PAEDIATRIC CARE

Hospital play specialist role • Case Study: Claudia's story
Nurse Led Sedation at Starship • Paediatric Study Day
Mercy Ships: Transform a child
ORTHOPAEDICS A tale of shoulder instability
Anna is an operating theatre nurse who originally trained at Auckland University of Technology, and recently volunteered for seven weeks on the Mercy Ship in Senegal.

By Sharon Walls and team
Introduction

Drums beating, children laughing, and people of all ages dressed in vibrant fabrics shuffling and dancing to the African beat. The wards on board the Mercy Ship in West Africa look and sound like no other surgical hospital we know.

Essential surgery is largely inaccessible to the majority of people in sub-Saharan Africa. The barriers include proximity to services, extreme poverty and the low number of trained professionals practicing in developing nations (Debas, 2018).

A surgical hospital ship

Hospital ship charity Mercy Ships is dedicated to providing free surgical services for people in extreme poverty. Their vessel Africa Mercy is about the size of a New Zealand interisland ferry, with five operating theatres, five wards and all the auxiliary services required for the ship to provide a complete surgical journey including rehabilitation services, for people living in poverty in developing nations.

The faith-based not-for-profit deploys a Mercy Ship for 10 months at a stretch in an African country, delivering surgical specialties alongside healthcare capacity building and mentoring, for people who would have no other access to the surgery they need.

The Africa Mercy is crewed by 450 volunteers at a time. These volunteers come from New Zealand and across the globe, living on board while donating their time in medical, maritime and operational positions to make the whole system function smoothly and professionally.

Free surgical services provided

About 2500 surgeries are provided free-of-charge each year in countries at the lowest end of the UN Human Development Index. More than 100,000 surgical procedures have been delivered since the not-for-profit was formed in 1978. Much of the surgical work undertaken is under the paediatric umbrella.

As The World Health Organisation (WHO) classifies a child as a person 19 years or younger, the proportion of paediatric surgeries provided by Mercy Ships in 2019 was 31 per cent.

While ophthalmic work is conducted across all ages, congenital cataracts are common, as are childhood eye injuries. While an adult with dense cataracts will have one eye operated on (to allow twice as many people to be helped), paediatric patients will receive surgery on both eyes.

Orthopaedic surgery is conducted by Mercy Ships exclusively on children. As there is no local capacity for follow up, the patients must be ambulatory and fully functional after rehabilitation post-surgery, before the ship departs at the end of the field service.

Paediatric orthopaedic conditions treated include correction to severely bowed, knocked-kneed or wind-swept legs, and neglected club-foot conditions. Corrective Ponseti treatment is provided by the physiotherapy team for babies and infants under three years old.

The most common paediatric maxilla-facial condition treated by Mercy Ships is cleft lip/palate. Some of the babies that present are so malnourished due to their inability to feed, that the mother requires a dietician’s support. Together they bring the baby up to a safe weight for surgery.

Benign yet life-threatening tumour removal, for example the extrapolated growth of a cyst blocking the airway, is performed routinely for patients of all ages including children. The absence of primary healthcare in much of West Africa means minor conditions, corrected in day surgery at a very early stage in New Zealand, are neglected until they reach life-altering proportions.

The common use of open fires for cooking by families in West Africa is a tragically common cause of full thickness burns in small children. The wounds are often left untreated because of the lack of access to immediate or specialty care, resulting in severe contractures. Plastic reconstructive surgery on board for children and adults is follow by extensive wound care, then physiotherapy to restore life-transforming function.

Paediatric general surgery, primarily for hernias, has recently been added to the Mercy Ships specialty list. Obstetric fistula resulting from prolonged labour is repaired for girls and women who have become incontinent from birth injuries. Sadly, giving birth before physical maturity sees girls as young as 12 years requiring surgery to correct this ostracising condition.

Having time for the personal touch is a vital part of what Mercy Ships offers patients in their recovery, summarised as ‘bringing hope and healing’. For many of the fistula patients of all ages, the stigma of their condition has left an emotional wound that responds to kindness, laughter and the friendly interaction that is encouraged.

