Royal College of Surgeons of England
ADVANCING SURGICAL CARE

Life on the line:
Reshaping humanitarian surgery

A call to action

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Why action is imperative

News footage of surgeons performing life-saving emergency operations in crisis environments, risking their own lives and, in some of the most recent conflicts, being forced to operate without anaesthesia offers a harrowing glimpse into human resolve, human degradation and the urgent need for change.

Access to timely and essential emergency surgical and obstetric care is a critical component of any humanitarian health response to major conflicts or disasters. In crisis contexts where local health systems and infrastructure have been overwhelmed, compromised, destroyed or were extremely fragile to begin with, the consequences can be devastating for millions of people, particularly women and children. With the exception of the International Committee of the Red Cross (ICRC) and Médecins Sans Frontières (MSF), none of the major humanitarian health agencies deploy surgical programming. There is an urgent need to better understand the importance of surgery within humanitarian settings and to strengthen local humanitarian surgical capability and preparedness as an integral part of a country's overall disaster planning and readiness.

To reposition humanitarian surgery, the first step is to correct our misconceptions of it – the myths. This call to action then proposes four pathways forward.

Surgeons closing after a major surgery, Cumilla, Bangladesh. 2023. Credit: Susmit Das

Humanitarian Surgery – Myth vs Reality

Myth	Reality
Humanitarian surgery refers to high-profile international charity missions involving surgeons from the Global North performing cleft palate operations.	Those missions comprise a very small part of humanitarian surgery, and are largely adjacent to it.
Humanitarian surgery mostly involves war trauma surgery on men and boys – soldiers, militiamen, police, combatants, etc.	Humanitarian surgery includes procedures needed to treat civilian wounds and trauma resulting from conflict or disasters, in addition to emergency surgical needs that might occur in any society, from accidents and appendectomies to caesarean sections.
The needs are relatively minor compared with other humanitarian health issues, such as maternal child health, infectious diseases and immunisation.	Many health issues are of vital importance to life. Surgical needs dwarf surgical resources. Approximately five billion people worldwide lack timely access to safe surgical care, and 28-32% of the global disease burden is caused by conditions that could be treated with surgery.(1)
Investing in humanitarian surgery represents poor value for money compared with more common areas of healthcare.	Evidence suggests just the opposite. First, basic improvements in trauma surgery have made humanitarian surgery more effective. Second, recent research has exposed the high economic cost of poor access to surgery. Humanitarian surgery delivers good value for money.
Even if we wanted to improve humanitarian surgery, it would take an unmanageable effort to make a positive difference.	There are no magic bullets. However, given the current low level of surgeries in humanitarian contexts, a number of straightforward measures could yield dramatic improvements.

Driving humanitarian surgery forward

There are many challenges. Given its rudimentary state as a discipline, there is an abundance of low-hanging fruit. These include improving data collection and uptake, or the development of accessible online libraries of training videos, as well as structural difficulties such as 'brain drain' and historical power imbalances within the surgical community. What we know is that humanitarian health programming works. We know that surgery works. The purpose of this call to action is to get humanitarian surgery working.

