

Original Article

Introduction to the supplement: rare and challenging congenital cardiac lesions: an interdisciplinary approach

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THIS SUPPLEMENT TO *CARDIOLOGY IN THE YOUNG* represents the eighth annual supplement generated from the two meetings that compose "Heart Week in Florida".^{1–7} As I have emphasised in previous supplements, Florida is the fourth largest state in the United States of America. The programme for care of children with congenital cardiac malformations at the Children's Hospital of Philadelphia is one of the largest, and most prestigious and comprehensive, in the world. The Congenital Heart Institute of Florida, in turn, is the largest and most comprehensive programme providing services for patients with congenital cardiac disease in Florida. "Heart Week in Florida", the joint collaborative project sponsored by the Cardiac Center at the Children's Hospital of Philadelphia, together with All Children's Hospital of Saint Petersburg and the Congenital Heart Institute of Florida, averages over 1000 attendees every year and is now recognised as one of the major planks of continuing medical and nursing education for those working in the fields of diagnosis and treatment of cardiac disease in neonates, infants, children, and adults.

All institutions involved with the organisation of the events of "Heart Week in Florida" are very grateful to Bob Anderson, and the team at *Cardiology in the Young*, for their support, and for the opportunity to publish this supplement, as well as the seven prior supplements. On a personal note,

I would like once again to congratulate Bob for his ability to remain massively involved in the academic world of professionals caring for patients with congenitally malformed hearts, even after his official so-called "retirement". I would again like to thank Bob for his support, friendship, mentorship, professional guidance, and advice over the past 13 years. Bob has played a major role in the development of my own career, and I am appreciative of all that he has done for me. He placed an amazingly high level of trust in me when I was very young, and I appreciate this support. Bob has also been a strong supporter and advocate of our programme at All Children's Hospital and The Congenital Heart Institute of Florida for quite some time. In February, 2011, Bob will be a featured speaker at our annual February meeting for the tenth consecutive year. Every morning for all 10 of these years, we begin our sessions with an anatomy lesson from Bob. On a daily basis, he sets the stage for the rest of the day, and raises the academic level of our meeting.

The Cardiac Center at the Children's Hospital of Philadelphia hosted its 13th Annual Postgraduate Course in Disney's Contemporary Resort in Orlando, Florida, from February 10 through 14, 2010. This annual meeting organised by The Cardiac Center at the Children's Hospital of Philadelphia, under the direction of Gil Wernovsky and Tina Mannices, is typically attended by over 750 professionals and exhibitors gathered from around the globe to hear late-breaking research, to discuss controversial topics, to review current practices, and to enjoy each others' company and insight.⁸

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Physicians make up approximately half of the attendees, and include representation from all disciplines involved in the care of children with cardiac disease, including cardiologists, intensivists, surgeons, anaesthesiologists, neonatologists, and maternal foetal specialists. The remaining attendees include advanced practice, operating room, catheterisation lab and bedside nurses, sonographers, physician assistants, respiratory therapists, perfusionists, and administrators. A highlight of the meeting organised by the Children's Hospital of Philadelphia is the featured lectures in Cardiac Surgery, Cardiology, Anesthesia and Critical Care Medicine, and Nursing (Table 1). Over the past several years, this meeting has typically alternated annually between an east coast meeting, usually in Orlando, Florida, and a west coast meeting, usually in Scottsdale, Arizona. In 2009, however, the Cardiac Center at the Children's Hospital of Philadelphia hosted its 12th Annual Update on Pediatric and Congenital Cardiovascular Disease: Strategies to Improve Care Through a Multidisciplinary Approach at Atlantis in Paradise Island, Bahamas, from 4–8 February, 2009. In February, 2010, the meeting organised by the Children's Hospital of Philadelphia returned to Florida. The 13th Annual Update on Pediatric Cardiovascular Disease: Bringing Interdisciplinary Evidence-Based Practice to the Patient, organised by the Children's Hospital of Philadelphia, was held in Orlando, Florida, from 10–14 February, 2010, at the Contemporary Resort and Convention Center in Walt Disney World. This 13th Annual Meeting was locally hosted by the Arnold Palmer Hospital for Children in Orlando, Florida. The Arnold Palmer Hospital for Children is also a Co-Sponsor of this supplement along with All Children's Hospital, The Congenital Heart Institute of Florida, and the Children's Hospital of Philadelphia.

In February, 2011, the meeting organised by the Children's Hospital of Philadelphia will return to Arizona. The 14th Annual Update on Pediatric and Congenital Cardiovascular Disease: A Holistic Approach – Bringing Interdisciplinary Evidence-based Practice to the Patient, organised by the Children's Hospital of Philadelphia, will be held in Scottsdale, Arizona, from 2–6 February, 2011, at the Hyatt Regency Scottsdale Resort and Spa at Gainey Ranch, Scottsdale, Arizona. To view the entire programme and register for the meeting, please visit the following web site: [www.chop.edu/cardiology2011]. For detailed information, please e-mail Tina Mannices at: [mannices@email.chop.edu].

