

History of Cardiac and Thoracic Surgery in Sri Lanka

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The Beginnings

The evolution of cardiothoracic surgery in Sri Lanka initially centered on thoracic surgery. It focused primarily on addressing tuberculosis (TB), which was prevalent in the early 20th century, and also on some esophageal surgery. Most of these surgical procedures were conducted by general surgeons.

Dr. J.H.F Jayasuriya (fig 1) played a pioneering role in the surgical treatment of TB, introducing innovative procedures such as artificial pneumothoraces and thoracoplasties[1,2]. He also played a crucial role in the establishment of the CNAPT (Ceylon National Association for the Prevention of Tuberculosis)[3] in 1948.



Fig 1: Dr J H F Jayasuriya

Additionally, Dr. A.S. Rajasingham, a general surgeon, is reported to have performed a Patent Ductus Arteriosus (PDA) ligation in a 7-year-old girl in 1949[4].

The First Thoracic Unit at General Hospital Colombo

Thoracic Surgery in Sri Lanka was formally initiated in 1951 when the government of Ceylon sought the expertise of Mr. Donald Barlow FRCS, a Thoracic surgeon from the London Chest Hospital, UK (fig 2). His mandate included providing guidance on the establishment of thoracic surgery and enhancing TB services in the country [5,6,7,8,9].

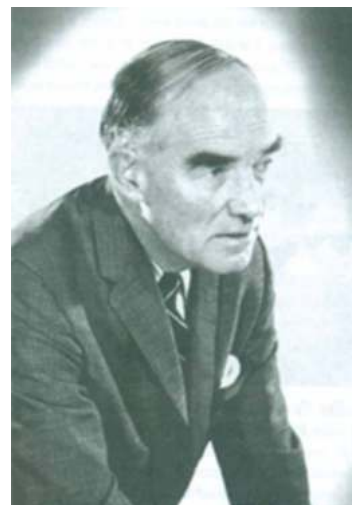


Fig. 2 : Mr. Donald Barlow

One of his pivotal recommendations was the establishment of a Thoracic Unit at the General Hospital Colombo (GHC), now known as the National Hospital of Sri Lanka (NHSL), dedicated to the surgical treatment of suitable TB patients [5,6,7,8,9]. Mr. Donald Barlow himself performed numerous thoracic surgical operations for TB and was honored with the title of honorary MBBS (Ceylon) [3,4,5,6]. Following this, two teams from

the UK arrived, each undertaking thoracic operations in Sri Lanka for six-month periods. The initial team, led by Mr. R Abbey Smith, commenced its mission in 1952[6,8].

Sri Lanka's first thoracic surgeon was Mr. A.T.S. Paul (fig 3), who received his training in thoracic surgery at the London Chest Hospital. Upon his return to Colombo, he was accompanied by a team that brought along a significant inventory of surgical instruments and a state-of-the-art thoracic anesthesia apparatus [6,8].



Fig 3 : Mr. A.T.S. Paul

The subsequent team, led by Mr. Brian Moore, also comprised a Surgeon, Anaesthetist, Theatre sister, Ward sister, and Physiotherapist. According to the Ceylon Administration Report of 1954, during the period from October to December 1953, a total of 76 operations were conducted. These included 42 thoracoplasties, nine lobectomies, 13 pneumonectomies, seven mitral valvotomies, and five miscellaneous operations [8]. The first dedicated thoracic unit in Sri Lanka was inaugurated at the Colombo General Hospital (CGH) in 1952[6,10]. Upon his return, Mr. Paul assumed the role of Thoracic surgeon for the newly established Thoracic Unit, specifically in Ward 3. He served as the consultant cardiothoracic surgeon from 1952 to 1975, followed by a tenure at the Kenyatta National Hospital in Nairobi, Kenya, from 1976 to 1980[9,10,11,12].

Mr. Paul collaborated with Dr. J.R. Wilson, a Physician at the General Hospital Colombo (GHC), working in Ward 3. The ward was organized with separate sections for male and female TB patients, constituting the majority of the patient population. In addition, two side rooms were designated for non-TB patients, primarily those with heart conditions such as mitral stenosis and PDAs, which were the only operable heart conditions in Ceylon at that time[9,10]. Dr. Paul's initial years in surgical practice were primarily focused on thoracic surgery, addressing the sequelae of TB and corrosive strictures of the esophagus[8,13]. Subsequently, thoracic surgeries were conducted at both the Colombo General Hospital (GHC) and the Chest Hospital in Welisara, now the National Hospital for Respiratory Diseases [9]. In the early 1950s, Dr. N.K.G. Mendis and Dr. T.D.H. Perera were sent to the UK for training in Thoracic Surgery[6,8].