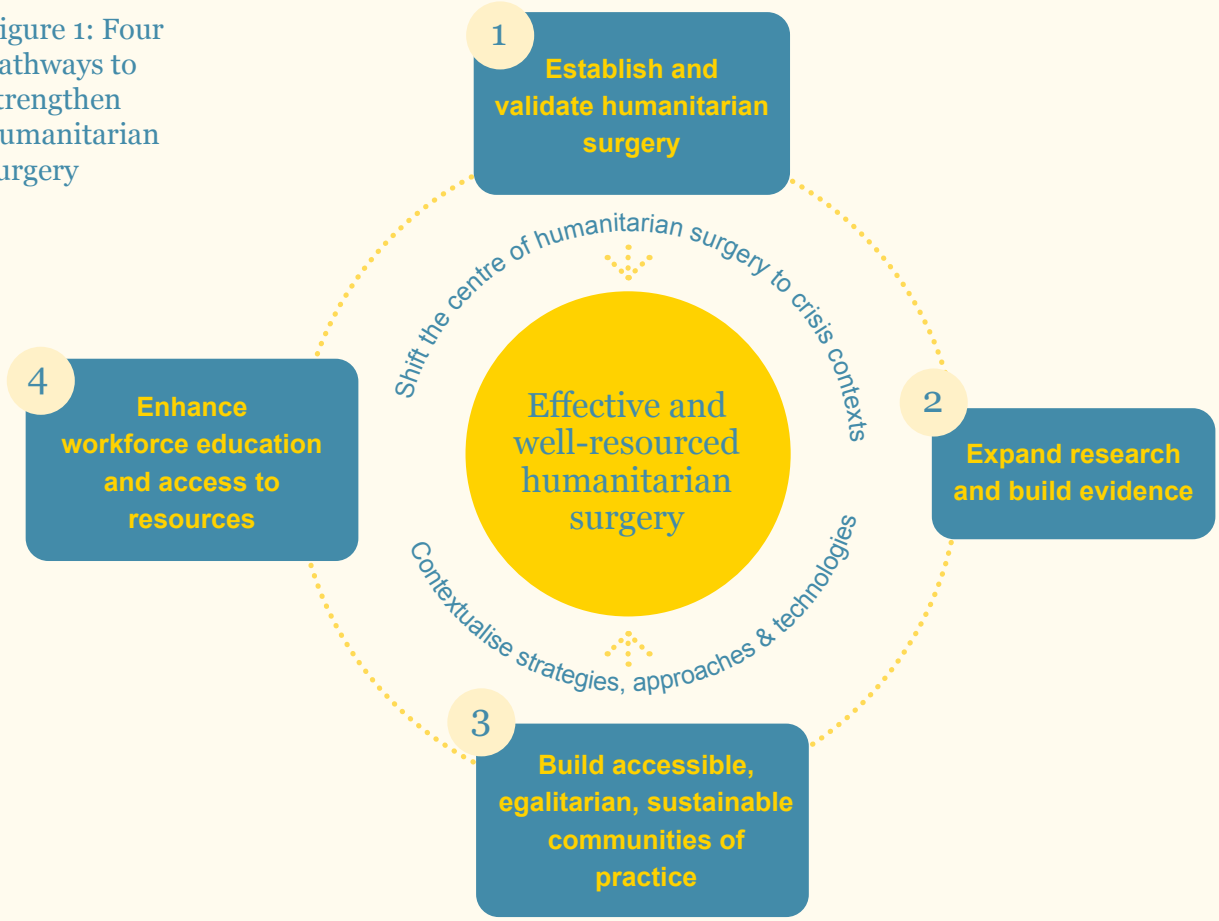
The call to action sets out four pathways designed to drive a significantly more effective and better-resourced humanitarian surgery. The ultimate goal is ensuring that people in the midst of disaster and conflict have safe access to quality surgical care that:

- ends the fatal progression of disease or injury;
- restores function and movement;
- alleviates pain;
- relieves shame; or
- brings a child safely into the world.

These four pathways to strengthen humanitarian surgery are enabled by two cross-cutting objectives: (i) Shift the centre of humanitarian surgery from the Global North to states and regions where the crisis is taking place; and (ii) Increase contextualisation of strategies, approaches and technologies.

The emerging narrative is a clear need for local and national engagement, and a more collaborative approach in answering the core question. How can we build sustainable humanitarian surgical capacity, capability and preparedness in crisis contexts with excess needs and severe resource deficits?

Figure 1: Four pathways to strengthen humanitarian surgery



The Humanitarian Surgery Initiative

The Royal College of Surgeons of England (RCS England) established the Humanitarian Surgery Initiative (HSI), supported and funded by the United Kingdom Humanitarian Innovation Hub (UKHIH). HSI is an international collaboration that seeks to understand the issues and explore the potential role and contribution of technology and data-driven evidence in building humanitarian surgical capacity in low-resource settings.