In 2010, the component of the joint programme organised by The Congenital Heart Institute of Florida, along with All Children's Hospital, and representing our own 10th Annual International Symposium on Congenital Heart Disease, was held

Table 1. The featured lectures given thus far during the annual postgraduate course in paediatric cardiovascular disease organised by Children's Hospital of Philadelphia.

The "C. Walton Lillehei" Lecture	
2000	Thomas R. Karl
2001	Marc de Leval
2002	Aldo R. Castaneda
2003	Thomas L. Spray
2004	William G. Williams
2005	Edward L. Bove
2006	Martin Elliott
2007	Pedro J. del Nido
2008	Frank L. Hanley
2009	Scott M. Bradley
2010	J. William Gaynor
The "William J. Rashkind"	
2002	Thomas P. Graham
2003	Welton M. Gersony
2004	Jane W. Newburger
2005	Norman H. Silverman
2006	Andrew Redington
2007	Philipp Bonhoeffer
2008	Robert Shaddy
2009	Lynn Mahony
2010	Robert Campbell
The "T. Garrett Rauch" Memorial Nursing Lecture	
2000	Jane Barnsteiner
2001	Nancy Eckle
2002	Catherine K. Madigan
2003	Patricia A. Hickey
2004	Mary Fran Hazinski
2005	Elisabeth C. Smith
2006	Kathleen Mussatto
2007	Martha A.Q. Curley
2008	Cynda Hylton Rushton
2009	Philip Moons
2010	Afaf I. Meleis
John C. Downes Lecture in Pediatric Anesthesia and Critical Care Medicine	
2008	William J. Greeley
2009	Peter C. Laussen
2010	David L. Wessel

from 6 through 9 February, 2009, with its focus being on *Rare and Challenging Lesions*. Our Annual International Symposium on Congenital Heart Disease with Echocardiographic, Anatomic, Surgical, and Pathologic Correlation is held every February, and is now entering its eleventh year. This meeting is sponsored by All Children's Hospital [www.allkids.org], The Congenital Heart Institute of Florida [www.chif.us], and the University of South Florida. Our meeting in 2009 was our ninth annual meeting, and was for the first time co-sponsored by The American Association for Thoracic Surgery [http://www.aats.org/CME/Programs.html]. Our meeting in 2010 was again co-sponsored by The American Association for Thoracic Surgery, with its focus on *Rare and Challenging Lesions*, with

sessions aimed specifically at multidisciplinary issues related to the following topics:

- pulmonary atresia with intact ventricular septum in the presence of fistulous connections with the coronary arteries,
- hypoplastic left heart syndrome in the presence of fistulous connections with the coronary arteries,
- anomalous pulmonary origin of coronary arteries,
- anomalous aortic origin of coronary arteries,
- aortopulmonary window,
- aortico-ventricular tunnels, and
- congenital cardiac disease associated with tracheal stenosis.

The overall emphasis of the meeting is multidisciplinary, with involvement of paediatric cardiac surgery, paediatric cardiology, paediatric cardiac critical care, paediatric cardiac anaesthesia, nursing, perfusion, and ultrasonography. Attendance at our meeting is typically between 250 and 300 participants.

- Our meeting held in 2007 had 269 attendees from 30 states and 14 countries. Attendees were 43% physicians, 41% nurses, perfusionists, and ultrasonographers, and 16% allied health-care professionals. The University of South Florida designated this educational activity for a maximum of 24.25 AMA PRA Category 1 credits.
- Our meeting held in 2008 had 270 attendees from 32 states and 16 countries. Attendees were 52% physicians, 31% nurses, perfusionists, and ultrasonographers, and 17% allied health-care professionals. The University of South Florida College of Medicine designated this educational activity for a maximum of 30.25 AMA PRA Category 1 credits.
- Our meeting held in 2009 had 270 attendees from 32 states and 16 countries. Attendees were 40% physicians, 49% nurses and physician assistants, and 11% perfusionists, ultrasonographers, and allied health-care professionals. The University of South Florida College of Medicine designated this educational activity for a maximum of 29.5 AMA PRA Category 1 credits (programme no. BD2009399/1170).
- Our 2010 meeting had 230 attendees from 29 states and 18 countries. Attendees were from the following categories: physicians (115), physician assistants (7), nurse practitioners (17), registered nurses (35), sonographers (16), perfusionists (4), and others (36).

