

# 2021 **ANNUAL REPORT**

Saving lives through safer surgery

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Complications from surgery cause the deaths of four million people per year. The vast majority of these are preventable.

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**Lifebox was founded to tackle the global crisis of unsafe surgery.** By investing in tools, training, and partnerships, we address the critical gaps in surgical systems to make surgery and anesthesia safer worldwide.

This annual report details the final year of our 2018–2021 Strategic Plan, which focused Lifebox’s work on three core areas: **anesthesia safety, surgical teamwork, and reducing surgical infection**. Highlights of this plan include the distribution of 11,000 pulse oximeters: a critical tool for anesthesia safety -- as well as COVID-19, holding 70 training workshops for surgical teams, and publication of the results of Clean Cut - Lifebox’s surgical site infection reduction program - in the British Journal of Surgery showing it achieved **a 35% reduction in surgical infections**.

We are also immensely proud of the **Smile Train-Lifebox Safe Surgery and Anesthesia Initiative**, a groundbreaking partnership launched in 2020 with Smile Train, the world’s leading cleft-lip and palate organization. The Initiative elevates the safety of pediatric surgery globally and strengthens surgical systems as a whole.

Through the course of this Strategic Plan, Lifebox has expanded our global network to span **116 countries** and train **11,000 healthcare providers**, making surgery safer for **35 million patients**. Our close ties with anesthesia providers, nurses, surgeons, and critical care specialists around the world meant Lifebox was well positioned - and had an obligation - to respond to COVID-19.

At the onset of the pandemic, we consulted with our partners on what they needed and rapidly provided tools and resources for safe surgical, anesthesia, and COVID-19 care. This report details the key activities of this response from the development of **technical guidance, to the distribution of personal protective equipment (PPE) and oxygen resources, including 7,400 pulse oximeters**.

Lifebox depends on supporters across the world who share our vision of making every surgery safe. We are particularly grateful to Smile Train, The ELMA Relief Foundation, IZUMI Foundation, Stavros Niarchos Foundation (SNF), and UBS Optimus Foundation for their steadfast support

COVER PHOTO: Dr. Elizabeth Igaga, Anesthesiologist, Makerere University, Uganda

during the pandemic. We would also like to honor our dear friend Michael McCaskey, who founded the Lifebox McCaskey Fellowship Program to build clinical leadership in Ethiopia.

As we write, only 6% percent of people in low-income countries have received a first vaccination. We are enormously concerned for the health of our partners as vaccine inequity leaves many healthcare providers on the COVID frontlines unprotected across the world. **Our work to minimize the risks for providers and patients is more critical than ever.** We ask that you, our trusted Lifebox family, continue to support this life-saving work in the year ahead.

**This annual report is dedicated to our partners across the world continuing to provide essential care on the COVID-19 frontline. We are honored to work with you.**



A handwritten signature in black ink, appearing to read 'Atul'.

**Dr. Atul Gawande,**  
**Lifebox Chair**



A handwritten signature in black ink, appearing to read 'Kris Torgeson'.

**Kris Torgeson,**  
**Lifebox Global CEO**

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## Honoring Michael McCaskey

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Long-time Lifebox supporter, Michael McCaskey sadly passed away in 2020. Michael founded the McCaskey Lifebox Safe Surgery Fellowship to support the professional development of clinical leaders in Ethiopia. To date, 28 McCaskey Fellows have benefited from Michael's generosity. We are grateful for Michael's contributions to Lifebox and our thoughts are with his family and friends as we remember him.



# 2021: THE YEAR IN STATS



## 7,400

**pulse oximeters distributed** to frontline providers across **49 countries worldwide**



## 8,000+

**healthcare providers reached through 17 online events**



## FOUR

**research articles published with two accepted for publication**



## 75

**organizations partnered with around the world**



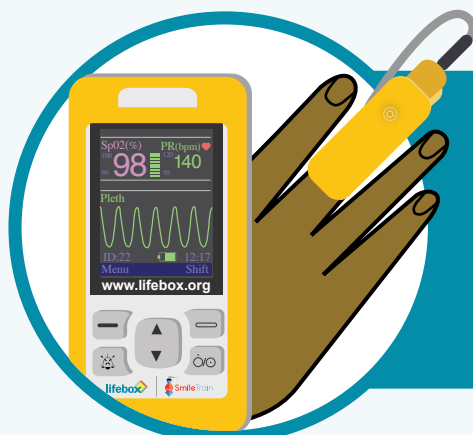
## 20

**workshops training 256 providers**



## 15

**Fellowships** supporting our safer surgery and anesthesia work



# 9.7M

**patients having safer surgery**



# GLOBAL COVID-19 RESPONSE

“Lifebox responded rapidly to COVID-19.

