**Global Cardiac Surgery: The Tipping Point?**

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**Background**

Six billion people lack access to safe, timely, and affordable cardiac surgical care when needed.[1](https://paperpile.com/c/3AgzbX/WyeZ) Over 30 million live with rheumatic heart disease (RHD) worldwide[2](https://paperpile.com/c/3AgzbX/EWxL), congenital heart defects (CHD) affect over one million births each year yet remain untreated in over 90% of cases in low- and middle-income countries (LMICs)[3,4](https://paperpile.com/c/3AgzbX/DNrd+efEc), and ischemic heart disease burdens are rapidly rising in LMICs, affecting younger populations compared to high-income countries.[5](https://paperpile.com/c/3AgzbX/9Bk4) Neglected cardiovascular diseases, such as endomyocardial fibrosis and Chagas cardiomyopathy, further affect the world’s poorest billion with little research and political attention.[6](https://paperpile.com/c/3AgzbX/xMpR) The COVID-19 pandemic has shed further light on global health inequities, as LMICs trailed high-income countries in obtaining COVID-19 vaccines, with low-income countries’ vaccination rates continuing in single-digits nearly two years after the first vaccines were rolled out. These inequities reflect the limited political prioritization for health systems issues, including COVID-19 and the care for chronic conditions such as cardiovascular diseases and surgical conditions.[7–9](https://paperpile.com/c/3AgzbX/ihES+43JX+lnwL)

Despite these gaps and persistent disparities, recent developments have enabled a growing momentum for the field of global cardiac surgery. Here, we describe recent developments in the field of global cardiac surgery with a particular emphasis on academic, societal, and political momentum. In addition, we present an overview of the global surgery and cardiovascular health discourse at the 75th World Health Assembly and look ahead toward future opportunities to move the needle toward access to cardiovascular health for all.

**Societal Efforts**

In 2018, the Cardiac Surgery Intersociety Alliance (CSIA) was established as a collaborative effort among most regional professional cardiac surgical societies (American Association for Thoracic Surgery [AATS], Asian Society for Cardiovascular & Thoracic Surgery [ASCVTS], European Association for Cardio-Thoracic Surgery [EACTS], Society of Thoracic Surgeons [STS]) and the World Heart Federation.[10](https://paperpile.com/c/3AgzbX/iNbO) The CSIA has selected two low-volume cardiac surgery centers in LMICs, the Maputo Heart Center in Mozambique and the King Faisal Hospital in Rwanda, to support them to grow to medium- and eventually high-volume programs.[11](https://paperpile.com/c/3AgzbX/doAL)

Before 2021, attention to global cardiac surgery at societal meetings was limited. Beyond the 99th Annual Meeting of the AATS in 2019, with a dedicated session and plenary talk, the discourse surrounding cardiac surgery in variable-resource contexts was limited to local meetings or singular abstract presentations in non-global health sessions. Between October 2021 and May 2022, the African Association of Thoracic and Cardio-Vascular Surgeons (AATCVS), AATS, Canadian Cardiovascular Society (CCS), EACTS, and STS have hosted dedicated global cardiac surgery sessions at their respective annual meetings.

Furthermore, the Cardiothoracic Surgery Network (CTSNet) has recently launched the “CTSNet Global” portal with great visibility on the website.[12](https://paperpile.com/c/3AgzbX/LKI3) The portal provides a platform for individuals to share their insights and experiences open-access without being exposed to traditional publishing barriers.[13](https://paperpile.com/c/3AgzbX/GA4q)

**Recent “Wins”**

In addition to the societies’ growing leadership in the global cardiac surgery discourse, several major developments occurred in recent years.

The Global Cardiac Surgery Initiative (GCSI) was founded in 2018 as a platform for advocacy and open-access resources pertaining to global cardiac surgery. Since 2020, the GCSI has expanded to become an active social network of trainees interested in or training in cardiac surgery, with most members in and from LMICs. Today, the GCSI works on engaging individuals from across the globe through advocacy, education, and research efforts and fostering the next generation of global cardiac surgeons.