Table 2 highlights the featured topics and speakers from the meeting held in Saint Petersburg. The true summit of this meeting is the George Daicoff Lecture, given by the featured speaker to

honour the founder of our surgical programme in Saint Petersburg, George Daicoff. Previous and future Daicoff Lectures are presented below:

- Leonard L. Bailey and his wife Nancy from Loma Linda University Medical Center, California (2003)
- Martin J. Elliott from The Great Ormond Street Hospital for Children, London, United Kingdom (2004)
- Marc deLeval from The Great Ormond Street Hospital for Children, London, United Kingdom (2005)
- Ross M. Ungerleider and his wife Jamie Dickey from the Oregon Health Sciences University, Oregon (2006)
- Constantine Mavroudis and Carl Backer from the Children's Memorial Hospital, Chicago (2007)
- Tom Spray from the Children's Hospital of Philadelphia, Philadelphia (2008)
- Marshall Lewis Jacobs from Drexel University College of Medicine, Philadelphia, Pennsylvania (2009)
- Roberto Canessa from Montevideo, Uruguay (2010)
- Edward L. Bove from the University of Michigan, Ann Arbor, Michigan (2011).

The Daicoff lecture for 2010 was given by Roberto Canessa, MD, and was titled: "The Value of Life – Lessons from the Andes". Dr Canessa is considered the best paediatric cardiologist in Uruguay and is "one of 16 Uruguayan rugby players, friends, and relatives who survived for 2 months after their plane crashed in the Andes and are forever bound to one another. The details of their story, made famous in the book and movie *Alive*, are too gruesome to forget: With just the remnants of the plane's contents at their disposal, the group had no choice but to turn to cannibalism. Three of the young men, Roberto Canessa, Nando Parrado, and Antonio Vizintín, made a daring trek through the mountains to reach help. While Vizintín returned to the fuselage, Canessa and Parrado made human contact in Chile after 10 days. Their friends back at the wreckage were back home in time for Christmas". [<http://nationalgeographic.org/adventure/alive/survivors.html>]

At the time of the plane crash, Dr Canessa was a second year medical student. After the plane crash, he continued to study medicine. He is married to Laura, and has two sons and a daughter. He is considered the best paediatric cardiologist in Uruguay. He ran for the Uruguayan Presidency in the 1994 elections but lost. [<http://members.aol.com/PorkinsR6/now.html>]

Table 2. Featured topics and speakers during the symposiums organised by the Congenital Heart Institute of Florida and All Children's Hospital.

2002	Second Annual Symposium
Focus	Abnormalities of the ventricular inlets and atrioventricular valves
Day 1	Echocardiography
Day 2	Tricuspid valve
Day 3	Mitral valve
Day 4	Common atrioventricular valve
Featured guest speaker	Bob Anderson, Great Ormond Street, London, United Kingdom
2003	Third Annual Symposium
Focus	Hypoplastic left heart syndrome
Day 1	Echocardiography
Day 2	Staged palliation and the Norwood operation
Day 3	Replacement therapy and cardiac transplantation
Day 4	Biventricular repair
Featured guest speakers	Leonard L. Bailey and his wife Nancy Loma Linda University Medical Center, Loma Linda, California
2004	Fourth Annual Symposium
Focus	Controversies concerning the ventriculo-arterial junctions
Day 1	Echocardiography
Day 2	Pulmonary valve and reconstructions of the right ventricular outflow tract
Day 3	The aortic valve and the Ross procedure
Day 4	The arterial switch procedure
Featured guest speaker	Martin J. Elliott, Great Ormond Street, London, United Kingdom
2005	Fifth Annual Symposium
Focus	The functionally univentricular heart
Day 1	Echocardiography
Day 2	Shunts and Bands
Day 3	Glenn and Fontan procedures
Day 4	Cardiac transplantation
Featured guest speaker	Marc deLeval, Great Ormond Street, London, United Kingdom
2006	Sixth Annual Symposium
Focus	Ventricular inlets and atrioventricular valves
Day 1	Echocardiography
Day 2	Tricuspid valve
Day 3	Mitral valve
Day 4	Common atrioventricular valve
Day 5	Discordant atrioventricular connections
Featured guest speakers	Ross M. Ungerleider, and his wife Jamie Dickey, Doernbecher Children's Hospital, Oregon Health Sciences University, Portland, Oregon
2007	Seventh Annual Symposium
Focus	Hypoplastic left heart syndrome
Day 1	Echocardiography
Day 2	Staged palliation and the Norwood operation
Day 3	Replacement therapy with cardiac transplantation, Biventricular repair and hybrid procedures
Day 4	Adults with congenital heart disease
Featured guest speakers	Constantine Mavroudis and Carl Backer Children's Memorial Hospital, Chicago, Illinois
2008	Eighth Annual Symposium
Focus	TOF
Day 1	Echocardiography
Day 2	TOF with pulmonary stenosis
Day 3	Complex TOF
Day 4	Adults with congenital heart disease – late problems with TOF Paediatric cardiac critical care
Featured guest speaker	Tom Spray, Children's Hospital of Philadelphia, Philadelphia, Pennsylvania
2009	Ninth Annual Symposium
Focus	Cardiac septal defects
Day 1	Critical care symposium
Day 2	Echocardiography
Day 3	Atrial septal defects
Day 4	Ventricular septal defects
Day 5	Atrioventricular septal defects
Featured guest speaker	Marshall Lewis Jacobs, MD, Drexel University College of Medicine, Philadelphia, Pennsylvania

