



Dr. Devinder Bhatia, a former SHVI resident, assisting Dr. Coye, the local thoracic surgeon, perform open heart surgery in Belize.



Women's Clinic for Belize City and Chinandega, Nicaragua.

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# Founding surgeon reflects on 25 years of

# UNICAR, the Guatemalan Heart Institute

by Francis Robicsek, MD, PhD, FACS



The present pediatric ICU at the hospital in Cobán, Guatemala.



The pediatric ICU at the hospital in Cobán.



Dr. Cruz (left) and Sergio Leal, MD, electrophysiologist at UNICAR.

The network of noninvasive (echo) cardiology stations (dots) and heart catheterization laboratories (circles) established by the Outreach Program. The echocardiograms are taken by nurses specifically trained in echocardiography in Charlotte, NC. The images are transmitted and interpreted at UNICAR.



In past decades, cardiac care, particularly cardiac surgery, in Central America remained well behind the medical progress made in industrialized countries. Among the six countries of the subcontinent, only Costa Rica had well-organized cardiac care, whereas medical and surgical care for heart conditions throughout the rest of Central America was either vastly inferior or nonexistent. Even today, in most of these countries, only a few cases are performed by fledging cardiac surgical programs or by visiting “brigades” of cardiac teams from the U.S. and Europe. The general public has virtually no access to cardiac surgical care, whereas wealthy individuals have the option of flying to Mexico City, Mexico, or to the U.S. for their operations. There is, however, an exception; a bright spot in the dark picture—Unidad de Cirugía Cardiovascular de Guatemala (UNICAR), the Guatemalan Heart Institute. This is a brief overview of UNICAR.

## Beginnings

I have always been interested in Central American archaeology, and in the 1960s and 1970s, spent most of my free time roaming the Mayan ruins of Guatemala. On one of my Mayan jaunts in 1971, my friend, John M. Keshishian, MD, FACS, a thoracic surgeon from Washington, DC, introduced me to the country’s president at the time, Carlos Manuel Arana Osorio, who also was deeply interested in pre-Columbian cultures. One evening, sitting at the campfire, President Osorio asked me what I did when I was not in the jungle.

“Mainly operating on hearts,” was my answer.

He suddenly became very interested and asked, “Do we have heart surgery in Guatemala?”

“No,” I said.

I did not have to wait too long for his next question: “Could you start a heart surgery program?”

“Yes,” I replied, “but you have to help me.”

From that point on, it was only a matter of time until it became possible to start developing a cardiac program. The fact that the president was personally involved allowed us to rapidly cut through the usual Central American bureaucratic red tape. The Guatemalan Ministry of Public Health and Social Assistance assigned a young Guatemalan surgeon, Raul Cruz Molina, MD, who trained at Baylor College of Medicine, Houston, TX, to serve as the future head of the cardiac program. Dr. Cruz immediately flew to Charlotte, NC, where he began an 18-month intensive cardiac surgery fellowship at Carolinas Medical Center and Charlotte Memorial Hospital. His supportive team of cardiologists, anesthesiologist, perfusionists, and intensive care nurses trained at these institutions, as well.

The entire operation began on a shoestring budget. Because Guatemalan health care professionals usually stayed with their hosts, the only training-related cost incurred was airfare. At the same time the training occurred, we were able to procure used and refurbished perfusion equipment and vital-sign monitors. In a year and a half, the Guatemalan team was ready to initiate the program.

## Cardiac surgery comes to Guatemala

In 1974, with a grant from the Heineman Foundation, I returned with our friends to Guatemala and carefully selected some patients with relatively simple anomalies, such as atrial and ventricular septal defects and pure mitral stenosis, as the first surgical candidates. (The diagnostic studies were conducted in Charlotte.) And then—the great day arrived. The Guatemalans were backed by a full Charlotte-based team of eight. The operations performed at Roosevelt Hospital in Guatemala City went smoothly and the patients came through well. We usually slept after surgery in the spartan recovery room.



Dr. Coye (left), receiving the Order of the British Empire for the Belize Heart Program.



Dr. Cruz receiving the Order of the Quetzal at UNICAR's anniversary celebration.

The program proceeded in an orderly fashion. Dr. Cruz gradually accepted more and more complex cases. Soon, however, it became evident that the trafficking of patients between Guatemala and Charlotte for diagnostic studies would exhaust our limited financial resources. So, we again called on President Osorio for assistance. From then on, a Guatemalan Air Force transport plane carried 35 to 40 patients in need of diagnostic work to the Charlotte-Davis International Airport. Patients requiring heart catheterization underwent the procedure around the clock. It was a most welcome event that Federico Alfaro, MD—now a renowned cardiologist practicing in Guatemala and then a resident at Baylor Houston, TX—heard of the project and arrived unexpectedly in Charlotte at midnight one day in March of 1978 and joined our efforts.

