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## **Curriculum Vitae**

### **General Information**

Full Name: Wayne Tworetzky, M.D.  
Office Address: Department of Cardiology Children's Hospital Boston  
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Place of Birth: Cape Town, South Africa

### **Education:**

1982-1988 MBChB Stellenbosch University, Cape, South Africa

### **Post-doctoral Training**

#### **Internships**

1989 Intern in Medicine and Surgery Groote Schuur Hospital  
University of Cape Town, South Africa  
1990 Senior House Officer in Pediatrics and Obstetrics and Gynecology  
Groote Schuur Hospital and Tygerberg Hospital  
1991-1993 Senior House Officer in Pediatrics, United Kingdom  
Great Ormond Street, Guys and St. Albans Hospitals

### **Residency**

1993-1995 Resident in Pediatrics, University of California San Francisco

### **Fellowship**

1995-1998 Fellow in Cardiology, University of California San Francisco  
1998-1999 Senior Fellow in Echocardiography and Adult Congenital Heart Disease,  
University of California San Francisco

### **Licensure and Certification**

1989 General License South African Medical and Dental Council  
1990 Educational Commission Foreign Medical Graduates ECFMG #438-627-2  
1991 General Medical Council, United Kingdom # 3472790  
1992 FLEX exam  
1994 Medical Board of California Medical License # A053821  
1995 Federal Drug Enforcement Agency # BT 5155204  
1996 Fluoroscopy and X-ray Supervisor, CA # RHC 142537

1996 Board Certification, American Board of Pediatrics  
1999 Pediatric Cardiology, Sub-board of American Board of Pediatrics  
1999 Commonwealth of Massachusetts Medical License # 160107  
1999 Massachusetts Drug Enforcement Agency # MT0388808A

**Academic Appointments:**

1998-1999 Instructor in Pediatric Critical Care Medicine, University of California San Francisco  
1999-2004 Instructor in Pediatrics, Harvard Medical School, Boston, MA  
2004- Assistant Professor, Harvard Medical School, Boston, MA

**Hospital or Affiliated Institution Appointments:**

1999- Assistant in Cardiology, Children's Hospital Boston  
1999- Attending in Pediatric Cardiology, Boston Medical Center  
2001- Pediatric Staff, Brigham and Women's Hospital, Boston MA  
2002- Consultant in Pediatric Cardiology, St. Elizabeth's Medical Center

**Departmental Title:**

Director of Fetal Cardiology, Children's Hospital, Boston

**Professional Societies:**

American Society of Echocardiography  
American Heart Association  
American College of Cardiology

**Journal Reviewer:**

New England Journal of Medicine  
Circulation  
American Journal of Cardiology  
Journal of the American College of Cardiology  
Catheterization and Cardiovascular Interventions  
Journal of Pediatrics  
Journal of Ultrasound in Medicine

**Awards and Honors:**

1985 and 1986 Greenberg Scholarship, Stellenbosch University, South Africa  
1999 Pediatric Academic Societies Fellows Clinical Research Award at the Annual Meeting, San Francisco May 4 1999  
2004 American Heart Association Annual Scientific Sessions Best Abstract Award for Outstanding Clinical Research New Orleans, LA November 7th-10th, 2004

## **Bibliography**

### **Original Articles**

1. McElhinney DB, **Tworetzky W**, Hanley FL, Rudolph AM. Congenital obstructive lesions of the right aortic arch. *Annals of Thoracic Surgery*, 1999 Apr, 67(4):1194-202.
2. Seddio, F; Reddy, VM; McElhinney, DB; **Tworetzky, W**; Silverman, NH; Hanley, FL. Multiple ventricular septal defects: how and when should they be repaired? *Journal of Thoracic and Cardiovascular Surgery*, 1999 Jan, 117(1): 134-9; discussion 39-40
3. McElhinney DB, Reddy VM, **Tworetzky W**, Silverman NH, Hanley FL. Early and late results after repair of aortopulmonary septal defect and associated anomalies in infants under six months of age. *Am J Cardiol* 1998; 81:195-201.
4. McElhinney DB, Petrossian E, **Tworetzky W**, Silverman NH, Hanley FL. Issues and outcomes in the management of supraaortic stenosis. *Annals of Thoracic Surgery*, 2000 Feb, 69(2): 562-7.
5. McElhinney DB, Reddy VM, **Tworetzky W**, Petrossian E, Hanley FL, Moore P. Incidence and implications of systemic to pulmonary collaterals after bidirectional cavopulmonary anastomosis. *Annals of Thoracic Surgery*, 2000 Apr, 69(4):1222-8.
6. **Tworetzky W**, McElhinney DB, Brook MM, Reddy VM, Hanley FL, Silverman NH. Echocardiographic diagnosis alone for the complete repair of major congenital heart defects. *Journal of the American College of Cardiology (JACC)* Vol. 33, No. 1 January 1999:228-33
7. **Tworetzky W**, Moore P, Bristow JD, Black SM, Bekker JM, Fineman JR. Pulmonary Blood Alters Nitric oxide Production In Patients Undergoing Device Closure of Atrial Septal Defects. *Journal of the American College of Cardiology (JACC)* Vol. 35, No. 2, Jan 2000:463-467
8. **Tworetzky W**, McElhinney DB, Burch GH, Teitel DF, Moore P. Balloon Arterioplasty of Recurrent Coarctation after the Modified Norwood Procedure in Infants. *Catheterization and Cardiovascular Interventions* 50:54-58 (2000)
9. **Tworetzky W**, Bristow J, Moore P, Brook MM, Hawgood S, Fineman JR. Inhaled NO in PPHN: Dose Response and Acute Withdrawal in Newborns with Pulmonary Artery Pressure Monitoring. *The Lancet*, Vol. 357, January 13, 2001:118-120.

