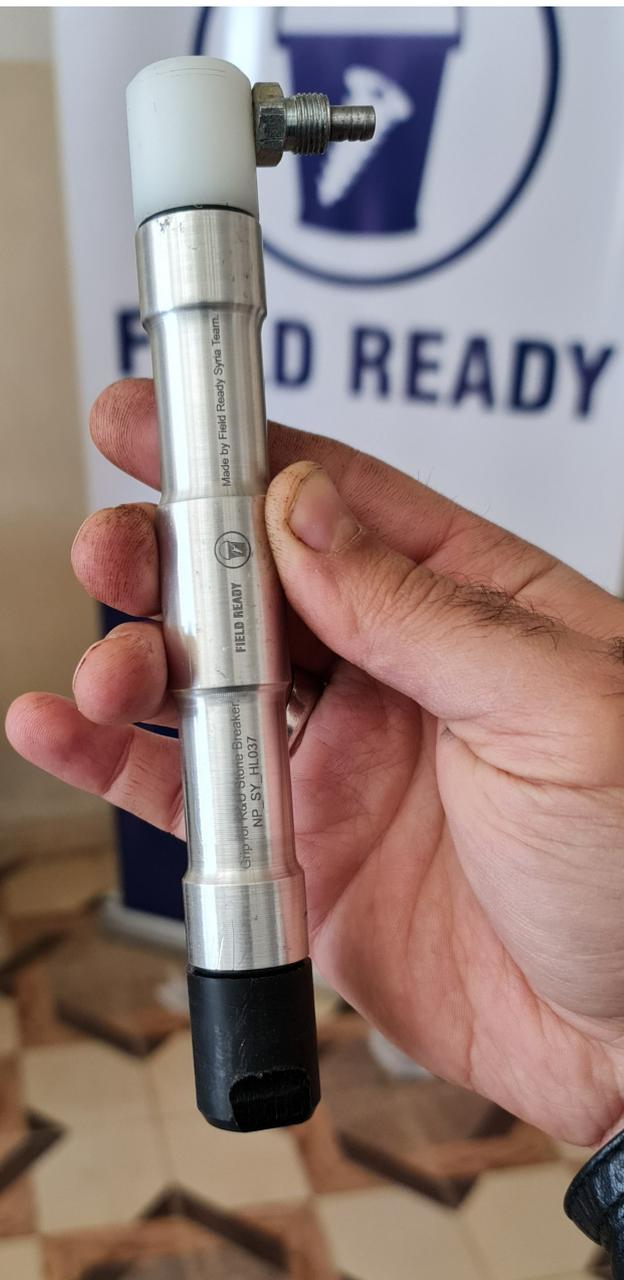
To contribute to recovery and sustainability, the program also includes training that builds local actors' abilities (e.g. that of maintenance staff from local healthcare facilities, NGOs and businesses) to better understand medical equipment-repair principles. For instance, local personnel increased their ability to work on mechanical and electronic faults and helped streamline medical department operations by targeting the most common equipment faults and using periodic and preventive maintenance to prevent those faults. As a result of this effort, 56 people in addition to the Field Ready team have been trained in medical device repair and restoration.

"The sterilizer in our facility had been broken for 18 months and local workshops could not fix it – it would probably take years to get a sterilizer from abroad. When Field Ready's team intervened, they were able to fix it in only eight days."

- **Healthcare Facility Manager,**  
**Saqin sub-district, Idlib Governorate**

## Examples

Hardware replacement solutions made locally by Field Ready:  
Replacement part used on a Continuous Passive Motion (CPM) wrist device (left),  
oxygen bottle fixture (top right) and an eye-scanning device (bottom right)





# Evaluation Methodology

In September 2021, Field Ready engaged an independent team, led by Ahmed Tammam, M.D., a member of the International Development Evaluation Association (IDEAS) and the American Evaluation Association (AEA), to conduct an outcome-level evaluation. The evaluation aimed to inform future Field Ready strategies while also bolstering the case for wider adoption of our innovations across the aid sector. The process assessed and validated the program outcome progress and achievement, identified learning opportunities and made actionable recommendations.

The team of 10 members (consisting of the evaluation lead, a coordinator and eight data collectors) used a mixed-method final review to address key evaluation and learning questions that will inform existing and future design and programming for Field Ready in similar contexts. The evaluation design and implementation included a multi-level data analysis. The quantitative component of 20 healthcare facilities were selected in a stratified, random sample across the targeted facilities and data was collected using structured surveys (gathered using Kobo toolbox). Secondary data such as program records were also analyzed. Of the 215 devices repaired by Field Ready, a sample of 83 were part of this evaluation.

Using a blended Outcome Mapping (OM) approach, the qualitative component of the evaluation consisted of semi-structured, in-depth interviews (IDIs) of 25 key informants from Field Ready, healthcare facilities, local manufacturers and other aid organizations. For comparative purposes, facilities not assisted by Field Ready were also surveyed. In addition, seven focus-group discussions (FGDs) with a total of 54 participants – including healthcare facilities management and local manufacturers – were also carried out.