After diagnosis, patients were flown back to Guatemala, where those who needed surgery were operated on by Dr. Cruz and his crew, actively supported by the Charlotte team. These efforts started to evolve, and in 1976, under the leadership of Dr. Cruz, the cardiac program was officially established at the Roosevelt Hospital, the largest health care institution in Guatemala. The Carolinas Medical Center team continued to play a supportive role; however, within a year, their numbers decreased from eight to three, then to a single surgeon, and finally to none. By and large, the Guatemalans were on their own in the operating room.

### UNICAR: An ongoing success story

Over the course of the next three decades, the Guatemalan cardiac program at Roosevelt grew from a service of a half-dozen beds to a modern department of

cardiac surgery. The program not only performed an important clinical task, it also served as the nucleus of training for Guatemalan cardiac surgeons. An especially important year in Guatemalan cardiac surgery was 1989—the opening of UNICAR, the Guatemalan Heart Institute, in a dedicated building on the Roosevelt Hospital campus.

Incorporated as UNICAR, the Guatemalan cardiology and cardiac surgery program now serves not only Guatemala, but receives patients from neighboring Honduras, Belize, and Nicaragua. With its home-trained staff supplemented with noted cardiac surgeons and educators, specifically Rafael Espada, MD, and Aldo Castaneda, MD, FACS, both of Guatemalan origin, the scope of services involves not only complex adult but also neonatal cases, and in 1977 led to the establishment of UNICAR's internationally recognized department of pediatric surgery.

In 2000 UNICAR, having already received acclaim from around the globe, obtained autonomic status, and in 2013 the number of open heart operations exceeded 800. Both Dr. Cruz and our supportive team were recognized by receiving the highest civilian decoration of the Guatemalan government: The Order of the Quetzal. In addition, I was recently honored with the Rose of Peace from the First Lady of Guatemala, Rosa María Leal de Perez, and Dr. Adrian Coye received the Order of the British Empire for his work with the Belize Heart Program.

In addition, the Carolinas Health Care System formally established the International Medical Outreach Program in 2004. Since my retirement from clinical practice, I have been working with the program full-time. Having access to de-accessioned material from the



Staff at UNICAR congregate in front of the UNICAR building in Guatemala City.

system's 40 hospitals and engaging their staff in volunteer work rather than just shipping a large amount of hospital equipment and disposable material to different countries in the world, we have delivered to Central America seven heart catheterization laboratories, furnished five intensive care units and a burn institute, built an echocardiographic network connecting 10 rural hospital with UNICAR and the Sanger Heart and Vascular Institute, and established an online consultation between Guatemala, Belize, and Charlotte. We also started and are maintaining cardiology and cardiac surgery programs in Belize. Our immediate plans include furnishing and supporting a network of rural infirmaries and establishing several women's cancer screening units.

### Why UNICAR works

So, what has been the secret of UNICAR's success? How did UNICAR conquer the difficulties that still plague the cardiac surgical programs of other Central American countries?

The answer is complex. The primary factor was, without question, the dedication and hard work of our Guatemalan colleagues and the support they received from a government committed to its task, despite the country's ongoing financial difficulties. Did the International Medical Outreach Program also play a role? Undoubtedly. We were at the right place at the right time. I want to emphasize, however, one very important point: We have been surgically active in Central America for a long time, but seldom have we actually operated. We assisted the local surgeons and ensured that their initial results were good. We made certain these surgeons received reliable support from the team and remained available for any need that arose. This approach differs radically from the visiting brigades,

where the work is done entirely by the visitors who, after a limited number of procedures, depart and leave very little behind except for ongoing need and a feeling of helplessness. Some lives may be saved, and the visitors have a feeling of satisfaction, but the local health care providers are deprived of the glory of being the "first" to deliver high-level care. They provide no continuity of care and often create resentment or even hostility within the local health care community.

Is the approach of shipping patients to the U.S. for surgical care any better? Again, this process may save a few lives, but it does not respond to the needs of a country, and the cost is enormous. The total cost to initiate and maintain UNICAR has been less than the cost of a few heart operations at a U.S. hospital.

Our cooperation and friendship with UNICAR still continues today, including an ongoing exchange of health care and other skilled professionals between Guatemala City and Charlotte. Recently, our engineers assisted in converting UNICAR's recordkeeping system from manual to digital. We are also helping UNICAR to establish a unique, nationwide referral network of echocardiographic laboratories, a service previously available only in a few private clinics. Tests are performed in echo stations located in 12 rural hospitals by technicians who trained at both UNICAR and in Charlotte. The images are transmitted digitally and read at UNICAR, which then relays the results to the patient's treating physician. Any images may also be transmitted and problems discussed "live" through a special digital communication "bridge" with the cardiologists and surgeons of UNICAR and Carolinas Medical Center.

Carolinas Medical Center is proud to be friends with UNICAR, 25 years, 21,768 hemodynamic studies, and 13,047 heart operations later. We look forward to many more successful years. ♦