10. **Tworetzky W**, McElhinney DB, Reddy VM, Brook MM, Hanley FL, Silverman NH. Improved Surgical Outcome After Fetal Diagnosis of Hypoplastic Left Heart Syndrome. *Circulation* 2001 103: 1269-1273
11. Lester SJ, McElhinney DB, Vilorio E, Reddy GP, Ryan E, **Tworetzky W**, Schiller NB, Foster E. Effects of Losartan in patients with a systemically functioning morphologic right ventricle after atrial repair of transposition of the great arteries. *American Journal of Cardiology*. 2001 Dec 1;88(11):1314-6.
12. **Tworetzky W**, McElhinney DB, Margossian R, Grady A, Sallee D, Goldmuntz E, van der Velde ME, Silverman NH, Allan LD. Association between cardiac tumors and tuberous sclerosis in the fetus and neonate. *American Journal of Cardiology* 2003 Aug 15;92(4):487-9.
13. Padalino MA, Saiki Y, **Tworetzky W**, del Nido PJ. Pulmonary venous pathway obstruction from recurrent restriction at atrial septum late after Fontan procedure. *J Thorac Cardiovasc Surg*. 2004 Jan;127(1):281-3.
14. Marshall AC, van der Velde ME, **Tworetzky W**, Gomez CA, Wilkins-Haug L, Benson CB, Jennings RW, Lock JE. Creation of an atrial septal defect in utero for fetuses with hypoplastic left heart syndrome and intact or highly restrictive atrial septum. *Circulation*. 2004 Jul 20;110(3):253-8.
15. **Tworetzky W**, Wilkins-Haug L, Jennings RW, van der Velde ME, Marshall AC, Marx GR, Colan SD, Benson CB, Lock JE, Perry SB. Balloon dilation of severe aortic stenosis in the fetus: potential for prevention of hypoplastic left heart syndrome: candidate selection, technique, and results of successful intervention. *Circulation*. 2004 Oct 12;110(15):2125-31.

## Reviews

1. Tworetzky W, Marshall AC. Balloon valvuloplasty for congenital heart disease in the fetus. *Clin Perinatol*. 2003 Sep;30(3):541-50. Review.

## Abstracts

1. Seddio F, McElhinney DB, Reddy VM, **Tworetzky W**, Silverman NH, Hanley FL. Multiple ventricular septal defects: when and how should we repair? Seventy-eighth Annual Meeting of the American Association of Thoracic Surgery, Boston, MA, May 1998.
2. **Tworetzky W**, McElhinney DB, Tometzki A, Hanley FL, Silverman NH. Echocardiography as the definitive preoperative diagnostic modality in tetralogy of Fallot. The 33rd Annual General Meeting of the Association for European Paediatric Cardiology, Dublin, Ireland, June 1998.

3. **Tworetzky W**, McElhinney DB, Reddy VM, Hanley FL, Silverman NH. Does Prenatal Diagnosis of Hypoplastic Left Heart Syndrome Improve Surgical Outcome? Oral presentation at the American College of Cardiology Forty-seventh Annual Scientific Session, Atlanta, GA, March 1998. *J Am Coll Cardiol* 1998; 31:71A. The 33rd Annual General Meeting of the Association for European Paediatric Cardiology, Dublin, Ireland, June 1998.
4. **Tworetzky W**, McElhinney DB, Reddy VM, Hanley FL, Brook MM, Silverman NH. Echocardiography as a definitive diagnostic modality for the preoperative diagnosis of complex congenital heart defects in children: surgery without catheterization. Poster session American College of Cardiology Forty-seventh Annual Scientific Session, Atlanta, GA, March 1998. (*J Am Coll Cardiol* 1998; 31:427A.)
5. **Tworetzky W**, Moore P, Bristow JD, Bekker JM, Black SM, Fineman JR. Pulmonary Blood Flow-Mediated Changes In Endothelial-Derived Nitric Oxide Production In Patients Undergoing ASD Device Closure. Oral presentation at the 71st Scientific Session of the American Heart Association, Nov. 9, 1998, Dallas, Texas. Also presented at the Young Investigator Poster Session, Nov. 7, 1998.
6. **Tworetzky W**, Moore P, Brook MM, Bristow J, Hawgood S, Fineman JR. Inhaled NO in PPHN: Dose Response and Acute Withdrawal in Newborns with Pulmonary Artery Pressure Monitoring. Oral presentation at the Pediatric Academic Societies Annual Meeting, San Francisco May 4 1999
7. **Tworetzky W**, Teitel DF, Moore P. Balloon Coarctoplasty in Infants with Atrial Septal Defect After the Norwood Procedure. Oral presentation at the annual meeting of the Society for Cardiovascular Angiography and Intervention (SCAI), Monterey, CA, May 13th 1999.
8. **Tworetzky W**, McElhinney DB, Villegas M, Brook MM, Silverman NH. Outcome after Fetal Diagnosis of Functionally Univentricular Cardiac Defects. Oral presentation at the Society for Pediatric Research Annual Meeting Boston, MA, May 13, 2000
9. **Wayne Tworetzky** James D. Bristow Samuel Hawgood Philip Moore Jeffrey R. Fineman and Michael M. Brook. University of California, San Francisco. Echo Guided Pulmonary Artery Catheter placement in Neonates with Pulmonary Hypertension. Poster presentation at the 3rd World Congress of Pediatric Cardiology and Cardiac Surgery, Toronto, Canada May, 2001.
10. **Wayne Tworetzky** Rene Margossian Mary van der Velde Anita J. Moon Norman H. Silverman Doff B. McElhinney Elizabeth Goldmuntz and Lindsey D. Allan. Cardiac tumors in the Fetus and Infant and the Diagnosis of Tuberous Sclerosis: A Multi-center Study. Poster presentation at the 3rd World Congress of Pediatric Cardiology and Cardiac Surgery, Toronto, Canada May, 2001.

