

VALUE FOR MONEY CASE STUDY

Safe surgery in a backpack through SurgiField

This case study assesses the Value for Money of SurgiField developed by SurgiBox Inc.

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The Challenge

Delivering surgery safely in conflict zones and humanitarian settings is an enormous challenge. Medical supplies are limited, health facilities are increasingly the target of attacks, and non-sterile environments lead to increased infection risks, including for the surgeon due to a lack of personal protective equipment. Medical providers in such settings are often faced with the difficult choice between postponing urgent surgery or exposing their patients to the risk of infection.

Currently, in humanitarian settings and conflict zones, patient safety is supported by fitting rooms with ventilation systems in makeshift surgical facilities like tents and trucks. However, in humanitarian settings – where there is often a lack of electricity, air and water filtration systems, and personal protective equipment, performing surgery can lead to surgical infection rates of up to 50%, making wound infection a leading cause of morbidity and mortality. Moreover, roughly 85,000 medical providers are infected each year by bodily fluids – 90% of whom work in crisis and humanitarian settings.

The Innovation: SurgiField

The SurgiField, developed by SurgiBox Inc., is an ultraportable, battery-powered, sterile operating environment – small enough to fit into a backpack. Composed of the SurgiBubble, the battery-powered Smart Control Module, and the Pop-UpFrame, the SurgiField addresses the problem of patients lacking access to safe surgical care in conflict and humanitarian settings. It is a clear, sterile drape that inflates with sterile air into an enclosure over the incision. This barrier protects the surgical area from physical debris and minimises healthcare provider exposure to patient body fluids and droplet contamination. Thus, it protects both the patients and providers and allows for safe surgeries to occur regardless of the availability of sterile facilities and/or personal protective equipment. It can be used in trauma, orthopaedic, general surgery, obstetrics and gynaecology, and other surgeries as appropriate.

Grand Challenges Canada Funding Provided (CAD)
Seed funding: \$277,641 → Transition to Scale funding: \$824,992
Operating in: Ukraine, Myanmar, Syria, and Yemen





Value for Money Assessment

SurgiBox was scored against GCC's Creating Hope in Conflict five Value for Money (VfM) criteria (see the note on methodology at the end of this case study). It should be noted that SurgiField is at an earlier stage in the innovation journey and has not yet been deployed at scale. It is likely these scores will increase once more evidence is available.

● *Economy*

Good



There is good evidence to suggest that SurgiField has the potential to generate cost-savings. One SurgiField kit costs less than 10% of the most comparable innovation, the Clean Room Tent. The ranking would be higher with more evidence of use in the field.

● *Efficiency*

Good



There is good evidence to suggest a lower cost per user, and comparisons with other alternatives indicate that SurgiField is likely to enable more timely, accessible, safe surgery. The ranking would be higher with more evidence of use in the field.

● *Effectiveness*

Good



There is good evidence to suggest that, if deployed and used in conflict and humanitarian settings, SurgiField will improve health outcomes for people requiring surgery, and protect surgery providers from risk of infection. The ranking would be higher with more evidence of use in the field.

● *Sustainable and cost-effective*

Adequate



SurgiField has not yet been deployed at scale. SurgiBox's plans for scale indicate that it may be cost-effective and sustainable. The ranking would be higher with more evidence from scale up and further deployment.

● *Gender Equality and Social Inclusion*

Adequate



SurgiField has been designed to provide safe surgery to those most in need in conflict and humanitarian settings. While it has not specifically been designed to target marginalised groups, it is likely that an important use for the device will be obstetrics and gynaecology surgeries – in particular, emergency caesarean sections. The ranking would be higher with more evidence from deployment or gender and equity considerations in development.



Economy

Good



There is good evidence to suggest that SurgiField has the potential to generate cost-savings.

One SurgiField Kit consists of 18 disposable SurgiBubbles, a smart control module (SCM), and two batteries. The SCM only needs to be purchased once. The SurgiBubbles (the disposable component of the product) currently cost several hundred dollars each, but production costs are expected to decrease if manufacturing is shifted from the USA to the Dominican Republic. According to feedback provided by SurgiBox, the SurgiField system requires much lower initial investment, making it a more accessible option for various healthcare settings. Additionally, the cost of single-use components is very affordable.¹

While there are no direct competitor products, there is the Clean Room Tent. Based on publicly available information, a single inflatable Clean Room Clean Tent – which can be used for multiple patients/operations but relies on sterilisation between patients – is ~30,000CAD.²

The ranking here would be higher with more evidence from the field; SurgiField is currently in the early stages of testing. With more evidence that costs are as predicted, and that this is enabling cost-savings, this criterion would be expected to improve.