The Birth of Heart Surgery

The first closed-heart operation in Ceylon was conducted by Dr. Eric Husfeldt, Professor of Thoracic Surgery from Copenhagen, Denmark (fig 4) , during his visit to Sri Lanka in early 1953 as part of a medical team sponsored by the WHO.



Fig 4 : Dr. Eric Husfeldt

This team traveled to Burma, India, and Ceylon[10,14,15]. The inaugural operation was a closed mitral valvotomy performed at the General Hospital, Colombo[10,14,15] (fig 5).



Fig 5 : Prof. Eric Husfeldt performing a cardiac operation

Following this milestone, the Thoracic Unit at the GHC significantly expanded its repertoire of closed-heart operations starting from 1953. Initially, two Thoracic Units were established, led by Mr. A.T.S. Paul and Dr. T.D.H. Perera. These units, which are currently situated in wards 25 and 26, constructed in 1924 (fig 6) and Operating Theatre C (OTC) constructed in the 1950s (fig 7), have continued to operate at full capacity to this date.



Fig 6 : Wards No: 25/26 are the male and female Cardiothoracic surgical wards which are located in the first floor of this building which was built in 1924



Fig 7 : Cardiothoracic theatre (OTC) which was built in the 1950's and is still in use

Subsequently, wards 34, 35, and 36 were also integrated into the Thoracic Unit, and all these facilities remain fully functional. It's noteworthy that during this era, there were no intensive care units in Ceylon.

In the late 1950s, Ceylon witnessed the advent of open-heart surgery utilizing the technique of moderate hypothermia. This method involved inducing surface cooling to achieve a circulatory arrest period lasting five to eight minutes, accompanied by inflow occlusion. Simple procedures such as direct suture of Secundum Atrial Septal Defects (ASD) and open pulmonary valvotomies were successfully performed using this approach[16,17,18]. Remarkably, despite the introduction and progression of cardiopulmonary bypass technology, senior surgeons persisted in employing this technique until the early 1990s. The author distinctly recalls assisting Dr. S.J. Stephen in the execution of numerous procedures employing moderate hypothermia at GHC, the present National Hospital of Sri Lanka (NHSL) during his tenure as a senior registrar in 1991. The practice of closed mitral valvotomy continued at NHSL until 2003 when cardiologists took over the performance of Percutaneous Mitral Balloon Valvuloplasty (PTMC)[17,18]. It is noteworthy that the author, along with his colleagues at NHSL, held the distinction of being the last surgeons to conduct closed mitral valvotomies in Sri Lanka.

The inaugural cardiac catheterization laboratory was established in 1957 in Welisara[9,17,18]. Dr. J.R. Wilson, serving as both the General Physician in Colombo and the Chest Physician in Welisara, conducted Right Heart Cardiac Catheterizations at this facility[9,17,18]. In 1963, the inception of the Cardiac Investigation Unit (CIU) took place at the General Hospital, Colombo, as an integral component of the Cardiothoracic Unit[17,18]. The Cardiac Catheterization Laboratory, relocated from Welisara, was reassembled at this new location. Dr. N.J. Wallooppillai assumed the role of Physician-in-charge of the CIU in 1963 and continued in this position until 1971. Dr. M. Weerasena served as the

radiologist appointed to the cardiac catheterization laboratory[17,18].

In 1966, Mr. Paul presented the esteemed Hunterian Lecture titled "The Problem of Mitral Stenosis in Childhood" at the Royal College of Surgeons of England. During the same year, a significant milestone was achieved as GHC acquired its first Heart Lung Machine. To enhance their proficiency, two teams were dispatched to Georgetown University in Washington DC for three-month stints, collaborating with Dr. Charles Hufnagel[9,17,18]. The teams comprised the Cardiothoracic surgeons, Mr. A.T.S. Paul and Dr. T.D.H. Perera, Consultant Anaesthetist Dr. A.T.W.P. Jayewardena, Perfusionist Dr. K.C. Fernando, an assistant surgeon, and a senior staff nurse. This initiative was made possible through a US State Department Scholarship [9,17,18]. According to Dr. Natkunam, Dr. Hufnagel, along with several renowned thoracic surgeons from the USA and Canada, visited Colombo for brief periods to contribute to the establishment of the open-heart surgery program.