In the absence of good testing, being able to have a pulse oximeter on the finger of a person with a cough and detect those with low oxygen levels has proven to be incredibly important across the world, especially in places like Sub-Saharan Africa and Latin America where Lifebox operates.

With 7,400 pulse oximeters distributed thus far, work continues apace – with Lifebox doing incredible things at scale.”

**Dr. Atul Gawande,**  
**Lifebox Chair**



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Since the onset of the pandemic, Lifebox has supported our partners on the COVID-19 frontlines with tools and strategies to provide safe surgical, anesthesia, and COVID-19 care.

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**COVID-19 Preparedness:** Lifebox and partners published an article in the Annals of Surgery on preparing the surgical, obstetric, and anesthesia ecosystem of Sub-Saharan Africa for COVID-19 and held a Virtual Grand Rounds. Available in English, French, and Spanish this paper remains an important resource for surgical teams as the world faces continued surges of infection.

**Pulse Oximeter Use in COVID-19:** pulse oximeters play a critical role in COVID-19 care, enabling providers to identify severely ill patients and decide which patients need to be allocated precious oxygen resources. This year, Lifebox distributed more than **7,400 pulse oximeters to frontline providers across 49 countries** and supported providers with educational materials in multiple languages.



“I supported the distribution of 50 Lifebox pulse oximeters donated to the hospitals in Rivers and Bayelsa States in southern Nigeria for COVID-19 response. There is a shortage of medical equipment in Nigeria so these donations were important to help us provide COVID-19 care. In a COVID-19 patient, the respiratory system of the patient may be compromised. Pulse oximeters help us to screen and assess the oxygen saturation of patients.”

**Dr. Dabota Yvonne Buowari,**  
**Anesthesiologist, University of Port**  
**Harcourt Teaching Hospital, Nigeria**

**Reducing Risk of Infection:** shortages of PPE continue to put the lives of healthcare providers at-risk worldwide. Lifebox distributed **25,000 items of PPE across three countries** over the past year, supported its local purchase in two more, and developed guidelines on PPE Best Practice and its safe reuse with educational videos available in four languages, training workshops, and an open access online course.

With Smile Train and the World Federation of Societies of Anaesthesiologists, we developed the **COVID-19 Surgical Patient Checklist** to keep surgical teams and patients safe from infection. In collaboration with Jhpiego, we developed an online Train-the-Trainer workshop, training more than 100 perioperative providers.

**Innovation:** with partners like N95DECON and the Ethiopia COVID-19 Response Team, Lifebox is supporting innovations that tackle COVID-19. In Ethiopia we collaborated with N95DECON, the Optical Society of America Foundation, Addis Ababa Institute of Technology, and St.Peter's Specialized Hospital to pilot the use of UV-C irradiation to safely decontaminate N95 masks. The team engineered a closed cabinet system to deliver UV-C irradiation which is part of a pilot in 11 countries.

**Learning:** The **Lifebox Learning Network** launched in February 2021 and is providing training and COVID resources for healthcare workers worldwide.

Seventeen **Lifebox-led webinars** provided first-hand perspectives and guidance on frontline practice in the context of COVID-19 from clinical leaders in surgery, obstetrics, and anesthesia, reaching **8,000 providers**.

**Advocacy:** Lifebox is an active member of the Every Breath Counts coalition, advocating for critically needed investments in oxygen systems to stop preventable COVID deaths.

Lifebox conducted a global survey on perioperative provider safety during COVID-19 in collaboration with Smile Train and Jhpiego. The survey – which covered **230 hospitals and 539 perioperative providers across 63 countries** – found that in LMICs, 42% of surgical providers lacked routine access to essential PPE. More than half of the providers reported a moderate to severe shortage of N95 respirators, with more than 40% purchasing their own when available.

