

SAFE ANAESTHESIA WORLDWIDE  
TEN YEAR REVIEW  
2011-2021



# INTRODUCTION

Despite the great advances in the specialty of anaesthesia in recent years, millions of patients in developing countries still do not have access to a reliable anaesthesia service, especially when emergency surgery is required in remote and dangerous locations. Safe Anaesthesia Worldwide was founded ten years ago with the aim of improving the availability and safety of anaesthesia services to enable surgery to be performed without delay whenever and wherever it is required. SAWW is achieving these aims by supplying equipment and supporting education and research.

Anaesthetic related equipment is supplied, which is known to be reliable and cost effective under the difficult conditions commonly encountered in isolated situations in the developing world.

Support has been given to nurses, anaesthetists, and students from developing countries to enable them to attend meetings and courses and have been provided with textbooks, journals and teaching aids.

Research projects aimed at improving anaesthesia services have been supported. These have included the development of solar power to produce oxygen from the atmosphere and the introduction of storage tanks for locally produced oxygen.

The trustees express their appreciation to all those that have given their support and they hope to continue to make safe anaesthesia available whenever and wherever it is needed.

Roger Eltringham, Medical Director



Roger J Eltringham MBChB, FRCA  
Founder and Medical Director  
Safe Anaesthesia Worldwide

## OUR OBJECTIVES

Without anaesthesia there can be no surgery, yet in many countries the availability of anaesthesia remains a luxury. It was this scenario which prompted the formation of the charity Safe Anaesthesia Worldwide in 2011.

The objectives of Safe Anaesthesia Worldwide are to preserve and protect good health by the provision of suitable anaesthetic equipment to deprived areas of the world; and the support of research, education, and training to ensure its effective use, care and maintenance.

In 2015, the Lancet Commission on Global Surgery estimated that 5 billion people do not have access to safe, affordable surgical and anaesthesia care when needed. Most of these people live in low-income and lower-middle-income countries (LMICs), where nine of ten people cannot access basic surgical care.

Of the 313 million surgical procedures undertaken worldwide each year, just 6% occur in the poorest countries. 143 million additional surgical procedures are needed in LMICs each year to save lives and prevent disability. Many people die from easily treatable surgical conditions, including appendicitis, hernia, fractures, obstructed labour, congenital anomalies, and breast and cervical cancer.

As a result, there are around 16.9 million unnecessary deaths and countless disabilities each year. This figure is four times higher than the number of people dying annually from malaria, HIV/AIDS and tuberculosis combined. The lack of trained anaesthetists and suitable anaesthesia equipment in LMICs play a large part in making these shockingly high statistics.

# TIMELINE 2011-2021

2011

The inaugural meeting of Safe Anaesthesia Worldwide (SAWW) is held in Marden, Kent by Dr Roger Eltringham and local Trustees. Their aim is to deliver anaesthesia services to people in need.



2012

The first anaesthesia machine SAWW donates goes to South Sudan to the only anaesthesiologist serving a population of over 12 million people in one of the poorest countries in the world.



2013

Oxygen reservoir systems are donated to hospitals in Gambia and Liberia. These prove crucial for treating patients during an Ebola virus outbreak in Liberia and on paediatric wards in Gambia.



2014

Donations increase to provide specialist neonatal equipment to help sick and premature babies breathe. This equipment saves the lives of tiny, vulnerable patients in Gambia, Uganda and Tanzania.



2015

SAWW partners with SANSOM to bring about the first anaesthesia conference in Somaliland and subsequently donates 5 anaesthesia machines to hospitals in need in this country.



2016

SAWW hosts a reception at the World Congress of Anaesthesiologists in Hong Kong. SAWW founder and Director, Dr Roger Eltringham, receives a Distinguished Service Award from the WFSA.



2017

Research to generate and store oxygen produced from a concentrator using solar power wins the runner-up prize for Innovation from the Association of Anaesthetists.