Table 2. *Continued*

2010	Tenth Annual Symposium
Focus	Rare and challenging lesions
Day 1	Echocardiography
Day 2	Pulmonary atresia-intact ventricular septum with coronary fistulas or sinusoids present, and hypoplastic left heart syndrome with coronary artery fistulas or sinusoids present
Day 3	Anomalous pulmonary origin of coronary artery, and Anomalous aortic origin of coronary artery
Day 4	Aortopulmonary window, aortico-left ventricular tunnel, and Congenital cardiac disease associated with tracheal stenosis
Featured guest speaker	Roberto Canessa, MD, Montevideo, Uruguay
2011	Eleventh Annual Symposium
Focus	Hypoplastic left heart syndrome
Day 1	Echocardiography and TEE symposium: HLHS
Day 2	The hybrid approach
Day 3	The Norwood operation
Day 4	The role of cardiac transplantation and ethics of caring for patients with HLHS
Featured guest speaker	Edward L. Bove, The University Of Michigan, Ann Arbor, Michigan

TEE = transesophageal; TOF = tetralogy of Fallot; HLHS = hypoplastic left heart syndrome

In 2011, the Congenital Heart Institute of Florida and All Children's Hospital will host our 11th annual meeting, which will take place from 10 through 13 February. The focus will be Hypoplastic Left Heart Syndrome. The Daicoff lecture for 2011 will be given by Edward L. Bove and will be titled: "Innovation and Regulation: Can They Both Exist in Today's Medical Environment". Additional speakers in Saint Petersburg in February, 2011 will include William I. Norwood, Leonard L. Bailey, and Robert Anderson. To view the entire programme for our meeting and to register for the meeting, please visit the following web site: [www.allkids.org/conferences]. For detailed information, please e-mail Melodye Farrar at: [Melodye.Farrar@allkids.org].

We have now reached the situation whereby the proceedings of the meetings held in 2003, 2004, 2005, 2006, 2007, 2008, 2009, and 2010 have been published as supplements to *Cardiology in the Young*.¹⁻⁷ This supplement is therefore the eighth supplement to *Cardiology in the Young* that we have produced from the annual meeting held in Saint Petersburg; this supplement is also the sixth that we have produced jointly with the Children's Hospital of Philadelphia (2004, 2006, 2007, 2008, 2009, and 2010^{2,4-7}):

- 2003 Meeting: Controversies Relating to the Hypoplastic Left Heart Syndrome
- 2004 Meeting: Controversies of the Ventriculo-Arterial Junctions and Other Topics
- 2005 Meeting: Controversies and Challenges in the Management of the Functionally Univentricular Heart
- 2006 Meeting: Controversies and Challenges of the Atrioventricular Junctions and Other Challenges Facing Paediatric Cardiovascular Practitioners and their Patients

- 2007 Meeting: Controversies and Challenges Facing Paediatric Cardiovascular Practitioners and their Patients
- 2008 Meeting: Controversies and Challenges of Tetralogy Of Fallot and Other Challenges Facing Paediatric Cardiovascular Practitioners and Their Patients
- 2009 Meeting: Innovation Associated with the Treatment of Patients with Congenital and Pediatric Cardiac Disease
- 2010 Meeting: Rare and Challenging Congenital Cardiac Lesions: An Interdisciplinary Approach.

The part of the joint programme organised by The Congenital Heart Institute of Florida and All Children's Hospital will continue to take place in Saint Petersburg, even in the years when the part designed by the Children's Hospital of Philadelphia will be held outside of Florida, as occurred in 2009 in the Bahamas, and as will occur in 2011, when the meeting organised by the team from the Children's Hospital of Philadelphia will return to Arizona. Even during these years when the meeting organised by the Children's Hospital of Philadelphia is held outside of Florida, "Heart Week" will continue to be a collaborative project as manifest by the collaborative publication of this supplement, as well as by the various shared members of our international faculties. As has been stated on the web site for the programme coordinated by the Children's Hospital of Philadelphia, "Providing optimal care for neonates, children and young adults with cardiac disease requires a multidisciplinary team approach, including physicians (from cardiology, cardiac surgery, cardiothoracic anaesthesia, neonatal and paediatric critical care medicine, and multiple consulting services), nurses, perfusionists, respiratory therapists, social workers, and

many others. All of these various practitioners must be experts in their own area, but should also be knowledgeable in what the other members of the team provide to the overall care of the patient". This statement presents the rationale not only for the annual part of the meeting emanating from the Children's Hospital of Philadelphia, but also for "Heart Week in Florida". Both meetings are proud to emphasise collaboration that spans traditional geographic, subspecialty, and professional boundaries.