The **“Perioperative COVID-19 Report: Resources & Safety”** summarized survey results and offered recommendations to improve safety for perioperative providers during the pandemic. An online event on this topic was held in February 2021 and a paper titled “Perioperative Provider Safety in Low- and Middle-income Countries During the COVID-19 Pandemic: A Call for Renewed Investments in Resources and Training” has been accepted for publication in the Annals of Surgery.



# RESOURCES & PROCESSES FOR PERIOPERATIVE PROVIDER SAFETY IN LMICS DURING COVID-19

230 FACILITIES AND 539 PERIOPERATIVE PROVIDERS ACROSS 63 COUNTRIES



MATERIAL RESOURCE AVAILABILITY IN LMICS	PERSONAL PROTECTIVE EQUIPMENT (PPE)	PPE REUSE	TRAINING AND PROTOCOL USE	SAFETY
<b>% OF FACILITIES:</b> <b>31%</b> Experience moderate to severe shortage of anesthesia machine viral filters <b>26%</b> Have no viral filters <b>12%</b> Lacked pulse oximeters for all OR beds <b>34%</b> Lacked pulse oximeters for recovery beds	<b>% OF LMIC PROVIDERS:</b> <b>42%</b> Lacked routine access to essential PPE (surgical mask and eye protection) <b>51%</b> Reported at least a moderate shortage of N95 respirators <b>41%</b> Have purchased their own N95s	<b>% OF LMIC PROVIDERS:</b> <b>43%</b> Reported decontaminating & reusing PPE <b>10%</b> Reported reuse of N95s without reprocessing <b>8%</b> Were using unsafe methods for N95 decontamination (alcohol, bleach or soap & water)	<b>% OF LIC PROVIDERS:</b> <b>63%</b> Had not received essential training on COVID-19 OR protocols and PPE donning & doffing <b>72%</b> Were not routinely using OR protocols to minimize the risk of infection	<b>% OF LMIC PROVIDERS:</b> <b>33%</b> Reported feeling unsafe at work <b>68%</b> Stated their biggest fear in the workplace was personal, family or colleague infection <b>2-4x</b> More likely to feel safe at work if: • Trained in COVID-19 IPC • Used COVID-19 protocols • Had access to PPE

## RECOMMENDATIONS:

- Strengthen supply chains including availability of information on required specifications and pricing for HEPA/viral filters
- Directed donation of pulse oximeters to postanesthesia recovery areas
- Increase access to critical PPE and other protective equipment
- Provide guidance on the “wait & reuse” method for N95 & surgical masks, and inappropriate decontamination methods
- Support training on specific OR protocols and checklists for COVID-19 patients, as well as PPE and infection prevention control practices

Report of an international survey of LMIC facilities and perioperative providers on resources and processes during COVID-19, and recommendations

## COVID-19 RESPONSE IMPACT

An initial assessment of the impact of Lifebox’s COVID-19 response was completed with providers in Sub-Saharan Africa. This found:

**69%**  
OF PROVIDERS

reported that the Lifebox pulse oximeter improved their ability to care for COVID-19 patients.

**91%**  
OF PROVIDERS

reported that the Lifebox PPE resources improved their confidence in caring for COVID-19 patients.

**82%**  
OF PROVIDERS

reported that the COVID-19 Surgical Patient Checklist improved their confidence in caring for COVID-19 patients.

Thank you to Lifebox supporters, Smile Train, The ELMA Relief Foundation, IZUMI Foundation, Stavros Niarchos Foundation (SNF), and UBS Optimus Foundation for supporting our COVID-19 response.



# LIFEBOX GLOBAL COVID RESPONSE IN STATS:



## COVID-19 Surgical patient checklist

developed and trained over **100 surgical team members** in its use



## 25,000 items of PPE

distributed across **3 countries** & supported its **local purchase in 2 more countries**



## 200,000+

viewers reached through educational videos developed in **5 languages** on safe surgical & COVID-19 care



## 8,000+ Healthcare providers

reached through **16 webinars**



## UV-C decontamination

program piloted in Ethiopia



## 7,400 pulse oximeters

distributed to frontline providers across **49 countries worldwide**

# SMILE TRAIN-LIFEBOX SAFE SURGERY AND ANESTHESIA INITIATIVE

In December 2020 we launched the Smile Train-Lifebox Safe Surgery and Anesthesia Initiative in partnership with the world's leading cleft-lip and palate organization - Smile Train. This groundbreaking Initiative is a multi-year strategic partnership to elevate the quality and safety of cleft and pediatric surgery in more than 70 countries. Through capacity building, innovations, and research, the Initiative will strengthen the surgical systems of over 1,000 hospitals around the world.