2018

SAWW Trustee, Simon Brooks and a team from Benenden Hospital in Kent take anaesthesia equipment to Tanzania, train local staff on it, and fundraise by climbing Mount Kilimanjaro to boot!



2019

A second SAWW anaesthesia refresher course is held in the Kagera region of Tanzania. Nurse anaesthetists learn how to cope with emergency and trauma cases in remote hospitals with few resources.



2020

In response to the COVID-19 pandemic, SAWW focuses on providing vital oxygen equipment to treat patients in poorly resourced hospitals in low-income countries.



2021

Ten years on - time to take stock!

# IMPACT FIGURES

Over the past ten years, SAWW has worked to bring anaesthesia services to those in need. Our focus has been on providing:

- Safe anaesthesia and pain relief for women in labour to reduce unacceptably high maternal mortality rates.
- Appropriate anaesthesia equipment for remote low-resource locations to enable surgery for life-threatening or disabling conditions.
- Oxygen therapies for newborns and infants to reduce high rates of infant mortality.
- Portable anaesthesia equipment for emergency response to save lives of those affected by natural disasters or war.



31

countries received anaesthesia assistance



76

hospitals supplied with suitable equipment



43

anaesthesia machines donated to low-resource locations



22

CPAP breathing devices gifted to neonatal units



50+

collaborations with other organizations



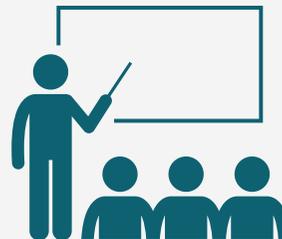
100

suction devices distributed to clear babies' airways



17

hospitals given oxygen supply equipment



200+

anaesthesia providers trained to improve skills



5

emergency responses to disaster situations



15,000+

patients treated with donated equipment

# IMPACT AND FEEDBACK

We estimate that equipment donated by SAWW has enabled the treatment of more than 15,000 patients that have included:

- Repair of cleft lip and palate in children
- Caesarean section for obstructed labour
- Repair of obstetric fistulae injuries from childbirth
- Hernia repairs
- Removal of malignant and benign tumours
- Treatment of wounds, fractures and burns
- Amputations
- Laparotomy, splenectomy, cholecystectomy
- Respiratory support
- Resuscitation
- Sustaining premature and sick babies



The CPAP equipment, with improvements in care and staff training, has reduced death rates of preterm babies from 52% to 11% in under three years. Photo (Courtesy of Born on the Edge) Mothers give Kangaroo care and CPAP to their preterm babies at Mbale Regional Referral Hospital, Uganda.

"The anaesthesia machine was really very important and changed our work. The equipment improved the hospital services and saved mothers' lives. It has helped more than 2,500 patients each year."  
**Abdikarim Yusuf Muse, Executive Director, Kaah Community Hospital, Somaliland**



“

You cannot imagine how many lives have been spared and saved by your valuable equipment.  
**Dr Jean Claude Bakonga Bataneni, Nebobongo Hospital, DR Congo**

”



"The equipment is used for most of our surgical patients. We estimate 1,800 in the past two years. With assistance from SAWW we created a Covid-19 isolation unit to care for patients with respiratory distress."  
**Fambombi Dickson, Bafoussam Baptist Hospital, Cameroon**

# IMPACT AND FEEDBACK



"We are so grateful for this unique equipment which makes it easy to care for babies and has made a significant improvement in their outcome. The equipment is in use every week."

**Prof Dr Jon Inipavudu Baelani.**  
DOCS-La Grace Hospital, Goma City, DR Congo

"The machine you donated did a great job for me as an anaesthesiologist. Patients are mainly very young children and need general anaesthesia. The equipment is in use every day and has helped 1500 patients".  
**Dr Richard Mwase, Mogadishu, Somalia**

Photo: Delivering anaesthesia to a six month old baby for repair of cleft palate.



“

Our missions serve patients who would otherwise go untreated. On our most recent surgical mission we carried out 278 surgeries on patients ranging in age from 2 to 90 years old.

