Safe Surgery 2020

Safe Surgery 2020 Impact Report

IMPROVING ACCESS TO SAFE SURGERY FOR MILLIONS OF PEOPLE AROUND THE WORLD

GE Foundation

Dalberg

ASSIST INTERNATIONAL

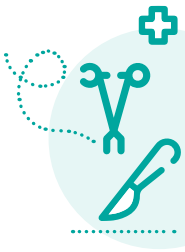
jhpiego
Saving lives. Improving health. Transforming futures.

PROGRAM IN GLOBAL SURGERY AND SOCIAL CHANGE
Harvard Medical School

EXECUTIVE SUMMARY

Access to safe and high-quality surgical care is critical to advancing global healthcare and improving the lives of millions of people around the world. Unfortunately, safe surgical care remains beyond the reach of far too many people. The Safe Surgery 2020 (SS2020) initiative has explored innovative models for expanding safe surgical care, and has contributed valuable insights and ideas for improving surgical and health care systems.

This report is intended to share SS2020's impact, findings, and best practices; spark new ideas; engage new champions; and advance new approaches in global surgery. We trust that the report will prove useful for governments seeking to prioritize safe surgical care, funders looking to invest in under-funded health priorities, and implementers looking to refine their approaches—and that it will serve as inspiration to the broader general global health audience.



Surgery is a critical component of comprehensive global healthcare

Today, five billion people around the world—about two-thirds of the global population—lack access to safe, affordable surgical and anesthetic care.[1] In resource-poor regions of the world, the absence of safe surgery is particularly stark: 93% of people in sub-Saharan Africa and 97% of those in Southeast Asia are unable to access basic safe surgical care.[2] For these people, hospitals are too far away, procedures are too risky, and the cost of surgery is often beyond their means. As a result, the majority of the world's people are vulnerable to living with or at risk of dying from surgically treatable conditions.

Improving access to safe, high-quality surgical care requires systems change

Five years ago, the GE Foundation committed a catalytic USD 25 million to SS2020, a collaboration of funders, implementers, educational institutions, and local governments working to make surgery safe, affordable, and accessible around the world. SS2020 is founded on four pillars: 1) advocating for policy, 2) strengthening and supporting the surgical workforce, 3) testing and scaling innovations, and 4) sharing insights and elevating surgery. The program was designed as a quasi-experimental study to provide high-quality evidence of impact and to further learning in the field.

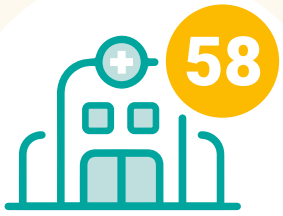
Calling on the global health community to join us in stepping up to provide this life-saving care

Over the past five years, our work with the SS2020 initiative has shown that systems change is possible and that improvements to surgical care can strengthen entire healthcare systems. We call on others to join us in strengthening a collective commitment to providing this life-saving care. Funders are needed to make the much-needed financial contributions to improving surgical and anesthetic care; implementers have the opportunity to weave surgical care into global health programs; and governments must prioritize safe surgery through legislation and resource allocation. There is great potential to improve the lives of billions of people around the globe by elevating the importance of safe surgical care and working toward universal access.

1 "Global Access to Surgical Care: A Modelling Study," The Lancet Commission on Global Health, 2015.
2 Ibid; "Global Surgery 2030: evidence and solutions for achieving health, welfare, and economic development," The Lancet Commission on Global Health, 2015

SOME OF OUR RESULTS

OUTPUT LEVEL



Implemented our programs in 58 health facilities in three different countries,
and impacted 180 other facilities with our trainings

Trained over

2,900

healthcare workers
including over 600 on leadership and clinical / patient safety skills, over 760 on equipment sterilization, and over 420 on anaesthesia skills

Launched 2 oxygen plants to improve the availability of oxygen at 40 medical facilities

Made over 45 contributions to the overall safe surgery body of evidence,
including in national policy documents, publications in peer-reviewed journals, conference presentations, reports, case studies, and book chapters

OUTCOME LEVEL

In some select facilities in Ethiopia, increased volume of surgical services by over 50%,
surgical mortality reduced by 1/3, and referrals reduced by 78%.
*Results achieved over 18 months

In Tanzania, surgical safety checklist adherence increased by 44%,
maternal sepsis rate reduced by 1.7%, post-operative sepsis rate reduced by 4.3%, and surgical site infection rate reduced by 2.8%
*Results achieved over 12 months

EXECUTIVE SUMMARY

WHAT WE LEARNED

Our work has taught us valuable lessons that we hope will be useful for others who are building and leading multi-stakeholder partnerships in global health, including in surgery.

1. PROGRAM DESIGN, MONITORING AND EVALUATION

ADAPTABILITY AND ITERATION ARE CRITICAL TO PROGRAM DESIGN: Flexibility must be woven into both the design and implementation stages to allow for the healthy growth and natural evolution of the programs and interventions, especially in newer areas of global health and in systems-focused programs. As we have scaled, our team has learned that just as important as formulating an initial hypothesis is the ability to recognize that it may prove inaccurate and quickly re-calibrate activities to the realities on the ground.

THE MOST EFFECTIVE MONITORING AND EVALUATION (M&E) EFFORTS ADAPT ALONGSIDE PROGRAMS: As SS2020 was designed to be a quasi-experimental study that built on the existing body of evidence in safe surgery, designing a strong M&E system was critical. We found that, as programs evolved to fit with the realities on the ground, our M&E efforts needed to mirror them. In tailoring our M&E, we realized that telling the whole story of our impact required employing a mix of quantitative and qualitative measures. Neither method alone would be adequate.

2. PARTNERSHIPS

SELECTING COUNTRY PARTNERS TO DRIVE PROGRAM SUCCESS: To ensure lasting impact and improved systems, local partners should eventually adopt and scale programs. While ministries of health can act as the natural inheritors of SS2020, so can other local partners, such as university hospital or other hospital systems, or professional societies.

INNOVATIVE, UNFAMILIAR PARTNERSHIP MODELS REQUIRE LARGER UP-FRONT INVESTMENTS IN TRUST-BUILDING AND TRANSPARENCY: We intentionally designed our partnership to diverge from a more "typical" model wherein a single implementer oversees the entire program. Instead, our partnership was built so that all partners had equal decision-making power and could build off one another using our comparative advantages. Because our model was new and unfamiliar, however, it took longer to establish an effective way of collaborating and, therefore, to truly integrate programs. As our interventions have grown, we have course-corrected and evolved to ensure that our partners have ample time for the discovery, discussion, and co-creation that allows the holistic SS2020 intervention to be greater than the sum of its parts.

3. ADVOCACY

ADVOCACY CAN SHIFT THE NARRATIVE TOWARD COUNTRY OWNERSHIP: While the nascency of safe surgery required global and country-level advocacy, we found greater success with the latter. At the country level, we could connect SS2020 to existing national priorities and platforms, such as maternal and child health or universal health coverage. By emphasizing the role of local leaders at the forefront of our programs, we created an incentive for these leaders to scale, adopt, and sustain SS2020's work.

FOREWORD

When the GE Foundation first committed USD 25 million to safe surgery in 2015, very few funders were focusing on this issue. Global health programs annually direct billions of dollars of funding toward prevention and treatment of major diseases such as HIV, malaria, and tuberculosis, as well as improving maternal, newborn, and child health. While these are justifiably top health priorities, universal safe surgical care must be seen as the complementary, equally essential—and equally attainable—goal.

With our initial investment to establish Safe Surgery 2020 (SS2020), we wanted to take a lead role in igniting global action to expand access to life-changing and life-saving procedures. Safe surgery is an essential part of improving primary care and achieving universal health coverage. Safe surgery is a relatively nascent issue and has often been neglected in global health discourse. Without adequate literature on proven approaches in resource-constrained settings, governments and global health funders have been hesitant to invest in safe surgery in low- and middle-income countries. Corporate foundations, however, are uniquely positioned to take the upfront risk of funding.

Many funders share the misperception that improving surgical care is too expensive due to the scale and nature of investment needed to improve health systems, including equipment, workforce, and infrastructure. However, it is critical to emphasize that surgical care, when made safe and accessible, is not only highly impactful, but also represents very high value for money. Studies have shown that investments in surgical care can lead to reductions in disability and death, with economic and social benefits far outweighing initial costs.[3] We've seen this through our work at SS2020, where our initial investment has made surgeries safer and more accessible for the tens of millions of people who can now be served by SS2020-enabled facilities.

I am deeply proud of what SS2020 has accomplished in the last five years. As one of the few funders involved in improving global surgical care, GE Foundation has been on the forefront of innovation. SS2020 uses a model that addresses the deep-rooted barriers to universal access to safe surgery and builds solutions from the ground up by partnering with local governments, implementers, and experts. Our approach seeks to change systems, addressing not only the gaps in surgical care and hospital capacity, but also the underlying gaps in workforce development, infrastructure, and policy. We knew that a lasting, impactful solution would require an approach that addressed the entire health ecosystem, with benefits that surpass improvements in surgical procedures. Our programs have thus been able to spark change in three countries by driving the implementation of national strategic plans for safe surgical care, training greater numbers of healthcare professionals and—especially—full surgical teams on delivery of safe surgery, and

3 "Cost-Effectiveness of Surgery and its Policy Implications for Global Health: A Systematic Review and Analysis," The Lancet Commission for Global Health, 2014.

