

I. GENERAL BIOGRAPHICAL INFORMATION

A. Personal

1. Name Anthony Christopher Chang
2. Date of Birth February 4, 1958
3. Address 9 Pacific Vista, Laguna Beach, CA 92651
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B. Education

Undergraduate Education

1976-1980 Johns Hopkins University, Baltimore, MD  
B.A. (in Molecular Biology)

Medical Education

1980-1984 Georgetown University Medical School, Washington, DC  
M.D.

Postgraduate Training

Residency in Pediatrics

1984-1987 Children's Hospital National Medical Center, Washington, DC  
Dr. Arnold Einhorn, Department Chief

Fellowship in Cardiology

1987-1990 Children's Hospital of Philadelphia, Philadelphia, PA  
Dr. Henry Wagner, Division Chief

Graduate Education

1998-1999 University of Miami School of Business, Miami, FL  
M.B.A. (in Healthcare Administration)

Graduate Education

2006-2008 University of California at Los Angeles School of Public Health,  
Los Angeles, CA  
M.P.H.

Graduate Education

2012-2014 Stanford University, Stanford, CA  
M.S. (Biomedical Informatics) (in progress)

Medical Licensure – California Medical License Number G78374

Board Eligibility/Certification

- 1985 National Board of Medical Examiners
- 1989 American Board of Pediatrics (#39667) (recertified 1996)
- 1991 American Board of Pediatrics (Cardiology Subboard) (#918)

## Academic Appointments

Health Sciences Associate Clinical Professor, Step II, University of California, Irvine  
Associate Clinical Professor, Step XX, University of California, Los Angeles

### Previous Faculty/Clinical Positions

1987-1990	Instructor in Pediatrics, University of Pennsylvania Medical School, Philadelphia, PA
1990-1992	Instructor in Pediatrics, Harvard University School of Medicine, Boston, MA
1993-1994	Assistant Professor of Pediatrics, Harvard University School of Medicine, Boston, MA
1994-1995	Assistant Professor of Pediatrics and Surgery, University Southern California School of Medicine, Los Angeles, CA
1995-2000	Director of Pediatric Cardiac Intensive Care Service, Miami Children's Hospital, Miami, FL
09/2001-03/2003	Assistant Professor in Pediatrics, Baylor College of Medicine
03/2003-10/2005	Associate Professor in Pediatrics (tenured), Baylor College of Medicine
01/2006-Present	Director, Heart Institute Director, Pediatric Cardiac Intensive Care Service Children's Hospital of Orange County

## Other Information

### Honors or Awards

1980	Academic Honors Johns Hopkins University Premedical Program, Baltimore, MD
1988	Best Resident Award, Academic Forum Children's Hospital National Medical Center, Washington, DC
1993	Best Research Award in Critical Care Medicine, American Academy of Pediatrics, San Francisco, CA
1995	Best Teaching Award Division of Critical Care Medicine, Children's Hospital of Los Angeles, Los Angeles, CA
1998	McGaw Award for Academic Excellence (graduated first in class) Health Administration Executive Program, Miami, FL
2000	Special Teaching Award Department of Pediatrics, Miami Children's Hospital, Miami, FL
2003	Presidential Citation Award Society of Critical Care Medicine
2008	Dean's Outstanding Scholarship Award (graduated first in class) and Delta Omega (Public Health Honor Society) UCLA MPH Program and School of Public Health

2008 Outstanding Teaching Award  
UCLA Pediatric Cardiology Program

## II. RESEARCH INFORMATION

### Research Support

1992-1993 Oxygen Consumption Measurements in Neonates after Cardiac Surgery (PI)  
MedGraphics Corporation grant: \$20,000 (PI)

1994-1995 Inhaled Nitric Oxide in Treatment of Pulmonary Hypertension after Cardiac Surgery  
Children's Hospital Intramural Research grant: \$12,000 (PI)

1995-1997 Use of Intravenous Milrinone in Neonates after Cardiac Surgery and Pharmacokinetic Profile  
Sanofi-Winthrop Corporation grant: \$26,500 (PI)

2002-2005 Use of Indirect Measurement of Mixed Venous Saturation Monitoring and Regional Oximetry  
Somnetics Corporation grant: \$15,000 (PI)

2002-2005 Cardiac Intensive Care Database Module for Risk Stratification and Cardiac Surgery  
CardioAccess grant: \$37,500 (PI)

### Research Interests

1. Development and utilization of mechanical assist devices and implantable assist devices in infants and children.
2. Assessment of myocardial performance after cardiac surgery using conventional and noninvasive methodology.
3. Myocardial cytoskeletal dystrophin expression in pediatric patients before and after heart surgery.
4. Use of phosphodiesterase inhibitors in children with postoperative myocardial dysfunction after cardiac surgery.
5. Manipulation of pulmonary vascular resistance in children with congenital heart disease.

