

**CURRICULUM VITAE**

9/8/2008

**I. General Information**

**Name:** Steven Donald Colan, M.D., F.A.C.C., F.A.S.E.

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**Place of Birth:** Omaha, Nebraska

**Education:**

06/01/1973 B.S., Mathematics, Massachusetts Institute of Technology  
 06/01/1973 B.S., Philosophy, Massachusetts Institute of Technology  
 06/10/1977 M.D., Boston University School of Medicine

**Postdoctoral Training:**

07/01/1977 Intern in Pediatrics, Massachusetts General Hospital  
 07/01/1978 Assistant Resident in Pediatrics, Massachusetts General Hospital  
 07/01/1979 Senior Resident in Pediatrics, Massachusetts General Hospital  
 07/01/1980 Chief Resident in Pediatrics, Massachusetts General Hospital  
 07/01/1981 Fellow in Pediatric Cardiology, Boston Children's Hospital

**Licensure and Certification:**

11/26/1979 Massachusetts License Registration  
 09/12/1982 American Board of Pediatrics  
 10/21/1983 Sub-board of Pediatric Cardiology, American Academy of Pediatrics

**Academic Appointments:**

07/01/1984 Instructor in Pediatrics, Harvard Medical School  
 07/01/1985 Assistant Professor of Pediatrics, Harvard Medical School  
 10/01/1990 Associate Professor of Pediatrics, Harvard Medical School  
 01/01/2003 Professor of Pediatrics, Harvard Medical School

**Hospital Appointments:**

7/1/1980-6/30/1984 Assistant in Pediatrics, Massachusetts General Hospital  
 7/1/1984-6/30/1985 Assistant in Cardiology, Boston Children's Hospital  
 7/1/1985-6/30/1990 Associate in Cardiology, Boston Children's Hospital  
 7/1/1990- Senior Associate in Cardiology, Boston Children's Hospital  
 7/1/1994-12/31/2005 Chief, Division of Noninvasive Cardiology, Boston Children's Hospital  
 05/28/2003 Courtesy Staff, Wnchester Hospital  
 01/01/2006 Associate Chief for Clinical Operations, Department of Cardiology,  
 Boston Children's Hospital  
 06/13/2006 Pediatrician to the Affiliate Staff, Brigham and Women's Hospital

**Major Administrative Responsibilities**

7/1/1985-7/1/1994 Director, Cardiac Exercise Laboratory, Boston Children's Hospital  
 7/1/1993-6/30/1996 Director, Cardiology Information System, Boston Children's Hospital  
 7/1/1994-1/1/2006 Chief, Division of Noninvasive Cardiology, Boston Children's Hospital  
 1/1/2006 Associate Chief for Clinical Operations, Department of Cardiology

**Major Committee Assignments:**

1988- Institutional Review Board, Boston Children's Hospital  
 1989-1994 MIS Physicians Advisory Committee, Boston Children's Hospital  
 1990-1996 Research Computing Advisory Committee, Boston Children's Hospital  
 1992- Clinical Research Center Advisory Committee, Children's Hospital  
 1994-1998 Cardiology Quality Improvement Committee, Boston Children's Hospital  
 1996-1999 General Clinical Research Center Review Committee,  
 National Institutes of Health  
 1998-2001 Standards and Nomenclature Committee,  
 Society of Pediatric Echocardiography  
 1999-2001 Pediatric Council Board, American Society of Echocardiography  
 2001- Steering Committee, International Committee on Nomenclature for  
 Congenital Heart Disease  
 2002- International Committee on Nomenclature for Congenital Heart Disease  
 Database Crossmapping Working Committee  
 2002-2005 Associate Member, American Board of Pediatrics  
 2002-2008 Subboard of Pediatric Cardiology, American Board of Pediatrics  
 2002-2008 Pediatric Cardiology Credentials Committee, American Board of  
 Pediatrics  
 2002- Clinical Appointments and Promotions Committee of the Department of  
 Medicine, Children's Hospital, Boston  
 2006-2009 Member, American Board of Pediatrics  
 2006-2008 Chair, Subboard of Pediatric Cardiology, American Board of Pediatrics  
 2007- International Committee on Nomenclature for Congenital Heart Disease  
 Definitions Working Committee  
 2008- Chair, Institutional Review Board, Boston Children's Hospital

**Memberships in Professional Societies:**

1974-	American Association for the Advancement of Science, member
1976-	American Heart Association, member
1981-	Fellow of the American College of Cardiology
1985-	Institute of Electrical and Electronic Engineers, member
1993-	Fellow of the Society for Pediatric Research
1992-	Fellow of the American Society of Echocardiography