The surgeries provided are life transforming in their impact.

Abstract

Mercy Ships uses hospital ships to deliver free, world-class healthcare for those with little other access, with a strong emphasis on paediatric services. Capacity building and sustainable development in the developing world is a dual focus. The hospital ships are crewed by volunteers from over 50 nations including New Zealand, averaging more than 1300 volunteers each year. Healthcare, maritime and operational professionals donate their time and skills. Personal accounts and a case studies from recent volunteers are provided.

Keywords: Mercy Ships, free healthcare, paediatric services, capacity building, sustainable development, volunteering

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Felicity
I helped with the case of a nine-year-old boy with burn contractures of both his arms. He had not had the full use of his arms since he was burnt as a small child but would still try and play with the toys in the ward with his limited movement.

The plastic surgery team was able to free the contractures and use skin grafts from his thighs to cover the deficit of tissue. He left theatre with his arms straight out in fiberglass casts. What a transformation in a few hours of intense surgery. I am hopeful that he will have so much opportunity available to him now for life and work as a result of his surgery.

I was so fortunate to volunteer on the ship and have seen so many different kinds of cases, management techniques, and ways of working to take home and implement in my practice.

Lindsey
One of the surgeries was for a young girl with severely bowed legs. The surgery took about 45 minutes to correct, not including casting time. Tibial osteotomies were performed for both legs. The tibia (shinbone) was cut just below the knee and reshaped to correct the alignment. A cast was applied to protect her bones as it healed. Physiotherapy was commenced to help her walk again, first with a walking frame and then unaided.

It is a simple procedure that makes a world of difference to

Case study: femoral osteotomies
A six-year-old female patient had bilateral femoral osteotomies (her legs straightened) due to the abnormal curvature of her legs related to malnutrition. The surgery was under a general anesthetic and took 50 minutes to complete, however she was in theatre for two hours.

Our theatre team of eight consisted of one anaesthetist, one anaesthetic technician, two surgeons and three nurses (a scrub and two circulating nurses) and a Senegalese translator used when the patient was intubated/exubated.

The patient was brought into theatre after being checked in by the nurse at the patient's bedside, with her caregiver giving consent. As they spoke no English, a Senegalese translator was used.

Once in theatre the patient was transferred onto the theatre bed, a "sign in" was performed, and the patient was attached to the appropriate monitoring. She was then intubated by the anaesthetic team. The patient was positioned supine, with her arms tucked by her sides. Both her legs were prepped from upper thigh to feet using a circular motion from the operative sites outwards, maintaining sterility throughout.

Drapes were then applied forming the surgical field and the dathermy, suction and light handles were connected. A tourniquet was applied to her left leg, with the time of application noted. The tourniquet, which looks like a long sock, was rolled up from her foot to upper thigh. A hole was made using scissors to enable access to the operative site.

After a "time out" was completed, the incision site was marked on the inner thigh and the skin incision was commenced. Careful dissection of the muscle and tissue was carried out to access the femur bone. A periosteal elevator was used against the femur, followed by a rongeur to remove the bone fragments. An osteotome and mallet was also used to remove larger pieces of bone, and the cancellous bone was saved to use as bone graft.

Once the surgeons had removed the bone fragments, they checked the alignment of the femur. When satisfied, the operative site was irrigated with normal saline and the bone graft was re-inserted. The muscle closure and then skin closure was performed, followed by the removal of the tourniquet. Again the time was noted. Local anaesthetic was then infiltrated, and a temporary pressure dressing was applied to the incision site.

The same technique was then performed on the right leg, with a dressing applied. Full leg casting was performed on both legs prior to the patient being extubated. The patient was transferred onto the recovery trolley, a "sign out" was performed. She was then transferred to the post anaesthetic care unit (PACU) where she was reunited with her caregiver. Her first (translated) words were "thank you for all caring for me". It bought tears to my eyes.

I found this surgery fascinating as the results of the surgery were instant. To go from prepping her abnormally curved legs to seeing her exit the theatre with straight legs in casts was very impacting. This was a simple and relatively fast surgery, yet it will benefit this little girl's life in many ways. It was such a pleasure to be involved.