Following the untimely passing of Dr. T.D.H. Perera due to a road traffic accident, Dr. S.J. Stephen (fig 8) was appointed to GHC.



Fig 8 : Dr. S.J. Stephen

Dr. Stephen served at the National Hospital of Sri Lanka (NHSL) from 1971 to 1994. Subsequently, he

worked for several years as a Consultant Cardiothoracic surgeon at Sri Jayawardanepura General Hospital (SJGH). During his illustrious career, he held various leadership positions, including President of the College of Surgeons from 1988 to 1989, President of the Sri Lanka Medical Association (SLMA) in 1986, and President of the Sri Lanka Heart Association from 1987 to 1988. Dr. Stephen delivered 11 orations and was awarded the title of Hunterian Professor by the Royal College of Surgeons of England in 1988 for his lecture on "The Changing Patterns of Mitral Stenosis in Childhood and Pregnancy." He also served as the Chairman of the Board of Study in Surgery for many years and received the National honor "Deshabandu" in 1987.

Opening of the Surgical Intensive Care Unit (SICU)

On June 16, 1968, a historic milestone was achieved with the opening of the first Intensive Care Unit (ICU) in the country, known as the Surgical Intensive Care Unit (SICU) (fig 9).

The establishment of the SICU marked a significant advancement, enabling the performance of open-heart surgery using the heart-lung machine.



Fig 9: Opening of the Surgical Intensive Care Unit at GHC in 1968

Dr. A.T.W.P. Jayewardene (fig 10) assumed the role of consultant anaesthetist in charge.



Fig 10 : Dr. A.T.W.P. Jayawardene

The initial operations conducted included the closure of ASDs. Notably, the first valve replacement in Ceylon occurred in 1969, involving a Mitral Valve Replacement performed by a visiting surgeon with the assistance of Mr. A.T.S. Paul (fig 11).



Fig 11: First Mitral Valve Replacement in Sri Lanka

The First CABG

In November 1975 and December 1981, two significant visits were undertaken by a 16-member team from the USA, led by Dr. Tony Don Michael, with Dr. Elias Hanna as the cardiac surgeon (fig 12). Notably, during these visits, the first Coronary Artery Bypass Surgery (CABG) in the country was performed successfully.



Fig 12: The American team which performed the first CABG operations in Sri Lanka photographed at Araliya Gaha Mandiraya with the then Premier Mrs. Sirimavo Bandaranaike

The team played a crucial role in training personnel of all grades, and valuable equipment donations were made. In 1975, Dr. Dunlop, the Cardiologist of the team, conducted the inaugural coronary angiogram in the country[17,18]. Unfortunately, after the departure of these teams, regular coronary artery bypass surgeries were not performed routinely. Instead, occasional CABG operations were carried out by visiting teams collaborating with local surgeons. On a positive note, coronary angiography continued to be performed routinely by the incumbent physician of the Cardiac Investigation Unit (CIU), Dr. P.N. Thenabadu [17,18].

The number of units was later increased to three and subsequently to four, led by Drs. R. Natkunam, Stanmore de Alwis, and H.S. Perera. Dr. Stanmore S. de Alwis was the second Thoracic Surgeon to become the President of the College of Surgeons of Sri Lanka. Additionally, he served as the President of the Government Medical Officers' Association (GMOA) and the OPA (Organization of Professional Associations). Despite the appointment of three new board-certified surgeons, the retirement of the previous generation of surgeons led to a reduction in

the number of units to three due to a shortage of cardiothoracic surgeons.

Following the inauguration of a new block in August 2000, which included theaters, an Intensive Care Unit (ICU), and a High Dependency Unit (HDU) within the OTJ complex, the number of cardiothoracic units was further increased to four and currently stands at five. When operating at maximum capacity, the unit performs approximately 900-1000 adult open heart operations annually.

