

VIEWPOINT

Viện Tim Institut du Coeur: Success of a Congenital Heart Disease Center in a Developing Country



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Abstract

OBJECTIVE The goal of the Viện Tim Institute du Coeur is to provide high quality cardiac surgical care to the Vietnamese population with 25% of care allocated to the indigent. This article discusses the history; functional and financial implementation of creating a long-term fully sustainable adult and pediatric cardiac surgery center in Southeast Asia in a developing country.

METHODS The Institut du Coeur in Ho Chi Minh City, Vietnam is a fully functional and financially solvent cardiac surgery center that was formed 28 years ago. It was borne from the Alain Carpentier Foundation which oversees its activity and the Centre Médical International which is an outpatient clinic in Ho Chi Minh City and continues to financially support and oversee the development and future of the Institute. This article details many of the key components to the development of this sustainable program and its evolution.

RESULTS Since 1996, over 25,000 patients with complicated adult and congenital cardiac disease have been treated at the infirmary with support from the Alain Carpentier Foundation since it was established in 1992. The hospital has also performed surgery and treatment to poor patients across Vietnam with over 6,700 impoverished patients having had free operations with an estimated cost of VND230 billion (US\$10.2 million). In addition, 96 surgeons and nearly 500 medical staff have carried out charitable health checks on 12,000 patients in many provinces and cities throughout Vietnam. Through profit sharing with the Centre Médical International and corporate and personal donations, proceeds are given to the Institute to help perform roughly 25% of all cardiac surgery free of charge to indigent patients in need of congenital heart surgery.

CONCLUSION The Viện Tim Institute du Coeur has stayed true to its goal of offering high quality cardiac surgical care including congenital heart surgery to a large patient population with one quarter directed to the medically indigent. It also continues to empower and train the health care professionals locally and throughout the country. Creation and growth through this model may help provide a fully functional and financially self-sustaining institution in a developing nation.

KEY WORDS Viện Tim, Institut du Coeur, heart institute, congenital heart disease, Vietnam, Centre Médical International, Alain Carpentier Foundation

INTRODUCTION

Congenital heart disease is defined as an abnormality of cardiovascular structure or function present at

birth and remains one of the most common birth defects with a live born prevalence of about 5-8/1000 or 0.5%-0.8% in westernized cultures.¹ Vietnam's total population is 92 million and 35%, or

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about 32 million, are 15 years of age or younger. The birth rate is 16.5 births per 1000 (2013 data) with about 1.5 million children being born. The expected number of children born with congenital heart disease is expected to be about 15,000 annually.²

Professor Alain Carpentier is considered to be the father of modern mitral valve repair surgery³ and the former chief of the Department of Cardiovascular Surgery at the Broussais Hospital at the University of Paris VI. While there, he founded the Viện Tim Heart Institute in Ho Chi Minh City, Vietnam. In 2005, I had the privilege to spend an extended period at the Institute observing and operating. I was fascinated by the experience and the professionalism and the commitment of the many people, especially the local people whom I met who worked tirelessly at the Institut du Coeur to serve the people of Vietnam, especially its children. In the 23 years since its creation, it has prospered and given immensely to a vastly underserved patient population and culture and remained true to its original goals. It is considered a reference for cardiac surgery centers in Vietnam and remains a successful self-sustaining entity.

ORIGIN OF THE INSTITUTE

The idea for a heart institute was originally conceived by Dr. Duong Quang Trung, Director of the Health Department Services of Ho Chi Minh City, who in 1988 invited Professor Alain Carpentier to visit Vietnam to see firsthand

the immediate need for congenital heart services and cardiac surgery and to help establish a heart surgery center in Vietnam. They both realized the urgency of care and sought to implement it. No hospital in Ho Chi Minh City to date had offered these services to allow congenital heart surgery to be properly performed, and because of the highly specialized nature of cardiac surgery and in a country lacking many basic resources, this was a highly complicated task to consider. Together their goals were to create a completely functional and financially independent institute to treat the children of Vietnam and provide high-quality cardiac surgical care that functioned autonomously yet was fully integrated into the public health system in the region of Ho Chi Minh City in southern Vietnam.