### National Scientific Participation

#### Journal Editorial Board

2001-Present Pediatric Critical Care Medicine (cardiac section editor)  
2002-Present Cardiology in the Young  
2003-Present Pediatric Cardiology Today  
2004-Present Chinese Medical Journal

#### Review Panel

1984-1987 Internal Research Board, Children's Hospital Medical Center  
1991-Present Reviewer for Circulation

1992-1994	Risk Management/Quality Assurance Board, Children's Hospital, Boston, MA
1992-1994	Fellowship Admission Committee/Cardiology, Children's Hospital, Boston, MA
1993-Present	Reviewer for Critical Care Medicine
1993-Present	Reviewer for Journal of Pediatrics
1994-Present	Reviewer for Journal of American College of Cardiology
1994-1996	Physician User Consultant, Hewlett Packard
1995-1996	American Heart Association Grant Review Committee
1995-2000	Steering Committee/ Multispecialty Practice, Miami Children's Hospital, Miami, FL
1995-2000	Physician User Consultant, EMTEK
1995-2000	Information Management Committee, Physician Leader, Miami, FL
1996-2000	Physician Advisory Committee, Boggy Creek Summer Camp, Cassis, FL
1996-2000	Physician Advisor/Board Member, HOPE Parent Support Group, Miami, FL
1996-2000	Physician Advisor/Board Member, PACKS Parent Support Group, Palm Beach, FL
1996-2000	Physician Advisor, Healing the Children Heart Missions, Hartford, CT
1998-2000	Physician Strategic Planning Committee, Miami Children's Hospital, Miami, FL
1998-Present	Pediatric Cardiac Intensive Care Consultant, China PALS Program
2000-Present	Primacor Pharmacological Response Study-Steering Committee
2000-Present	Abstract Reviewer, Society of Critical Care Medicine
2002-Present	National Institute of Health Research Committee on Pediatric Critical Care Medicine
2002-Present	European Congenital Heart Surgeons Cardiology Consultant for Risk Stratification
2002-Present	Society of Thoracic Society Congenital Heart Surgeons Cardiology Consultant
2002-Present	American Association of Thoracic Surgeons Congenital Heart Surgeons Consultant
2002-Present	Cardiology Consultant, National Institute of Health Committee on Critical Care
2004-Present	American Heart Association Abstract Reviewer
2004-Present	Reviewer for Pediatrics

### Professional Societies

#### Local

1994-1995	California Pediatric Cardiology Society
1998-2000	Florida Health Executives Forum

## National

1980-Present	American Medical Association
1980-1984	American Medical Student Association
1984-1987	National Association of Residents
1985-Present	American Academy of Pediatrics
1987-Present	American College of Cardiology
1987-Present	American Heart Association (Executive Vice President, Miami Chapter)
1997-Present	Society of Critical Care Medicine (scientific consultant)
1997-Present	Pediatric Cardiac Intensive Care Society (president-elect)
2000-Present	American College of Physician Executives (advanced standing)
2000-Present	American College of Healthcare Executives
2000-Present	American College of Medical Practice Management
2002-Present	American Society of Artificial Internal Organs

## Invited Lectures, Presentations, Research Seminars

### National

11/15/90	"New Directions in Pediatric Cardiac Intensive Care" Pediatric Grand Rounds, National Naval Medical Center, Bethesda, MD
04/01/92	"Assessment of Cardiac Performance in Intensive Care" Pediatric Grand Rounds, Massachusetts General Hospital, Boston, MA
05/21/92	"New Developments in Pediatric Cardiology" Academic Forum, Children's Hospital Medical Center, Washington, DC
06/14/94	"Perioperative Care of the Neonate with Congenital Heart Disease" Neonatology Grand Rounds, Women's Hospital, Los Angeles, CA
09/24/94	"Role of Nitric Oxide in Cardiovascular Disease" California Pediatric Cardiology Society Meeting, Monterey, CA
02/28/95	"New Directions in Pediatric Cardiac Intensive Care" Pediatric Grand Rounds, L.A. Children's Hospital, Los Angeles, CA
03/31/95	"Clinical Indications for Use of Inhaled Nitric Oxide" Respiratory Medicine Symposium, Los Angeles, CA
05/16/95	"Advances in Pediatric Cardiology" Pediatric Grand Rounds, National Naval Medical Center, Bethesda, MD
08/17/95	"Myocardial Performance Improvements in the Pediatric Critical Care Setting" Pediatric Cardiology/Intensive Care Seminar, Children's Hospital, San Diego, CA
09/21/95	"Advances in Pediatric Cardiac Intensive Care" Pediatric Grand Rounds, Loma Linda University, Loma Linda, CA

01/20/96 " Perioperative Care of the Child with Congenital Heart Disease"  
Symposium on Pediatric Cardiology, Broward General Hospital

09/06/96 " Cardiac Emergencies"  
Pediatric Emergency Medicine Symposium, Miami Children's  
Hospital, Miami, FL

12/18/96 " Recent Advances in Pediatric Cardiac Intensive Care"  
Pediatric Cardiology Seminar, Columbia-Presbyterian Hospital,  
New York, NY