In recent years, we have dedicated this "Heart Week Supplement" to leaders in the field of caring for patients with paediatric and congenital cardiac disease:

- The supplement from the 2007 Heart Week was dedicated to Professor Robert Anderson.
- The supplement from the 2008 Heart Week was dedicated to Hiromi Kurosawa of The Heart Institute of Japan and Tokyo Women's Medical University, Tokyo, Japan, and Norman Silverman of Stanford University and Lucile Packard Children's Hospital, Palo Alto, California, United States of America.
- The supplement from the 2009 Heart Week was dedicated to Marshall Lewis Jacobs and Charles S. Kleinman.

The theme of this supplement generated from the 2010 Heart Week in Florida is "Rare and Challenging Congenital Cardiac Lesions: An Interdisciplinary Approach". We would like to dedicate this supplement to two physicians who are both leaders in the field of caring for patients with paediatric and congenital cardiac disease and who have both been on the faculty of our meeting in Saint Petersburg for multiple years: Constantine Mavroudis and Gerald Marx.

Tribute to: Gerald Marx by Jeff Jacobs and Jim Huhta

Our upcoming meeting in February, 2011 in Saint Petersburg will mark the tenth year in a row that Jerry Marx has been on our faculty. It is hard for me to believe that it has been 11 years now that we have been holding this meeting. Several members of our faculty, including Jerry Marx, Norm Silverman, Robert Anderson, and Carl Backer, have been on our faculty for ten consecutive years!

Jerry is a loyal, dedicated, and hard-working member of our faculty. Each year he presents brilliant talks with awesome echocardiographic images, usually preceded by a bit of entertaining humour. Jerry is a valued member of the faculty at our meeting, and he adds tremendously to our academic content.

Between 1976 and 1982, Jerry was an intern in Medicine (1976–1977), a Junior and Senior Resident

in Medicine (1977–1979), and a Fellow in Cardiology (1979–1982) at the Children's Hospital Medical Center in Boston, Massachusetts. In 1982–1983, he was Assistant Professor of Pediatrics (Cardiology) at the University of Oregon Health Sciences Center, Portland, Oregon. From 1983–1987, he was Assistant Professor of Pediatrics (Cardiology) and then Associate Professor of Pediatrics (Cardiology) at the University of Arizona Health Sciences Center in Tucson, Arizona. From 1992–1997, he was on the faculty at the Tufts University School of Medicine, New England Medical Center, Boston, Massachusetts. In 1998, Jerry returned to Harvard and Boston Children's Hospital, where he has remained for the past 12 years.

Jerry's career exemplifies clinical excellence combined with multiple important contributions in the domains of teaching and research. He has authored over 100 peer-reviewed publications and has taught echocardiography and three-dimensional echocardiography to countless students, residents, and fellows. Jerry has made important academic contributions in multiple domains including three-dimensional echocardiography,^{9–11} foetal echocardiography,^{12,13} and the management of patients with hypoplastic left heart syndrome^{12,13} and borderline left hearts.¹⁴ Jerry has been an advocate for and a model of interdisciplinary collaboration. He also has the unique skill set to combine these professional contributions with time to be a devoted and wonderful husband and father (Fig 1).

On a personal note, my wife, children, and I truly value our friendship with Jerry and his family. We have been guests in their home (Fig 2), and we truly appreciate our special friendship with the entire Marx family. I can honestly say that when I am on the faculty for a meeting and I see that Jerry Marx is on the programme, I know that I will learn from him, and then also have great fun at a combined Marx–Jacobs dinner! Jerry Marx is a special and wonderful person and I am honoured to have him as my friend.

Our programme had been truly honoured to have Jerry on our faculty every year for the past 10 years (Fig 3), and we look forward to several more decades with Jerry on our faculty, teaching our team, and being our friend. I asked Jim Huhta to write a few paragraphs about Jerry Marx (Fig 4); these paragraphs are presented below and really say it all:

Comments by Jim Huhta

When I was asked to write about Jerry Marx, I was pleased and humbled. It is the rare combination of winsome personality and high intellect that makes Jerry an outstanding friend and mentor. He is passionate about his work that involves pioneering the use of three-dimensional echocardiography in the diagnosis and management of congenital cardiac



Figure 1.

The Marx family at the Multi-Societal Joint Meeting of the World Society for Pediatric and Congenital Heart Surgery (WSPCHS) dedicated to Aldo R. Castaneda; July 15–17, 2010; Antigua, Guatemala.



Figure 2.

All those who know Jerry Marx realise that he is a huge fan of the Boston Red Sox.

disease. Equally passionate about his patients, he is a sought-after clinician for his good bedside manner and compulsive dedication to what is best for the child and family that he is serving.

On a personal note, Jerry is many things to many people, but to everyone he is EDIFYING. The American Heritage[®] Dictionary of the English

Language¹⁵ defines edify as “to instruct especially so as to encourage intellectual, moral, or spiritual improvement”. The word is from the Middle English *edifien*, from the Old French *edifier*, and from the Late Latin *aedificāre*, “to instruct spiritually”. It also can mean to instruct, school, teach, inform, guide, improve, educate, nurture, elevate, enlighten, or



Figure 3.