In addition, in November 2021, the National Institutes of Health’s National Heart, Lung, and Blood Institute (NHLBI) hosted a three-day workshop on RHD to identify research gaps and opportunities pertaining to RHD. Topics ranged from primordial prevention to tertiary care, recognizing the important need for cardiac surgical care in managing the global burden of RHD. Recent research has shown that the socioeconomic benefit of scaling access to tertiary care for RHD is enormous: for example, the African Union would receive a net benefit of approximately US$2.6 billion if scaling secondary and tertiary care for RHD.[14,15](https://paperpile.com/c/3AgzbX/C6Ir+IL4s)

Lastly, the Thoracic Surgery Foundation (TSF), a philanthropic effort largely supported by the STS, has increasingly supported global cardiac surgery efforts. Through the Every Heartbeat Matters award, in collaboration with Edwards Lifesciences, the TSF has supported multiple initiatives to care for and train healthcare professionals to manage valvular heart disease in variable-resource contexts. In addition, the Foundation provides multiple travel scholarships for trainees and surgeons to attend cardiothoracic surgery meetings and pursue mini- or full fellowships in centers abroad.

**75th World Health Assembly**

In May 2022, the 75th World Health Assembly (WHA) took place in Geneva, Switzerland, representing a time where Ministries of Health, inter-governmental and non-governmental organizations, and other notable global health-related organizations convene to discuss and define health priorities. Global cardiac surgery, however, was notably absent from the agenda.[16](https://paperpile.com/c/3AgzbX/fWjH) This reflects the ongoing sentiment that cardiac surgery is too isolated, specialized, and unscalable to have a role in current global health endeavors, myths that have held back the field as part of broader global surgery and global health efforts.[17](https://paperpile.com/c/3AgzbX/4Sch) These ongoing misconceptions are driven by fragmentation of the global surgical and cardiovascular community, disagreement on the best method of approach, no unifying leadership, few comprehensive advocacy efforts, and limited constructive political engagement.[7,8](https://paperpile.com/c/3AgzbX/ihES+43JX) In 2018, the “*Rheumatic fever and rheumatic heart disease*” Resolution was passed at WHA71, indicating some global prioritization of the prevention, control, and treatment of RHD.[18](https://paperpile.com/c/3AgzbX/78dM) However, similar to the discussion surrounding global cardiac surgery at WHA75, emphasis was given to prevention and improvement in underlying socioeconomic factors instead of broader tertiary care capacity, including cardiac surgical and interventional cardiology care.

Despite the lack of inclusion of global surgery in the main agenda, numerous global surgical societies hosted widely popular side events. The Global Alliance for Surgical, Obstetrics, Trauma & Anaesthesia Care (G4 Alliance)[19](https://paperpile.com/c/3AgzbX/vWsa), Global Surgery Foundation[20](https://paperpile.com/c/3AgzbX/gFQF), World Federation of Societies of Anaesthesiologists (WFSA)[21](https://paperpile.com/c/3AgzbX/YArz), and International Federation for Spina Bifida and Hydrocephalus (IFSBH)[22](https://paperpile.com/c/3AgzbX/Yfea), among others, captured attention for global surgical care and provided fora for discourse. Although perhaps not explicitly mentioned in surgical side events, global cardiac surgery is now uniquely positioned for incorporation into the surgical systems strengthening agenda, much as the global neurosurgery community became integral to the global surgical framework shortly after the passage of the Resolution WHA68.15, which recognized the role of surgical and anesthesia care as part of universal health coverage in 2015.[23,24](https://paperpile.com/c/3AgzbX/TcLc+hpQQ)

The World Heart Federation’s 2022 World Heart Summit also took place in Geneva, just days before WHA75. Themes of partnership, equity, and universal cardiovascular care were emphasized throughout the event, which included sessions covering topics such as trends in global heart health, upscaling systems during and post-COVID-19, and the role of governments in promoting universal cardiac health, among other themes.[25](https://paperpile.com/c/3AgzbX/x8rG) The World Heart Federation and Permanent Mission of Brazil also hosted a WHA side event “*Time to End RHD: From Promises to Action*,” which gave voice to the challenges patients and Ministries of Health confront in resource-limited settings.[26](https://paperpile.com/c/3AgzbX/qFIc) The speakers also highlighted experiences in implementing the 2018 RHD Resolution and financing in global cardiac surgery.

**Future Opportunities**

Contrary to historical perception, cardiac surgery in variable-resource contexts has been effectively introduced and scaled, is favorably cost-effective, can be implemented at low costs and high volumes, and can be performed with excellent surgical outcomes.[17,27,28](https://paperpile.com/c/3AgzbX/4Sch+DaL6+7Sy9) Thus, an opportunity exists to incorporate cardiovascular care within existing universal health coverage commitments, national health plans, and National Surgical, Obstetrics, and Anesthesia Plans (NSOAPs).[29](https://paperpile.com/c/3AgzbX/A8qB)