**Dr Aba A Peter, Peace House Medical Missions, Nigeria.**

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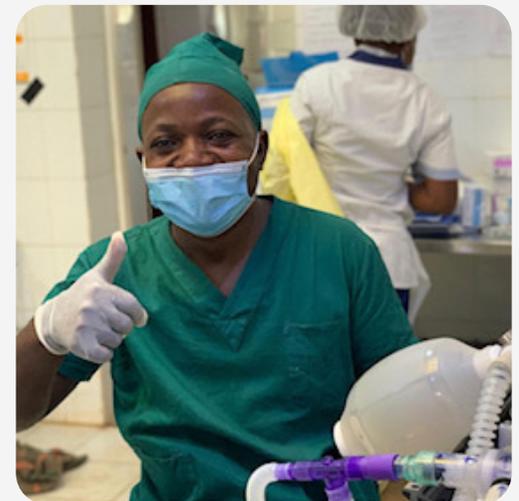


"The donated concentrators are supplying life-saving oxygen everyday. As well as Covid-19 the hospital is faced with the busiest time of the year with malaria, pneumonia and severe malnutrition cases that are overwhelming."

**Anita Smith MBE MRG, Bansang Hospital Appeal, The Gambia**

"The anaesthesia machine you donated is used by the anaesthetic nurses in the General Hospital in Beni. We will need a similar machine for the surgical obstetric centre we are building."

**Dr Reginald Moreels, UNICHIR, Democratic Republic of Congo**



# NOTABLE FIRSTS

The SAWW anaesthesia refresher course was the FIRST to be held in the rural Kagera region of Tanzania. Nurse anaesthetists from 16 hospitals attended the course to refresh skills on safe obstetric anaesthesia to reduce maternal and neonatal mortality. A second course focused on coping with trauma and emergencies in remote locations.



“

This is the FIRST time Somaliland will have an anaesthesia machine and trained technicians in every region of the county. It is a ground breaking project.  
Edna Adan Ismail, SANSOM Project, Somaliland.

”



SAWW has enabled some two hundred anaesthesia providers to attend conferences and engage in training. For many, it was the FIRST Continuing Medical Education (CME) they had ever received. CME is essential for maintaining and improving skills, knowledge and standards of healthcare.

Many hospitals in LMICs lack oxygen to treat patients. SAWW funded research to develop of one of the FIRST solar powered oxygen supply and storage systems. This system is now undergoing field trials at the St John of God Hospital in Sierra Leone where solar generated oxygen is used to treat paediatric patients.



There is rarely pain relief for women in labour in poor countries. SAWW aided research into the FIRST device to deliver inhaled analgesia without compressed gases, making it an affordable alternative to entonox (gas and air). This study was presented at the 2016 World Congress of Anaesthesiology in Hong Kong.

# APPROPRIATE EQUIPMENT

Many hospitals in LMICs lack functional medical equipment and this presents a major challenge for delivery of safe surgery and anaesthesia. Much of SAWW's focus has been on the provision of appropriate equipment.

## What do we mean by appropriate equipment?

Most medical equipment is designed to be used in well-resourced hospitals in wealthy nations. In poor countries, the scenario is very different. Hospitals have few resources, the electrical supply may be erratic and power cuts common; compressed gases are limited, expensive or even absent. Spare parts, accessories and essential consumables may be unobtainable or unaffordable. In these conditions, much sophisticated anaesthesia equipment fails to work or quickly breaks down and cannot be repaired.

Hospitals in LMICs need appropriate anaesthesia equipment that will work reliably in challenging, low-resource locations. Equipment needs to be affordable to run and easy to service using locally available technical skills. It is important that all donated medical equipment is selected carefully to ensure it is appropriate for use at the recipient hospital.

The World Health Organisation has estimated that as much as 80% of medical equipment in developing countries is not usable, compared to less than 1% of equipment out of service in high-income countries. This is a terrible waste of resources and ultimately non-functioning equipment means patients will die.