06/24/97 " Recent Advances in Pediatric Cardiac Intensive Care"  
Pediatric Anesthesiology Grand Rounds, Minneapolis Children's  
Hospital, MN

08/14/97 " Advances in Pediatric Intensive Care"  
Pediatric Grand Rounds, Children's National Medical Center,  
Washington, DC

04/06/98 " Advances in Cardiac Intensive Care"  
Pediatric Cardiology Grand Rounds, Children's Memorial  
Hospital, Chicago, IL

04/29/98 " Post-Operative Management of Fontan Operation"  
Symposium on Fontan Surgery, University of Miami, Miami, FL

02/12/99 " Advances in Pediatric Cardiology"  
Post Graduate Course, Miami Children's Hospital, Miami, FL

02/12/01 " Management of Patients with Single Ventricles"  
Pediatric Intensive Care, Society of Critical Care Medicine, San  
Francisco, CA

02/02/02 " Postoperative Assessment of Mitral Valve"  
Symposium on Echocardiography, All Children's Hospital, St.  
Petersburg, FL

04/23/02 " Pediatric Cardiac Intensive Care in the Millennium"  
Pediatric Grand Rounds, Arkansas Children's Hospital, Little  
Rock, AK

11/06/02 " Advances in Pediatric Cardiac Intensive Care"  
Pediatric Grand Rounds, North Shore University Hospital, New  
York, NY

04/22/03 " Advances in Pediatric Cardiac Intensive Care"  
Pediatric Grand Rounds, Columbia Hospital, New York, NY

05/02/09 " New Development in Congenital Heart Disease"  
Symposium on Congenital Heart Disease, CHOC Children's  
Hospital, Orange, CA

04/04/09 " Preoperative Stabilizer of the Neonate with Congenital Heart  
Disease or basic Cardiac Physiology for the Neonatal  
Practitioner"  
Echocardiography in Pediatric and Adult Congenital Heart  
Disease Symposium Santa Monica, CA

10/10/09 " Hemangiomas: When is Medical, Laser or Surgical Therapy  
Indicated?"  
Vascular Birthmarks Foundation, Newport Beach, CA

- 06/12/10 "Congenital Heart Defects"  
Symposium on Congenital Anomalies in the Neonate, CHOC  
Children's Hospital, Orange, CA
- 01/14/11 "Cardiomyopathies: Hypertrophic, Dilated, or Just an Athlete?"  
Life Threatening Events Associated with Pediatric Sports Annual  
Conference, Anaheim, CA
- 02/02/11 "Selecting/Maintaining a Job: SWOT Analysis and Career  
Polymorphism"  
15<sup>th</sup> Annual Update on Pediatric and Congenital  
Cardiovascular Disease, The Children's Hospital of Philadelphia,  
Scottsdale, AZ
- 02/04/11 "Heart Failure for the General Cardiologist-What the General  
Cardiologist should know about heart Failure"  
15<sup>th</sup> Annual Update on Pediatric and Congenital  
Cardiovascular Disease, The Children's Hospital of Philadelphia,  
Scottsdale, AZ
- 02/05/11 "Top 10 Ideas and Concepts for Healthcare Leaders"  
15<sup>th</sup> Annual Update on Pediatric and Congenital  
Cardiovascular Disease, The Children's Hospital of Philadelphia,  
Scottsdale, AZ
- 03/07/11 "Management of Newborns with Heart Defects"  
March of Dimes Eleventh Annual Conference Irvine, CA
- 03/12/11 "Cardiac Management Care Recommendations for Children  
with Duchenne Muscular Dystrophy"  
Children's Hospital of Orange County, Orange, CA
- 05/20/11 "Sudden Cardiac Death in Young Athletes"  
Sports Medicine for the Youth Athlete Conference  
Children's Hospital of Orange County, Orange, CA
- 05/24/11 "State of the Art on Global Pediatric Health: Are We Meeting  
the Millennium Goals" and "Update on Heart Failure in Children:  
Novel Concepts and Practice"  
Riley Hospital for Children, Indianapolis, IN
- 08/10/11 "Hemangiomas/Vascular Malformation: Management &  
Treatment Options"  
Children's Hospital of Orange County, Orange, CA
- 11/05/11 "Propranolol Treatment of Infantile Proliferating Hemangiomas"  
Vascular Birthmarks Foundation Annual Conference, Newport  
Beach, CA
- 01/19/12 "Practical Approach to Treating Heart Failure: 9 Principles"  
Evolving Concepts in the Management of Complex Congenital  
Heart Disease Conference, San Diego, CA
- 03/03/12 "The Adult with CHD: What Does the Future Look Like"  
Controversies in Pediatric Cardiology for the Primary Care  
Professional, Children's Hospital of Orange County, Orange, CA
- 03/03/12 "ADHD and the Risk of Sudden Cardiac Death – EKG Screening  
Should be Mandatory"  
Controversies in Pediatric Cardiology for the Primary Care  
Professional, Children's Hospital of Orange County, Orange, CA