**Editorial Boards**

1984-	Ad hoc reviewer Catheterization and Cardiovascular Diagnosis
1984-	Ad hoc reviewer Circulation
1984-	Ad hoc reviewer American Journal of Cardiology
1985-	Ad hoc reviewer American Heart Journal
1985-	Ad hoc reviewer Journal of the American College of Cardiology
1985-	Ad hoc reviewer Pediatrics
1986-	Ad hoc reviewer Critical Care Medicine
1986-	Ad hoc reviewer Archives of Internal Medicine
1989-	Ad hoc reviewer Journal of Pediatrics
1988-	Ad hoc reviewer J. of the American Society of Echocardiography
1990-	Ad hoc reviewer Echocardiography
1994-	Ad hoc reviewer Journal of the American Medical Association
1995-	Ad hoc reviewer Pediatric Research
1997-	Ad hoc reviewer Journal of Thoracic and Cardiovascular Surgery
1998-	Ad hoc reviewer Women's Health in Primary Care
2005-	Associate Editor, Congenital Heart Disease

**Awards and Honors:**

1977	Alpha Omega Alpha
1983-1984	Janeway Fellowship, Children's Hospital, Boston
1986	Fellow, American College of Cardiology
1993	Fellow, Society for Pediatric Research
1996	The Country's Best Heart Doctors, Good Housekeeping
1998-2007	The Best Doctors in America, Woodward/White, Inc.
1998	Children's Hospital Cardiology Fellows Teaching Award
2005	Fellow, American Society of Echocardiography
2007	Founder's Award, American Society of Echocardiography

## Patents, Royalties, and other Intellectual Property

Development and implementation of a PC-based network for classification, transmission and storage of anatomic and function information in congenital heart disease. Incorporated by VMI, Inc. (Ottawa, Canada) into a commercial cardiac database and analysis program via a 10-year royalty agreement with Children's Hospital beginning in 2001. As of 2008, this IP has been licensed by 5 companies.

## III. Bibliography

### Original Articles

1. Liberthson RR, Colan SD. Multifocal and chaotic atrial rhythm: Report of nine infants, delineation of clinical course and management and review of the literature. *Pediatr Cardiol* 1982; 2: 179-184.
2. Colan SD, Fujii A, Borow KM, MacPherson D, Sanders SP. Noninvasive determination of systolic, diastolic, and end-systolic blood pressure in neonates, infants and young children: comparison with central aortic pressure measurements. *Am J Cardiol* 1983; 52: 867-870.
3. Colan SD, Borow KM, Gamble WJ, Sanders SP. Effects of enhanced afterload (methoxamine) and contractile state (dobutamine) on the left ventricular late-systolic wall stress-dimension relation. *Am J Cardiol* 1983; 52: 1304-1309.
4. Borow KM, Henderson IC, Neumann A, Colan SD, Grady S, Papish S, Goorin A. Assessment of left ventricular contractility in patients receiving doxorubicin. *Ann Intern Med* 1983; 99: 750-756.
5. Colan SD, Borow KM, MacPherson D, Sanders SP. Use of the indirect axillary pulse tracing for noninvasive determination of ejection time, upstroke time, and left ventricular wall stress throughout ejection in infants and young children. *Am J Cardiol* 1984; 53: 1154-1158.
6. Colan SD, Borow KM. Left ventricular end-systolic stress - velocity of circumferential shortening relation: a load independent index of myocardial contractility. *J Am Coll Cardiol* 1984; 4: 715-724.
7. Colan SD. Combined fluid-filled and micromanometer-tip catheter system for high-fidelity pressure recordings in infants. *Cathet Cardiovasc Diagn* 1984; 10: 619-623.
8. Castaneda AR, Norwood WI, Jonas RA, Colan SD, Sanders SP, Lang P. Transposition of the great arteries and intact ventricular septum: anatomical repair in the neonate. *Ann Thorac Surg* 1984; 38: 438-443.

9. Colan SD, Liberthson RR, Cahen L, Shannon DC, Kelly DH. Incidence and significance of primary abnormalities of cardiac rhythm in infants at high risk for sudden death syndrome. *Pediatr Cardiol* 1985; 5: 267-272.
10. Colan SD, Borow KM, Neumann A: Effects of loading conditions and contractile state (methoxamine and dobutamine) on left ventricular early diastolic function in normal subjects. *Am J Cardiol* 1985; 55: 790-796.
11. Burrows FA, Hickey PR, Colan SD. Perioperative complications in patients treated with anthracycline chemotherapeutic agents. *Can Anaesth Soc J* 1985; 32: 149-157.
12. Trowitzsch E, Colan SD, Sanders SP. Two-dimensional echocardiographic estimation of right ventricular area change and ejection fraction in infants with systemic right ventricle (transposition of the great arteries or hypoplastic left heart syndrome). *Am J Cardiol* 1985; 55: 1153-1157.
13. Colan SD, Borow KM. Use of the calibrated carotid pulse tracing for calculation of left ventricular pressure and wall stress throughout ejection. *Am Heart J* 1985; 109: 1306-1310.
14. Fifer MA, Borow KM, Colan SD, Lorell BH. Early diastolic left ventricular function in children and adults with aortic stenosis. *J Am Coll Cardiol* 1985; 5: 1147-1154.
15. Wolfe L, Olivieri N, Sallon D, Colan SD, Rose V, Propper R, Freedman MH, Nathan DG. Prevention of cardiac disease by subcutaneous deferoxamine in patients with thalassemia major. *N Engl J Med* 1985; 312: 1600-1603.
16. Trowitzsch E, Bano-Rodrigo A, Burger BM, Colan SD, Sanders SP. Two-dimensional echocardiographic findings in double-orifice mitral valve. *J Am Coll Cardiol* 1985; 6: 383-387.
17. Trowitzsch E, Colan SD, Sanders SP. Global and regional right ventricular function in normal infants and infants with transposition of the great arteries after Senning operation. *Circulation* 1985; 72: 1008-1014.
18. Trowitzsch E, Colan SD, Sanders SP. Two-dimensional echocardiographic estimation of right ventricular size and function in newborns with severe right ventricular outflow tract obstruction. *J Am Coll Cardiol* 1985; 6: 388-393.
19. Borow KM, Colan SD, Neumann A. Altered left ventricular mechanics in patients with valvular aortic stenosis and coarctation of the aorta: effects on systolic performance and late outcome. *Circulation* 1985; 72: 515-522.
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21. Rein AJ, Hsieh KS, Elixson M, Colan SD, Lang P, Sanders SP, Castaneda AR. Cardiac output estimates in the pediatric intensive care unit using a continuous-wave Doppler computer: validation and limitations of the technique. *Am Heart J* 1986; 112: 97-103.