# Key Findings

Following the evaluation, the 10-member team reached a series of findings and recommendations. The following is a summary of their conclusions:

**Innovative approach:** Evidence from the evaluation showed that Field Ready introduced a new and innovative approach which enabled people in need to access timely and high-quality healthcare services. From quantitative data, 90% of targeted health facilities confirmed that Field Ready’s approach is innovative and was either “extremely useful” (80%) or “useful” (10%) for them to fulfill medical-service continuity and save people’s lives. For the remaining 10% of respondents who rated the approach “average” or “not applicable,” the project did not address their maintenance needs for large equipment or major infrastructure.

**Project reach:** Field Ready has helped more than 100,000 people in the region who benefited from the team’s repair or manufacture of medical devices and equipment. Field Ready’s efforts also supported the improvement of an additional 60,500 patients’ lives, including some 3,000 physically challenged patients in targeted communities; 57% of all patients served are female.



- 80% Fully Satisfied
- 10% Satisfied
- 5% Average
- 5% Not Applicable

**Service Satisfaction Rating**



**3 out of 10 beneficiaries are physically challenged**

**57%**

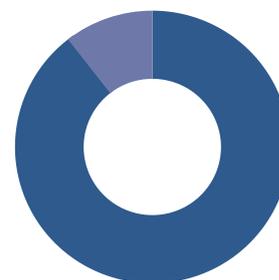
**Of beneficiaries are women**

**Effectiveness:** Based on data collection and discussions with hospitals' management, documented evidence showed that 26,750 patients were served by targeted healthcare facilities following the rapid repair of the 83 devices. Medical professionals believe these patients would not have been helped if these devices stayed out of service. Furthermore, data from multiple sources showed that healthcare facilities staff confirmed the effectiveness and reliability of Field Ready support; 85% of surveyed facilities saw enhanced patient-care abilities as a direct result of the project.

**Cost Effectiveness:** The cost of repairing 83 devices through traditional methods was analyzed as reported by the healthcare facility managers and technical staff, then compared to the devices' actual repair cost by Field Ready team members. The results showed that Field Ready's method saved 66% more than traditional approaches. Of the healthcare facilities surveyed, 90% confirmed that Field Ready's approach is more cost effective based on actual experience and expense records.

**Speed:** The evaluators analyzed the number of days required to fix 83 devices (in total working days) through traditional methods as reported by the healthcare facility managers and technical staff. This was compared to the actual number of days used to fix the same 83 devices through Field Ready. The results were 664 days compared to 371 days, respectively. Thus, the time saved using Field Ready's approach was 44% faster than the traditional method for fixing such devices. Quicker repairs translate to more life-saving services provided to patients because their needs are better addressed.