A central component of the HSI collaboration involves exploring potential platforms and tools that could be used to develop sustainable models for delivering training, mentorship, knowledge exchange, data management and evidence-based policy research.

HSI has supported three scoping "Pathfinder" projects:

1. Piloting HOSPEX Tabletop – a low-technology, classroom-based, interactive field hospital simulation training tool – with Ethiopia's Emergency Medical Team. HOSPEX Tabletop aims to train and test mass casualty management protocols, field hospital layouts, standard operating procedures and team decision making before expensive full-scale exercises or deployment.
2. Conducting a needs assessment to improve access to and support for humanitarian surgery learning, mentorship and skills development through the establishment of an online learning and information hub.
3. Documenting the use of surgical networks and assessing their effectiveness as platforms for providing mutual aid, shared learning and local innovation in crisis settings.

HOSPEX Tabletop training, Addis Ababa, Ethiopia. 2024. Credit: Bisrat M. Tiramo

In 2023, RCS England commissioned the University of Manchester's Humanitarian and Conflict Response Institute (HCRI) to produce a report outlining the main issues facing humanitarian surgery, mapping the ecosystem and describing the current thinking of recognised experts and practitioners.[2]

This call to action draws on HCRI's research, and captures views and suggestions from an HSI ideation process that asked key stakeholders to engage with the challenges, imagine potential solutions and take up the opportunities described below.

Iconic yet invisible – the paradox of humanitarian surgery and the urgency for establishing it

Leading humanitarian actors such as the ICRC and MSF maintain substantial surge and response capacities in surgery. Yet most people would associate humanitarian surgery with high-profile international charity missions, such as planeloads of surgeons from the Global North arriving en masse to correct cases of cleft palate. The majority of humanitarian health projects do not provide surgery, targeting instead primary healthcare issues such as (non-surgical) maternal and child health, vaccination and infectious diseases. Such areas of intervention are demonstrably important and have long been integrated into the responses of international aid agencies and national authorities by (formerly) the Millenium Development Goals and (subsequently) the Sustainable Development Goals. It is this 'baking in' that facilitated priority setting, resource allocation and the creation of targets, along with considerable political and financial support for and media attention on these priorities.[3]

A similar push is now required for humanitarian surgery, which was excluded from the initial prioritisation. The recent history of global surgery points the way. Lamented in 2008 as "the neglected stepchild of global public health",[4] this critique contributed to the growth of global surgery as an important specialist component of global health, even if there is still much room for development. Taken up by the Lancet Commission on Global Surgery and culminating in its 2015 publication "Global Surgery 2030: evidence and solutions for achieving health, welfare, and economic development",[5] this work highlighted the need for global surgery and the cost of its relative invisibility. Pathways 1 and 2, as outlined in Figure 1, take this approach further, speaking directly to the visibility and necessity of humanitarian surgery, while Pathways 3 and 4 contribute to enhancing its effectiveness.

Cameroonian charity ASCOVIME during their medical and surgical mission in the eastern region of Cameroon. 2017. Credit: ASCOVIME

Transforming humanitarian surgery by shifting its gravitational centre to the people and institutions rooted in its practice

More than a century of humanitarian surgery has revealed a history of courage, selfless volunteerism and transformative cooperation among practitioners, agencies and institutions. Yet there is also a legacy and perception of the Global North 'operating' on the Global South that should and can be left behind. Too often, international non-governmental organisations (NGO) have responded to crises and offered services they believed were needed without effectively engaging with local systems and people. The HCRI research shows how this has drawn criticism from those involved in leading responses and has created distrust among patients. For example, qualitative research on patients who received surgical care with the humanitarian NGO Mercy Ships reveals a damaging 'user view' that only foreign surgical teams can be trusted to undertake certain operations. [6] In an interview, a surgeon protested how foreign interventions assert "you must coordinate with me", placing the visiting team at the centre of the equation. HSI will continue to call on international NGOs to mitigate this perception, and build more confidence and capacity in local surgical systems. Still more can be done.