- 05/01/12 "Obesity and Heart Health"  
Orange County Child Obesity Prevention Summit, Orange  
Country Department of Education, Costa Mesa, CA
- 05/02/12 "Cardiomyopathy and Heart Failure – Physiology and  
Management"  
Residence Conference, Children’s Hospital of Orange County,  
Orange, CA
- 08/01/12 "Preventive Cardiology – Hypertension (diagnosis and  
management of hypertension)"  
Residence Conference, Children’s Hospital of Orange County,  
Orange, CA
- 01/25/13 "Artificial Intelligence in Predicting Sudden Death"  
Sudden Cardiac Arrest Conference, Children’s Hospital of  
Orange County, Orange, CA
- 02/13/13 "Pulse Oximetry"  
CHD Screening Seminar, St. Joe’s Hospital, Orange, CA
- 04/03/13 "Pulse Oximetry"  
Grand Rounds Conference, Children’s Hospital of Orange  
County, Orange, CA
- International
- 09/22/92 "Improving Myocardial Performance in the Critical Care Setting"  
Pediatric Grand Rounds, The Royal Brompton Hospital, London,  
England
- 11/19/94 "Perioperative Care of the Low Birthweight Neonate with Heart  
Disease"  
Belgium National Pediatric Scientific meeting, Brussels, Belgium
- 07/28/95 "Recent Advances in Pediatric Cardiology and Pediatric  
Intensive Care"  
Cuban Pediatric Society Meeting, San Salvador, El Salvador
- 09/14/95 "Recent Advances in Pediatric Cardiology and Pediatric  
Intensive Care"  
Pediatric Dominican Society, Santo Domingo, Dominican  
Republic
- 09/01/96 "Use of Inhaled Nitric Oxide and other Advances in Pediatric  
Cardiac Intensive Care"  
Pediatric Cardiology Symposium, Clinica Shiao, Bogota,  
Colombia
- 07/24/97 "Pediatric Intensive Care - Management of Patients with Heart  
Disease"  
9th Annual Interamerican Congress of Pediatrics, Panama City,  
Panama
- 10/2-4/97 "Recent Advances in Pediatric Cardiac Intensive Care"  
XXI Uruguayan Congress of Pediatrics, Montevideo, Uruguay
- 11/28/97 "Advances in Cardiac Intensive Care"  
IV Congress of International Intensive Care, Lima, Peru
- 08/01/98 "Recent Advances in Pediatric Cardiac Intensive Care"  
Pediatric Conference, Guayaquil, Ecuador



- 03/14/99 "Congenital Heart Disease Management"  
26th National Congress of Cardiac Surgery, Fortaleza, Brazil
- 06/1-5/99 "Post-arrest Stabilization & Transport", "Advanced Airway Management", "Cardiopulmonary Arrest/Rhythm Disturbance"  
Pediatric Advanced Life Support Course, University of Hong Kong, Hong Kong
- 06/05/99 "Advances In Pediatric Cardiac Intensive Care"  
Lecture at Chulalongjorn Hospital, Bangkok, Thailand
- 04/14-16/00 "Principles on the Use of Cardiac Pulmonary Support in Pediatric Intensive Care Unit"  
Eighth Annual Scientific Congress, Hong Kong University, Hong Kong
- 04/17-20/00 "Pediatric Cardiac Intensive Care: Past, Present and Future"  
Cardiology in the Young, Great Ormond Street Hospital, London, England
- 06/12-13/00 "Management of Parenchymal Lung Disease in Cardiac Patients"  
Pediatric Cardiac Intensive Care, National Heart and Lung Institute, London, England
- 10/12-15/02 "Pediatric Cardiac Intensive Care: Past, Present and Future",  
"Mechanical Cardiopulmonary Support in Pediatric Cardiac Patients"  
Spanish Cardiology Congress, Madrid, Spain
- 05/04/10 "Pediatric Cardiac Intensive Care: Past, Present and Future",  
"Mechanical Cardiopulmonary Support in Pediatric Cardiac Patients"  
Ipokrates Symposium, Switzerland
- 04/14/11 "New Concepts in Heart Failure"  
Arpan Global Charities, Hangzhou, China
- 04/16/11 "New Advances in Cardiac Intensive Care"  
Arpan Global Charities, Hangzhou, China
- 04/16/11 "Right Ventricular Function and Treatment in Congenital Heart Disease"  
Arpan Global Charities, Hangzhou, China
- 07/08/11 Japanese Society of Pediatric Cardiology and Cardiac Surgery
- 10/29/11 "Monitoring and Treatment of heart Failure/Cardiac Insufficiency in Critically Ill Children"  
1<sup>st</sup> Oriental Congress of Pediatrics, Shanghai, China  
Arpan Global Charities, Hangzhou, China
- 04/06/12 "Shock in Children"  
"Optimized Non-Surgical Management of Heart Failure"  
4<sup>th</sup> Congress of the Asia-Pacific Pediatric Cardiac Society, Taipei, Taiwan