At the time of publication, the surgeons currently in post are: Dr. I. Wijemanne, Dr. M. Munasinghe, Dr. M.N. Jazeel, Dr S. Gnanakanthan and P. Rathnayake.

Ratnapura Cardiothoracic Unit (1958-1973)

In 1958, a cardiothoracic unit was inaugurated in Ratnapura, led by Dr. N.K.G. Mendis as the surgeon. The unit achieved success in performing closed heart surgeries, including ASD closure under hypothermia and closed mitral valvotomy[17,18]. Dr. S.J. Stephen succeeded Dr. Mendis in 1968 and took on the responsibility of assembling a heart-lung machine with assistance from the members of the cardiac team from the Hope ship. Although Dr. Stephen had obtained the heart-lung machine, the lack of a trained perfusionist prevented him from performing open heart surgery.

Dr. Neil Hamel, the cardiothoracic surgeon from the Hope ship, who had performed surgeries on board, traveled to various cardiothoracic units in the country. Dr. Stephen convinced him to assist in setting up the heart-lung machine, and initial surgeries were conducted on stray dogs for safety validation. Once safety was established, ASD closure on pump (open heart surgery) was successfully performed. Dr. Stephen's exceptional skill and reputation led patients to travel from Colombo to Ratnapura for their operations [17,18,19].

In 1971, Dr. Stephen was transferred to Colombo, and Dr. H.S. Perera assumed the post in Ratnapura, diligently serving until 1979. Unfortunately, after the

departure of these dedicated surgeons, the cardiothoracic unit faced challenges. The combination of apathy from the Ministry of Health and insufficient funding led to the unfortunate demise of this once-thriving cardiothoracic unit. In 1979, the unit was replaced by an orthopaedic unit, marking the end of an era for cardiothoracic services in Ratnapura[18].

Jaffna Cardiothoracic Unit

On two occasions around 1960, Dr. A.T.S. Paul led a team of doctors and nurses to Jaffna to perform closed cardiac operations. During the first visit, which lasted a fortnight, they operated on six patients with Mitral stenosis[10,11]. The Jaffna Cardiothoracic Unit was inaugurated in 1963, with a cardiac catheterization laboratory installed in 1966 as part of the cardiothoracic unit. Closed heart operations such as closed mitral valvotomy, ligation of PDA, and Blalock-Taussig (BT) Shunts were routinely performed in this unit, along with the closure of ASD under hypothermia[17,18]. The first surgeon was Dr. S.J. Stephen (1964 – 1967), succeeded by Dr. R. Natkunam and later by Mr. R. Rasaratnam. Unfortunately, in March 1986, this unit also faced a fate similar to its sister unit in Ratnapura.

It is disheartening to reflect on the state of health authorities that allowed two previously successful cardiothoracic units to fall into decay, thereby depriving the population of those areas of essential cardiothoracic services.

The Dark Ages

Due to apathy on the part of the Ministry of Health, cardiothoracic surgery in Sri Lanka entered an era of stagnation in the late 1970s and 1980s, leading to the unfortunate closure of the units in Ratnapura and Jaffna. No trainees took to cardiothoracic surgery.

During this period, a young surgeon who had trained in cardiothoracic surgery in the UK and returned to Sri Lanka was forcibly appointed as a general surgeon to the outstations. This young surgeon, Dr. S. Sivathanan, faced such challenges that he

eventually sought opportunities elsewhere. Subsequently, he was immediately recruited by the Singapore government to set up their heart transplant program.

According to Dr. Natkunam, consumables were in short supply and they even had to arrange local purchase of minor items such as cannulae and Foley catheters. The three surgeons (Drs. Stephen, Perera and Natkunam) arranged a meeting with the then President J.R.Jayewardene. The Deputy Director of Health Services (DGHS) was present. President Jayewardene promised to arrange all necessary supplies. However, when the surgeons sent their request, the DGHS claimed that the cost of the consumables would be 50 million rupees and that the Ministry couldn't afford this and instead instructed to limit the number of open heart operations on bypass to 50 – for all surgeons. Hence the surgeons were compelled to continue closure of ASD's under hypothermia and mitral valvotomy as the predominant cardiac operation.