FOREWORD

testing context-specific innovations. Our work has enabled mothers facing complications in childbirth to access life-saving caesarian sections and, in turn, has likely contributed to reducing both newborn and maternal mortality rates.

We decided that SS2020 would be a time-bound effort designed to gain a greater understanding of what could be achieved in the space of five years. While SS2020 has seen remarkable success to date, we cannot solve this challenge alone. Our programs have been able to reach only a fraction of the five billion people who currently lack access to surgical care—we need more partners to help deliver the 143 million more surgical procedures that are needed each year to save lives and prevent disability. Our programs have proven that when funders are willing to invest in universal safe surgical care, they can unlock benefits not only for individual patients, but also for whole societies. In many cases, local governments are already in the process of taking ownership of scaling our programs. Moving forward, I hope that our model provides an example of what sustained action can look like. In the future, I hope to see an even larger coalition of funders and implementers working together to bring access to safe surgery to the five billion people who need it.

David Barash, MD
Executive Director, GE Foundation

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1. WHY SAFE SURGERY

Surgery is a critical component of universal healthcare, but for too many it is out of reach.

Surgery has the power to prevent diseases like stroke, treat cancer and chronic conditions like osteoarthritis, help patients overcome debilitating disabilities like cataract-induced blindness, and is essential to emergency care, including treatment of trauma and complications from childbirth. But today, five billion people around the world—about two-thirds of the global population—lack access to safe, affordable surgical and anesthetic care.[4] In resource-poor regions of the world, the absence of safe surgery is particularly stark: 93% of people in sub-Saharan Africa and 97% of those in Southeast Asia are unable to access basic surgical care.[5] For these people, hospitals are too far away, procedures are too risky, and the cost of surgery is often beyond their means. As a result, the majority of the world's people are vulnerable to living with treatable disabilities or at risk of dying from treatable conditions. An estimated 143 million more surgical procedures are needed each year to save lives and prevent disability.[6] In fact, it is estimated that surgery could have prevented 16.9 million—or one-third—of all deaths that occurred worldwide in 2010.[7]

Even where surgical care is available, too often these procedures harm where they should help.

Surgery remains a dangerous undertaking throughout much of the world: at least seven million patients are harmed by surgeries annually and one million die during or immediately after an operation; half of these cases are considered preventable.[8] In low- and middle-income countries (LMICs), the death rate during major surgery is a shocking 5 – 10%,[9] while high-income countries have mortality rates of just 1 – 2%.[10] Sadly, maternal deaths associated with caesarian sections are 100 times higher in LMICs than in high-income countries.[11] Poor practices during and after surgery can lead to infection or can directly cause perioperative death. For example, an untrained healthcare worker can accidentally administer a lethal dose of anesthesia in a rural hospital, or poor adherence to best practices before, during, and after surgery can lead to patient death from infection.

4 "Global Access to Surgical Care: A Modelling Study," The Lancet Commission on Global Health, 2015. **5** Ibid. **6** https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(15)60160-X/fulltext **7** "Report Overview – Global Surgery 2030: evidence and solutions for achieving health, welfare, and economic development," **8** "The Second Global Patient Safety Challenge: Safe Surgery Saves Lives," WHO, 2009. The Lancet Commission on Global Health, 2015. **9** Ibid. **10** "Excess Surgical Mortality: Strategies for Improving Quality of Care", Weiser, TG and Gawade, A, 2015 **11** "Maternal and perinatal mortality and complications associated with caesarean section in low-income and middle-income countries: a systematic review and meta-analysis.", Sobhy S, Arroyo-Manzano D, et al. The Lancet. 2019

> Accessible, safer surgery saves lives, yet not enough champions of this cause have stepped forward within the global health community.

While the scale of impact that safe surgery could bring about is apparent, little attention has been dedicated to the issue. One of the reasons for this neglect is that improving surgical care involves systems-level change that requires tackling financial and political barriers as well as overcoming gaps in infrastructure and human capital. Hospitals must be staffed by nurses, doctors, and surgeons with appropriate training and tools; these hospitals also need adequate access to infrastructure such as reliable power, sewage systems for waste treatment, and to information technology, including internet connectivity that enables electronic medical records and data collection. These systems-level issues can often be perceived by funders and implementers as too daunting to tackle. However, addressing these issues not only improves surgical care, but all health care delivery too.

2. WHAT WE DID

ESTABLISHING SAFE SURGERY 2020

To address these critical challenges to global health, a group of partners with unique skill sets in the global health space launched the Safe Surgery 2020 (SS2020) initiative in 2015. GE Foundation committed a catalytic USD 25 million in funding. **Dalberg** joined to coordinate implementation across the three key partners. **Jhpiego**, an affiliate of Johns Hopkins, leads on strengthening and supporting surgical teams by providing technical and essential people skills training and mentorship support. **Assist International** drives new solutions to top-priority surgical gaps in resource-poor countries by finding and supporting innovators with funding, training, and mentorship, as well as providing much needed infrastructure upgrades and equipment donations. **Harvard Medical School's Program in Global Surgery and Social Change (PGSSC)** helps countries develop strategic plans to improve surgical care, and conducts evaluations of SS2020 programs to ensure impact and identification of the most effective practices.[12] Finally, our work is enabled by a host of local partners—health ministries, hospitals, universities, and local implementers and professional associations—who lend SS2020 their expertise and understanding of the local context.

FIGURE 1: SAFE SURGERY 2020 PARTNERSHIPS

IMPLEMENTING PARTNERS

LEAD PARTNERS

COUNTRY PARTNERS

CAMBODIA ETHIOPIA TANZANIA

FUNDED BY

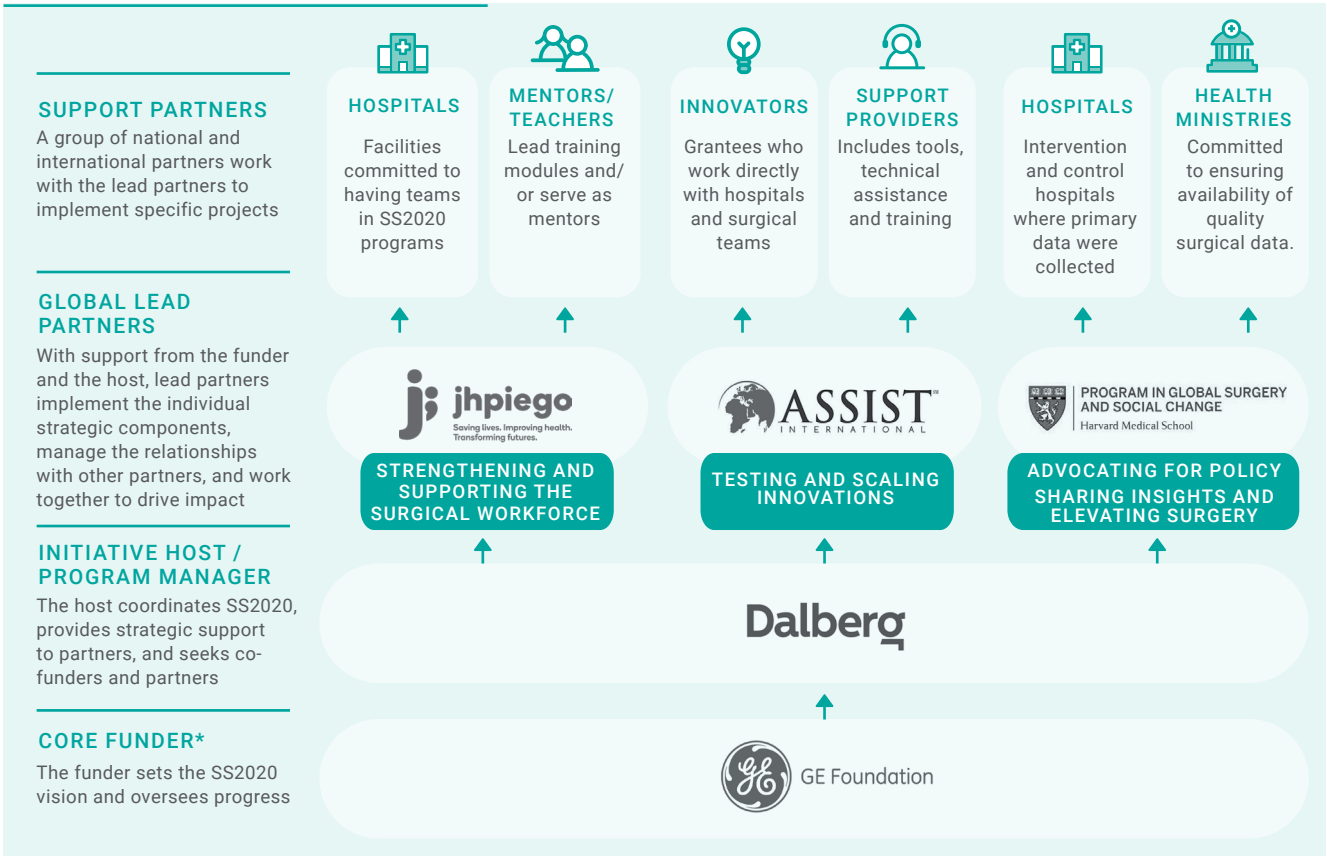
From the beginning, we had a clear goal: increase access to quality, affordable surgical care, particularly in areas of the world where this access is almost nonexistent. By doing so, we sought to prevent complications and deaths caused by surgically treatable conditions as well as unsafe surgical practices. While SS2020 aims to bring access to all, we place extra emphasis on mothers, who often face surgically treatable complications in childbirth, and children, who can avoid lifelong suffering and loss of productivity by receiving surgical care in childhood.