SAWW donates only appropriate anaesthesia equipment that is suitable for use in developing world hospitals. We supply specialist anaesthesia machines that can work in remote locations where medical facilities are extremely basic. This includes portable anaesthesia machines that are used by international emergency response organisations.

"We have expanded our services and are now able to carry out major surgical interventions requiring inhalation anaesthesia wherever we go for outreach in rural areas. Several anaesthetists who participate in our outreach have been dumbfounded when we unpack it on site."

**Dr Aba A Peter, Peace House Medical Missions,  
Nigeria**

Risks associated with delivering safe anaesthesia in low-resource settings are taken into consideration. Importantly, only appropriate equipment that is safe, effective and inexpensive to use and maintain is provided by the charity. Equipment is only supplied to end-users who are suitably trained to use it safely. Training and continuing support is provided wherever requested.

# APPROPRIATE EQUIPMENT DONATIONS

SAWW's primary focus is safe anaesthesia for essential surgery to save lives and prevent suffering. In the past ten years SAWW has donated 43 specialist anaesthesia machines designed to work effectively in poorly resourced locations. The equipment SAWW donates is selected for its reliability and suitability. Anaesthesia machines were often accompanied by patient monitors, pulse oximeters, capnographs, laryngoscopes, sphygmomanometers and stethoscopes.



In low-resource settings medical oxygen is expensive and in short supply. SAWW has donated equipment to improve oxygen supply to 17 hospitals to improve facilities and save lives. Donations have included oxygen concentrators, flow splitters, oxygen storage systems, Lifebox pulse oximeters, and oxygen analysers. SAWW prioritised oxygen provision in the face of the COVID19 pandemic. We also contributed to an oxygen generating plant built at Phebe Hospital in rural Liberia.

SAWW has donated specialist breathing equipment to treat and save the lives of vulnerable premature and sick babies in low-resourced locations. We have donated 22 life-saving CPAP devices (continuous positive airway pressure); 100 suction devices; and innumerable accessories for use in neonatal intensive care units.



SAWW has donated anaesthesia machines for mobile surgical clinics that serve poor patients in remote locations in Somalia, Cameroon, Nepal, Nigeria and Togo. The portable machines can be used in the most basic conditions. SAWW has also sent portable anaesthesia machines to treat casualties following disasters in Nepal, the Philippines, DRC, Cameroon and Syria.

# Where we work

SAWW's work has reached around the globe to assist anaesthesia services in 31 countries across three continents. So far, the following countries have received donations:

Bangladesh	Myanmar
Burundi	Nepal
Chad	Nigeria
Cameroon	Pakistan
DR Congo	Papua New Guinea
Ethiopia	Rwanda
Fiji	Somalia
The Gambia	Somaliland
Ghana	South Sudan
India	Syria
Kenya	Tanzania
Liberia	Togo
Malawi	Uganda
Malaysia	Zambia
Mongolia	Zimbabwe
Mozambique	



SAWW offers help to hospitals in predominantly low-income countries where need is greatest. These countries have poor infrastructure and limited resources, medical facilities, equipment and staff. There are few doctors and anaesthesia is commonly delivered by non-physician anaesthetists.

# PARTNERS AND VOLUNTEERS

SAWW has worked with anaesthesia professionals from around the world who have voluntarily shared their skills to provide training in low- and middle-income countries. All without exception have given freely of their time and covered their own expenses. We are extraordinarily grateful for their help.

Special thanks go to:

Dr Theresa Harbauer for her training and work at Haydom Lutheran Hospital, Tanzania.

Dr Dr Ylva Konsberg for her contribution to research on the solar oxygen project with Dr David Peel.

Dr Henriette Willigers for her crucial help in running and monitoring the SAWW anaesthesia refresher courses in Kagera, Tanzania, and for training staff on donated equipment at St Kizito Hospital Mikumi and Kilimanjaro Christian Medical Centre (KCMC).