## Initiative Highlights in Year One:

### **Supporting The Global COVID-19 Response:**

- Developing the COVID-19 Surgical Safety Checklist and supporting online Train-the-Trainer workshops to train over 100 perioperative providers across the globe.
- Distributing 5,361 pulse oximeters for essential COVID patient management.
- Supporting the Global Perioperative Provider Safety Survey to quantify critical gaps in equipment and protocols for perioperative providers in LMICs.

**Developing A “Capnography For Cleft” Tool Plan Of Action** for a low-cost, high-quality capnograph - a critical anesthesia safety tool.

**Piloting An Online Pulse Oximeter Train-the-trainer Workshop** adapted for cleft lip and/or palate to scale across Smile Train's global network.

**Launching The Initiative Online Learning Series** with 600 providers reached through the first three events.

**Dr. Atul Gawande Serving As The Initiative Global Ambassador** for year one, supporting the Initiative's strategy and vision.



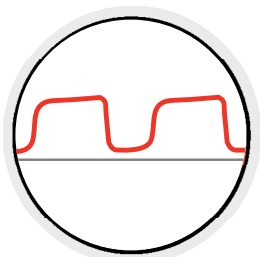
“I am so proud of Smile Train and Lifebox for this ground-breaking Initiative to elevate the safety of anesthesia and surgery worldwide. Together, these two leading medical organizations are strengthening surgical systems on a global scale. It will change lives. It will save lives.”

**Dr. Atul Gawande,  
Global Ambassador of the  
Smile Train-Lifebox Safe Surgery and  
Anesthesia Initiative,  
Lifebox Chair**

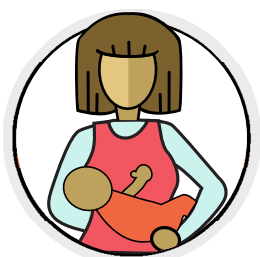
## KEY ACTIVITIES FOR YEAR TWO OF THE INITIATIVE INCLUDE:



**Launching the  
Lifebox-Smile Train  
Pulse Oximeter**



**Developing a low-  
cost, high-quality  
capnograph**



**Piloting Clean Cut for  
Cleft at three sites in  
Sub-Saharan Africa**

# CLEAN CUT IMPACT

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Lifebox's Clean Cut program reduces deaths and complications in patients caused by surgical site infections (SSIs) by improving adherence to six essential perioperative infection prevention practices.

To date, Clean Cut has been implemented in partnership with the Ethiopian Federal Ministry of Health at 14 hospitals across Ethiopia – **impacting more than 64,956 surgical patients.**

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**Demonstrated Results:** In September 2020, the results of Clean Cut were published in the British Journal of Surgery, showing a **35% reduction in the risk of SSIs for all surgical patients**. Importantly, for scalability across LMICs, Clean Cut requires no major investments in new infrastructure or resources.

**Clean Cut for C-sections:** We began adapting Clean Cut to improve the safety of C-sections, trialing the program in Ethiopia in partnership with the Ethiopian Federal Ministry of Health, the Ethiopian Society of Obstetricians and Gynecologists, and Ariadne Labs. In Ethiopia, where the majority of C-sections are considered essential surgical procedures, infections and complications following C-sections are estimated to cause **15% of maternal deaths**. Over the next two years, we will implement Clean Cut for C-sections at ten maternity hospitals to impact an estimated 8,000 women. This work is part of the Bill & Melinda Gates Foundation's Grand Challenges Initiative, funded by UBS Optimus Foundation.

**Scaling Clean Cut:** For the first time we scaled Clean Cut to other countries, implementing the program in Madagascar with Operation Smile, laying the groundwork for Clean Cut in Liberia with the support of Mercy Ships and the Stavros Niarchos Foundation (SNF), and adapting Clean Cut for Cleft at three sites in Sub-Saharan Africa in partnership with Smile Train.