There is a lot of hardship and need in Africa. It was rewarding to do what I could to make a difference. The Africa Mercy provides our patients with surgery and healthcare which would be otherwise unavailable, so it is truly life changing for them. – Anna
these children normally shunned by their community.

To have such a simple surgery to correct this deformity is life-changing. The children regain confidence and the ability to easily perform activities of daily living. For most it means they will not get mocked at school anymore, and they can kick a soccer ball like everyone else. This brings such joy to my heart.

Siena
Being on the Africa Mercy is an amazing and memorable experience. I had the privilege of working in the plastics operating theatre. We had a 10-month-old boy with a cleft lip who was carried into theatre. It was heart-breaking knowing other people refused to hold him because of his cleft lip. Being stigmatized and socially isolated at such an innocent and tender age saddened me. Repairing his cleft lip will make his community more accepting of him.

Working alongside volunteers on Africa Mercy has reminded me to care for the patients and my colleagues a bit more kindly. It has brought back a lightness in my heart to serve.

Anna
After graduating from Auckland University of Technology in 2012, Anna commenced with the Waitemata District Health Board. Her seven weeks in Senegal was her first tour-of-duty with Mercy Ships. During her service the cases performed were orthopaedic, maxillofacial and general surgeries.

"My first experience of doing paediatric surgery was on board," she recalls. "I did a range of surgeries across the general, facial maxillary and orthopaedic specialties. I looked after their health and safety whilst in the operating theatre, helped them get safely from the ward and out to PACU after surgery was performed.

"Our patients were impacted by extreme poverty. People expected to lose family members and there is a lower life expectancy. Some suffered from malnutrition throughout their childhood that lead to severe physical deformities."

![Lindsay and other volunteers.](image)

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**About Mercy Ships**

Mercy Ships has worked in more than 56 developing countries, providing services valued at more than NZ$2.49 billion and directly benefitting more than 2.7 million people.

Don and Deyon Stephens founded Mercy Ships in Switzerland in 1978. National offices opened around the world to get – and keep – the ship afloat with donations and volunteers. New Zealand came on board in 1982 supporting the first Mercy Ship Anastasis during its year of Pacific field work – and Kiwis have been involved ever since.

Mercy Ships are crewed by volunteers including surgeons, dentists, nurses, healthcare trainers, teachers, cooks, seamen, engineers, and agriculturalists donate their time and skills. With 16 national offices including Auckland, and an Africa Bureau, Mercy Ships seeks to transform individuals and serve nations one at a time. [www.mercyships.org.nz](http://www.mercyships.org.nz)

**Volunteer opportunities**

The Africa Mercy is soon to be joined by a larger, sister-vessel of Mercy, to make double the impact and bring twice the healing. Around 800 nurses a year from all over the world will be volunteering in operating theatres, wards, woundcare, admissions, outpatients, eye clinics and the crew clinic.

![The Mercy Ship, Africa Mercy, primarily serves West Africa.](image)
THE TOUGHEST JOB YOU’LL EVER LOVE

FIND OUT TODAY HOW YOU CAN HELP TRANSFORM SOMEONE’S TOMORROW

MERCY SHIPS BRINGS HOPE AND HEALING TO THE WORLD’S FORGOTTEN POOR.
ONBOARD A HOSPITAL SHIP, OVER 400 VOLUNTEERS FROM AROUND THE WORLD BRING HOPE AND HEALING TO THOUSANDS OF PEOPLE WHO WOULD NEVER HAVE BELIEVED IT POSSIBLE.

"This little girl stole our hearts. I cried when I had to say goodbye. I will miss her mimicking the nurses, her laugh as she runs down the hall, and her resilient joy. She is one of many kids and adults that impacted the hospital staff. Each have a story, and I’m honoured I played a small part.” Jeani

BE PART OF THE ADVENTURE
mercyships.org.nz/nurses-all-aboard

Since 1978, Mercy Ships has used hospital ships to deliver transformational healthcare at no charge to the world’s forgotten poor. More than 2.71 million people have directly benefited from services provided, including more than 100,000 free surgical procedures.