22. Hsieh KS, Sanders SP, Colan SD, MacPherson D, Holland C. Right ventricular systolic time intervals. Comparison of echocardiogram and Doppler-derived values. *Am Heart J* 1986; 112: 103-107.
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25. Rein AJ, Colan SD, Parness IA, Sanders SP. Regional and global left ventricular function in infants with anomalous origin of the left coronary artery from the pulmonary trunk: preoperative and postoperative assessment. *Circulation* 1987; 75: 115-123
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30. Rein AJJT, Sanders SP, Colan SD, Parness IA, Epstein M. Left ventricular mechanics in the normal newborn. *Circulation* 1987; 76: 1029- 1036.
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38. Sanders SP, Parness IA, Colan SD. Recognition of abnormal connections of coronary arteries with the use of color Doppler flow mapping. *J Am Coll Cardiol* 1989; 13: 922-926.
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40. Newburger JW, Sanders SP, Burns JC, Parness IA, Beiser AS, Colan SD. Left ventricular contractility and function in Kawasaki syndrome: effect of intravenous gamma-globulin. *Circulation* 1989; 79: 1237-1246.
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53. Maguire JF, O'Rourke PP, Colan SD, Geha RS, Crone R. Cardiotoxicity during treatment of severe childhood asthma. *Pediatrics* 1991; 88: 1180-1186.
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58. Shapiro F, Sethna N, Colan S, Wohl ME, Specht L. Spinal fusion in Duchenne muscular dystrophy: a multidisciplinary approach. *Muscle Nerve* 1992; 15: 604-614.
59. Aoyagi T, Mirsky I, Flanagan MF, Currier JJ, Colan SD, Fujii AM. Myocardial function in immature and mature sheep with pressure overload hypertrophy. *Am J Physiol* 1992; 262 (Heart Circ Physiol 31): H1036-H1048.
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61. Lillehei CW, Colan S. Echocardiography in the preoperative evaluation of vascular rings. *J Pediatr Surg* 1992; 27: 1118-1121.
62. Wernovsky G, Giglia TM, Jonas RA, Mone SM, Colan SD, Wessel DL. Course in the intensive care unit following "preparatory" pulmonary artery banding and aortopulmonary shunt placement for transposition of the great arteries with low left ventricular pressure. *Circulation* 1992; 86:Suppl II: 133-139.
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71. Jenkins KJ, Sanders SP, Orav EJ, Coleman L, Mayer JE Jr, Colan SD. Individual pulmonary vein size and survival in infants with totally anomalous pulmonary venous connection. *J Am Coll Cardiol* 1993; 22: 201-206.
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### **Multicenter Study Original Articles (Participant, Not member of Writing Group)**

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## **Clinical Communications**

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## **Computer Software**

1. TGAD: A Pascal and assembly language program for analog-to-digital conversion of physiologic data and automatic computation of derived indices of contractility. Placed in the public domain by S. D. Colan 1985.
2. WF: A Pascal program for the echocardiography laboratory that provides complete scheduling, reporting, analysis, and database functionality. First placed in the public domain by S. D. Colan in 1988 with periodic updates.
3. ZSCORE: A Pascal and assembly language program which calculates normal deviates for a dataset based on a linear or nonlinear model of normative data. Placed in the public domain by S. D. Colan 1990.

## **Patents**

- 1998      Triedman JK, Jenkins KJ, Colan SD. "System and Method for Endocardial Activation Mapping Using a Multi-Electrode Catheter". U.S. Patent Serial No. 08/713,429.

## **Intellectual Property Agreements**

- 2000-2010      Intellectual property agreement between VMI, Inc of Ottawa, Ontario, Canada and Boston Children's Hospital for commercialization of software for echocardiographic analysis written by S.D.Colan