The Alain Carpentier Foundation (FAC) was itself created separately in 1987 and was created under the sponsorship of the Fondation de France. The FAC then helped create the Heart Institute of Ho Chi Minh City and now oversees and supports its activity and the Centre Médical International (CMI) and also continues to support research that has direct humanitarian applications like the CARMAT artificial heart.

CENTRE MÉDICAL INTERNATIONAL

The CMI is an outpatient clinic located in the heart of downtown Ho Chi Minh City, a city of 8.3 million people, and was created by Professor Alain Carpentier in 1993. The CMI is fully equipped to provide standard comprehensive and specialized medical services, and all physicians are French or Vietnamese. The CMI offers medical and paramedical care, including general medicine, tropical medicine, cardiology, nutrition, obstetrics and gynecology, traditional oriental medicine, speech therapy, osteopathy, pediatrics, psychiatry, and psychotherapy.⁴ Every year all of the profits are given back to the Alain Carpentier Foundation to be used in financing the cardiac operations of indigent infants at the Heart Institute in Ho Chi Minh City. All of the CMI's profits are dedicated to the Children's Solidarity Fund, which pays for indigent Vietnamese children to have open-heart surgery at the Heart Institute (Fig. 1).

VIỆT TIM OR L'INSTITUT DU COEUR

In 1988, at the invitation of Dr. Duong Quang Trung, Professor Carpentier visited Vietnam to

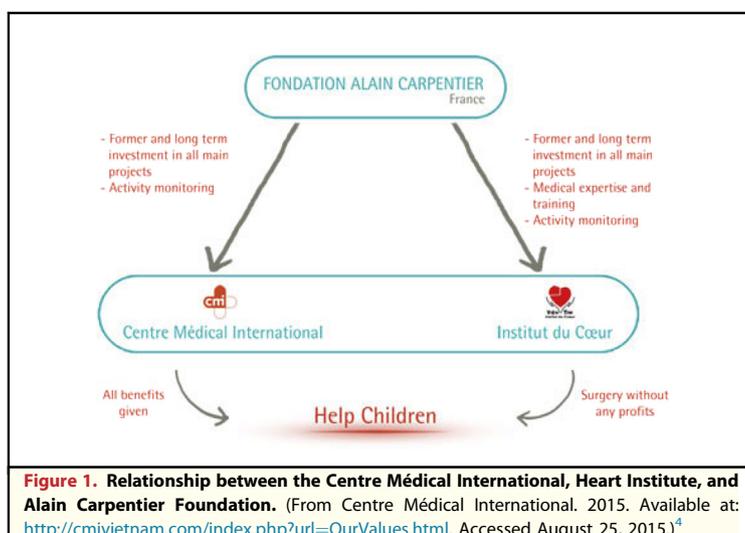


Figure 1. Relationship between the Centre Médical International, Heart Institute, and Alain Carpentier Foundation. (From Centre Médical International. 2015. Available at: <http://cmivietnam.com/index.php?url=OurValues.html>. Accessed August 25, 2015).⁴

examine numerous patients with untreated congenital heart disease and realized the urgency of the need for care. The Viện Tim Carpentier Heart Institute was then established in 1993 to address the urgent need for congenital cardiac surgery and adult cardiac surgery in Vietnam, specifically in Ho Chi Minh City. The government and the FAC signed an accord in 1989 stipulating that Ho Chi Minh City would be in charge of the construction of the Institute on the grounds of an old French colonial hospital.

FINANCES BEHIND THE VIỆN TIM

The FAC funded the financing of the equipment and the training of the medical, administrative, and technical staff with the help of the surgical team from the Broussais Hospital in Paris. To this day, many of the cardiac surgeons from the Broussais Hospital continue to spend extended time on site training local surgeons. The Institute originally stipulated that it had complete autonomy and the freedom to hire and administrate the personnel of its choice and have the sole financial responsibility for the Institute, which continues to this day.

The statutes of the Institute stipulate that “no infant will be refused for financial reasons” and have had the ambitious goal to treat 25% of indigent children. What was possible initially—to treat 2–3 infants per day—has since become untenable when the number has reached 5–6 infants per day. With the average cost of a cardiac operation in Vietnam of \$2000 per patient, to augment its resources and diminish the costs, the FAC developed 2 original strategies:

1. A production unit that can make many of the tools and prostheses on site at minimal price (ie, mitral valve rings)
2. The CMI, the private center of general and medical specialties, gives their proceeds back to help fund the indigent patients. This is also augmented by private donations.