As there were no younger surgeons available to replace the senior cardiothoracic surgeons upon their retirement, they were re-employed on a contract basis to continue their service at GHC and SJGH. The scarcity of qualified personnel led to a significant number of patients seeking heart surgeries at Apollo, Chennai, where they could be attended to by Dr. M.R. Girinath.

Sri Jayewardenepura General Hospital (SJGH)

The first heart operations (CABG) were conducted in 1991 by a team led by Dr. Tom Mahendran (cardiac surgeon) and Dr. Tony Don Michael (cardiologist) at the invitation of the late President Ranasinghe Premadasa[17,18] (fig. 13).



Fig 13: The American team which set up the Cardiothoracic Unit at SJGH with the then President Mr. Ranasinghe Premadasa

The absence of a Cardiology Unit at the time was a significant drawback.

Following the departure of Dr. N. Gunasinghe, the initial cardiothoracic surgeon appointed to SJGH, the position was filled by re-employed retired cardiothoracic surgeons, namely Dr. S.J. Stephen, Dr. S. de Alwis, and Dr. N. Ganeshananthan [18]. Dr. M.R. Girinath from Apollo Hospital, Chennai, also performed several cardiac operations during his periodic visits[18].

The SJGH unit was re-established in 1995 with the appointment of Dr. P.A. Gooneratne, transforming it into a crucial center for both adult and pediatric cardiac surgery[17,18].

Dr. A. Kapuruge was later appointed as a second surgeon, and upon Dr. Gooneratne's retirement, Dr. R.Y. de Silva assumed the role. The Cardiology Unit was founded in 1995 with Dr. Naomali Amarasena as the first Cardiologist [18]. Additionally, a cardiac catheterization laboratory was installed in 2004.

Renaissance of Cardiac Surgery

In the early 1990s, four post-graduate trainees chose to specialize in cardiac surgery (fig 14).



Fig 14 : The first four PGIM Board Certified Cardiothoracic Surgeons Dr. P.N. Rajapakse, Dr. Y.K.M. Lahie, (first row) and Dr. G.A.C. Amarasena, Dr. P. A. Gooneratne (second row)

After completing local training, they pursued further training in the UK, specifically in Oxford, Cardiff, and London. This group marked the first set of trainees to undergo the Postgraduate Institute of medicine (PGIM) training program and become Board Certified in Cardiothoracic Surgery. Returning to Sri Lanka in 1994/1995, they played a pivotal role in re-establishing cardiac surgery at NHSL and SJGH.

The state sector's inaugural CABG program was initiated in 1995, led by these surgeons who also performed valve operations, complex pediatric cardiac operations, and thoracic operations. The author notably conducted the first series of successful mitral valve repairs in Sri Lanka. However, due to NHSL and SJGH being the sole cardiothoracic centers of the country, waiting lists were considerably lengthy.

Subsequently, cardiac surgical units were established in Galle and Kandy.

Cardiac and Thoracic Surgery in the Private Sector

In the late 1980s, Dr. S.J. Stephen performed Closed Mitral Valvotomy, closure of ASD under hypothermia, and lung resections at Nawaloka Hospital. In 1994, Dr. Nihal Kulatilake (fig 15), a Sri Lankan Cardiac surgeon based in Cardiff, took a year sabbatical and established the first dedicated cardiac surgical unit at Nawaloka Hospital[17,18]. This unit primarily focused on adult cardiac surgery, particularly CABGs. The staff comprised both UK expatriates and local counterparts.



Fig 15 : Dr Nihal Kulatilleke

Following Dr. Kulatilake's initiative, cardiac surgical units were subsequently established at Durdans, Lanka Hospitals, Asiri Surgical, and Central Hospital. The Durdans Cardiac Unit, established in 2000, was also set up by Dr. Kulatilake's team.

Sri Lanka's first successful double lung transplant took place at Nawaloka Hospital in November 2011. A Japanese team led by Dr. Takahiro Oto, with assistance from Dr. B.M.S Handagala, a Thoracic Surgeon from Welisara, carried out the transplant.

Additionally, a private cardiac unit initially established at Suwasevana Hospital in Kandy was later moved to Oasis Hospital, Colombo, and subsequently closed down. This unit was reopened under Kings Hospital. Private sector units were also

established in Jaffna (2015 - at Northern Central Hospital), Galle (2017 - at Galle Co-operative Hospital), and Kandy (2019 - at Asiri Hospitals).