# SUPPORTING SURGICAL SYSTEMS IN LIBERIA

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In 2020 Lifebox began supporting perioperative teams in five Liberian hospitals with training and essential tools. Only twenty surgeons, one anesthesiologist, and eighty nurse anesthesia providers address the large burden of surgical disease in the country.

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Working with Mercy Ships and the Liberian Ministry of Health, Lifebox is implementing a range of programs to **strengthen the safety of surgery and anesthesia** at Redemption, CB Dunbar, Phebe, Bomi, and C.H Rennie hospitals. Work began with Best Practice Personal Protective Equipment (PPE) workshops and will be followed by training workshops in Pulse Oximetry and the COVID-19 Surgical Patient Checklist.

Lifebox's goal of strengthening surgical systems is led by a small team of Liberian clinicians. With the support of Mercy Ships and the Stavros Niarchos Foundation (SNF), Lifebox will implement its surgical site infection reduction program – Clean Cut – at three hospitals in the coming year.



# TACKLING INEQUITY IN GLOBAL SURGERY

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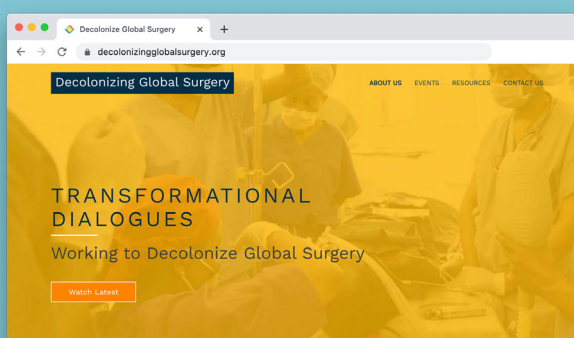
Lifebox is strongly committed to addressing inequities both within our organization and in the global surgery community. As a global team we have set ambitious goals for investing in staff, leadership, and innovation in the regions where we work to reduce our footprint in high-income countries. By 2024, 80% of the Lifebox team - including the majority of leadership positions - will be based in the Global South.

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## Transformational Dialogues

We helped found and remain an active member of Transformational Dialogues - a broad coalition of individuals and organizations from the global surgery community working to identify and address issues of neocolonialism and inequities in global surgery. Through dialogue, events, and research we are - together - working to find ways to decolonize global surgery. Find out more and join us at [www.decolonizingglobalsurgery.org](http://www.decolonizingglobalsurgery.org)

In November 2020, Lifebox co-hosted an online event chaired by Professor Emmanuel Ameh on “Transformational Dialogues Towards Decolonizing Global Surgery” with discussions on barriers to research and training to follow.

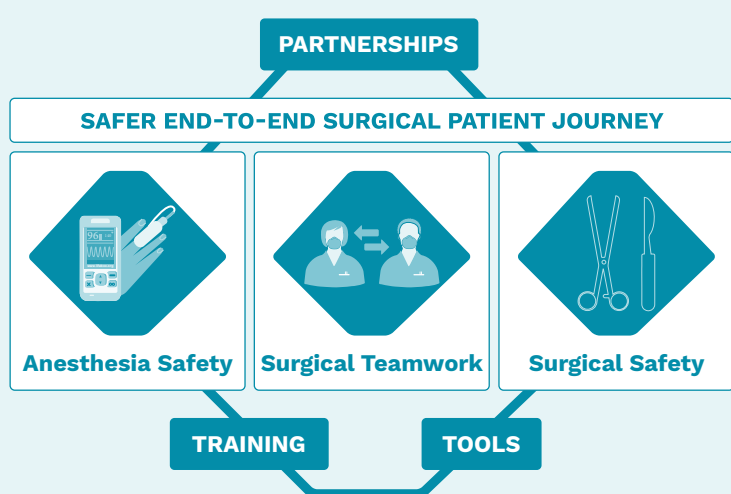


Find out more

# STRONGER TEAMS, SAFER SURGERY

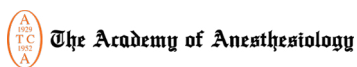
As we enter our tenth year, Lifebox is launching an ambitious new strategic plan to further our global work to make every surgery safe.