Our aim was to develop and test a model that is replicable in low-resource settings. We focused particularly on resource-poor contexts where governments wanted to prioritize surgery, as these are the places that have the highest unmet need and provide fertile ground for the success of our programs.

THE SAFE SURGERY 2020 MODEL

No organization alone can solve the challenges to providing safe surgical care. Solutions must be designed to address ineffective systems. SS2020 was designed as a multi-component program. We understood that strengthening surgical services required improving systems and fundamentally changing the way care was delivered, by whom, and to whom, in order to ensure

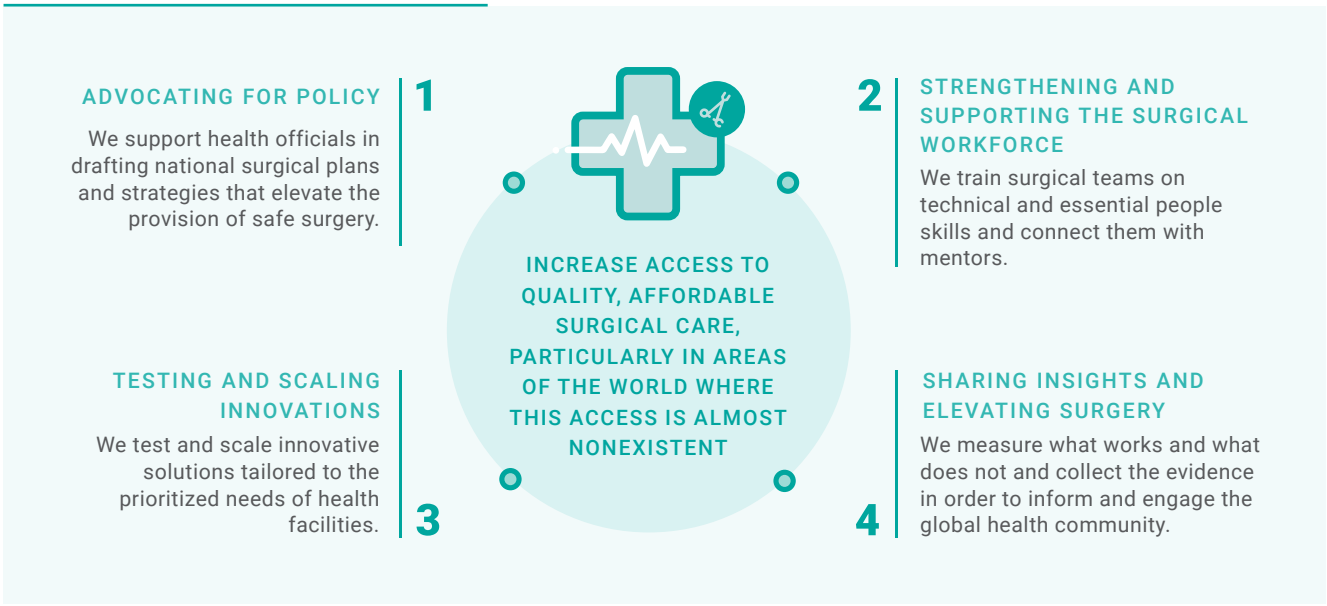
FIGURE 2: SAFE SURGERY 2020 MODEL



* Some specific programs were also co-funded by ELMA Philanthropies and Grand Challenges Canada

that access was not only expanded but is also more equitable. This represented a move away from traditional vertical programs which singularly focus on a narrow field of issues affecting a particular area of health. After conducting extensive research and consulting experts in healthcare, policy, and strategy, we settled on an approach that holistically addresses root causes of inadequate access to surgical care. To drive change, SS2020 focused on four key elements of our systems-change approach.

FIGURE 2.1: SAFE SURGERY 2020 MODEL



1 **Advocating for policy**

To focus on the most needed elements of safe surgery and for our impact to last beyond the conclusion of our programs, we partnered with policymakers who could make safe surgery a national priority and foster a favorable enabling environment. We worked together with health officials to draft national surgical plans and strategies that elevated the provision of safe surgery and outlined core elements of action. For example, we supported the Government of Tanzania in developing its first **National Surgical Obstetrics and Anesthesia Plan (NSOAP) 2018 – 2025**.

2 **Strengthening and supporting the surgical workforce**

To strengthen the surgical and anesthetic care workforce, we developed technical and essential people skills through training. Technical skills trainings focused on skills such as conducting safer caesarian sections, anesthesia care, equipment sterilization, and repair of biomedical equipment. We also trained surgical teams on correctly using the WHO Surgical Safety Checklist to standardize safe processes. Essential people skills trainings focused on qualities necessary for strong, effective teams, including leadership, teamwork, communication, problem-solving and mentorship skills. We connected experienced professionals to surgical team members through a structured mentorship process to help them continue to build their leadership skills and take on quality improvement projects at their hospitals. Throughout, we

used a “train-the-trainer” model to develop local experts to cascade and disseminate trainings nationally.

3 **Testing and scaling innovations**

We innovated on processes that support development of surgical teams in LMICs. We introduced blended mentoring that combines in-person mentoring with a tele-mentoring platform, Project ECHO, which connects surgical teams in district-level hospitals to more experienced colleagues in higher-level referral facilities. This setup allowed partners and trainers to continue mentoring on a low-dose, high-frequency basis. However, to close the existing gaps in safe surgical care, we also need to address gaps in infrastructure, equipment, and capacity. We have tested solutions tailored to specific health facility needs, based on highest priorities within a facility as determined by that facility. This includes a variety of quality improvement projects. Where hospitals faced infrastructure barriers, we supported them to address these barriers. In one facility, we supported construction of a new walkway to the operating room, which enabled patients to be safely wheeled there and then to the recovery ward after surgery. We also supported development of two self-sustaining medical oxygen plants in Ethiopia through a public-private partnership.

4 **Sharing insights and elevating surgery**

SS2020 was designed as a quasi-experimental study backed by appropriate academic rigor. To assess the impact of our programs, we took a rigorous approach to monitoring and evaluation. We measured not only outputs, such as number of medical professionals trained, but also outcomes, such as the rate of surgical site infections or maternal sepsis. We employed mixed research methods, enriching the quantitative data with qualitative data to build a holistic picture of the context and impact of our programs. We have also supported health ministries and hospitals in developing systems for collecting surgical care data as part of routine health data collection. Over time, we have shared our findings in a number of **publications**.

We used a phased approach to sustainably grow a global presence.

SS2020 recognized at the outset that delivering large-scale change would require a targeted approach that avoided “boiling the ocean,” or attempting to solve all the issues of inaccessible safe surgery at once. We recognized the need to focus on countries where the need was high, the local government was keen on improving, and local partners were available to support implementation. Over five years, we expanded our activities across three countries—Ethiopia, Tanzania, and Cambodia—ensuring that we transferred our insights from one country to the next while still fitting each program to each country's specific contexts. Our ultimate goal was to transition programs over to the respective ministries of health and local implementing partners after building the necessary infrastructure to enable operations.

> Safe Surgery 2020 has helped us strengthen our **Saving Lives Through Surgery** national plan by providing expertise and additional resources. We now have strong legislation in place to elevate the importance of this issue and ensure the government's health activities are aligned."
>
> **Ethiopia Ministry of Health official**

SUCCESS STORY 1 / ETHIOPIA

In the beginning, I didn't think I would survive. I was so scared that I waited seven days before having my baby. I was told that I wouldn't be able to give birth naturally—the baby was face first, and I needed an operation to give birth. At the time, my two older sisters were with me. The doctors explained that they needed to sign a consent form. My eldest sister refused at first, when I told her it was in case I died in the operation. But my other sister said, "No, you won't die. You will hold your baby in your arms." The doctors spoke with my eldest sister and told her I would die without an operation. She was crying when she signed the form.

Within thirty minutes, I was taken care of. The pain went away, and I couldn't feel anything anymore. The doctors were saying, "Stay with me, joke with me." I was joking with them, and I didn't realize what was happening—but when I saw my baby, I could feel something. I couldn't understand how they got the baby out. I had no idea surgery was like this.

I would tell others, if you want to have a child like I did, you won't have any trouble—you will have a healthy baby. For me, it is an unending joy. I feel like I was given another chance at life. Like I was reborn.

Rahel, new mother Tigray, Ethiopia

TIMELINE OF EVENTS 1/2

2015

The Lancet Commission on Global Surgery publishes a study finding that 5 billion people around the world lack access to safe surgery.

GE Foundation commits to building surgical capacity globally and the idea for SS2020 is born.

GE Foundation convenes a diverse set of partners to design the SS2020 partnership that will drive this work.

On May 22, 2015, the 68th World Health Assembly unanimously passes resolution 68.15 on strengthening emergency and essential surgical and anesthesia care as a component of universal health coverage.

SS2020 launches at the UN General Assembly with USD 25 million in seed funding from GE Foundation.

