

STS Members Help Save Lives, Create Sustainable Surgery Programs Abroad

There's an old saying: "Give a man a fish and you feed him for a day. Teach a man to fish and you feed him for a lifetime."

Several STS members are taking that maxim to heart by participating in charitable mission trips to developing countries. Not only are they performing dozens of life-saving surgeries, but they are also educating the local medical staff.

For the last 8 years, Jeffrey P. Jacobs, MD, from Johns Hopkins Children's Heart Surgery at All Children's Hospital in St. Petersburg, Fla., has made annual trips to the Bustamante Children's Hospital in Kingston, Jamaica.



The trips are organized through the Cardiac Kids Foundation of Florida, of which Dr. Jacobs is President. The Larry King Cardiac Foundation, Edwards Lifesciences, St. Jude Medical, Medtronic, and Mending Kids International are all major supporters of these missions. The project has grown over the years and now includes 40-50 travelers on each trip. STS Education Manager Michele Chao joined the group during its most recent trip in April. Over the years, the team has operated on 84 children between the ages of 2 days and 16 years.

"The most striking thing is that we encounter a lot of problems that we very rarely see in the United States," Dr. Jacobs said. "In the

United States, babies with tetralogy of Fallot usually have heart surgery by the age of 6 months. In Jamaica, it's not unusual to repair children with tetralogy who are 5 or 6 years old, and occasionally even 11, 12, or 13 years old. Usually, prior to surgery, these older children with tetralogy are quite ill, but after surgery, they become very healthy!"

Vinay Badhwar, MD, from the University of Pittsburgh School of Medicine, has joined Dr. Jacobs on these trips for the last 3 years. He's worked to help address a common problem in that region—rheumatic mitral valve disease. Dr. Badhwar's expertise has made

it possible to repair children's valves rather than replace them.

"Our rheumatic mitral repair methods involve releasing the restrictions on the mitral valve leaflets and using the patient's own pericardium to augment the anterior leaflet of the mitral valve," Dr. Badhwar said. "Our

hope is that this prevents a reoperation until these children get well into adulthood."

He noted that flexibility and creative thinking can be important when operating in a foreign environment. "At home, you normally rely on special monitors, special imaging, and access to special drugs, but when you're abroad, sometimes those things are not available," he said. "So we have to be malleable and use whatever equipment is on hand."

Another member of the team is anesthesiologist David F. Vener, MD, from Baylor College of Medicine in Houston. This year's trip was Dr. Vener's fifth.

"I've really enjoyed working on the tetralogies, ventricular septal defects, and atrial septal defects," he said. "I find those the most satisfying because the kids are usually running around by the time we leave the country."

Although the role of an anesthesiologist in Jamaica is not dramatically different from that in the United States, Dr. Vener said he did have to make a few adjustments.

"You have to scramble and use a MacGyver technique sometimes, trying to find one type of monitor from one place and a different type of monitor from another place and putting it all together to get a working set of consistent monitors," he said.

Over the years, the local team has made great strides with its onsite surgical program. When Dr. Jacobs first started visiting Jamaica, the country had only three adult cardiac surgeons who would occasionally operate on children. Now, Sherard Little, MD, a full-time pediatric heart surgeon, is on staff, which means more surgeries are performed by the local Jamaican team throughout the year.

"That's kind of the whole goal of what we're doing—to partner with the team in Jamaica, create something sustainable, and save thousands of lives instead of just hundreds," Dr. Jacobs said. "We are proud of every life we save, but what I'm most proud of is the fact that we've been able to work with this local team and empower them to do more and more independently."

STS MEMBERS FIND SIMILAR SATISFACTION IN RWANDA

Sustainability is also the primary goal of the Human Resources for Health program currently operating in Rwanda. The US government is funding a 7-year program that started in August 2012 to build the health care education infrastructure and workforce necessary to create a high-quality, sustainable health care system in Rwanda. Health care workers from across the US are traveling to

Rwanda for anywhere between 2 months and a year to instruct the local medical staff.