### Hospital's ability to address Medical Device Maintenance needs



- 10% No Change
- 89.5% Enhanced

### No. of days to fix 83 items

**664** Traditional Services

**371** Field Ready

### Cost to repair 83 items (in USD)

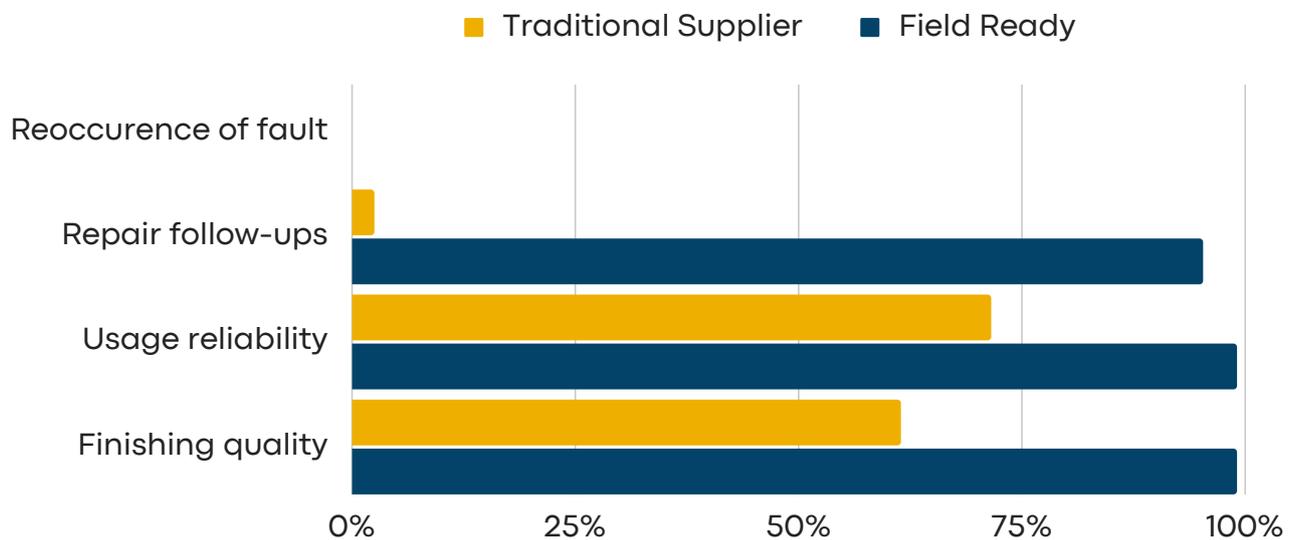
**\$20,123**

Traditional repair services

**\$6,773**

Field Ready's repairs

**Accuracy and Quality:** Data analysis shows that 70% of medical centers found Field Ready's maintenance and repairs were more precise and of higher quality than those of traditional maintenance suppliers. Quality margins assessed included the reoccurrence of errors/breakage, repair follow-up, device reliability and device finishes.



**Partnership and Capacity Building:** Field Ready conducted specialized training that targeted medical practitioners and medical device operators, in addition to the ad-hoc orientations conducted when a device/product was delivered. The training was designed to foster best-operating practices for new products and repaired devices, maintain equipment to prevent future errors/breakage and raise awareness of environmental factors affecting device functionality.

"Through Field Ready's approach, (an) incubator (that cost \$2,500) was repaired locally and brought **back into use** for \$700 USD."

- **Healthcare Facility Manager,**  
**Dana sub-district, Idlib Governorate**



**Scalability:** Field Ready repaired and delivered 215 medical devices to 28 healthcare facilities in Idlib and Aleppo across Turkish-supervised and opposition-controlled areas, in addition to making 13 new products. The FGDs and IDIs confirmed that these medical devices were urgently needed and had extremely high impact. These included EKGs, oxygen concentrators, nebulizers, ultrasound scanners, nerve detectors, X-ray machines and similar critical, life-saving equipment. Hospital management staff were asked about their satisfaction and more than 90% confirmed that they are either “fully satisfied” or “satisfied” with Field Ready’s work.

**"The innovation saved us an abundance of time and money by making critical repairs to life-saving medical devices locally."**

**- Healthcare Facility Manager,  
Idlib City, Idlib Governorate**

**Recommendations:** The evaluation team believes that Field Ready should develop its exit strategy earlier in the project life cycle and can include more documentation, sharing and transfer of knowledge to better support the sustainability of this innovative approach. It should also continue to explore new partners who can work in such complex environments. Moreover, Field Ready might enhance their advocacy strategy to mobilize other actors to adopt and fund such successful innovative practices that support building local capacities and better delivery of services.

Field Ready can formalize and strengthen their feedback systems and processes inside supported healthcare facilities to make sure those facilities have the appropriate channels to report needs, level of satisfaction and other feedback. The evaluation team also urges Field Ready to increase its visibility at the supported locations; this would establish a better understanding of the organization's innovative approach.

With such an effective approach, there is a good window of opportunity for Field Ready to work on a local sustainability strategy to document and share best practices with other relevant stakeholders. The strategy can also assess if Field Ready can contribute to local stakeholders and health systems by sharing the design of the 3D models as well as the entire process on how to fix those minor manufacturer issues through a guideline. Such a strategy that also can coordinate with regional and local health partners/organizations would create a high impact on many actors who are working in the targeted communities and elsewhere and would result in serving more people in need.



# Evaluator's Conclusion

Following the detailed comparison between Field Ready's approach and traditional repair methods, and based on administrators from 20 healthcare facilities reflecting on the 83 devices repaired, the conclusion is that Field Ready's approach is highly efficient and life-saving.

The organization's innovative approach helped provide items not available in local markets and bypassed the conventional (and slower) humanitarian supply chain – which saved more than 66% of the traditional costs. The repairs and newly created equipment enabled critical healthcare service delivery; items including electronic parts for high-value medical equipment such as incubators and field-hospital power supplies made a notable difference in patient survival.

The project adopted a reflective approach to maximize efficient use of resources, as at the start of the project, where rapid assessments were carried out. The analysis of these assessments was fed into decision matrices to identify the hospitals to be supported on the basis of resource efficiency, applying equity and transparency principles.

In an overall review of the project and its achievements, the evaluators are confident the organization's approach can be reproduced in other locations. Given that Field Ready's method succeeded in not just a highly complex setting but also overcame the additional complications posed by COVID-19, the evaluation team believes that the agency's approach can be successfully applied in a wide range of different contexts.



## FIELD READY

Worldwide, Field Ready brings manufacturing to development and humanitarian contexts. Currently active in 10 countries, Field Ready is a non-profit organization dedicated to helping others. Its mission is to transform global aid by localizing manufacturing, using technology and innovation and engaging people in new ways. By making critical items where and when they're needed, Field Ready makes the world a better place.

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## Thank You!



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### Field Ready

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