2016

SS2020 launches in Ethiopia, a country not only with significant unmet need, but also a committed government and many partners looking to collaborate. SS2020 forms and formalizes a partnership with the Federal Ministry of Health and begins co-development of the Saving Lives Through Surgery (SaLTS) Plan as well as implementation of programs in Amhara and Tigray in Northern Ethiopia, in partnership with the regional health bureaus.

In 2016, **Ethiopia** reported only 0.54 surgical professionals for every 100,000 people, as compared to 54.7 in the United States; of the roughly 5 million operations needed each year, less than 200,000 were carried out due to a lack of necessary surgeons and healthcare workers. Source: World bank – specialist surgical workforce

2017

Operations expand to Tanzania, where SS2020 partners with the Ministry of Health, Community Development, Gender, Elderly, and Children (MoHCDGEC) and the President's Office, Regional Administration, and Local Government (PO-RALG) to co-develop the National Surgical, Obstetric, and Anesthesia Plan (NSOAP) and launch programs in Mara and Kagera in the country's Lake Zone.

Tanzania
0.46 surgeons per 100,000. Maternal mortality is a particularly pressing issue, as, in 2016, 539 mothers died per every 100,000 births. When launching in Tanzania, SS2020 began to focus more heavily on maternal, newborn, and child health to align with the government's priorities and build out training programs on safe caesarian sections. Source: World Bank – specialist surgical workforce, maternal mortality ratio.

In Ethiopia, the Federal Ministry of Health begins scaling training of surgical leaders nationwide.

TIMELINE OF EVENTS 2/2

2018

SS2020 begins to scope opportunities for expansion in Asia, conducting research and consulting experts to determine the country focus and needs.

Cambodia ranks very low in availability of surgical care, at #146 out of #192 countries. 419 procedures are performed per 100,000 population, compared to 21,397 and 5,527 procedures per 100,000 population in USA (#2) and South Africa (#44) respectively (World Bank Database, Asia Pacific Observatory on Health Systems and Policies, 'The Kingdom of Cambodia Health Systems Review', 2015).

SS2020 launches and develops a Center of Surgical Excellence in Cambodia's Calmette Hospital.

2019

The Touch Surgery app and Project ECHO integrate technology into program delivery in Tanzania, enabling virtual training for surgical professionals and remote mentorship of healthcare workers.

The Amhara Oxygen Center launches in Ethiopia, enabled by a groundbreaking public-private partnership.

SS2020 formalizes its partnership with the Cambodian Ministry of Health.

SS2020's Ethiopia programs transition to the Ministry of Health, which assumes responsibility for oversight and further implementation.

2020 ONWARDS...

Continued transition of programs to Ministries of Health and local partners, alongside sustainability roadmaps.

Continued engagement with potential partners, including funders and implementers, to take forward initiatives that improve surgical care.

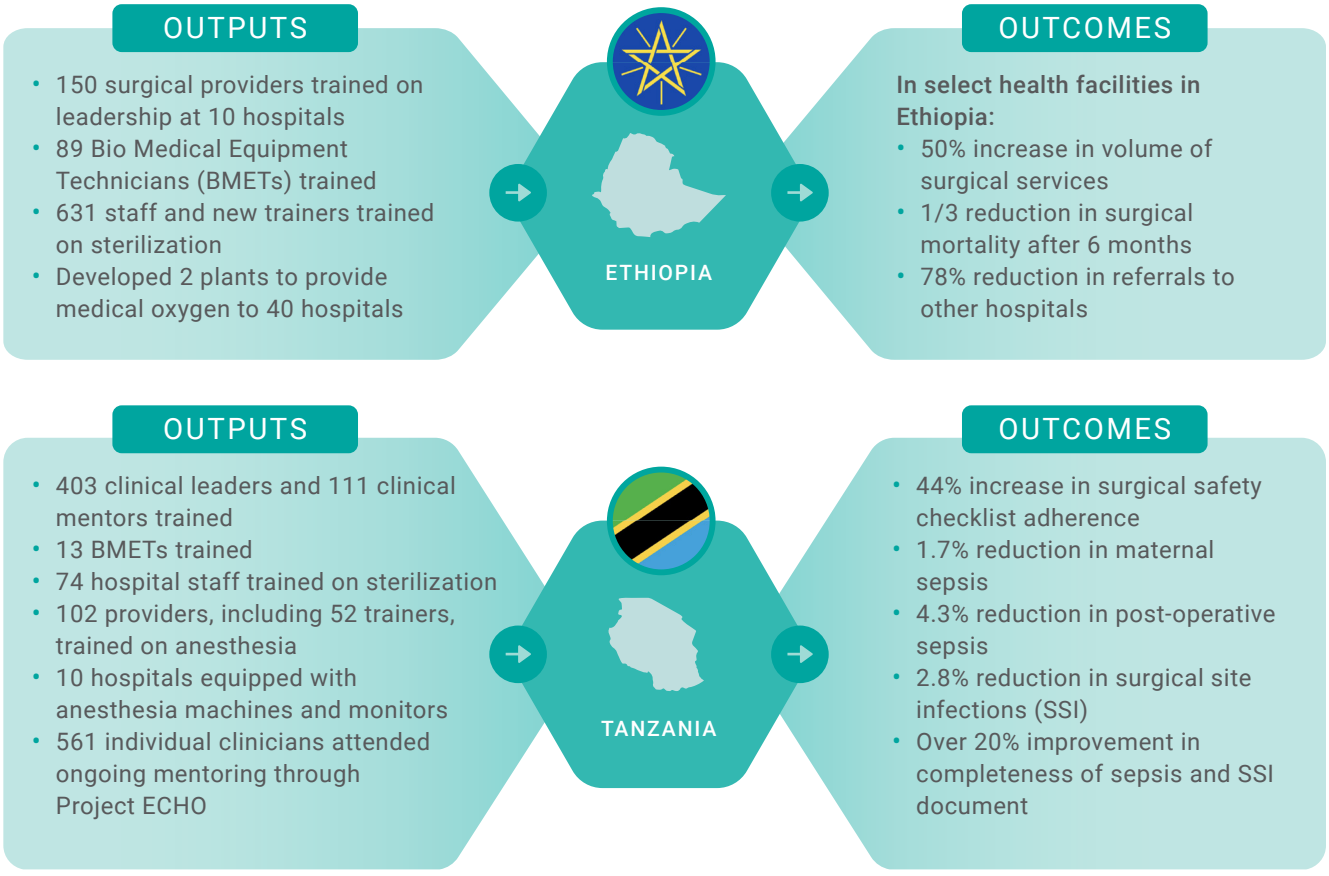
THE RESULTS

> To date, SS2020 has touched the lives of tens of millions of people across three countries.

With the goal of bringing safe surgery to all, SS2020 implemented a phased approach, with activity beginning in Ethiopia in 2016. In 2017, SS2020 launched in Tanzania, and in early 2019 in Cambodia. In these countries, we have partnered with the respective Ministries of Health (MoH) to develop national strategies for surgery, train surgical teams to improve the quality and safety of surgery, and piloted innovations to overcome resource barriers.

Rigorous, ongoing measurement is critical to understanding and expanding our impact. Experimentation, learning, and adapting are key aspects of our approach. In designing interventions, SS2020 committed to a strong monitoring and evaluation system to drive accountability and continued improvements. Harvard Medical School's PGSSC led the monitoring and evaluation process, collecting and analyzing data to determine the most effective practices.

FIGURE 3: HOW OUTPUTS TRANSLATE TO OUTCOMES*



*Cambodia results pending.

3. WHAT WE LEARNED

After five years of working toward universal access to safe surgery, we would like to share our findings to help guide further action. While our efforts have seen success in the three focus countries of Ethiopia, Tanzania, and Cambodia, we know much more must be done to achieve worldwide accessibility to safe surgery. We see SS2020 as a catalyst for global change—a proof of concept that enables greater funding, larger-scale programs, and increased global commitment to help millions of people live full, productive lives. Our work has not only enabled us to reach tens of millions of people, but it has also taught us valuable lessons that others can use as they continue to improve access to safe, affordable surgical care.

Our observations fall into three overall categories: 1) program design, monitoring, and evaluation; 2) partnerships, and 3) advocacy.

3.1 PROGRAM DESIGN, MONITORING, AND EVALUATION

Adaptability and iteration are crucial to program design

Flexibility must be woven into both the design and implementation stages to allow for healthy growth and natural evolution. As we built SS2020, we knew that we needed to account for three variables: 1) inefficient systems, 2) local context, and 3) execution via a multi-stakeholder partnership. We identified pain points in surgical systems—including a lack of supportive policy, poor infrastructure, and gaps in human capital and funding. We then developed a comprehensive approach by consulting experts to ensure that our programs were tailored to the local context. Nevertheless, we came as close as we thought we could to putting together a well-designed intervention only to realize that there were a host of variables for which we could not have accounted before we began implementing. For example, training program timelines had to be changed to account for a month of holidays or extended to reflect the time it took to recruit local mentors and allow them to travel to each hospital site.