The paediatric table at a faculty dinner associated with the Annual International Symposium on Congenital Heart Disease held in Saint Petersburg, Florida. Please note the age differential in the daughter of Jerry Marx (centre) in comparison to the more recent photograph in Figure 1.



Figure 4.

Jim Hubta and Jerry Marx.

uplift. It is this quality of Gerald Marx that is so endearing and elevating. He is never didactic, supercilious, nor holier than thou. Each time you come away from him, you realise that you have been edified and that you are better and smarter for your interaction with him.

Jerry fights a battle every day. He is a man in pursuit of excellence. Never satisfied with half best or half done, he desires that what he does be done right. And yet, he performs this with kindness. As the words of 2 Corinthians 8:7 remind us: “But as you excel in everything – in faith, in speech, in

knowledge, and in all eagerness and in the love from us that is in you – make sure that you excel in this act of kindness too” (New English Translation).

The only word that comes to mind in watching Jerry do an echocardiogram is transcendence. Jerry “goes beyond” the usual protocol for examination of a heart with echocardiography. He adds to the information in a genius sort of way that leaves observers mystified. In essence, Jerry is an artist. He extracts the anatomical and physiological information from the examination and creates a masterpiece in pictures to illustrate the findings. Such a skill and attitude is well worth emulating in the world of cardiology.

Tribute to: Constantine Mavroudis

Gus Mavroudis is truly one of the leading paediatric cardiac surgeons in the world. His career has exemplified excellence in multiple domains. In the final manuscript of this supplement,¹⁶ Robert Campbell, Chief of Pediatric Cardiology at Children’s Health care of Atlanta Sibley Heart Center, Emory University School of Medicine in Atlanta, Georgia, describes the “quintuple threat” professional as the health-care professional, with excellence in the five domains:

- clinical care,
- teaching,

- research,
- business leadership, and
- alignment.

Gus Mavroudis truly is the “quintuple threat” professional, with sustained excellence in all five of these areas.

Constantine Mavroudis, MD, was born in Thasos, Greece (Fig 5), the son of a naturalised American citizen. He moved to New York City at the age of 1 year. He grew up in Jersey City, received a Bachelors of Science from Rutgers University, and a Medical Degree from The University of Virginia School of Medicine. He then completed General Surgery training, Thoracic-Cardiovascular training, and a Research Fellowship, all at the University of California, San Francisco, where he was mentored by the late Paul Allen Ebert, MD (1932–2009).

Dr Mavroudis held his first faculty position at The University of Louisville School of Medicine, where he became Chief of Pediatric Cardiac Surgery and rose to the rank of Professor of Surgery. He was then recruited to the Children’s Memorial Hospital, Northwestern University Feinberg School of Medicine and became the Willis J. Potts Professor of Surgery, Division Director of Pediatric Cardiac Surgery, and Surgeon-in-Chief. After a 19-year tenure at the Children’s Memorial Hospital and Northwestern University Feinberg School of Medicine, Dr Mavroudis was then recruited to the Cleveland Clinic as Chairman of the Department of



Figure 5.

Gus Mavroudis has transformed himself from a Professor of Cardiac Surgery to a Professor of Ancient History during this walking tour of the Acropolis of Athens, Greece. In the background is the Parthenon (Ancient Greek: Παρθενών), a temple in the Athenian Acropolis, Greece, dedicated to the Greek goddess Athena, whom the people of Athens consider as their protector.³²

Pediatric and Congenital Heart Surgery and Ross Professor. His practice at the Cleveland Clinic attracts patients from the United States and abroad because of his expertise in the fields of complex congenital cardiac repairs, surgery for arrhythmias, revision and conversion of the Fontan circulation, coronary arterial surgery in children, and cardiac transplantation.

Dr Mavroudis's major interests include complex congenital cardiac disease, thoracic surgical education, and development of international nomenclature for paediatric and congenital cardiac disease as well as the Society of Thoracic Surgeons Congenital Heart Surgery Database. He has published over 350 peer-reviewed articles and book chapters and is the Editor of the standard textbook, *Pediatric Cardiac Surgery*, now in preparation of the fourth edition. He has served as editor or co-editor for six other textbooks.

Gus has made significant academic contributions in multiple domains including nomenclature and databases for paediatric and congenital cardiac disease,¹⁷ the revision of the Fontan circulation,^{18–25} and surgery for congenital abnormalities of the coronary arteries.^{26–30} In 1995, Gus won the President's Award at the Southern Thoracic Surgical Association for the Best Scientific Paper for his presentation titled: "Taussig-Bing Anomaly: Arterial Switch versus Kawashima Intraventricular Repair".³¹ His groundbreaking accomplishments related to revision of the Fontan circulation were recognised in 2007 when he received the prestigious Society of Thoracic Surgeons J. Maxwell Chamberlain Memorial Paper for Congenital Heart Surgery for his presentation entitled: "Surgical Lessons from the First 100 Fontan Conversions with Arrhythmia Surgery".²⁵

Gus is a member and serves in leadership positions in essentially all of the major professional organisations of cardiothoracic surgery. Dr Mavroudis is past president of two of the most prestigious and significant cardiac surgical professional organisations in the world:

- The Southern Thoracic Surgical Association [<http://www.stsa.org/>], and
- The Congenital Heart Surgeons' Society [<http://www.chss.org/>].