The Institute also works directly with medical insurance, local associations, and charities and financially with families before augmenting the necessary funds for an operation.

STATISTICS

About 200 lifesaving operations a year are performed on indigent children out of approximately 1500 total

OVERVIEW OF CARDIAC CARE FOR CHILDREN IN VIETNAM			
AREAS	PUBLIC SYSTEM	PRIVATE SYSTEM	TOTAL
WARDS	20,000 stations	Clinics	
Medical stations	General practitioner	Family doctors	
DISTRICTS	561 hospitals	Clinics	561
District hospitals	General practitioner	General practitioner	
58 PROVINCES	430 hospitals	132 hospitals	601
Provincial Hospitals	. Specialists . Pediatricians	. Specialists . Pediatricians . Pediatric cardiologists (in a few hospitals)	
5 CITIES	39 hospitals		
General hospitals Hospitals of specialties	. Specialists . Pediatric cardiologists		
TOTAL	1030	132	1162

Figure 2. Overview of cardiac care for children in Vietnam in 2013. (Data from Vietnam Ministry of Health⁷).

operations yearly at the Institute. Since 1993, more than \$4 million has been paid from the FAC for financing operations. Over the last 23 years, the Heart Institute has continued to honor its primary objective with 23,000 people having had cardiac operations and 30% receiving financial support. More than 4000 children have received their operations from direct contributions of the FAC and CMI. Also since 2011, the CMI and Heart Institute continue to hold annual gala fundraisers with, on average, 50 corporate sponsors and have raised more than \$315,000 to date to pay for a total of 146 children and their necessary cardiac operations.^{5,6}

TRAINING OF LOCAL STAFF

The FAC has also used its medical expertise and has helped train Vietnamese heart surgeons as well as the medical staff working at the Institute. The Viện Tim has trained 125 cardiologists and has contributed to the training at 12 cardiac surgery centers throughout North and South Vietnam, including nursing and support staff. To slow the influx of patients from other provinces and cities seeking cardiac care at the Institute, the CMI and Institute have run cooperation programs to help transfer technology (ie, training in cardiac ultrasound) and heart surgery techniques to provincial hospitals (Fig. 2).⁷ It has also helped to finance various structural projects, such as the expansion of the Heart Institute.⁸

CONCLUSION

The success of the Vien Tim is due to multiple factors. First, it would never have been possible without the relationship between the French and Vietnamese

people, which began when Vietnam was a part of French Indochina in the 19th century, and to this day, there remains a strong cross-collaboration between cultures. Second, there was a void in services and a necessity to create medical services to fill the lack of congenital heart care. Third, there was the willingness of Professor Carpentier to invest personally and professionally and his desire to help. Fourth, the dedication of the Broussais Hospital and other medical professionals to donate their time and knowledge in educating the local caregivers was crucial. Fifth, there was the willingness of the local staff to buy in to the vision. To highlight this last point, after an initial 4 years of dual Franco-Vietnamese leadership, the Institute has been completely run by a Vietnamese team since 1998.

Today, the Viện Tim l'Institut du Coeur is considered a center of excellence in cardiac surgery in Vietnam, with many patients visiting and consulting the Institute's cardiologists. Because of a large number of very poor patients unable to afford surgery, a social welfare department has been created to cover the cost of the operations for those unable to pay. The CMI

has attempted to face the increase in demand, foreseeing to expand its infrastructure to welcome more practitioners and thereby augment its revenue. As of the August 2015, it is currently undergoing a VND102 Billion (4.4 Million USD) expansion to increase its capacity to 2000 open-heart surgeries per year building 2 new operating rooms and 10 new clinic rooms in a 18,200 square foot center.^{9,10}

In closing, the Viện Tim Institute du Coeur represents a partnership between philanthropy and government and continues to thrive today, serving as a collaborative model of Franco-Vietnamese solidarity and, in the words of Professor Carpentier, a "big success in the transfer of knowledge."¹⁰ It has stayed true to its mission offering high-quality care to Vietnamese patients suffering from heart disease, especially children. The success of the program's relationship between the FAC, the CMI, and the Heart Institute stands as a lasting tribute to its original objectives and goals as outlined by Professor Carpentier and it has succeeded in delivering high-quality cardiac surgery to a vastly underserved patient population.

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