Just as important as formulating an initial hypothesis is the ability to recognize that it may be wrong and quickly re-calibrate. As SS2020 has grown, we have realized the importance of entering countries with an openness to the possibility that our initial program design may need to be changed—and, sometimes, completely overhauled—to reflect local realities. SS2020 was built not only to learn quickly, but also to adapt quickly, identifying challenges at the outset and adopting innovative approaches to tackle them. Because we trusted the SS2020 partnership to learn through implementation and integrate those insights into program evolution, we were comfortable looking for and solving flaws in our initial program design.

> Our government has committed to improving maternal and child health, and we have partnered with Safe Surgery 2020 to deliver on this goal. Safe Surgery 2020 trainings on safe caesarian sections have allowed Tanzanian mothers to recover more easily from complications in childbirth, and we have seen maternal mortality and surgical complications drop as a result." **Tanzania government official**

SUCCESS STORY 2 / TANZANIA

A 39-year-old woman was referred to us by another hospital. Once she arrived at Bukoba, she was immediately admitted to the surgical ward, where our doctors discovered that she had a severe infection resulting from surgery she had received at the previous hospital to treat peritonitis (inflammation of the membrane lining the abdomen and abdominal organs). At this point, she was confused and in pain, struggling with severe septic shock. Because of training provided by Safe Surgery 2020, the clinician was able to diagnose the infection and organize a team to manage the septic shock, later taking her to the operating theater to fix abdominal complications from the surgery.

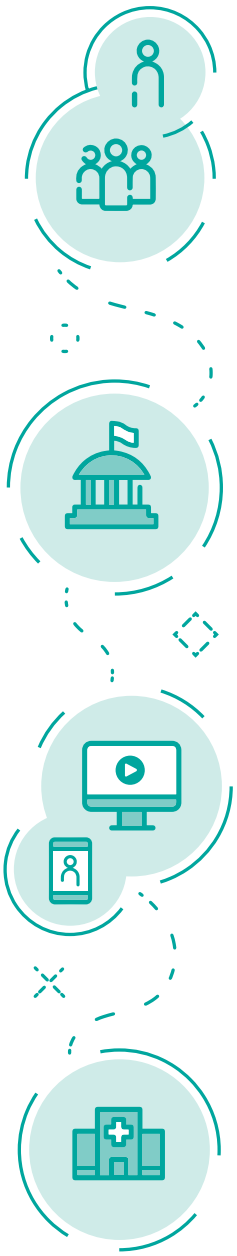
No one in her family thought she would survive. As medical professionals, our hospital staff now understands how crucial Safe Surgery 2020 was in saving her life. I can't even count how many patients I have witnessed suffering complications and even death from post-operative septic shock due to a lack of awareness, early detection, and immediate response on the part of hospital staff. Training by Safe Surgery 2020 has not only taught our staff how to detect and manage complications, but also emphasized the importance of pre-operative antibiotics, which has led to a dramatic decrease in post-operative sepsis in surgery patient.

Surgical care provider at Bukoba hospital

Lake zone of Tanzania

Bringing this lesson to life

Several challenges emerged only once implementation began, including persistent clinical skills gaps, a need for greater cost-efficiency across widespread geographies, and inadequate capacity for sustainability. Our programs are both long-running and designed to grow geographically, meaning that they are prone to encountering challenges unforeseen in the design phase. We, therefore, embraced flexibility and willingness to adapt as key principles throughout our operations, which allowed us to pivot and make the necessary changes to our model. Four overarching challenges, in particular, required us to shift our work as a partnership:



1. CLINICAL SKILLS GAP: In Ethiopia, we realized that leadership training alone was not necessarily giving surgical teams the skills they needed. As we expanded to Tanzania and Cambodia, we pivoted the focus of these trainings to include both leadership and team-based clinical / patient safety skills for surgical teams, and we iterated our mentorship model to ensure that surgical teams were getting more support in growing essential people skills for more effective coaching, teamwork, and decision-making. We also structured the mentorship program in Tanzania to deliver clinical / patient safety skills to the surgical teams, in addition to the essential people skills.

2. BEING AWARE OF CONTEXTUAL FACTORS THAT AFFECT PROGRAM SUCCESS: In all three countries, we had to negotiate with multiple levels of governance, often experiencing delays due to bureaucratic processes, which required flexibility in implementation timelines. Our interventions also interacted with general populations that often had low levels of health literacy. For instance, in Tanzania, where the program focused on reducing surgical complications, some surgical patients did not know how to take proper care of their surgical sites, leading to infections. We therefore recommended that the hospitals improve on showing surgical patients how to better take care of the surgical sites.

3. NEED FOR GREATER COST-EFFICIENCY ACROSS WIDESPREAD GEOGRAPHIES: In Ethiopia, we realized that we were unable to provide as much ongoing mentorship and supervision to our surgical teams after training as both they and we desired. Armed with this insight, we, therefore, sought to reduce the cost and demands of in-person training in Tanzania by integrating technology into the delivery model to allow for remote trainings and mentorship. We partnered with Project ECHO to provide interactive video-conferencing technology to support our mentorship and essential people skills development programs. We also tested the use of digital surgical trainings enabled by Touch Surgery application.

4. BUILDING ADEQUATE CAPACITY FOR SUSTAINABILITY: In Tanzania, we realized that we were not building enough concentrated capacity to ensure that the programs could be scaled and sustained cohesively. In Cambodia, therefore, we shifted to a hub-and-spoke model wherein a centrally located hospital could serve as the knowledge center that trained trainers to work with nearby facilities. This model enabled program expansion in other provinces while also contributing to a more efficient use of resources.

Practical tips for implementing this lesson

Co-design programs with others: Problems that require systems-level solutions benefit from consideration and integration of multiple perspectives: This process should happen both when designing global partnerships and local interventions. With SS2020, we realized that embracing convergent thinking and co-designing country programs, including with a country's Ministry of Health, would strengthen our operations. Throughout the design process, we also kept in mind potential local partners who could eventually carry out our programs independently (e.g., professional associations). For example, in both Ethiopia and Tanzania, we worked closely with the surgical and anesthesia societies when designing and implementing our programs, including leveraging their capacity as trainers. At the global level, we used our equal-input decision-making model to help co-create an integrated partnership where each organization could use their comparative advantage.

Learn from existing programs and leverage existing platforms: Interventions are most impactful when they complement and improve existing activities, both in terms of programming and in integration of lessons learned. During the initial design process, we mapped related country programs and platforms, as well as the potential linkages between them and our planned interventions, in order to maximize the degree to which our work was additional to existing efforts (and not simply duplicative or substitutive). For example, we undertook a rapid landscape assessment of the Lake Zone of Tanzania, which informed us of existing programs and helped us to design the program around the unmet needs. During implementation, we tried to leverage our understanding of the distinct facilities' cultures and existing practices to ensure higher adoption of the interventions.

Invest in understanding the realities on the ground: We engaged in facility-level research and with Ministries of Health to ensure that our programs were designed to best leverage the available resources. For example, by accommodating the need for translations in certain provinces or by gauging the amount of available time surgical teams had for taking part in trainings. In Tanzania, we adapted the WHO surgical safety checklist to suit the local context, which enhanced its uptake. The need to translate it into Swahili became clear, given that not all members of the surgical teams were proficient in English. We also conducted feasibility field studies and used human-centered design principles to craft, test, and iterate on our interventions. These informed our understanding of the dynamics between local institutions, such as universities and hospitals, and helped us form more effective partnerships.

Sequence interventions in a way that supports effective implementation: In Tanzania, we trained surgical teams on leadership skills before clinical skills. However, we learned that training on clinical and patient safety skills first could have helped the teams develop better safe surgery quality improvement (QI) plans, which teams work on during leadership training. Similarly, ensuring that teams had baseline data before developing the QI plans would have helped teams focus on the most important issues to address.

“All of us have increased our knowledge and [have] begun to play the role of a leader [after the trainings on leadership and teamwork]. Each of us is skilled in something. If we work together, we can achieve something big.”

Surgical Provider,
Calmette Hospital, Cambodia

Allow adequate time for learning, pivoting, and building local capacity: We created opportunities for learning as we implemented the program: As we tested different models, we sometimes needed to pivot in our approach. We learned the importance of setting aside adequate time for learning and pivoting during implementation. Flexibility should be built into the implementation timeline to allow for testing of different approaches and implementation of any necessary course correction. In all the three countries, we also invested in building local capacity, e.g., engaging local professionals and mentors and adopting a train-the-trainer model to ensure that skills were passed on and improved results could be sustained.

Sustain advocacy to cultivate buy-in: While level of interest was one of the criteria we used to select facilities for intervention, buy-in for the program (especially prior to implementation) was not uniform. We therefore had to invest in advocating for the program with hospital leadership and surgical teams. As administrators and care providers became more familiar with the interventions, they could perceive the potential value, which increased buy-in. We also shared baseline and evaluation reports with individual hospitals, which motivated them to improve. Our evaluation results show that facilities that demonstrated higher levels of buy-in performed better.

The most effective M&E efforts adapt alongside programs

Partnerships may face pressure to begin implementing programs before defining the best way to measure their impact. For SS2020, our M&E was intended both to allow for real-time use of data at facilities and among partners as well as to generate broader programmatic insight for the field on what works and what does not. Given the desire to produce impact quickly, though, it was critical that the initial design phase balanced the establishment of an effective M&E model with the need for timely implementation. This meant allowing adequate time to design an appropriate M&E system, while being conscious of the need not to unduly delay implementation. As our program was designed as a quasi-experimental study to test approaches to improving access to and quality of surgical care in low-resource settings, we needed to ensure that SS2020's M&E design had adequate academic rigor.