## Moderator/Chair Sessions

- 11/29/94 "Management of Perioperative Pulmonary Hypertension"  
(Moderator)  
Cardiology Symposium, Verona Institute of Cardiology, Verona,  
Italy
- 11/12/95 "Management of Perioperative Pulmonary Hypertension"  
Moderator)  
Symposium on Pediatric Cardiac Surgery, Los Angeles, CA
- 09/03/96 "Advances in Pediatric Cardiac Intensive Care" (Moderator)  
Pediatric Cardiac Symposium, Clinica Santa Maria, Medellin,  
Colombia
- 11/12/96 "New Advances in Pediatric Cardiac Intensive Care",  
"Myocardial Failure", "Pulmonary Hypertension in Congenital  
Heart Disease" (Moderator)  
Pediatric Cardiology Conference, Children's Hospital, Lima,  
Peru
- 09/05/98 "Advances in the Management of the Child with Critical  
Congenital Heart Disease", "Management of Pulmonary  
Hypertensive Crisis in the Immediate Postoperative Period",  
"Points of Special Importance for Postoperative Care of  
Neonates" (Moderator)  
Brazilian Cardiology Congress, Sao Paulo, Brazil
- 09/23-25/99 "Pathophysiology of Congenital Heart Disease", "Perioperative  
Care of Cardiac Lesions with Shunt", "Single Ventricle Lesions",  
"Mechanical Ventilation in the Cardiac Patient",  
"Pathophysiology of Congenital Heart Disease", "The Single  
Ventricle Lesions", "Perioperative Care of Cardiac Lesions with  
Shunt", "Mechanical Ventilation in Cardiac Patient" and "Left  
Ventricle Outflow Tract Obstruction" (Moderator)  
Conference on Pediatric Cardiac Intensive Care, Verona, Italy
- 05/18-20/00 "Tetralogy of Fallot: Principles of Perioperative Management",  
"Pediatric Cardiac Intensive Care; Past, Present and Beyond the  
Millennium", "Fontan Operation: Principles of Perioperative  
Management" (Moderator)  
International Congress on Pediatric Specialities Curitiba 2000,  
Pinhais, Brazil
- 06/8-12/01 "Cardiac Emergencies", "Management of Patients with Single  
Ventricles", "Postoperative Care in Tetralogy of Fallot"  
(Moderator)  
Cardiology Symposium, Ascuncion, Paraguay
- 11/11/01 "Management of Pulmonary Disease in Patients with Single  
Ventricles" (Moderator)  
Special Topics in Pediatric Cardiology, Rio de Janeiro, Brazil
- 04/07/02 "Cardiac Malformations", "Cardiac Surgery & Postoperative  
Management" (Co-chair/Cardiology)  
Pediatric Critical Care Medicine 2002, Capital Hilton,  
Washington, DC

10/10/05 Pediatric Cardiac Intensive Care (Chair)  
World Congress of Pediatric Cardiology and Cardiac Surgery,  
Buenos Aires, Argentina

Symposia Directorships

10/3-5/96 First International Symposium on Pediatric Cardiac Intensive  
Care (Program Director)  
Palm Beach, FL

10/17-23/96 First International Pediatric Cardiovascular Intensive Care  
(Honorary Program Director)  
Hospital Garrahan, Buenos Aires, Argentina

10/6-8/97 Second International Pediatric Cardiovascular Intensive Care  
(Honorary Program Director)  
Hospital Garrahan, Buenos Aires, Argentina

12/4-6/97 Second International Symposium on Pediatric Cardiac Intensive  
Care (Program Director)  
Palm Beach, FL

10/15-17/99 Third International Pediatric Cardiovascular Intensive Care  
(Honorary Program Director)  
Hospital Garrahan, Buenos Aires, Argentina

12/9-11/99 Third International Symposium on Pediatric Cardiac Intensive  
Care (Program Director)  
Miami Beach, FL

12/6-8/01 Fourth International Symposium on Pediatric Cardiology  
Intensive Care (Program Director)  
West Palm Beach, FL

10/16-18/02 Fourth International Pediatric Cardiovascular Intensive Care  
(Honorary Program Director)  
Hospital Garrahan, Buenos Aires, Argentina

02/15-18/03 First PanAsia Symposium on Pediatric Cardiac Intensive Care  
(Honorary Program Director)  
Bangkok, Thailand

12/4-6/03 First International Conference on Heart Failure in Children and  
Young Adults (Program Director)  
Houston, TX

12/1-4/04 Fifth International Symposium on Pediatric Cardiology Intensive  
Care (Program Director)  
Miami, FL

10/18-22/05 4<sup>th</sup> World Congress of Pediatric Cardiology and Cardiac Surgery  
Buenos Aires, Argentina

10/05/06 First PanAsia Symposium on Pediatric Cardiology, Cardiac  
Surgery, and Cardiac Intensive Care (Honorary Program  
Director)  
Shanghai, China