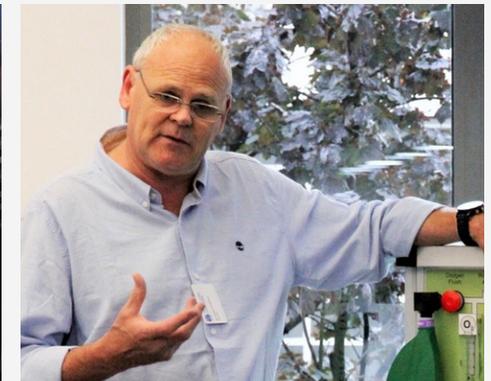
Philibert John Tegambirwa for instigating and organising the SAWW anaesthesia refresher courses in the Kagera Region of Tanzania.

Simon Brooks and staff at Benenden Hospital, Kent, for provision of equipment and training at KCMC, Tanzania.

Kathy Mellor, for delivering and training staff on donated CPAP equipment at DOCS La-Grace Hospital, Goma, Democratic Republic of Congo.

Dr Catriona Bentley for training on anaesthesia equipment donated to Kiziguru Hospital, Rwanda.

Jon Meek and Robert Neighbour of Diamedica (UK) Ltd for their constant support and training on equipment donated by SAWW.



# COLLABORATIONS

Whenever possible, SAWW works with other organisations to bring help to those in need. Joining forces ensures we make the best use of our funds and avoids duplication of efforts by those working in the same field. In the past ten years, we have collaborated successfully with some 50 different charities, professional bodies, universities and other organisations. It has been an honour to collaborate with like-minded groups around the globe.