11. **Tworetzky W**, Wilkins-Haug L, Marshall AC, Ponkey SE, van der Velde ME, Perry SB, Jennings RW, Lock JE. Successful Balloon Aortic Valvuloplasty in a Mid-Gestation Fetus 21st Annual International Fetal Medicine and Surgery Society La Malbaie, Québec Canada September 1st – 4th, 2002
12. **Wayne Tworetzky**, Russell W. Jennings, Louise E. Wilkins-Haug, Carol B. Benson, Audrey C. Marshall, Steven D. Colan, Mary van der Velde, Stanton B. Perry, James E. Lock. Balloon Dilation of Severe Aortic Stenosis in the Fetus: Technical Advances Oral Presentation at the Annual Scientific Session of the American College of Cardiology Chicago, IL, April 2003
13. Doff B McElhinney, Joshua W Salvin, Steven D Colan, Ravi Thiagarajan, Pedro J del Nido, **Wayne Tworetzky** Boston Children's Hospital, Boston, MA Outcome of Severe Ebstein's Anomaly and Tricuspid Valve Dysplasia in the Fetus and Neonate Oral Presentation at the Annual Scientific Session of the AHA, November 11th, 2003, Orlando, Florida.
14. Joshua W Salvin, Steven D Colan, Doff B McElhinney, James E Lock, Pedro J del Nido, Peter C Laussen, **Wayne Tworetzky**; Children's Hospital, Boston, Boston, MA Fetal Tricuspid Valve Size as a Predictor of Single vs. Biventricular Outcome in Pulmonary Atresia and Intact Ventricular Septum: Implications for Fetal Intervention. Oral Presentation at the Annual Scientific Session of the AHA, November 11th, 2003, Orlando, Florida.
15. Marshall AC, van der Velde ME, **Tworetzky W**, Gomez CA, Wilkins-Haug LE, Benson CB, Jennings RW, Lock JE. Boston Children's Hospital, Boston, MA Creation of an atrial septal defect in utero for fetuses with hypoplastic left heart syndrome and intact or highly restrictive atrial septum. Oral Presentation at The 53rd Annual Scientific Session of the American College of Cardiology New Orleans LA, March 10th, 2004
16. **Wayne Tworetzky**, Audrey C Marshall, Laura B Myers, Lisa J Bergersen, Russell T Jennings, Children's Hosp Boston, Boston, MA; Carol B Benson, Louise E Wilkins-Haug, Brigham and Women's Hosp, Boston, MA; James E Lock, Children's Hosp Boston, Boston, MA Fetal Cardiac Interventions: Fetal and Maternal Complications and Treatment Annual Scientific Session of the American Heart Association, New Orleans, LA 11/07/2004
17. Kaarin Makikallio, Jamie C Levine, Gerald R Marx, Steven D Colan, Audrey C Marshall, James E Lock, **Wayne Tworetzky**, Children's Hosp Boston, Boston, MA Fetal Aortic Valve Stenosis and the Evolution of Hypoplastic Left Heart Syndrome: Patient Selection for Fetal Intervention Annual Scientific Session of the American Heart Association, New Orleans, LA 11/10/2004

## **Miscellaneous**

In September 2000, I participated as the cardiologist on an international pediatric cardiac surgery team that traveled to Nanjing Children's and Shanghai Hospitals in The Peoples Republic of China.

In the fall of 2000, I completed a combined Health Science Technology course offered at Harvard Medical School, Harvard Business School and Massachusetts Institute of Technology. As a course requirement, I completed a project entitled: "The Development of an Internet Based Clinical Trials Manager."