## Abstracts

- Presented at the Northeast Pediatric Cardiology meeting, Rye, NY (09/1988):  
Chang AC, Vetter JM, Gill SB, Franklin WH, and Chin AJ.  
Accuracy of Two Dimensional/Color Doppler Echocardiography in the Assessment of Reparative Surgery.
- Presented at the Northeast Pediatric Cardiology meeting, Newport, RI (09/1989):  
Chang AC, Huhta JC, Norwood WI, and Mennuti M.  
In Utero Transport for Critical Left Ventricular Outflow Tract Obstruction.
- Presented at the 31st Cardiology Session of the American Academy of Pediatrics, Chicago, IL (10/1989):  
Chang AC, Vette, JM, Gill SB, Franklin WH, and Chi, AJ.  
Accuracy of Two Dimensional/Color Doppler Echocardiography in the Assessment of Reparative Surgery.
- Presented at the 62nd Scientific Session of the American Heart Association, New Orleans, LA (11/1989):  
Murdiso, KA, Baffa JB, Farrell PE, Chang AC, Barber G, Norwood WI, and Murphy JD.  
Hypoplastic Left Heart Syndrome: Outcome Following Initial Palliation Prior to Modified Fontan Procedure.
- Presented at the International Fetal Cardiology Symposium, Bangkok, Thailand (11/1989):  
Chang AC, Huhta J, Mennuti M, and Norwood WI.  
Diagnosis and Management of the Fetus with Critical Left Ventricular Outflow Tract Obstruction.
- Presented at the World Congress of Pediatric Cardiology, Bangkok, Thailand (11/1989):  
Chang AC, Vetter JM, Gill SB, Franklin WH, and Chin AJ.  
Is Prospective Echocardiographic Evaluation of the Postoperative Patient Accurate in the Color Doppler Era?  
Chang AC, Farrell P, Baffa J, Murdison K, Barber G, Norwood WI, and Murphy JD.  
Hemodynamic and Angiographic Assessment Following Palliative Reconstructive Surgery for Hypoplastic Left Heart Syndrome.  
Chang AC, Murphy JD, Murdison K, Baffa J, Farrell P, and Norwood WI.  
Outcome Following Palliative Reconstructive Surgery for Hypoplastic Left Heart Syndrome.
- Presented at the Society of Perinatal Obstetricians, Houston, TX (01/1990):  
Chang AC, Huhta J, Mennuti M, and Norwood WI.  
In Utero Transport for Critical Left Ventricular Outflow Tract Obstruction.

- Presented at the 39th Scientific Session of the American College of Cardiology, New Orleans, LA (03/1990):  
Chang AC, Zappalla F, Kurer CC, and Vetter VL.  
Clinical Outcome of Children with Permanent Form of Junctional Reciprocating Tachycardia.  
Farrell PE, Chang AC, Murdison KA, Baffa JB, Barber G, Norwood WI, and Murphy JD.  
Outcome and Assessment after Modified Fontan Repair in Hypoplastic Left Heart Syndrome.
- Presented at the American Society of Echocardiography meeting, Washington, DC (06/1990):  
Wu YT, Chang AC, and Chin AJ  
Semiquantitative Assessment of Mitral Regurgitation in Children using Color Doppler Mapping.
- Presented at the 63rd Scientific Session of the American Heart Association, Anaheim, CA (11/1991):  
Chang AC, Wernovsky G, Wessel DW, Parness IA, Perry SB, O'Brien P, Meyer JE, Hanley FL, Jonas RA, Freed MD, and Castaneda AR.  
Late Right Ventricular Failure after Mustard or Senning Repair: Surgical Management and Outcome.
- Presented at the Critical Care Symposium, Snowbird, UT (01/1992):  
Hanley FL, Chang AC, Wernovsky G, and Wessel DL.  
Extracorporeal Membrane Oxygenation and Ventricular Assist Devices for Myocardial Support.  
Wernovsky G, Wessel DW, Chang AC, Mayer JE, Hanley FL, and Castaneda AR.  
Postoperative Course of Arterial Switch Operation.
- Presented at the 34th Critical Care Session of the American Academy of Pediatrics, San Francisco, CA (10/1992): (Best Basic Science Research Award)  
Chang AC, Kulik TJ, Hickey P, and Wessel DL.  
Real-time Measurement of Oxygen Consumption in Ventilated Neonates and Infants: Validation using Thermodilution.
- Presented at the 64th Scientific Session of the American Heart Association, New Orleans, LA (11/1992):  
Chang AC, Hanley FL, Rosenfeld HM, Wernovsky G, Jonas RA, Mayer JE, Wessel DL, and Castaneda AR.  
Early Bidirectional Cavopulmonary Shunt in Very Young Infants: Postoperative Course and Early Results.  
Chang AC, Zucker HA, Hickey PR, and Wessel DL.  
Pulmonary Vascular Resistance is Altered by pH, not PaCO<sub>2</sub>, in Infants with Congenital Heart Disease After Cardiac Surgery.  
Hanley FL, Chang AC, and Wessel DL.  
Management of the Low Birth Weight Neonate with Congenital Heart Disease.