Efficiency

Good



There is good evidence of lower cost per user that is likely to result in improved reach and timeliness of safe surgery.

No cost per use data was available. Additionally, according to SurgiBox, its affordability and portability ensure rapid

deployment outside of fixed surgical suites, ensuring timely, high-quality care reaches more people, wherever they are.³ However, the limited data from use in the field means this has not yet been tested at scale.

There are no direct competitor products or medical devices to SurgiField. There are other products such as laminar airflow chambers, mobile operating theatres, operating room tents, and personal protective equipment. However, these have limitations in terms of higher costs, high energy demand, reliance on external power, portability, and set-up time.⁴



Table 1: Summary of comparators

Mobile Operating Trailer	Laminar airflow	Operating room in a tent	Drapes and gowns (PPE)
• Not portable • High energy demand • Expensive • Limited access	• Not mobile • No protection for medical provider • High energy demand • Medium cost	• Not portable • No protection for medical provider • High energy demand • Low cost	• No protection for patient • Low cost • Portable

According to reports from SurgiBox, **140 units have been deployed** in regions such as Myanmar and Ukraine.⁵ No data was available on the use or impact of these units due to limitations on collecting and using data from conflict settings. There is limited data available on increased reach and timeliness of safe surgery, as SurgiField has only just received the product authorisation that will allow it to be used more widely. However, comparisons with the above products suggest that SurgiField should enable more people to receive safe surgery in a timely manner due to its design.

Additional data provided by SurgiBox, averaging SurgiField use across 5 non-operating room/theatre (OR) environments in Myanmar and Jordan, suggests that SurgiField offers an efficient alternative with minimal overheads: the SurgiField has a 5-minute set-up and zero turnover/cleaning time (SurgiBubble is disposable) while the **OR has a 37-minute overhead time**.⁶ SurgiField's primary use case is in settings where ORs either do not exist, have been destroyed, or are otherwise inaccessible; nonetheless, the direct comparison is helpful.

According to feedback provided by SurgiBox, efficiency gains are found because SurgiField removes the bottleneck of traditional operating rooms, allowing more patients to be treated in shorter timeframes. Table 2 provides some evidence based on 5 cases.

Table 2: Comparison between SurgiField in non-OR settings and typical OR settings

SurgiField (Non-OR)	OR set-up (provided by SurgiBox)
• Set-up: 5 minutes • Procedure time: 24 minutes • Team: 1.4 physicians + 1 nurse • Outcome: 5/5 procedures completed as planned. All patients stable post-op.	• OR set-up: 11 minutes • Draping and gowning prep: 10 minutes • OR cleaning between cases: 16 minutes • Team: 2-3 doctors + additional support staff

Further evidence from deployment at scale – including validation of the utility in the field – would strengthen this criterion. It is clear that SurgiField, as a product, would provide value in humanitarian settings. At this stage, however, the lack of data on its use in the field makes it difficult to draw conclusions.



Effectiveness

Good



There is good evidence to suggest that, if deployed and used in conflict and humanitarian settings, SurgiField will improve health outcomes for people requiring surgery, and protect surgery providers from risk of infection. This rating is likely to increase as more data on use, utility, and surgeon perceptions become available from deployment and use.

According to a recent progress report, SurgiBox has **directly trained and prepared 35 surgeons, medics, and surgical support staff** for deployment in high-need, war-affected areas such as Ukraine and Myanmar. This means that field teams will be ready to use SurgiBubble in active conflict and disaster areas.⁷

According to this same progress report, **140 units have been deployed** across Ukraine and Myanmar.⁸ A case study posted by SurgiBox on LinkedIn speaks of using SurgiBubble in Myanmar following an air strike.⁹



Evidence from testing and trials

In humanitarian settings and other austere environments, surgical infection rates can exceed 50%, making post-operative infection rates a leading cause of combat mortality and morbidity.¹⁰ Wound infections double hospital stays, can prevent critical procedures, and triple patient mortality.¹¹ Reducing post-operative infections is, therefore, critical; however, in low-resource settings where PPE, ventilation, and sterile environments are limited or unavailable, preventing such infections remains extremely challenging. Evidence from trials (without human patients or with cadavers) demonstrated that **surgeons are effectively protected** from patient bodily fluids and aerosols, as SurgiField **reduces the airborne particle count by 96%**.¹² SurgiField was considered by surgeons potentially useful in real-case scenarios (3.6 out of 5), beneficial to the patient's infection or injury risk (4.8 out of 5), and useful to potentially decrease the surgical team's infection and injury risk (4.2 out of 5).¹³