Gus was the founder of the Society of Thoracic Surgeons Congenital Heart Surgery Database and was its Chair from the beginning of this database in the mid-1990s until January, 2006. In January, 2006, under the leadership of Gus, I was appointed as the Chair of the Society of Thoracic Surgeons Congenital Heart Surgery Database. Any success that I have had in this position is secondary to the mentorship and support that I have received from Gus.

The leadership provided by Gus when he created the International Congenital Heart Surgery Nomenclature and Database Project¹⁷ essentially revolutionised the science of outcomes analysis for patients with paediatric and congenital cardiac disease and has provided the foundation for ongoing research by multiple investigators (including me!) in multiple domains (Fig 6):

- Common language = nomenclature
- Mechanism of data collection (database – registry)
- Mechanism of evaluating case complexity
- Mechanism to verify data validity and accuracy
- Collaboration between subspecialties
- Longitudinal follow-up
- Quality improvement.

On a personal note, I must admit that my professional career has been enhanced tremendously secondary to the outstanding mentorship that I have received from Gus Mavroudis. My friendship with Gus and our professional association have been a true highlight of my career and life. Our interactions expand far beyond medicine and surgery and into the domains of sports, music, and family.

Besides being a "quintuple threat" professional, Gus is also a devoted and wonderful husband and father (Fig 7) and an accomplished Triathlete (Fig 8). Gus is one of the very few paediatric cardiac surgeons in the worlds to have completed an IronMan 70.3 triathlon. Indeed, Gus excels as a surgeon, teacher, researcher, leader, athlete, husband, and father. He also excels as a mentor and friend, and I am blessed that he has mentored me and that he is my friend.

This Heart Week 2010 Supplement

We are pleased and honoured to dedicate this supplement to Jerry Marx and Gus Mavroudis. As stated above, the theme of this supplement generated from the 2010 Heart Week in Florida is "Rare and Challenging Congenital Cardiac Lesions: An Interdisciplinary Approach". Both Constantine Mavroudis and Gerald Marx are huge advocates of interdisciplinary collaboration. Throughout their careers, they have promoted collaboration that spans traditional geographic, subspecialty, and professional boundaries. This concept is the very essence of Heart Week in Florida! It is our honour to dedicate this supplement to these two special doctors.

All manuscripts in this supplement undergo formal peer review. All manuscripts in *Cardiology in the Young*, and all manuscripts in all supplements to *Cardiology in the Young*, including this supplement, are listed in MEDLINE[®], which is the premier



Figure 6.

Photograph taken at the 9th Annual Farouk S. Idriss MD Lecture, Chicago, Illinois, Friday, 1 October, 1999. From left to right: Constantine Mavroudis, Christo I. Tchervenkov, Francois G. Lacour-Gayet, Jeffrey Phillip Jacobs, Carl Lewis Backer, and Marshall Lewis Jacobs.

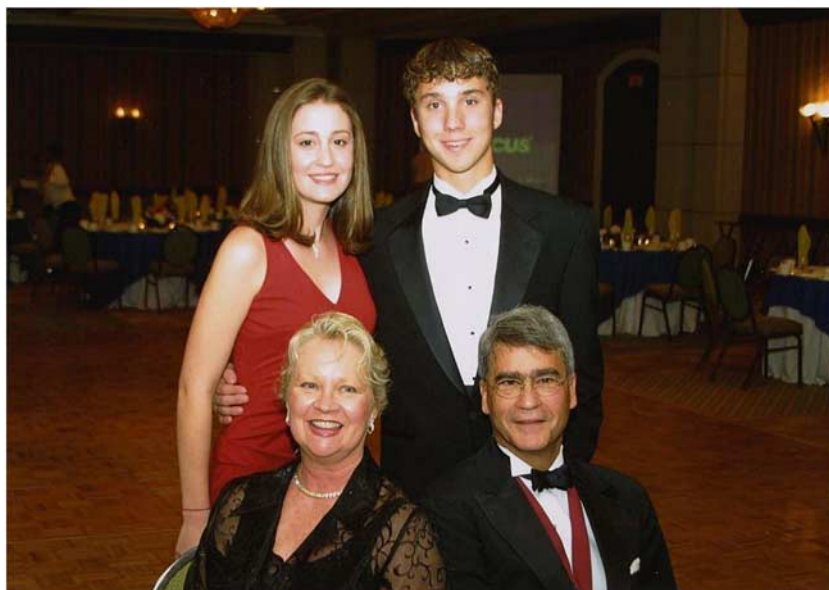


Figure 7.