One participant is Ivan K. Crosby, MD, from the University of Virginia Health Sciences Center in Charlottesville. He arrived in Rwanda's capital city, Kigali, last August and stayed for 4 months.

As the first cardiothoracic surgeon to participate in the program, Dr. Crosby was tasked with a multi-faceted goal.

"Part of the goal was to introduce a US-style educational program with a lot more emphasis on didactic teaching. But we also wanted to teach the residents to operate by doing procedures with them," he explained. "Another important aspect was setting up an acute surgery training program to better deal with handling trauma cases, which makes up a very large component of their patients in the hospitals."



STS member Ivan K. Crosby with a Rwandan patient he treated for thoracic teratoma.

His first 2 weeks consisted primarily of meeting people and getting the lay of the land. Over the next few months, he performed approximately 25 surgeries. "In the pediatric age group, there's a lot of pulmonary infection

and destroyed lungs because they have poor treatment for pulmonary infections. Tuberculosis is really common. They have a lot of children with empyemas requiring decortication," he said.

Dr. Crosby quickly learned the importance of adapting to the circumstances, getting back to basics in many regards. "Typically in lung surgery, you use staplers to staple along the edges so it doesn't leak," he said. "They don't have that there, so you have to manually sew things." Since the hospital's portable x-ray machine was broken for most of his stay, they had to disconnect patients from ventilators and hand-bag them for trips to the X-ray Department. Despite the lack of technological advances, Dr. Crosby said the enthusiasm of the Rwandan surgical team was outstanding.

"I have nothing but great praise for the Rwandan surgeons. They're very gracious and very friendly. I think they are very anxious for this program to be successful," he said.

Thomas M. Daniel, MD, also from UVA, spent 2 months in Rwanda earlier this year performing surgeries at the two hospitals in Kigali and teaching cardiothoracic simulation in an abandoned library at the public hospital. He brought a chest "manikin" lung model, donated by Richard H. Feins, MD, from The University of North Carolina (UNC) at Chapel Hill.

Dr. Daniel's initial plan was to teach a left upper lobectomy, but the thoracic surgery needs in Rwanda were more focused on rapid control of the main pulmonary artery in settings of massive trauma, myotomy for achalasia,



STS member Thomas M. Daniel (center) taught thoracic surgery in Rwanda's CHUK Surgical Simulation Center.

techniques for durable repair of diaphragmatic rupture, and exposure of the ligamentum arteriosum for PDA ligation practice.

The change in surgeries was one improvisation Dr. Daniel had to make. Another was finding the right tissue to use with the model.

"The pig tissue typically used with the UNC model was difficult and expensive to obtain in Rwanda, requiring a full day's trip out to a weekly village market and participation in the slaughter and acquisition of the mediastinal tissue," Dr. Daniel said. "After doing some research, I realized we could substitute goat tissue, which was more readily and cheaply available."

The model also needed to be as economic as possible. Multiple simulation surgeries were performed on one tissue block. Expensive fake blood, IV tubing, and bags were not available, so Dr. Daniel had to improvise again—with ketchup.

Despite the challenges, the effort to set up the chest surgery simulation model was well worth it, he said.

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“Teaching the Rwandan general surgery faculty in the simulation lab was a very satisfying experience,” Dr. Daniel said. “It was particularly exciting to subsequently observe these faculty members teaching simulation techniques to their residents.”

Dr. Daniel is planning a return trip this August to further develop the thoracic surgery program in Rwanda.

Drs. Jacobs, Badhwar, Vener, Crosby, and Daniel all encourage their colleagues to get involved in charitable mission trips.

“This is one of the most rewarding things a thoracic surgeon can do. While not easy, it is very rewarding to know that we have the privilege of affording these children and their parents a very different outlook on life,” Dr. Badhwar said. “And if we can

contribute to the education of the local team, as has been the focus of this project, then it is probably the best thing we can do as STS members. After all, a major objective for STS is to impart knowledge on our colleagues and to enhance the ability of cardiothoracic surgeons to provide the highest quality patient care through education, and that is really what we are doing through this effort.”