Recent Case Studies

SurgiBox provided 9 recent case studies of use in diverse settings including remote Myanmar, urban Jordan, and Ukraine's largest hospital. Procedures undertaken in these 9 instances include oncologic surgery; diabetic wound care; combat trauma debridement; multi-cavity fragment removal; wound VAC management; orthopaedic hardware removal; amputation stump debridement; and primary wound closure.¹⁴ Across the 9 cases, surgeon-reported perception of infection risk reduction was rated as either neutral or positive; personal requirements (i.e. number of people needed) were reduced; and 100% of procedures were completed.¹⁵ While there is evidence on the efficacy of SurgiField in limited trials, there is very limited data available from field use. With additional data on field use, this criterion would improve.



Cost-effectiveness and sustainability at scale

Adequate



SurgiField has not yet been deployed at scale; it is therefore not possible at this time to draw conclusions about the cost-effectiveness and sustainability at scale.

This is due to a delay in CE certification processes – finally granted in August 2025 – which is required for humanitarian organisations to be able to pilot the device. Furthermore, their interim progress report from 2025 notes that conflict-driven disruptions and complex approval requirements from local authorities in Myanmar and Gaza have proven time-consuming and unpredictable, ultimately delaying or preventing SurgiField usage in these contexts.¹⁶ SurgiBox is actively pursuing many avenues and relationships to try to pre-empt and mitigate these delays when they arise.

SurgiBox has a ‘path to scale’ plan that involves:

- Beginning field deployments with MSF, MedGlobal and other organisations now that the CE certification has been obtained. SurgiBox has raised approximately \$3 million in investor funding and \$2 million in grants and awards to sustain operations in the short-term.

- Securing procurement orders from humanitarian organisations working in disaster and emergency response.
- Reducing the cost of manufacturing by using a Dominican Republic manufacturer.
- Generating enough revenue to support ongoing growth in low and middle-income countries, including in the private sector.

Further, according to subsequent feedback from a SurgiBox team member, SurgiBox plans to achieve profitability through a dual-track revenue framework, leveraging a disciplined market focus to generate immediate cash flow and long-term institutional sales.¹⁷ This will be done by working with markets like India, Saudi Arabia, and Japan, as well as focusing on high-volume framework agreements from the likes of ministries of health and INGOs.

In our consultation with a GCC staff member with knowledge of the innovation, they noted that while there is no evidence yet of the sustainability of the business model, that similar models – segmenting of purchasers wherein private buyers subsidise humanitarian purchasers – have been used and proven in other innovations in the GCC portfolio.¹⁸

The evidence available suggests that SurgiField should be a very cost-effective way to provide surgery in conflict and humanitarian settings. However, the absence of data from use in these settings means it is not possible to draw conclusions about the cost-effectiveness of SurgiField. With the receipt of the CE Mark, SurgiField will be able to be deployed at scale. This will build an evidence base on the cost-effectiveness and sustainability at scale. With more evidence, it is likely that this rating would improve.



Gender Equality and Social Inclusion

Adequate



SurgiField has been designed to provide safe surgery to those most in need in conflict and humanitarian settings, reaching those in the most vulnerable settings, like conflict zones and immediate post-disaster zones, where there are no alternatives. Because the system is fully portable and battery-powered, it operates independently of fixed infrastructure. While its primary mission is emergency response, it is highly probable that a critical application for the device will be in obstetrics and gynaecology, particularly for performing life-saving emergency caesarean sections in high-stakes environments. There is no evidence that this is currently the case, given the limited use data available.

The GCC view of equity goes further than serving the hardest to reach, and questions whether those most affected by social exclusion, including women and girls, and those with accessibility needs, are considered by the innovation. While it has not specifically been designed to target marginalised groups, it is likely that an important use for the device will be obstetrics and gynaecology surgeries (in particular, emergency caesarean sections).

Data on use in obstetrics and gynaecology-related surgeries may strengthen the rating for this criterion. Further evidence on how SurgiBox has engaged with equity considerations to better meet the needs of people in conflict-affected communities facing additional layers of marginalisation and exclusion would also be useful. For instance, whether and how trainings with field staff address gender, marginalisation and decision-making in the field (i.e. how are patients prioritised for surgery using SurgiBox?).

Conclusion

SurgiField is a highly innovative device that has demonstrated potential to improve health outcomes for patients requiring surgery in humanitarian and conflict settings, as well as protecting the healthcare provider.