- Presented at the Critical Care Symposium, Philadelphia, PA (03/1993):  
Chang AC, Zucker HA, Hickey PR, and Wessel DL.  
Pulmonary Vascular Resistance is Altered by pH, not PaCO<sub>2</sub>, in Infants with Congenital Heart Disease After Cardiac Surgery.
- Presented at the 65th Scientific Session of the American Heart Association, Atlanta, GA (11/1993):  
Chang AC, Atz A, Burke RP, Wernovsky G, and Wessel DL.  
The Hemodynamic Effects of Milrinone in Neonates after Cardiac Surgery.  
Duplessis A, Chang AC, Wernovsky G, Wessel DL, Lock JE, and Mayer JE.  
Cerebrovascular Accident after Fontan Operation.
- Presented at the 66th Scientific Session of the American Heart Association, Dallas, GA (11/1994):  
Lucianni G, Ackerman R, Chang AC, Wells WJ, Lindesmith G, and Starnes VA.  
Repair of Interrupted Aortic Arch and Ventricular Septal Defect in Infancy: A Novel Approach.
- Presented at the 37th Cardiology Session of the American Academy of Pediatrics, San Francisco, CA (10/1995):  
Khong A, Luciant G, Wells WJ, Starnes VA, and Chang AC.  
Impact of RSV Pneumonitis on Outcome after Cardiac Surgery.
- Presented at the 2<sup>nd</sup> International Pediatric Cardiac Intensive Care Symposium, West Palm Beach, FL (12/1997):  
Parra D, Totapally B, Zahn EM, Jacobs J, Aldousany A, Burkse RP, and Chang AC.  
Outcome of Cardiopulmonary Resuscitation in a Pediatric Cardiac Intensive Care Unit.  
Jacobs JP, Ojito J, McConaghey T, Boden BD, Chang AC, Aldousany A, Zahn EM, and Burke RP.  
Rapid Cardiopulmonary Support for Children with Complex Congenital Heart Disease.
- Presented at the 3<sup>rd</sup> International Pediatric Cardiac Intensive Care Symposium, Miami, FL (12/1999):  
Yanish GJ, Arce O, Altman NR, Zahn EM, Greenberg B, Burke RP, and Chang AC.  
Echocardiography vs. Chest Roentgenogram for Diagnosis of Pleural Effusions in Children after Cardiac Surgery.  
Parra D, Burke RP, Hannan R, Bolivar J, and Chang AC.  
Postoperative Course in Infants after Tetralogy of Fallot Repair: Is Younger Age a Disadvantage?
- Presented at the Society of Critical Care Medicine Meeting, San Antonio, TX (01/2003):  
Hon E, Chang AC, and Stayer S.  
Pulmonary Function Testing in Children after Cardiac Surgery.

Presented at the 45th Critical Care Session of the American Academy of Pediatrics, New Orleans, LA (10/2003):

Slesnick T, Fraser CD, and Chang AC.

Serum Lactate and Prognostic Factor after Cardiac Surgery.

Mahajan T, Fraser CD, and Chang AC.

Conversion Fontan and Postoperative Course.

Presented at the American College of Cardiology Meeting, Chicago, IL (03/2003):

McMahon C, Fraser C, McKenzie D, and Chang AC.

Postoperative Course of Infants with Bronchopulmonary Dysplasia after Cardiac Surgery.

## Publications

### Full Papers

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#### Invited Editorials or Letters

1. Chang AC.  
Inflammatory Mediators in Children Undergoing Cardiopulmonary Bypass:  
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Undo this Gordian Knot?  
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#### Special Review Issues

Chang AC (editor)  
Pediatric Cardiac Intensive Care.  
[Pediatric Cardiology](#) 2005; (in preparation)

Complete Books Edited

Chang AC, Hanley FL, Wernovsky G, and Wessel DL. (eds)  
Essentials of Pediatric Cardiac Intensive Care (first edition).  
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Chang AC, and Towbin JA. (ed)  
Heart Failure in Children and Young Adults: From Molecular Mechanisms  
to Clinical and Surgical Strategies.  
(in press by Elsevier)

Chang AC, Karl T, Macrae D, Wernovsky G, and Wessel DL. (eds)  
Essentials of Pediatric Cardiac Intensive Care. (second edition)  
(to be published by Elsevier)

Cannon Bryan, Eidem Ben, Chang AC, Cetta Frank. (eds)  
Pediatric Cardiology Board Review

#### Book Chapters Written

Chang AC, and Clark BJ.  
Pediatric Cardiology in Polin, R.A. and Ditmar, M.F. (eds). Pediatric Secrets.  
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Wernovsky G, Chang AC, and Wessel DL.  
Intensive Care. In Adams, F.H., Emmanouilides, G.C. (eds) Moss' Heart  
Disease in Infants, Children, and Adolescents. (6th ed.)  
Williams and Wilkins, 1998