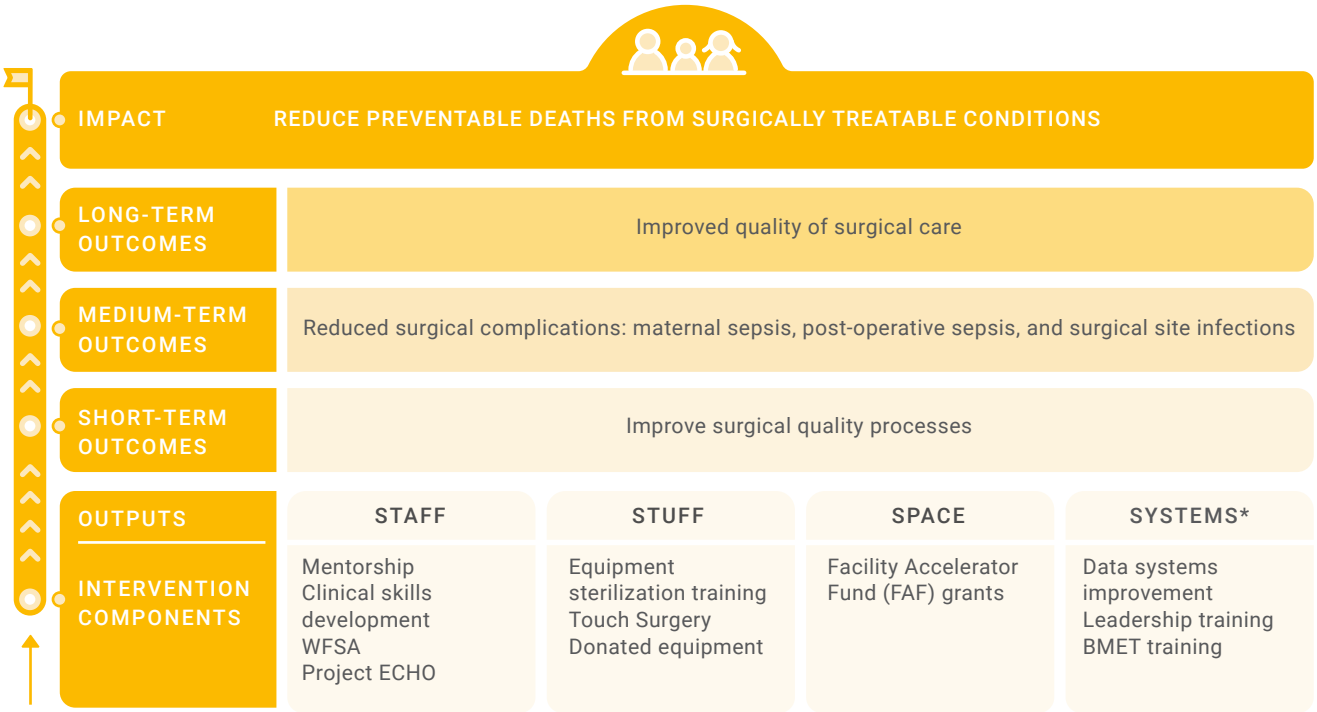
As programs evolve to fit the realities on the ground, so, too, should M&E. M&E efforts should be as adaptable as the programs themselves, or else measurements can be ineffective or inadequate. After launching in Ethiopia, we found that while the initial design of our programs changed to match the local context, our M&E design did not. We had adapted our theory of change and, therefore, the impact of our work could not be effectively measured by the indicators our original M&E plan outlined—i.e., increasing surgical volume alongside patient safety and reducing outward referrals at intervention facilities. We shifted our approach in Tanzania and spent more time up front analyzing the measurable impact we were likely to have—and adjusted both our theory of change and M&E indicators simultaneously to ensure harmony between them. Flexibility in M&E approach is particularly important as programs scale, as new countries will present different contexts that may require a change in programmatic approach.

In tailoring our M&E, we also realized that meaningful understanding of impact within a short timeframe required a mix of quantitative and qualitative measures. SS2020 programs build both technical surgical team skills and essential people skills such as leadership and teamwork and communication skills, but initially our M&E indicators did not account for both. While quantitative measurements such as the rate of surgical site infections or the volume of patients referred to other hospitals are critical to understanding how training affects the patient experience, they often tell only a part of the story. We found that qualitative measures were more effective in explaining, for example, how leadership training led to the establishment of a blood bank in an intervention hospital. To further improve our programs, we tailored our M&E to elevate these qualitative measurements and gain a fuller understanding of the impact of our work.

Bringing this lesson to life

We use different metrics to understand how our activities translate into better health outcomes. These metrics have evolved over time and are calibrated to match the realities on the ground based on what can feasibly be measured in certain program timeframes, as well as what is possible under our country-specific theories of change. For example, as our Tanzania program took shape and we defined the implementation timeline, we deliberately pivoted from an initial focus on high-level impact measures to process measures that would manifest within the implementation timeframe. We recalibrated our overall theory of change, pivoting away from surgical volume as quality emerged as the core focus of our program. Our M&E work seeks to understand how our activities on the ground translate to better health outcomes.

FIGURE 4: SAFE SURGERY 2020'S THEORY OF CHANGE IN TANZANIA



*Dr. Paul Farmer first used this framework (staff, stuff, space and systems) to describe components of a robust system of healthcare. More details about this framework can be found here

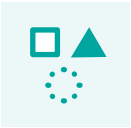
“After the training we understood that we could solve the problems by ourselves and we first bought an ultra-sound and so we could provide solutions by ourselves. They have started to operate on cases which they were afraid to operate before, they were very critical cases. That has made them work together and learn from each other… including holding seminars, presentations and so on”.

- Surgical team member, Ethiopia

> **"There is no safe surgery without data collection."**
> Dr. Gizwa, surgeon, LemLem Karl Hospital, Ethiopia

We implemented our M&E efforts to allow for real-time use of data at facilities and for broader programmatic insights. As data became available at the facility level, surgical teams began analyzing and discussing data during their meetings. For instance, in Tanzania, the surgical teams began discussing data on complications (post-operative sepsis, maternal sepsis, and surgical site infections) in their weekly meetings and were therefore more conscious of the quality improvements they needed to make to reduce the complications.

Practical tips for implementing this lesson



Design pragmatically: Systems change takes time and is not easily measurable; it can be challenging to show impact in compressed timelines. To counter this, develop metrics that examine impact in the short, medium, and longer terms, and acknowledge that short-term success may be measurable only at the output or immediate process or outcome level. Additionally, aim to find a balance between ambition and the realities of the program's scope of influence—for example, invest in developing tools for national expansion of programs only after conducting feasibility studies and receiving signaling from local partners that widespread, timely adoption is expected.

Recognize the role of timely data collection: Create routine data review meetings (e.g., monthly or quarterly, which we varied between depending on the pace of data output over the course of the program) so that the project team can make data-informed changes in as close to real time as possible. For example, we used data collected in Ethiopia to create a dashboard that our team discussed on a monthly basis. Technology is an essential component—being able to electronically collect and visualize data through dashboards can enable interventions to become more responsive and adaptively manage and can facilitate course corrections as needed.

Be aware of potential backlash from stakeholders: Instigating data collection efforts at the hospital level can lead to backlash among staff. For example, improved data collection can illustrate that the operating room is not as effective as originally estimated or highlight underperformance or substandard practices in a health facility. Data collection can then become a tool for blame rather than learning, with staff feeling threatened and potentially in fear of losing their jobs. In our intervention hospitals, we emphasized the need to use the data positively, for quality improvements, rather than as a tool for recrimination. We prepared the surgical teams' mindset that as data became available, the situation would likely look bad—with surgical complications more visible—before

things improved as intervention effect kicked in. It was essential that data collection and M&E workshops became safe spaces to learn so that providers did not feel an additional burden of being criticized.

Build local M&E capacity: Sustainable, continually improving programs require timely and accurate data. Early on, we recognized the need the need to ensure that local partners owned the M&E, perceived its value, and viewed it as their responsibility. Furthermore, participation in the program required time and commitment from providers who already had heavy workloads. To ensure continuation of M&E efforts after adoption by local partners, we invested in training and building local capacity for data collection. In Ethiopia, we worked with the Federal Ministry of Health to develop 15 key performance indicators that can be collected periodically, a number of which the Ministry incorporated into its national Health Management Information system (HMIS) indicators. In all the three countries, we have also trained facility teams on data collection. For instance, in Tanzania, the intervention facilities have wall charts to capture routine data. They also send in their monthly data forms via WhatsApp for data to be entered into District Health Information Software 2 (DHIS2). We also learned the value of bringing facilities together to discuss experiences, share best practices, and learn together.

3.2 PARTNERSHIPS

Selecting country partners to drive program success

To ensure lasting impact and improved systems, local partners should co-lead programs and adopt them over time. Our ultimate goal is to hand off our activities to local partners—ministries of health, university hospitals, or other implementing organizations such as professional societies—in the countries where we operate. Organizations like these are the natural home for SS2020 programs, as their local operations and expertise can enable not only the sustainability of programs but also continued scaling up. We were careful to select countries of operation where local partners were ready and willing to elevate safe surgery, as well as co-develop and eventually adopt the interventions. This was a key reason why we began our country programs in Ethiopia, where we knew the Ministry of Health had interest and was willing to collaborate and commit resources.