Recentring humanitarian surgery involves a geographic shift in thinking and a cultural embrace of exchange, learning and partnership among equals. HSI aims to reverse the direction of this historical imbalance by insisting that the strengthening of humanitarian surgery assigns a secondary priority to the direct provision of surgical services by international actors. Top priority goes to learning from, supporting and collaborating with those performing humanitarian surgery in their home context. The aim should be to guide, support and, where necessary, supplement these capabilities. This role calls for international teams to work with local colleagues and to integrate their efforts with local surgical services where possible. The goal is a system-wide approach to the full breadth of emergency surgical need, one that aligns with agreed local, national and regional international priorities.

This transformation mirrors the humanitarian sector's much-discussed localisation agenda, and its central tenet that the response should be "as local as possible, and as international as necessary".[7] We should be clear: in delivering on the four pathways, there is a choice being made in expecting the Global North to own, lead on and realise these opportunities for the Global South. HSI favours an alternative, centring the exceptional talent, experience and resources of the Global South, and allowing it to engage with and exploit the exceptional talents, experience and resources of the North.

Key insight

How is at least as important as what. The approach taken should be collaborative, understanding the strengths of and reasons behind local practices, ensuring inclusive participation. This requires an intention to empower local systems and create sustainable solutions.

Four pathways to establishing humanitarian surgery, connecting people and institutions, and enhancing knowledge and capabilities

Ivano-Frankivsk Regional Clinical Hospital, western Ukraine. 2023. Credit: Ukrinform

Pathway 1: Establish and validate humanitarian surgery

Objective 1: Strengthen the foundation of humanitarian surgery by establishing it as an integrated, properly resourced, essential component of humanitarian medical action.

The first hurdle: recognising current weaknesses in and vast potential of humanitarian surgery

The provision of primary care in the world's poorest countries and crisis contexts is often better developed than surgical services. The perception is that directing resources away from the provision of primary healthcare, or away from improving access to potable water and basic nutrition will cost lives and deliver poor value for money. However, this view is biased as it has traditionally been based on financial cost-effectiveness evaluations, which have deemed surgery in low-resource settings expensive compared with other healthcare investments. However, recent data demonstrate that essential surgery can be cost-effective due to its transformative impact on disease progression and patient quality of life, meaning that people can continue to work and care for themselves.[8]

The severe deficit in research on humanitarian surgery means that a clear picture does not exist, yet indications suggest that insufficient surgical capacity forms a cataclysmic gap in the heart of humanitarian response. Looking at global surgery, recent research estimates that 4.2 million people per year die within 30 days of surgery, meaning that postoperative deaths are the third greatest contributor to death, a figure that is higher than the combined global deaths attributed to HIV, malaria and TB [9]. The harm falls not only on individuals. Approximately 2% of annual Gross Domestic Product in low- and middle-income countries (LMICs) is lost to underdeveloped surgical systems.[10]

A surprising hurdle: what is humanitarian surgery?

One simple label cannot adequately define all the consequences of crises; sudden-onset disasters such as earthquakes and typhoons; worsening scarcities and calamities driven by climate change; violence and immiseration caused by protracted conflict and displacement; or a remote, unstable and austere environment where surgeons are overwhelmed by the burden of injury and disease. Even the term 'humanitarian' itself has multiple meanings. So, what is humanitarian surgery? The meaning is often confused with more visible initiatives, such as the cleft palate missions mentioned above. HSI Innovation Fellow Gerard McKnight proposed a workable definition:

"Humanitarian surgery focuses on the coordinated provision of emergency surgical care, in accordance with the humanitarian principles, in conflict and post-conflict zones, in areas of sudden-onset disasters, and when the local health system is overwhelmed." [11]

Tellingly, HSI's convening efforts have also surfaced complaints from surgeons across the globe that they want to see progress towards practical solutions, not more academic debate on definitions. RCS England will champion McKnight's definition and at the same time welcome ongoing growth in our understanding of humanitarian surgery through practice.
It is equally important to understand what humanitarian surgery is not. It is not limited to surgery on wounded combatants, which is in reality a small percentage of the work of humanitarian surgeons.