SurgiField's Value for Money ratings are commensurate with expectations for an innovation at this stage of development: *good* across economy, efficiency and effectiveness, and *adequate* for sustainable cost-effectiveness and equity). As SurgiField becomes more widely used, and more evidence becomes available, the ratings are likely to increase.

A note on methodology

Clear Horizon used Grand Challenges Canada's Value for Money approach to develop these case studies. GCC have adapted King and OPM's Value for Investment approach for humanitarian innovation, which allows thoughtful and well-evidenced evaluative reasoning appropriate for the complexities of humanitarian innovation through the use of criteria and standards.¹⁹

There are five criteria, based on the 5 E's commonly used by the UK Foreign and Commonwealth Development Office, with standards for poor, adequate, good and excellent (the full rubric is available upon request). The criteria are:

- **Economy:** does the innovation generate cost savings without compromising on quality? This criteria considers what the cost of delivery the same level of products and services would be in the absence of the innovation.
- **Efficiency:** is a reduced cost per user resulting in the innovation reaching more people, or improving timeliness of service or care? This criteria considers the intersection of access, timeliness and quality.
- **Effectiveness:** does the innovation have a meaningful and measurable impact on end-user health and wellbeing outcomes?
- **Sustainable cost-effectiveness:** is there evidence of improved cost effectiveness that can be sustained at scale?
- **Gender Equality and Social Inclusion:** does the innovation serve the hardest to reach and those most affected by social exclusion, including women and girls and those with accessibility needs? This criteria looks at those within conflict-affected communities facing *additional* layers of marginalisation and exclusion.

To develop the case studies, Clear Horizon conducted a document review of evidence provided by GCC and the grantee, including progress reports, final reports, and peer-reviewed journal articles. Across case studies, Clear Horizon also undertook a Key Informant Interview with the grantee or GCC grant manager. Clear Horizon then produced an evidence matrix, synthesising the evidence against the five criteria.

Following this, Clear Horizon facilitated a panel workshop with GCC staff to interrogate the evidence and reach preliminary judgements against the criteria. Clear Horizon then developed the case studies based on the provided evidence and workshop deliberations.



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- ¹ Feedback from SurgiBox Inc. March 2026.
- ² https://www.packsealer.co.uk/clean-rooms_clean-room-rental
- ³ Feedback from SurgiBox. March 2026.
- ⁴ Transition to Scale Lead Recommendation Report. 2023.
- ⁵ Interim Progress Report. 2023. P.6
- ⁶ SurgiBox. The SurgiField System: Focus Clinical Case Studies: Real-World Deployment. No date. Provided March 2026.
- ⁷ Interim Progress Report. 2023. P.6.
- ⁸ Interim Progress Report. 2023. P.6
- ⁹ <https://www.linkedin.com/feed/update/urn:li:activity:7325416023212363776/>
- ¹⁰ Teodoresco et al. A paradigm shift in critical care infrastructure in complex settings: Evaluating an ultraportable operating room to improve field surgical safety. *Military Medicine*. 2021. https://academic.oup.com/milmed/article/186/Supplement_1/295/6119434
- ¹¹ Teodoresco et al. 2021.
- ¹² Legazzi et al. Moving toward point-of-care surgery in Ukraine: testing an ultra-portable operating room in an active war zone. *European Journal of Trauma and Emergency Surgery*. Vol. 50. 2024. <https://link.springer.com/article/10.1007/s00068-023-02410-w> In this 2021 paper, airborne particle count is registered as 0: Teodorescu et al. A paradigm shift in critical care infrastructure in complex settings: evaluating an ultraportable operating room to improve field surgical safety. *Military Medicine*. 2021. <https://pubmed.ncbi.nlm.nih.gov/33499459/>
- ¹³ Legazzi et al. 2024.
- ¹⁴ SurgiBox. The SurgiField System: Focus Clinical Case Studies: Real-World Deployment. No date. Provided March 2026.
- ¹⁵ SurgiBox. The SurgiField System: Focus Clinical Case Studies: Real-World Deployment. No date. Provided March 2026.
- ¹⁶ Second Interim Progress Report. 2025.
- ¹⁷ Feedback from SurgiBox. March 2026.
- ¹⁸ Consultation with GCC Staff Member. 2026.
- ¹⁹ King et al. (2023). Assessing Value for Money: the Oxford Policy Management Approach. Oxford: Oxford Policy Management. https://www.opml.co.uk/sites/default/files/migrated_bolt_files/opm-vfm-approach-2.pdf