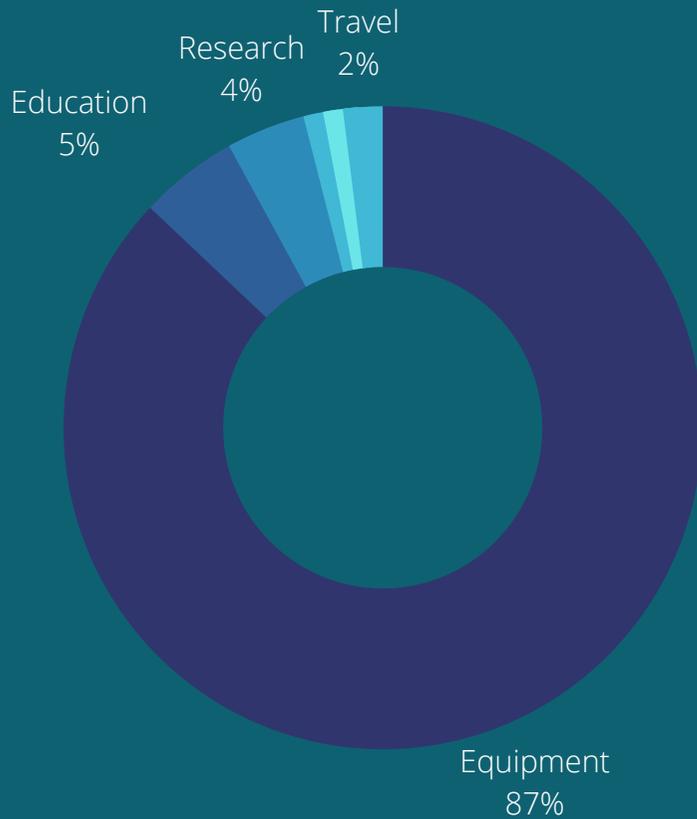


# SUPPORTERS AND DONORS

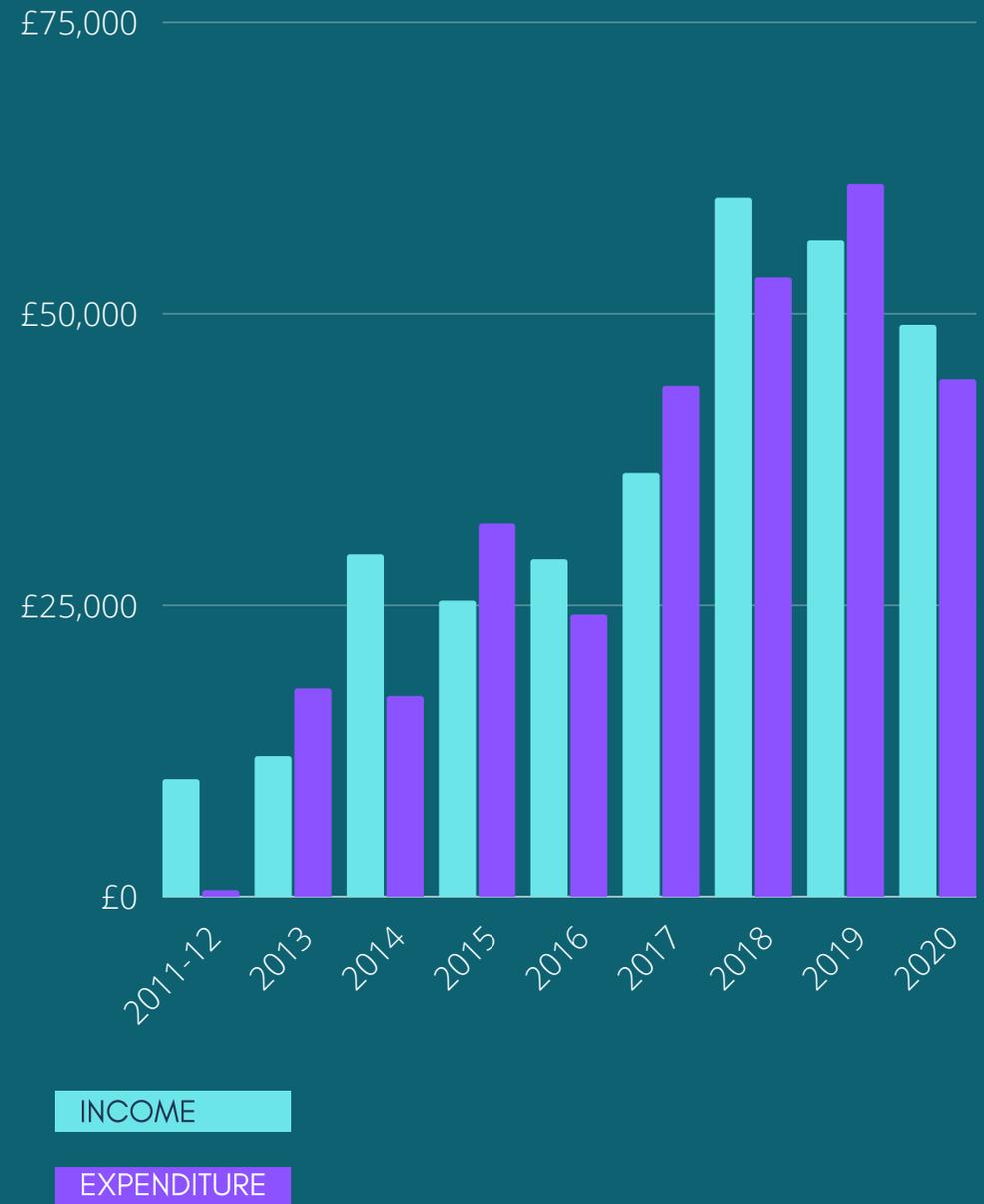
None of SAWW's work would have been possible without the incredible fundraising efforts of our supporters and the donations we receive from innumerable individuals, groups, churches, schools, Rotary clubs, charitable trusts and others. Our sincerest thanks to everyone of you, who have included the following and many more.

