

# The Power of Global Surgery: A Medical Student's Experience At Save A Child's Heart (SACH)

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## ABSTRACT

This elective report provides an overview of the experience of a 1st year medical student completing a global pediatric cardiac surgery elective at Save A Child's Heart (SACH), an Israeli Non-Governmental Organization (NGO). SACH provides life-saving cardiac surgery to children from developing countries, who would otherwise be unable to access care. Children are screened in their home countries, and brought to Israel for these complex surgical procedures. This elective is unique, as it exposes medical students to leading experts in cardiac surgery, cardiology, pediatric ICU, as well as international residents and patients.

## RÉSUMÉ

Ce rapport électif donne un aperçu de l'expérience d'un étudiant en médecine de première année qui complète un cours de chirurgie cardiaque pédiatrique mondiale à Save A Child's Heart (SACH), une organisation non gouvernementale (ONG) israélienne. SACH fournit une chirurgie cardiaque vitale aux enfants des pays en développement, qui autrement seraient incapables d'accéder aux soins. Les enfants sont examinés dans leur pays d'origine et amenés en Israël pour ces procédures chirurgicales complexes. Cette option est unique, car elle expose des étudiants en médecine à des experts de premier plan en chirurgie cardiaque, cardiologie, soins intensifs pédiatriques, ainsi que des résidents internationaux et des patients.

**F**rom the moment I walked into the SACH house, I realized that my international elective experience would be inspiring and unique. Though I recognized that SACH performs life-saving heart surgeries for children from developing countries, seeing smiling and waving children throughout the house was not what I had been expecting from a medical internship of this nature. After all, as a medical intern, I was expecting to see sick children pre-operation (pre-op), and recovering children post-operation (post-op), from extensive cardiac surgery. This was the first time I experienced the power of global surgery at SACH.

SACH is a UN-sponsored Israeli NGO, providing life-saving cardiac care for children from developing countries. SACH is based out of Wolfson Medical Centre, a pediatric cardiology Centre of Excellence, in Holon, Israel (1). SACH has reliable partnerships in developing countries that participate in the diagnosis, referral, and screening of children to SACH in Israel. SACH also provides programs in Israel designed to train medical and surgical staff from developing countries, with the goal of their returning to their home country to develop independent and sustainable cardiac care (2).

My initial objectives while participating in this elective were to gain further insight into the different fields of medicine and determine where my interests may lie in the future, as well as to learn more about global surgery (e.g., creating access to safe and high quality surgery in low-middle income countries) (3). I initially participated in the SACH internship to gain exposure to a variety of specialties, including: cardiac surgery, cardiology, pediatrics, intensive care, anesthesia, imaging, and global surgery, but ended up achieving much more.

## DISCUSSION

What made my SACH internship unique, was being able to spend time playing with children in the house pre-op, seeing their surgery or catheter lab procedures, checking on them post-op in the pediatric intensive care unit (PICU), and later on the wards. Every day, before and after our hospital shifts, we would go say hello to the SACH children on the wards, and in the PICU. Seeing them smile, and recognize our familiar faces in the intimidating hospital setting of a foreign country was touching, and added a deeper level of humanism to every surgery we observed. For example, X., a 13 year old girl from Ethiopia, was born with Tetralogy of Fallot (TOF). TOF is the most common form of cyanotic congenital heart disease and is characterized

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by having a ventricular septal defect (VSD), an over-riding aorta, right ventricular outflow obstruction, and right ventricular hypertrophy (4). In Canada, children with TOF are diagnosed before or immediately after birth, and receive surgery within three to six months of birth (4). The surgery for TOF generally entails closing the VSD (allowing blood to now flow from the left ventricle to the aorta), cutting away obstructive muscle in the right ventricle, and enlarging the right ventricle outflow tract (5). Unfortunately for X., she was only diagnosed with TOF after having presented with symptoms, including shortness of breath, in gym class months earlier. Performing a TOF surgery on a 13-year old is not common in the developed world, as it carries a higher complication rate (6). Knowing this about TOF, I asked one of the SACH doctors what the indications were to operate, and if the risks were too high, particularly given this patient profile. The response was that this child would not survive much longer with her condition, and that at SACH, “we give children a chance, even when it isn’t easy; we work as hard as we can to give them this chance”. This statement embodies the power that global surgery can have; with a group of motivated and dedicated individuals, global surgery has the power to transform lives, give children a chance to live and thrive, and provide global equity. Regardless of where a child is born, global surgery has the ability to save lives and improve quality of life.