Commitment from proximal country partners enables program objectives to be achieved. Realization of our program objectives required commitment from our government and country partners, given that some aspects were outside our program's scope. For instance, while we taught surgical providers to give pre-operative antibiotics 15 – 60 minutes prior to surgery to prevent infection, it was the government's responsibility to ensure that the right antibiotics were available at each facility. We, therefore, needed government's commitment to improve the supply chain system to complement our efforts.

“Thanks to the training, the clinician knew he was dealing with an SSI and septic shock... Her [the patient's] relatives didn't expect her to survive... Without losing a single minute, he organized a team....We are [now] always prepared".

Surgical provider, Bukoba Regional Referral Hospital, Tanzania

Significant commitment should be made to understand the interests, operations, and desired roles of ministries of health. To better understand the local context, design interventions, and plan for sustainability, ministries of health should be consulted and included in the co-creation of programs. Forging strong relationships with these entities requires forming a deep familiarity with the Ministry, its staff, and its operations. To gain this understanding and in order to build credibility, we looked for champions within our Ministry of Health partners. This also allowed us to engage with other key actors to gain a deeper understanding of priorities and to set shared expectations for our collaboration. We then worked closely with these champions to co-design our programs, select intervention sites, learn and adapt over the course of the programs, and drive sustainability planning toward the end of the programs.

Our growth has shown us that while ministries of health can act as natural inheritors of safe surgery work, so, too, can other local partners. Besides the ministries of health, there are multiple pathways to sustainability. Over time, we have seen that other actors, such as surgical societies, major health facilities, and university programs, can lead adaptation and ensure sustainability. Having champions in these institutions, as well, is critical to long-term impact. For example, we are experimenting with this model in Cambodia, where our work is supporting the "hub" of learning and activity at Calmette Hospital in Phnom Penh to ensure sustainability.

Bringing this lesson to life

Because the landscape of local partners and realities on the ground vary by country, we use unique local partnership models. The setup of the healthcare sector is unique to each country and can determine the extent to which SS2020 co-develops interventions with the Ministry of Health and the different core partners and roles in implementation.

In Ethiopia, we formed a strong partnership with the Federal Ministry of Health and built on their pre-existing interest in safe surgery. Before SS2020's involvement, the Ethiopian government had already begun to develop the Saving Lives Through Surgery (SaLTS) strategic plan and had committed funding to improving the necessary infrastructure for safe surgery and anesthetic care. The then Minister of Health was also a vocal supporter of improving global surgery and anesthesia. This set of conditions created a fertile ground for our programs and ensured that we had the necessary momentum when starting, as well as a strong partner in the FMoH.

In Tanzania, we aligned SS2020's work with the Ministry of Health's goal of improving maternal and child health. Tanzania has struggled to improve health among mothers, infants, and children. The most recent data from 2016 show that for 100,000 live births, 539 women died—a figure greatly in excess of the global maternal mortality ratio of 214 per 100,000.[13] Improving these outcomes is a top-line priority for the government; accordingly, we focused our programs on improving maternal and child health by introducing components such as clinical training in safer caesarian sections. In addition to the Ministry, we partnered with the President's Office, Regional Administration, and Local Government (PO-RALG), which has the national mandate to coordinate

13 World Bank Data – Maternal Mortality Ratio.

implementation of programs and manages district and regional health facilities. We have also partnered with teaching universities, e.g., in anesthesia training, to support the country-led efforts to improve training of surgical care providers.

In Cambodia, we explored different pathways to scale and sustainability and built a partnership with a leading hospital. The Calmette Hospital, located in the capital of Phnom Penh, is a leading healthcare institution and is among the largest and most well-equipped facilities in Cambodia. In addition to state-of-the-art facilities and a well-trained surgical workforce, Calmette Hospital had a pre-existing model that provided training and mentorship to other hospitals across Cambodia's provinces. Given the need to ensure that we had a natural hub from which the interventions could be launched and promoted to district hospitals (spokes), Calmette's capacity made it an ideal anchor for SS2020 programs.

Practical tips for implementing this lesson

Expect leadership fluidity: Advocacy plans must account for the likelihood of leadership turnover in government: One of our focus countries cycled through three Ministers of Health within three years, requiring us to rebuild political support at top levels throughout the duration of the program. Efforts should include building government infrastructure to carry out programs even after key champions have departed. We had to invest effort to continually advocate for the prioritization of surgery with incoming leadership teams.

Establish a champion (or ideally champions) and maintain engagement: Each partner or consortium should have a single liaison within the Ministry or local partner organization; this will improve coordination and efficiency. Similarly, the Ministry teams should designate a single program lead to coordinate activities relating to surgery and anesthesia. All stakeholders, however, should be kept informed of ongoing activities at every stage. In each of our countries, we worked through a single point of contact in the Ministry of Health, which helped streamline efforts and empower the Ministry to lead. This is a critical component of gaining trust in the program and eventual support for the sustainability plan when adoption is nearing.

Build capacity for independent implementation: Insist that the Ministry or other local partner has dedicated resources and capacity to learn, support and implement programs. Ideally, this would include a seconded team of experts within the initiative and an internal team of dedicated Ministry or local partner focused on adoption and independent ownership of programs. Both senior and junior members should be engaged, as the latter are less likely to face turnover and can be equally effective champions.

Do not expect immediate or holistic adoption: Partnerships can pioneer programs and innovate in ways that government typically cannot. Budget pressure within ministries often translates into partial adoption of solutions, particularly in the short term. Due to budget flexibility and, often, encouragement by donors to develop and test new solutions, partnerships are best positioned to test interventions that can be adopted by government or other partners over time, as opposed to these actors developing the interventions themselves.

Engage trusted partners: To complement other efforts toward uptake of programs, it is essential to engage local partners that are trusted and can support relationship-building efforts. The credibility of a program can sometimes be judged according to the partners involved.

Innovative, unfamiliar partnership models require larger up front investments in trust building and transparency

We intentionally designed our partnership to diverge from the standard. SS2020 uses a flat partnership model in order to bring together organizations with different skills, experience, and approaches and give them equal decision-making power in program design and execution. Our model differs from the prime / sub-prime model most often employed in global health, where a funder designates a primary grantee who carries out a bulk of the implementation. In recognizing that safe surgery requires a systems-level intervention, we knew at the outset that no single organization could provide a holistic solution—many partners, offering distinct experience and comparative advantages, were needed to provide the critical components necessary for a comprehensive solution.

Because our model was new and unfamiliar, it took longer to establish an effective system for operations and communication among our partners. Initially, we did not fully recognize the tenacity of natural organizational silos, or the need to invest in breaking them. When we began operations in Ethiopia, SS2020 partners by default began to carry out their work using the operational tactics, communications channels, and local relationships that already existed within their organizations. We did not fully account for pre-existing organizational behaviors and the need to create a new, collaborative culture that would allow us to truly integrate across partners. As a result, our partners at the Ministry of Health and district hospitals were uncertain about each partner's role and whether we were even a single partnership, and we often missed opportunities to jointly advocate and build champions locally because we were each doing so independently and in an uncoordinated way. We realized that SS2020 needed to invest more heavily in collaboration, including by physically coming together more often to build trust and transparency, sharing a single calendar, and developing a joint messaging and communications strategy. With entry into Tanzania and Cambodia, we were more intentional in ensuring that the programs were co-designed and that implementation efforts were aligned across the partnership, leveraging shared resources like mentors to make implementation more efficient.

As our programs have evolved, so has our partnership. Over time, our partnership has grown more cohesive and effective as trust deepened and collaboration improved. We invested in building a SS2020 culture that articulates the value of the collective and brings together partners more regularly to discuss, plan, and share. We did this through shared annual retreats that allowed us to set a single, joint strategy and way of working; through monthly cross-partner workstream calls to focus on different shared goals around advocacy, program implementation, and M&E; and through greater cross-partner program management tools like file and calendar sharing. When SS2020 launched in Tanzania, partners conducted hospital visits together and convened more regularly to share updates, leading to the more integrated program that launched in Cambodia in 2019. Additionally, each country team held either bi-weekly or monthly calls—often facilitated by the host, Dalberg—to discuss emerging issues and make program decisions. Because SS2020 pivoted to making intentional investments in trust building, partners have come to see the value of collective decision-making and strategizing and to realize that there

"This is my first time participating in training. All learnings have been very important. Last night I was on duty and I noticed all the things about my practice that I was not doing well. After this training, I was thinking, "I can wash my hands better, I can change the flow of the room." Although I cannot achieve 100% of what I learned, I will do my best to apply as much as I can."

Participant of Safe Surgery 2020 training on sterilization in Cambodia

"I was delighted to find out in my mentorship visit, three months after training, that three cleaners in maternity and emergency ward had already brought about multiple tangible changes in their layout including installation of three sinks [as per guidelines] in their facility, for enhanced standards of sterilization."

Equipment Sterilization Training Lead

"I would like to summarize shortly about [the impact of] SS2020. The checklist—we had it since 2013 but we didn't follow it fully. We just did it without all of the heart. And we didn't know the importance of it. After the training, we can see the importance of it if we follow everything in the checklist. It will help us to have safe surgery."