Pathway 2: Expand research and build evidence

Objective 2: Strengthen the evidence and research base to understand and improve humanitarian surgery, to educate public health and humanitarian policymakers, and to demonstrate impact.

HSI has found a significant gap in data and research related to humanitarian surgery. From the published literature, international surgery initiatives have typically been reported to be short-term specialised interventions in specific areas [12, 13]. Past studies have recognised a lack of quality indicators for surgical standards, unlike in many core areas of humanitarian medical care.[14] The literature on humanitarian surgery has also largely reported on activity delivered by international partners during crises. As a result, even if the surgical trauma burden increases during conflict, little is known about how national systems and humanitarian healthcare teams respond to new caseloads and modalities. There is little evidence to guide policy decisions, assess the effectiveness of new procedures, or gauge the effectiveness of local adaptations such as task shifting or resource-limited approaches.

The objective is to develop a strategic approach to evidence that contributes to new and context-appropriate standards, protocols and guidance for humanitarian surgery, and augments the collection of data, data management and surveillance.

Surgeons operating in Aleppo, Syria. 2022. Credit: Mohammad Bash

Pathway 3: Build accessible, egalitarian, sustainable communities of practice

Objective 3: Develop effective, egalitarian communities of practice to support surgeons to work effectively in humanitarian crises, now and into the future.

International surgical professional bodies and networks should actively support the development of inclusive and respectful communities of practice within humanitarian surgery, placing a focus on local ownership and long-term relationships. These partnerships should fortify skills and comprehension across all organisations contributing to surgery, support and sustain education, training and research partnerships, and maintain a healthy integration with global surgery, emergency medicine and national health services.

Regional surgical bodies should act as partnership hubs, facilitating connections between humanitarian surgeons within a region and investing in necessary infrastructure. Networks can be created and enabled by professional bodies but must be owned by their members to become self-sustaining. Regional colleges may themselves form a community to enable the sharing of practice, facilitate lessons identified and learnt, and bring participants together for knowledge exchange.

Key insight

Developing humanitarian surgical initiatives should recognise that building capacity and relationships is the foundation of lasting partnerships. Sustainability is critical. Leaders need to be able to guide and support rather than step in for those they lead.

Operating theatre in Borama public hospital, Somalia. 2014. Credit: Free Wind

Practising surgery in the midst of crisis often prompts a deeply personal and momentous choice: stay home or migrate? Calls for greater training to build the capacity of surgeons presents a thorny challenge because those skills become marketable, potentially leading to emigration and depletion of the local workforce.

"There's a fundamental tension between wanting to train people to a relatively high level, to provide care in their country, and people with that training not wanting to stay in that country … we have to think about the economics that affect a health workforce as well, and make sure that we're not contributing to brain drain"

- Surgical Advisor, International NGO

HSI respects the right of individual surgeons to take such agonising decisions. We advocate against wealthy nations satisfying their own need for surgical talent by harvesting it from nations that can least afford to lose it. In forthcoming research, HSI Surgical Fellow Isobel Marks describes the need for communities of practice to play a much more prominent role in providing technical and emotional support to those performing surgery in unsafe, desperately austere locations. It is one thing for an expert in the UK to help guide a less experienced doctor in South Sudan through a complicated procedure. It is another for that South Sudanese doctor to experience the support and solidarity of others as she exposes herself to the trauma of war and the risk of being forced to step beyond her teachings and experience. In a world where surgery is under attack, providing global solidarity is a paramount challenge for the surgical community (see Box 1 below).