The 2021-24 Lifebox Strategic Plan targets the most critical moments in the end-to-end surgical patient journey by increasing the **quality and impact** of Lifebox programs across our three focus areas – safe anesthesia, surgical safety, and teamwork. The theme of this plan – **Stronger Teams, Safer Surgery** – puts **multidisciplinary teamwork** at the heart of our approach. We will work to strengthen the professions and processes – both within and beyond the operating room – that impact anesthesia and surgical safety.



Over the next three years we will work to achieve measurable improvements in the safety of surgery and anesthesia across the **end-to-end surgical patient journey for patients at 400 facilities in 20 countries.**

**A special thank you to all of our supporters for helping Lifebox make surgeries safer for millions of patients this year.**



UBS Optimus Foundation

# OUR 2020/2021 FINANCIALS

Every year Lifebox provides a global overview of its financial accounts by presenting the combined audited accounts of Lifebox Foundation USA and Lifebox Foundation UK. These provide the full financial picture of our funding sources and how your donations are being put to use. Our audited financial reports are publicly available and can be found on our website.

Lifebox is a non-profit organization and 83% of our financial resources are allocated to fulfilling our safer surgery and anesthesia work, 2% supports awareness-raising and 15% is spent on general management and development costs. Lifebox's fiscal year runs from April 1 to March 31.

OPERATING REVENUE	2020/21	2019/20	CHANGES
International Partners	\$1,050,392	--	\$1,050,392
Trusts and Foundations	\$2,057,897	\$504,895	\$1,553,002
Individual Donations	\$439,940	\$894,192	-\$454,252
Gifts in Kind, including pro bono support	\$104,721	\$126,287	-\$21,566
Currency Movement	\$0	\$92,934	-\$92,934
<b>TOTAL REVENUE</b>	<b>\$3,652,950</b>	<b>\$1,618,307</b>	<b>\$2,034,643</b>

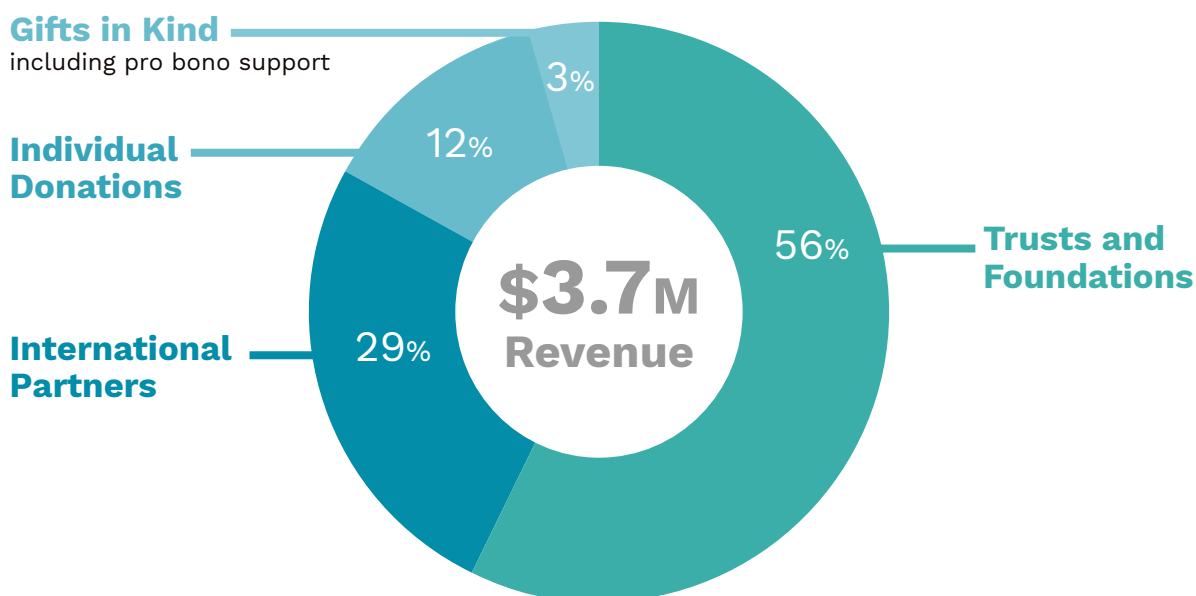
OPERATING EXPENSES	2020/21	2019/20	CHANGES
Program Expenses	\$2,563,460	\$1,192,249	\$1,371,211
Development	\$203,464	\$347,553	-\$144,089
Awareness-raising	\$52,650	\$6,456	\$46,194
Operations	\$247,928	\$106,197	\$141,731
<b>TOTAL EXPENSES</b>	<b>\$3,067,502</b>	<b>\$1,652,455</b>	<b>\$1,415,047</b>
Surplus/ Deficit	\$585,448	-\$34,148	\$619,595