As similarly emphasized during many WHA side events for global surgery at large, partnerships are key in advancing global cardiac surgery. The list of organizations allied with the G4 Alliance, a common advocacy platform for global surgical organizations and stakeholders, is steadily growing. The list of member organizations encompasses surgery, trauma, obstetrics and gynecology, neurosurgery, pediatric surgery, plastic surgery, and other surgical disciplines; however, cardiac surgical organizations have yet to join the Alliance.[30](https://paperpile.com/c/3AgzbX/CIQC) The Global Surgery Foundation provides a platform through which multiple stakeholders can collaborate to strengthen surgical systems and engage in collaborative research.[31](https://paperpile.com/c/3AgzbX/DWqK) Such organizations include Ministries of Health and other governmental stakeholders, organizations and academic institutions worldwide, industry partners, and patient-family groups, all united to further surgery as a key component of universal health coverage.[20](https://paperpile.com/c/3AgzbX/gFQF) Collaboration with such organizations would enable advocacy for patients who lack cardiac surgical care and promote the inclusion of global cardiac surgery as a critical component of all surgical systems.

Lastly, the pandemic has shed light on global inequities in access to essential health services, including diagnostics and preventive measures.[9,32](https://paperpile.com/c/3AgzbX/WDHq+lnwL) The pandemic has illustrated the need for health systems strengthening to respond to future healthcare crises, which include the continued and new infectious disease outbreaks, economic crises, natural disasters and climate change, war and conflict, and more. This will require sufficient consideration of the role of cardiovascular diseases and their care, considering their large burden worldwide and close link to healthcare crises.[33–35](https://paperpile.com/c/3AgzbX/8s7O+pLfe+yBRu) Today’s awareness of global health disparities, including in terms of access to cardiac surgical care and its cross-cutting role in achieving the United Nations Sustainable Development Goals[36](https://paperpile.com/c/3AgzbX/Uyyt), ought to serve as a moral imperative to work towards global cardiovascular health equity.

**Potential Hurdles**

The political commitment to cardiac surgery and cardiovascular health remains limited at the national and international levels.[29,37](https://paperpile.com/c/3AgzbX/VDhI+A8qB) For example, only one (Zambia) of seven NSOAPs launched by LMICs has mentioned and addressed the need to expand cardiac surgical care.[29](https://paperpile.com/c/3AgzbX/A8qB) In order to change this, cardiac surgeons need to grab a seat at the table and become more familiar and comfortable with advocacy, policy, and politics.[38,39](https://paperpile.com/c/3AgzbX/FMmc+7yCr) Political prioritization is essential to move the needle in health systems strengthening; yet, inconsistencies in the messaging and lack of multidisciplinary collaboration among the global surgical and cardiovascular community result in lesser prioritization of these issues among policymakers, decisionmakers, and funders.[7,8](https://paperpile.com/c/3AgzbX/ihES+43JX) This is particularly the case for issues such as cardiac surgery: as over 100 countries and territories worldwide lack cardiac surgeons altogether, cardiac surgery may be left behind in national health plans and NSOAPs.[40](https://paperpile.com/c/3AgzbX/xNDy)

Societal efforts are commendable and should be sustained and expanded. Simultaneously, however, a conscientious effort must be made to avoid neo-colonial practices.[41](https://paperpile.com/c/3AgzbX/BdaQ) Global surgery and global health have been dominated by high-income country actors.[42](https://paperpile.com/c/3AgzbX/Ey5o) Global cardiac surgery, which was historically built on fly-in-fly-out mission trips[43](https://paperpile.com/c/3AgzbX/rY9x), is at high risk of the same. Inclusion of voices from and in LMICs is critical in the global cardiac surgery discourse, such as sessions held at societal meetings and in global cardiac surgical research. Similarly, bilateral partnerships between institutions must move toward meeting local needs and pursue local sustainability of cardiac surgical programs. Lastly, barriers to research regarding research training, mentorship, capacity, and finances, must be minimized.[13,44](https://paperpile.com/c/3AgzbX/MIKV+GA4q)

**Conclusion**

While the gaps in access to cardiac surgical care across the globe remain enormous, the growing momentum of the field of global cardiac surgery enables cautious optimism for the future. Societal efforts, increasing funding opportunities, and virtual meetings have enabled greater international dialogue within and beyond the cardiovascular community. Achievements by the global surgical and cardiovascular health communities at high-level meetings provide an entry-point for global cardiac surgery towards greater political prioritization that is more aligned with the global burden of cardiovascular surgical disease. Cardiac surgeons, other heart team members, and trainees are critical voices in accelerating momentum towards cardiovascular health equity for all: together, we can move beyond the tipping point.

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