Faced with such violent attacks, communities of practice must address the psychological toll of humanitarian surgery of staff as a top priority. This requires far greater study and documentation, the development and rolling out of counselling, or other services dedicated to wellbeing, and for leadership to make it normal to seek help.

Key insight

Internet connectivity is critical to leverage the potential of communities of practice to support humanitarian surgeons and provide accessible counselling to those who need it. It is also highly variable across the landscape of humanitarian surgery.

Box 1: Protecting healthcare workers and health facilities during conflicts

Attacks on health facilities, healthcare workers, ambulances and patients in complex humanitarian emergencies have increased dramatically over the past few years*. As a critical component of any humanitarian response, RCS England is committed to working with other humanitarian and surgical institutions to highlight and advocate for improved safeguarding measures and greater protection for healthcare workers in crisis settings.

On 1 April 2024, Dr Ahmed Almaqadma, a skilled plastic surgeon, was killed during action on al-Shifa hospital in Gaza. Although Ahmed was one of hundreds of health workers killed during conflicts this year, he also had a personal connection to this work. He was an HSI Innovation Fellow who made significant contributions to HSI's research and learning initiatives. Dr. Almaqadma also played a pivotal role in advancing dialogue on humanitarian surgery through his involvement in the "Surgical Voices from the Global South" webinar series.

Portrait of Dr Ahmed Almaqadma, surgeon and research fellow. Credit: RCS England

*Safeguarding Health in Conflict (2023). Critical Condition: Violence Against Health Care in Conflict.

Pathway 4: Enhance workforce education and access to resources

Objective 4: Catalyse development of workforce education, training and access to resources to improve the humanitarian surgical knowledge base and increase sharing of best practice, while also engaging with related fields such as anaesthesiology.

To meet the surgical needs of people in crisis, continuing surgical and professional education cannot remain a nice-to-have option that is only available to a privileged few; it is essential and needs to be widely accessible. Compounding that need is the need for education and training to be rooted in the country context. Illustrating this point, a localised approach ensures that those in training are taught with equipment they will use in their future practice.

To enhance workforce education and build the availability of accessible resources, HSI research highlights five key areas that require attention:

1 EDUCATION

HSI found the majority of humanitarian surgery-related courses, both in-person and virtual learning, were based in high-income countries, often with the objective of preparing surgeons from those countries to work in LMIC settings or in complex humanitarian emergencies. Cost, language and travel barriers, and scarcity of time mean these courses are largely inaccessible to those working full-time in such settings. Furthermore, the delivery of training is expensive, so it is rarely sustainable to meet the needs of humanitarian surgery (see Box 2, page 15).

A second issue is that the curricula of such programmes are often a collation of ideas, opinions, or different learning outcomes, giving rise to a diverse set of offerings and unclear benefits to participants. An overhaul is needed to produce a structured, interdisciplinary curriculum in humanitarian surgery that delivers a broad skill set and results, and is accredited and endorsed by the surgical colleges. The colleges should collaborate with regional humanitarian surgical education hubs to build this programme from the ground up. Surgical colleges, international collaborations and regional partnerships should then focus on delivering the programme.

2 ADULT LEARNING

HSI discussions highlighted practitioners' sense that surgical curricula must reflect how adults learn, avoiding the rigid hierarchical structures of a clinical environment and favouring on-the-job training at all stages of their career. As one humanitarian surgeon observed, these professionals "have been in practice for 20 years. They have some good practices. They have some bad practices, but they are the only providers. So, you take them in, and you treat them with respect because they are adult learners."

3 RESOURCE LIBRARY

HSI should engage collaboratively with others in designing and creating an open-access surgical learning library. The goal is a 'public' library of quality-assured surgical learning resources, accessible from anywhere in the world. This should hold a breadth of information and build a collection related to appropriate technologies and approaches. This resource library will host evidence of best practice, as well as a diversity of opinions about how to approach the challenges encountered.