Wernovsky G, Chang AC, and Wessel DL.  
Intensive Care. In Adams, F.H., Emmanouilides, G.C. (eds) Moss' Heart  
Disease in Infants, Children, and Adolescents. (7th ed.)  
Williams and Wilkins, 2002

Chang AC, and McKenzie D.  
Myocardial Dysfunction and Mechanical Cardiopulmonary Support. In  
Fuhrman B (ed). Pediatric Critical Care Medicine (3<sup>rd</sup> ed.)(submitted)  
Williams and Wilkins, 2003

(Various chapters in upcoming textbooks)

### III. TEACHING INFORMATION

Trainees (advanced fellowship)

Jack Price, MD  
Cardiac Intensive Care, 2001-2002  
Tia Tortoriello, MD  
Cardiac Intensive Care, 2002-2003  
Heather Dickerson, MD  
Cardiac Intensive Care, 2003-2004

Curriculum Development Work

(please see under symposia directorships)

Non-didactic Teaching

Resident Training:

5-10 hours/week on 15 Tower service (15-18 weeks per annum)

5-10 hours/week on medical ICU service (4 weeks per annum)

Clinical Fellow Training:

5-10 hours/week on CVICU service (12-15 weeks per annum)

5-10 hours/week on medical ICU service (4 weeks per annum)

Research Fellow Training:

2-5 hours/week with cardiology fellows

Visiting Professorships

(please see above)

### IV. Medical and Service Information

Patient Care Responsibilities

Medical Director of Pediatric Cardiac Intensive Care Unit and Program

Chief of Critical Care Cardiology

12-15 weeks per annum on CVICU service

15-18 weeks per annum on 15 Tower service

4-6 weeks per annum on medical ICU service

½-1 day per week with outpatient clinic

Administrative Assignments at BCM (Committees)

Strategic Planning Committee for Heart Center

Information Management Committee/Critical Care Service Information

Management Task Force

Performance Improvement Committee

Special Care Services Committee

## BIOGRAPHICAL SKETCH

Dr. Anthony C. Chang completed his undergraduate education with Bachelor of Arts in Molecular Biology at Johns Hopkins University (honors) and his Doctor of Medicine education at Georgetown University School of Medicine. He then completed his pediatric residency at National Children's Hospital Medical Center and went on to his pediatric cardiology fellowship at Children's Hospital of Philadelphia.

He was appointed a staff cardiologist at Boston Children's Hospital with a position in the cardiac intensive care unit and later promoted to assistant professor at Harvard School of Medicine. He was later the medical director of the cardiac intensive care programs at Children's Hospitals of Los Angeles and Miami Children's Hospital. He is also formerly the medical director of pediatric cardiac intensive care service and chief of critical care cardiology at Texas Children's Hospital and a tenured associate professor at Baylor College of Medicine. He is now the director of the Heart Institute at the Children's Hospital of Orange County and division chief of the division of cardiology.

He has a Masters in Business Administration (MBA) (in Health Care Administration) degree from the University of Miami and graduated with the McGaw Award for academic excellence. In addition, he has a Masters in Public Health (MPH) (in Health Care Policy) degree from University of California at Los Angeles and graduated with the Dean's Award for academic excellence. He is enrolled in the Masters in Biomedical Informatics (MS-BMI) program at Stanford University at present.

He is the chief editor of the textbook Pediatric Cardiac Intensive Care and the past president-elect of the Pediatric Cardiac Intensive Care Society (PCICS). He is the chief editor of the textbook Heart Failure in Children and Young Adults. He is an associate editor of Pediatric Critical Care Medicine and is on the editorial board of Cardiology in the Young and Congenital Heart Today. He is a regular reviewer for Circulation, Pediatric Critical Care Medicine, Critical Care Medicine, and numerous other journals. He publishes and lectures widely on topics in pediatric cardiac intensive care, heart failure, sudden cardiac death, adult congenital heart disease, and other aspects of congenital heart disease and has been program directors for numerous large international conferences and symposia.

He is a member of the grant review committee for pediatric research at the National Institute of Health. He is also on the board of directors for the American Heart Association. He has been on the faculty of University of California at Los Angeles School of Public Health (eMPH program) and has taught global health at the eMPH program of the University of California at Los Angeles (UCLA). He also teaches pediatric cardiology to cardiology fellows and holds a volunteer faculty appointment at the School of Medicine at University of California at Los Angeles (UCLA). He will be teaching biomedical informatics at the University of

California at Los Angeles (UCLA) Anderson School of Business and School of Nursing in the Spring of 2012.

He leads pediatric heart teams all over the world and recently mainly to Asia. He was one of the founding members of the Asia-Pacific Pediatric Cardiac Society (APPCS) and will be initiating the foundation arm of the society at the bequest of the board. He has been voted "Physician of Excellence" by the Orange County Medical Association and also selected as one of America's "Top Doctors", "Top Pediatricians", and "Best Cardiologists" by several organizations.