All Saint's Church Staplehurst \* Anaesthetic National Teaching Society \* Antiphony \* Bearstead and Thurnham Methodist Church \* Bearstead Women's Institute \* Benenden School \* Bethany School \* Biddenden Women's Institute \* Bower Trust \* British Legion \* Carol Vizzard \* Carmela and Ronnie Pignatelli Foundation \* Ceniarth Foundation \* Chainhurst Coffee Group \* Christadelphian Samaritans Fund \* Cranbrook School \* Rev Dr David Gilchrist and family \* Denmark Road High School \* District Rotary 1120 \* Dofred Charitable Trust \* Eleanor Rathbone Charitable Trust \* Evan Cornish Foundation \* Dr Fidel Munoz \* Paul Firmin \* Frittenden Women's Institute \* Fulmer Charitable Trust \* Future Crunch \* Gloucester Referees' Society \* Dr Helen Makins \* Hillier Trust \* Homewood School \* Horsemonden Breakfast Club \* Imperial College Union \* Inner Wheel Society Wells \* Invicta Grammar School for Girls \* Jane Feinmann \* Prof John Low \* Jon Meek \* Judd School \* Juliette Weaver \* Kathleen Beryl Sleigh Charitable Trust \* Kitchen Table Charitable Trust \* Le Khanh Au Duong \* Dr Lena Dohlman \* Letchworth Medical Group \* Dr Lucy Miller \* Maidstone 41 Club \* Maidstone Dawn Patrol Rotary Club \* Maidstone Grammar School \* Maidstone Lions \* Maidstone Riverside Rotary Club \* Maidstone Singers \* Maidstone U3A \* Marden Art Group \* Marden Medical Centre \* Marden Parish Church Council \* Marden Planning Opposition \* Marden Railway Station \* Marden Scout Group \* Marden Village Club \* Marden Women's Institute \* Matthew Neighbour \* McCabe Centre Dementia Club \* Peter Stebbings Memorial Charity \* Philip Taylor \* Robert Neighbour \* Dr Ruth Maitheson \* Rotary Club of Addis Ababa Bole, Ethiopia \* Rotary Club of Beckenham \* Rotary Club of Bellville, Canada \* Rotary Club of Cranbrook and Hawkhurst \* Rotary Club of Eastbourne \* Rotary Club of Emmen, Netherlands \* Rotary Club of Faversham \* Rotary Club of Herne Bay \* Rotary Club of Maidstone \* Rotary Club of Remscheid, Germany \* Rotary Club of Rochester \* Rotary Club of Strood \* Rotary Club of Tenterden \* Rotary Club of Thanet \* Rotary Club of Tonbridge \* Rotary Club of Uxbridge, Canada \* Rotary Club of Weald of Kent \* Rotary International \* Ruth Mathieson \* Safe Anaesthesia for Mongolia \* Sage Global Giving \* St Barnabas Church \* St John's Church, Gloucester \* Sandhurst Football Club \* Dr Sarah O'Neill \* Simon Brooks \* Skinners' School \* Smarden Women's Institute \* Sutton Valance Primary School \* Terry and Carole Huxtable \* Tenterden U3A \* Dr Thomas Coonan \* Drs Mark A and Mary E Warner \* The Unicorn Public House \* The West End Tavern \* William Brake Charitable Trust.

# FINANCIAL OVERVIEW



Since 2011, SAWW has raised almost £400,000 the majority of which has been spent on donations of anaesthesia equipment appropriate for use in low-resource settings and remote locations. 5% was spent on education and training, and 4% on research. Less than 1% has been spent on governance and overheads.



# GOVERNANCE

The Trust is a registered charity, number 1148254, and is constituted under a trust deed dated 18th July 2012. New trustees are appointed by the existing trustees by a resolution at a special meeting. The Trust Deed provides for a minimum of 3 trustees. The Trustees do not benefit financially from their Trusteeship.

The Trustees hold at least two ordinary meetings a year to oversee the charity's work. The day to day running of the charity is carried out by volunteers and there are no paid staff. The charity's work overseas is made possible by the voluntary contributions of professionals working in, or visiting, developing countries to deliver anaesthesia and support.

## **Board of Trustees 2020/21**

Roger J Eltringham, Chair and Medical Director

Geoffrey R Burr, Treasurer

Michael C Cox

Emma C Freeman

Beverly S McGaw

Dr Julie Morgan

Colin E Whittle

Secretary: Carol Newman

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