4 ACCESSIBLE TECHNOLOGY

As it currently stands, very little peer-reviewed literature relates to the use of technology in humanitarian surgery. New technologies are beginning to show where they may have impact, but evidence is weak. Caution is necessary regarding their potential role and scale of impact. For example, deference to sophisticated technological resources can hinder the provision of care, as was found to be the case in relation to burn victims in Haiti.[16] HSI will engage with partners and technology companies to develop and optimise the platforms on which education, virtual learning and a resource library could be built.

Key insight

Technology can be used to support education, upskilling, communities of practice and relationships. Technology, though, is not a 'saviour' – it cannot replace human interaction in developing trust among practitioners, institutions and patients.

5 THE SURGICAL TEAM

Humanitarian surgery will stagnate as a sub-sector if it is siloed off from the wider surgical care team. While it may be necessary to focus on surgery in the beginning, in time humanitarian surgical partnerships should shift to a multidisciplinary approach, ensuring that education and skills training programmes include the wider team, and are adapted to the common reality of surgery being performed by non-surgeon doctors or non-doctors. Surgical colleges should therefore collaborate with the professional bodies for anaesthesia, surgical nursing and allied health professionals to develop this holistic approach to education and skills programmes.

Key insight

Coordination and collaboration can unlock the huge potential of distance learning and technology, transforming the development of humanitarian surgery practitioners in crisis contexts. Surgical colleges should collaborate to support setting standards, accreditation and accountability in education programmes.

Box 2: Leadership from national and regional surgical colleges, societies and associations

Surgical colleges, societies and associations have significant potential to advance these pathways, particularly through national and regional surgical networks in crisis-affected areas. They can foster communities of practice, guide research, set ambitious goals, lead the development of accessible education and training, collaborate with related professions and ensure that technologies are suited to local contexts. The Emergency Medical Team Training Centre, recently established in Ethiopia, plays an important functional and strategic role in building national and regional capacity to deliver training. The West African College of Surgeons (WACS) offers another example of such potential. WACS was the first institution to organise surgical subspecialty training in the region, award surgical fellowship diplomas and is one of two bodies that accredits institutions to train surgical residents in Burkina Faso, Cameroon, Cote D'Ivoire, Ghana, Liberia, Mali, Nigeria, Senegal, Sierra Leone, The Gambia and Togo. Its sister college, the College of Surgeons of East, Central and Southern Africa (COSECSA), was established in 1999 and has 14 member states, offering another successful initiative from which to learn.

Investing in surgical technologies, approaches and procedures that are contextually adapted, monitored and cost-effective to ensure attention to the specific environment shapes innovation and adaptation

Critical to all four of these pathways is the idea that appropriate technology should be a main channel to better outcomes, not a belated response to a lack of contextual awareness. As it moves forward, HSI must champion technology based not on technical potential in a laboratory, but rather its availability, workability, fixability and affordability in crisis contexts. In sum, appropriate and sustainable technology that is fit for purpose.

Key insight

What may be needed in low-resource settings is the concept of frugal innovation, coined by innovation and leadership advisor Navi Radjou, where more can be delivered using basic resources well than can be achieved through high-technology interventions.[17]

A key barrier to the safe provision of surgery in low-income communities, especially those in crisis, is the lack of infrastructure, supplies and supporting services to allow the delivery of safe care. Participants in HSI programmes expressed frustration when international medical teams introduced sophisticated technologies to improve surgical care, but without attention to sustainability. One surgeon complained that hospital courtyards were becoming "junkyards" of equipment that had broken down, "No one knew how to fix it …. And now it's useless." Therefore, technology-based capacity-building initiatives must reflect the health system's procurement, maintenance and financial capabilities.