Surgical care provider, Calmette Hospital

SUCCESSES IN CAMBODIA

"Safe Surgery 2020 was critical in uncovering the multiple aspects of surgery that go unnoticed within and outside the operation theatre. It helped us think about a systems level change, from need for surgical data collection and analysis at the administrative level to team work amongst surgeons, midwives and cleaners within the operation theatre for better outcomes. MOH will continue to raise awareness around these factors in the future" **Cambodia Ministry of Health official**

are aspects of implementation that other partners can bring to strengthen our overall program. The impact that SS2020 has achieved illustrates that through collaboration our partnership can achieve greater impact than each partner can alone.

Bringing this lesson to life

SEE FIGURE 1 ON OUR PARTNERSHIPS MODEL

Case study – Integrating SS2020 trainings in Cambodia's Calmette Hospital: As SS2020 prepared to move into Southeast Asia in 2019, our partners had come to fully appreciate the benefits of co-creation and co-execution. There was a willingness to collaborate and co-develop the program in Cambodia by more fully integrating partners and sharing resources. Through working closely together over the past four years, the partnership has gained a strong understanding of each individual partner's programs, approach, and curricula. Our training programs were therefore calibrated toward integration between different trainings. For example, Touch Surgery—a digital tool that uses surgical simulations to help develop the surgical workforce—was introduced alongside the clinical trainings led by Jhpiego. This approach allowed trainees in Cambodia to experience first-hand, on-the-ground training and augment their lessons through a digital component. By intentionally integrating our programs, collaboratively employing available tools, and playing to the strengths of each partner, SS2020 has evolved to become a more effective initiative.

Practical tips for implementing this lesson

In choosing partners, make sure aspirations align and cultivate transparency: A shared vision and attitude among partners, and recognition of the need to partner, is critical. We were fortunate with SS2020 to have a set of partners, and individual leaders within each partner, who truly believed in the power of partnership to improve access to safe surgery. This meant that everyone in the partnership was willing to test out this new partnership model and to learn and adapt during the early days. In addition, we realized the importance of transparent communication across partners in order to ensure that everyone was on the same page and that we understood each other's motivations and constraints.

In forming strong partnerships, build in time spent together: It takes time and energy to build trust across organizations, and investing in this can help ensure efficiency later. Coordinating partners should intentionally create opportunities for the team to come together for discussion, discovery, and creation. Regular communication should be established from the beginning, with the whole partner team discussing progress monthly or semi-monthly. Physical time together can quickly help to bridge gaps between partners—field visits provide opportunities for partners to travel together and explore realities on the ground, informing co-creation of interventions.

3.3 ADVOCACY

Advocacy can shift the narrative toward country ownership

While the nascency of safe surgery required advocacy at both the global and country levels, we found greater impact by building momentum locally. When we began our work, safe surgery was just emerging as a pressing issue, with relatively few resources and advocates. To increase the issue's profile, we used a dual top-down and bottom-up approach, employing complementary advocacy efforts at both the global and country levels. This meant convening global stakeholders at events such as the UN General Assembly and World Health Assembly as well as working alongside ministries of health, bridging local and global partners in the search for new champions. We also hosted more intimate conversations, inviting stakeholders in surgery and anesthesia to share their reflections, brainstorm on ways to continue elevating surgery, and advocate for more action on making surgery and anesthesia safer. At the country level, it was much easier to anchor the push for safe surgery in local health priorities—such as maternal and child health or combatting non-communicable diseases—which helped counter the nascency of the issue. Advocacy efforts at the country level therefore offered a more clear and tailored value proposition to local partners, leading to more movement at the country level than the global one.

By emphasizing the role of local leaders at the forefront of our programs, we created an incentive for local sustainability and scale. In co-developing our programmatic efforts with ministries of health, academic institutions, NGOs and other implementers on the ground, we ensured that local leaders were at the forefront. In communication on SS2020's achievements, we emphasize the critical role local leaders play in creation and implementation. This strategy has allowed SS2020 to evolve into a more country-owned and -led partnership; recognition of the leadership of country partners has helped motivate their continued work and has provided an incentive to sustain programs. Emphasis on the role of country partners has also allowed SS2020 to take a lead in shifting the narrative among global health interventions, building toward a system where country partners with local knowledge and expertise lead decision making.

Bringing this lesson to life

Our advocacy has helped spur other countries to develop national surgical plans and helped position our partner countries as leaders to be followed and consulted. We have seen increased interest among countries to develop national surgical plans. Ethiopia and Zambia were among the first interested, followed closely by Tanzania. In supporting these countries, SS2020 has cultivated local champions who have been vocal about the need for policy to underpin intervention efforts. By elevating our work in global forums such as the UN General Assembly, SS2020 has generated new interest at the country level—governments (including those of Malawi, Kenya, Zimbabwe, and Nigeria) want to learn from SS2020 partners and have asked for support in developing their own plans.

Practical tips for implementing this lesson

Recognize that building awareness takes time: Even the most effective advocacy efforts will need time to build the profile of nascent issues. Global health is a crowded advocacy space, and introduction of "new" issues, such as safe surgery, may be met with skepticism and a lack of immediate, large-scale action. Advocacy efforts can weave safe surgery into the fabric of national health agendas but should account for the time needed to identify key audiences and test messaging. Communication leads should recognize that different messages and stories will resonate with different audiences, and therefore create diverse content that can resonate across target audiences.

Iteration and evolution are critical: Finding a single strategy that works is not enough, as the effectiveness of one message will decrease over time; teams should continue to test and implement new approaches to raise awareness among key audiences. In each iteration, teams should actively seek to avoid engaging with the same people and strive to reach new audiences who can bring in new perspectives and increase the potential to scale activities.

Build inter-linkages with different health priorities: Global health is a key area of international development and, as such, receives billions of dollars each year in dedicated funding. Health priorities, however, are currently broken into artificial silos. For example, disease prevention programs and funding are too often seen as distinct from surgical care. In truth, all aspects of global health are intertwined, and achieving universal healthcare means recognizing these interactions. To bring attention to our cause, we found that linking it to others—such as maternal, newborn, and child health—raised awareness and motivated those dedicated to that cause to support our work.

Leverage the advocacy strengths of partners: A key advantage of multi-stakeholder partnerships is that holistic advocacy can be greater than the sum of its parts. Partners can use existing channels and tactics that are tailored to their organizations, while the partnership as a whole can test new methods and expands those channels. Speaking as one voice, supported by partner organizations with experience and credibility, can lend greater weight to a movement.

OUR HOPES FOR 2020 AND BEYOND

In 2020, as many as 17 million people could die from conditions treatable with surgery.[14]

Surgery is an essential part of health systems and is required to treat many diseases, trauma, and obstetric emergencies. If we increased investment, it will reduce preventable deaths from surgically-treatable conditions. Increased investment translates into more mothers and newborns saved by timely, safe cesarean-sections, more cancer patients that are treated through surgery, and more trauma patients who can lead productive lives after surgery. SS2020 has impacted the lives of tens of millions of people, but it cannot singlehandedly address worldwide needs. To achieve universal access to safe surgery, and in turn move closer towards universal healthcare, we need to see greater commitment across many sectors and from many additional global partners.

As the new decade begins, we call on others to join the commitment to provide this life-saving care. SS2020 was built as a time-bound effort to demonstrate how relatively small investments can change systems. Our work has shown that such change is possible, and that improvements to surgical care can strengthen entire health ecosystems. The field needs more leaders who recognize just how critical safe surgery is and who are committed to providing resources:

GOVERNMENTS

across the globe must prioritize surgical care by developing enabling legislation, policies, and national surgical action plans, and by allocating national resources to surgical care.

IMPLEMENTERS

must recognize safe surgical care as a key component of global health, and incorporate into health programs, including those targeting maternal, newborn, and child health, universal healthcare, and non-communicable diseases.

FUNDERS

must make much-needed financial commitments to improving surgical and anesthetic care in a holistic and system-building way, rather than focusing on any one aspect of surgery or any one disease area that requires surgery.

14 "Report Overview – Global Surgery 2030: evidence and solutions for achieving health, welfare, and economic development," The Lancet Commission on Global Health, 2015.

OUR HOPES FOR 2020 AND BEYOND

Bringing low- and middle-income countries up to the safety and quality levels recommended by the Lancet Commission on Global Surgery will require at least USD 350 billion. This figure can appear daunting; however, small incremental investments will make a significant difference in the lives of people that need surgery most. For instance, with an investment of just USD 10 million, any of the following is achievable:

50

Support 50 countries in developing national surgical, obstetric, and anesthesia plans (NSOAPs)

70,000

Make safe c-section available to over 70,000 mothers

520

Train and graduate 520 specialist surgeons

3,000

Train and graduate over 3,000 nurse anesthesia providers

1,200

Equip 1,200 district facilities with anesthesia machines

The combined impact of lives lost, diminished productivity, and economic loss due to inaccessibility of surgical care surpasses most other clinical challenges globally. It is time to apply the required level of attention and resources to safe surgical care. **For funders and the global health community looking to see a strong impact return on their money and effort, safer surgical care is a smart investment.**

Safe Surgery 2020

Safe Surgery 2020 Impact Report

IMPROVING ACCESS TO SAFE SURGERY FOR MILLIONS OF PEOPLE AROUND THE WORLD

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info@safesurgery2020.org

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