The Mavroudis family.

bibliographic database of the National Library of Medicine of the United States of America covering the fields of medicine, nursing, dentistry, veterinary

medicine, the health-care system, and the pre-clinical sciences. All manuscripts in *Cardiology in the Young*, and all manuscripts in all supplements to



Figure 8.
The Sarasota Sharks Triathlon – 13 May, 2006.

Cardiology in the Young, including this supplement, are assigned a digital object identifier, which is a unique and persistent digital identification code for any object of intellectual property. The references to these articles and their digital object identifier can be found in PubMed, which comprises more than 20 million citations for biomedical literature from MEDLINE, life science journals, and online books. Citations in PubMed may include links to full-text content from PubMed Central and publisher web sites.

It is gratifying for me, as a representative of the Congenital Heart Institute of Florida and All Children's Hospital, to confirm our ongoing commitment to continue "Heart Week in Florida", combining the International Symposium on Congenital Heart Disease organised by All Children's Hospital and The University of South Florida with the annual postgraduate course in Pediatric Cardiovascular Disease organised by the Children's

Hospital of Philadelphia. I thank Gil Wernovsky, Director of the meeting organised by the Children's Hospital of Philadelphia, as well as Tina Mannices, Manager of Continuing Medical Education at the Children's Hospital of Philadelphia, and also Tom Spray and Bill Gaynor, for their support.

The supplement that you are now about to read, therefore, focuses on "Rare and Challenging Congenital Cardiac Lesions: An Interdisciplinary Approach". It has been prepared to give a flavour of the presentations given during the two meetings that composed Heart Week in Florida, in Saint Petersburg and Orlando, in February of 2009.

The theme of the supplement is *Rare and Challenging Lesions*. After this Introduction, the first series of articles focuses on a multidisciplinary approach to rare congenital lesions involving the coronary arteries. These articles are followed by a series of articles that address other rare and

challenging problems associated with paediatric and congenital cardiac disease. Multiple disciplines will be considered including cardiac morphology, echocardiography, interventional cardiology, electrophysiology, critical care, nursing, and research. The final article in the supplement is the publication of the 9th Annual William J. Rashkind Memorial Lecture in Pediatric Cardiology: “The Reimbursement Tsunami: Preserving the Passion”, by Robert Campbell, Chief of Pediatric Cardiology at Children’s Healthcare of Atlanta Sibley Heart Center, Emory University School of Medicine, Atlanta, Georgia, United States of America. This lecture and article by Robert Campbell provides an important analysis of the future of our professions. Then, the final portion of the supplement is the publication of abstracts from Cardiology 2010, 13th Annual Update on Pediatric and Congenital Cardiovascular Disease: Bringing Interdisciplinary Evidence-Based Practice to the Patient, Orlando, Florida, 10–14, February 2010.

Over the years, Heart Week in Florida has provided many opportunities for the excellent scientific exchange of ideas and the development of awesome friendships. I would like again to thank Bob Anderson for all of his help, support, trust, and patience during the preparation of this supplement. I would also like to thank my good friends and co-editors of this supplement, Gil Wernovsky and David S. Cooper. For the second year in a row, we are happy to have David Goldberg join our Editorial team. Both David Cooper and David Goldberg are rising stars in the field of paediatric cardiology and paediatric cardiac critical care. David Goldberg has prepared and edited the abstracts that are published in this supplement from the meeting in Orlando in 2010. Finally, we are very pleased to have William M. DeCampli, Chief of Pediatric Cardiac Surgery at Arnold Palmer Hospital for Children in Orlando, Florida, join our editorial team. Bill has devoted substantial time and effort to the production of this supplement; and without his significant contribution, we would not have been able to produce this supplement.

I would especially like to thank Nicki Marshall of *Cardiology in the Young* for her incredible editorial support. Without their help, this project would not have been possible. I would also like to thank Daniel Edwards of Cambridge University Press for his support.

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to thank the other Directors of our Saint Petersburg meeting, namely James C. Huhta, Richard Martinez, David S. Cooper, James S. Tweddell, and my partner James Anthony Quintessenza, as well as Gul Dadlani, the All Children’s Hospital Faculty Chair.

Jim Huhta initiated this meeting, and I am grateful that he gave me the opportunity to collaborate with him on this initiative (and multiple other initiatives). Jim and I have now collaborated on this meeting for 11 years. The meeting would not have been possible without the leadership and vision of Jim. Finally, I would like to thank my current partners Jim Quintessenza and Paul Chai, my former partners Victor Morell and Harald Lindberg, for their constant support and guidance, and my wife Stacy, and children Jessica and Joshua, for their understanding and patience. It continues to be an ongoing fact, as I have emphasised in previous introductions to supplements, that all of the family members of the authors of the reviews included in this supplement are owed a debt of gratitude, because writing manuscripts markedly decreases the time available with them.

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