Greater research investment must focus on alternative strategies. For example, in the provision of safe and effective anaesthesia in austere environments, one study

demonstrated that innovative approaches to spinal anaesthesia can be used successfully when adapting to low-resource settings.[18] The researchers encouraged practitioners to explore regional anaesthesia techniques, such as thoracic spinal anaesthesia for abdominal surgery as a feasible alternative to general anaesthesia. Other studies have validated low-resource options for dressing abdominal wounds that are cheap, rapid and reproducible, detailing a technique to achieve a negative pressure dressing without continuous suction.[19]

The landscape of humanitarian surgery has been changing, with crises affecting middle-income populations and urban locations such as Gaza, Syria and Ukraine. Advancing humanitarian surgery should reflect important differences in expectations on the part of people in need of surgery, or in the number of surgical staff familiar (or not) with working in high-resource hospitals and surrounded by the latest technology.

Task sharing, cross-training, practical upskilling, and the creation of backup systems—essential for managing temporary shortages and prolonged conflict that weaken health systems—should be strategically planned and supported by evidence.

The shift toward specialised skills development in higher-income countries clashes with the demands of humanitarian surgical settings, where a wider range of versatile skills is often needed. To address this, systems must be in place to maintain a broad skill set. As one global surgeon framed it, “Medical training today emphasises the technology and not the clinical examination of the patient.”

Standard global approaches to humanitarian surgery often fail to suit the diverse contexts of crisis situations, yet maintaining high standards matters. Doing things differently can risk drops in standards of care. While there’s no simple solution to this challenge, it is essential to keep discussions open about the available options, considering the outcomes, costs, experiences and opinions of the people most affected.

Key insight

Humanitarian surgeons often face ethical dilemmas when geographic location and statehood result in differing standards of care and survival rates. To address this, it’s crucial to strike a balance between adapting to local contexts and maintaining or striving toward proven standards of care in close collaboration with local medical communities and patients.

Surgery at a charitable medical camp for displaced people, Yemen. 2023. Credit: Mohammed al-Wafi

Conclusion

Humanitarian surgery encompasses the full range of a society's surgical needs during crises that degrade the capacity of health services. It includes life-saving care for women and children in unsafe pregnancies, returns young people to school or work after injuries like fractures or severe burns, repairs earthquake-crushed limbs, removes cancerous growths and treats ordinary people affected by the violence of war.

As Wren et al found, "recent improvements in trauma care and systems have reduced injury-related mortality. This combination of new challenges and medical capabilities warrants reconsideration of long-standing humanitarian surgery protocols."[20] The language of research does not capture the grim reality: five billion people lack timely access to safe surgery, including those in humanitarian crisis contexts, where the deficit and its consequences are most critical. In these crises, exponentially greater needs must be addressed by fewer trained doctors who work in unsafe and even life-threatening conditions, with dramatically downgraded resources and facilities.
The international response largely omits humanitarian surgery. Aside from the ICRC and MSF, surgery is not included in the programming of the leading humanitarian health response agencies.

The current state of humanitarian surgery is dire and unacceptable. However, HSI, led by RCS England, highlights the potential for significant improvements with relatively small initial steps. HSI outlines four key pathways to transform the capacity of humanitarian surgery, aiming to save lives and reduce suffering in crisis situations:

1. Establish and validate humanitarian surgery as an integrated, properly resourced, essential component of humanitarian medical action.
2. Expand research and build evidence to understand and improve humanitarian surgery, to educate public health and humanitarian policymakers and demonstrate impact.
3. Build accessible, egalitarian, sustainable communities of practice to support surgeons to work effectively in humanitarian crises.
4. Enhance workforce education and access to resources to improve the humanitarian surgical knowledge base and increase sharing of best practice, while also engaging with related fields such as anaesthesiology.

What we know is that humanitarian health programming works. We know that surgery works. The challenge before us is to get humanitarian surgery working.

Italian cardiac surgery team at the European Gaza Hospital, Palestine. 2015. Credit: Federico Neri

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Photo on front page: Dr Ahmed Almaqadma (left), an RCS England Humanitarian Surgery Innovation Fellow, operating with colleagues in the MSF Belgium Orthoplastic Unit at Al-Awda Hospital, Gaza, Palestine. 2022. Used with permission of Dr Almaqadma's family.

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