Due to a significant shortage of cardiac surgeons in Sri Lanka, several of these units were staffed by Indian cardiac surgeons on contract and Sri Lankan surgeons who resigned early from government service. It is a sad reflection on the Ministry of Health that there are more cardiac surgical units in the private sector than in the state sector.

Paediatric Cardiac Surgery at Lady Ridgeway Hospital(LRH)

Initially, all pediatric heart disease was diagnosed and treated at the NHSL and SJGH. In 1999, a pediatric cardiology unit was established, and the cardiac catheterization laboratory was commissioned in December 2005. Pediatric cardiac surgery commenced in January 2007, with the first surgeons being Dr. I. Wijemanne and Dr. G. Ranasinghe. The current surgeons are Drs. K. Singappulli, S. Muhunthan, and Malik Soysa. The unit now performs almost all pediatric cardiac operations in Sri Lanka, covering a case mix ranging from simple ASDs and VSDs to more complex cases such as the arterial switch operation for transposition of the great vessels and univentricular repairs. In 2017, LRH established a homograft valve bank.

Galle Cardiothoracic Unit

The Cardiology Unit at Karapitiya, Galle was established in 1992, and the Cardiac Catheterization laboratory was installed in 1999. The Cardiac Surgical unit began in 1998, with Dr. Namal Gamage as the first Cardiac surgeon. Dr. Gamage was allowed to perform cardiac operations after working hours with payment from the President's Fund to maximize utilization of facilities.

Sri Lanka's first female cardiothoracic surgeon, Dr. Tolusha Harischandra (fig 16), was appointed in 2010 to Teaching Hospital Karapitiya (THK) in Galle. She initiated Sri Lanka's first ECMO (Extra Corporeal Membrane Oxygenation) program in

2014 and established the National ECMO Centre (NEC) in Galle, in 2021.



Fig 16 : Dr T Harischandra, Sri Lanka's first female cardiothoracic surgeon with author at the first inauguration ceremony of the Association of Cardiothoracic and Thoracic Surgeons of Sri Lanka in 2023.

The other two surgeons appointed to Galle were Dr Indika Muthumala and Dr Sahan Aluvihare (who subsequently migrated to UK).

Kandy Cardiothoracic Unit

Cardiac surgery commenced in Kandy in 2007, with the first surgeons being Dr. P. Ariaratnam and Dr. M. Munasinghe. The current surgeons are Dr. M. Lansakkara, Dr. A. Abeywickreme, Dr. R. Kannangara and Dr. Nalaka Dissanayake.

On 7th July 2017, history was created when Dr. Anil Abeywickrema led a team of cardiac surgeons (Drs. S. Gnanakanthan, M. Lansakkara), cardiac anaesthetists, cardiologists, and other staff, with the help of Prof. Stephen Clarke from UK performed the first successful heart transplant in Sri Lanka at TH Kandy[24].

Resurrection of Cardiac Surgery in Jaffna

After a lapse of 28 years, Cardiac Surgery was performed again in Jaffna by Dr. Ravi Perumalpillai (fig 17) at the Northern Central Hospital (NCH), a private hospital in Jaffna. On 6th July 2015, an ASD was closed on cardiopulmonary bypass[25]. Since then, closures of ASD and CABGs are being performed there[25].



Fig 17 : Dr Ravi Perumal Pillai

The Cardiac Surgical Unit at the Jaffna Teaching Hospital was resurrected in December 2017 when an ASD closure was performed on bypass by Dr. M. S. Mugunthan[26]. The unit now performs ASD closure and CABG. Dr. Perumalpillai was a driving force behind this resurrection. The current surgeons are Drs. N. Sivashangar and Palinda Bandara.

Welisara Chest Hospital and Thoracic Surgery

The Welisara Chest Hospital was established in 1946 after the military evacuated it after the second world war to primarily treat TB patients. Thoracic operations (for pulmonary TB) were initially performed there, followed by closed cardiac surgery (mitral valvotomy). Later on, the unit focused solely on surgery for pulmonary disease[9]. Due to the lack of surgeons, the unit functioned only intermittently. When the last surgeon was transferred to Colombo, there was a long hiatus during which no surgery was performed.

In 1995, retired cardiothoracic surgeons from NHSL were appointed on a contract basis to perform thoracic surgery at Welisara.