This particular patient highlighted the humanity and impact that doctors can have, and provided a different experience than what is generally available to medical students in Canada. During Canadian pre-clerkship surgical electives, pre-clerkship students see the patient in the OR, but don’t experience the fears and anxiety that the patient experiences in the weeks leading up to the surgery. Post-op, as a student with the surgical team only the surgical follow-ups are seen. However, within Canadian pre-clerkship education, it is not typical to see a patient from the perspective of a surgeon, a pediatrician, and a critical care doctor, simultaneously. X. allowed me to see how so many health care professionals, such as caregivers, nurses, and doctors, from different specialties, all have immense power to contribute to an individual patient’s care.

It is hard to describe a ‘typical’ day at SACH, as each day provided new experiences, challenges and exposures. As a medical intern, I was able to join PICU rounds, pediatric cardiology clinics, pre-op and post-op echocardiogram clinics, teaching sessions by the SACH staff, and observe cardiac catheterization and cardiac surgeries. The care of Rheumatic Heart Disease (RHD) at

SACH is an illustration of such a comprehensive medical internship experience. RHD is a disease that damages heart valves caused by untreated rheumatic fever. RHD is largely considered a “disease of the past” in Canada (7). However, RHD is the most commonly acquired heart disease in Africa (8), and accordingly, there were many SACH children with RHD. Depending on the severity of RHD, some children were treated in the cardiac catheterization lab, where percutaneous valve replacements, stents, and balloons were used. More severe cases required extensive open heart cardiac surgery to repair the valves. Children required pre-op and post-op evaluation in the cardiac clinic and with echocardiography, to evaluate the valve damage. After surgery and catheterization, children were monitored in the PICU. All of this information was then integrated and expanded on during designated teaching sessions. These various clinics and experiences allowed me to explore the multiple perspectives of the cardiac conditions being treated at SACH.

Part of SACH’s mission is to train residents and fellows from developing countries, so that in the future, complex heart surgeries and post-operative care will be available in all countries of the world. Some countries where these residents originate from are Zanzibar, China, Romania, and Kenya, to name a few (2). These residents and fellows leave their families for years, sometimes 2, 5, or more, leaving young children, spouses, and parents behind, to come to a foreign country (Israel), with the ultimate goal of contributing to the healthcare system of their home country. To me, this is a remarkable manifestation of the Hippocratic Oath.

Indeed, my recognition of the immense power of global surgery was enhanced by medical trainees from countries around the globe at SACH. For example, one of the trainees from Tanzania vividly described to me how, for months, he had cared for a dying child with a congenital heart defect. Due to a lack of resources and expertise, he was only able to provide palliative care. SACH arrived in Tanzania on an outreach mission, performed the needed surgery and saved this child’s life. That was the moment when the trainee decided to move to Israel to train to be a cardiac surgeon at SACH. Upon completing his cardiac surgery training at SACH, he is set to return to his home country of Tanzania to provide life-saving surgery to young children. Clearly, global surgery has the power to create waves of change. Each child treated at SACH creates a wave of hope, prosperity and newfound life upon returning to the child’s home country. In conjunction therewith, the medical residents at SACH from

around the globe are the ripples in this powerful ocean. They sacrifice time with their family and friends in their home country, as well as the comfort of their known medical system, to train in Israel so that they can then return home to create a powerful wave of hope, prosperity, and life. This very power of global surgery is one to be encouraged, grown, and expanded, so that patients, physicians, and countries around the world continue to benefit.

### CONCLUSION

This global surgery elective at SACH not only provided me with new knowledge about the fields of cardiac surgery, cardiac care, and rheumatic heart disease, but provided me the opportunity to reflect on the power of global surgery. This elective provided me with personal stories, patient memories, and inspirational teaching opportunities that have strengthened my understanding of the ripple effect that global surgery can have on patients, physicians, and trainees on an international scale.

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