NET ASSETS	2020/21	2019/20	CHANGES
Unrestricted Funds	\$959,661	\$651,345	\$308,316
Currency Reserve	\$57,950	\$174,897	-\$116,947
Restricted Funds	\$398,603	\$101,918	\$296,685
<b>TOTAL NET ASSETS</b>	<b>\$1,416,214</b>	<b>\$928,160</b>	<b>\$488,054</b>



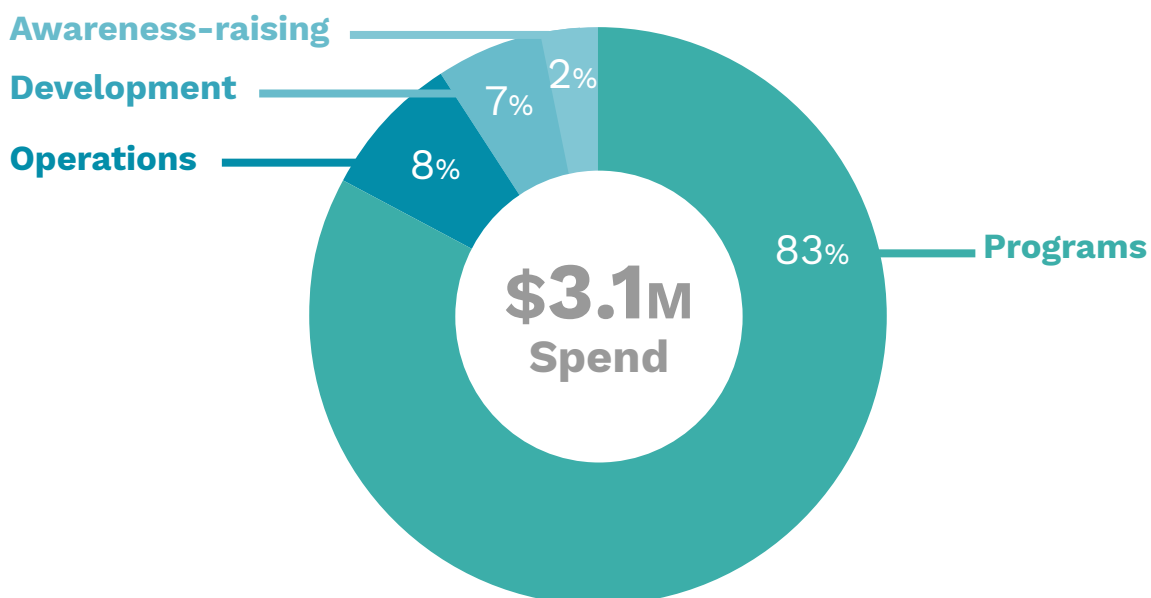
## REVENUE

Analysis of revenue



## SPEND

Analysis of expenditure



Note: These are the consolidated Lifebox annual accounts from audited Lifebox Foundation USA (including Lifebox Ethiopia) and audited Lifebox Foundation UK for the period April 1, 2020 to March 31, 2021.

# GLOBAL GOVERNANCE COUNCIL

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The Lifebox Global Governance Council, chaired by Dr. Atul Gawande, brings together decades of clinical, research, and resource management experience to govern Lifebox's global team and safer surgery vision.

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**Atul Gawande**  
Chair



**William  
Berry**



**Miliard  
Derbew**



**Angela  
Enright**



**Faye  
Evans**



**Alexander  
Hannenberg**



**Alex  
Haynes**



**Deborah  
Lotterman**



**Alan  
Merry**



**Pauline  
Philip**



**Nobhojit  
Roy**



**Susannah  
Schaefer**



**Isabeau  
Walker**



**Jason  
Yeung**



**Iain Wilson**  
Emeritus Trustee



## 2021 ANNUAL REPORT

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