Thoracic surgery saw a resurgence when Dr. Waruna Karunaratne, the first board-certified thoracic surgeon, was appointed to Welisara in 2004. He initiated a program of thoracic surgery, including the first Video Assisted Thoracic Surgery (VATS). The unit now has three more board-certified thoracic surgeons (Drs. B.M.S. Handagala, D. Rasnayake, S. Illamgange). The Welisara Thoracic Unit performs the majority of the pulmonary surgery in Sri Lanka, including lung resection, mediastinal surgery, pleural and chest wall surgery, as well as VATS.

Other Contributions from Overseas

1. Dr. Tony Don Michael

The late Dr. Tony Don Michael, a cardiologist practicing in Los Angeles, California, brought several teams to support cardiology and cardiac surgery in Sri Lanka. Most notably, the two teams performed the first CABG operations in Sri Lanka in 1975 and 1981 and the first cardiac operations in SJGH in 1991.

2. Dr. Dudley Halpe and Dr. Jeremy Torstveitt



Fig 18 : Dr. Jeremy Torstveitt and Dr. Dudley Halpe of the Children's Heart Project of Phoenix, Arizona during one of their earliest visits in the early 1990's

Dr. Halpe, a Sri Lankan-born pediatric cardiologist, and Dr. Torstveitt, an American Pediatric Cardiac surgeon in Phoenix, Arizona, set up the Phoenix-based charity "Children's Heart Project" (CHP) after visiting Sri Lanka in 1991 (fig 18). CHP made an immense contribution to cardiac services in Sri Lanka by performing complex pediatric operations and providing training for cardiac surgeons, cardiac anesthetists, perfusionists, and nurses in pediatric cardiac surgery. CHP conducted over 40 missions, donated more than 4 million USD in supplies and equipment to NHSL, and continues to support the pediatric cardiac program at LRH.

3. Dr. Ravi Perumal Pillai

Dr. Pillai, a Sri Lankan-born Cardiac surgeon practicing in the UK, trained five present Sri Lankan Cardiac surgeons at John Radcliffe Hospital, Oxford. In the late 1990s, he brought three teams to Sri Lanka to perform complex valve and pediatric cardiac operations. Dr. Pillai performed the first series of homograft aortic valve replacements in Sri Lanka. After retirement, he settled in Sri Lanka, established the charity Oxonian Heart Foundation (OHF), and performed the first CABG in Jaffna at NCTH.

4. Dr. Nihal Kulatilake

Dr. Kulatilake, a Sri Lankan Cardiac surgeon working in Cardiff, took time off from the NHS to set up the first two cardiac surgical units in the private sector (Nawaloka Hospital – 1994, Durdans Hospital - 2000). He brought a team from the UK to establish these units and trained Sri Lankan postgraduate trainees in cardiac surgery in Cardiff.

5. Dr. C. Sivadasan

Dr. Sivadasan, a Sri Lankan-born cardiac surgeon working in Singapore, set up the Singapore Heart Transplant program. He has conducted educational visits to Sri Lanka and gifted the first Intra-Aortic Balloon Pump to the National Hospital.

6. Take Heart Mercy Mission (Guy's Mercy Mission)

This is a pediatric cardiac surgical program initiated by Mr. Conel Austin, a pediatric cardiac surgeon in London. They have performed over 200 pediatric cardiac surgical procedures.

7. Prof Stephen Clarke

A professor in Newcastle, UK, Prof. Clarke has been a post graduate trainer to Sri Lankan trainees and helped perform the first heart transplant in Sri Lanka.

8. Mr. R.K Firmin

Mr. Firmin a Cardiothoracic Surgeon from Leicester, UK, brought his surgical team and performed the first cardiac operations in Galle in 1989, including 80 pediatric cardiac operations. His team included Dr. Ranjith Leanage, a Sri Lankan-born cardiologist (fig19).



Fig 19 : Dr Firmin and Dr Leanage during their early visits to THK , Galle in the early 1990's

Mr. Firmin trained two Sri Lankan trainees in cardiothoracic surgery. He continues to work on a voluntary basis at THK, Galle and has been involved in about 300 operations to date. He helped set up Sri Lanka's first ECMO program at THK Galle, and continues to support it.

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