**Keith B. Churchwell, MD, FACC, FAHA, FACP**

**Curriculum Vitae**

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Date and Place of Birth: November 12, 1961 (Nashville, TN)

Home Address: 21 Mill Road

 Guilford, CT 06437

Home Phone Number: (615) 512-1232

 Spouse's Name: Married, Leslie Douglas-Churchwell, M.D.

Children: Lauren Churchwell (February 21, 1996)

Present Position: Senior Vice President of Operations and Executive Director

 Heart and Vascular Center and Transplantation Center

 Clinical Service Coordinator, Department of Internal Medicine

 Yale New Haven Hospital / Yale New Haven Health

**Education**

* Harvard University (Cambridge, MA), AB Biology, 1983
* Washington University School of Medicine (St. Louis, Missouri), MD, 1987

**Postgraduate Training:** Emory University Affiliated Hospitals (Atlanta, GA)

* Internal Medicine Internship, June 23, 1987 – June 23,1988
* Internal Medicine Residency, July 1, 1988 – June 30, 1990
* Cardiology Fellowship, July 1, 1990 – June 30, 1994
* Nuclear Cardiology Fellowship July 1, 1993 –June 30, 1994

**Licensure and Certification**

* Connecticut: Medical License, 2015 – 2017, License # MD 054404
* Tennessee: Medical License, 1994 - 2015, License # MD 25554
* Kentucky: Medical License, 1998 – 2014, License # MD 37555
* State Board of Georgia and Composite Board of Medical Examiners Certification in Medicine and Surgery, 1988-1996, License #032531
* Diplomate, The American Board of Internal Medicine, 1990, 2001, 2011 License # 134614
* Diplomate, The American Board of Internal Medicine (Cardiovascular Disease), 1995, 2005, 2015
* Diplomate, Certification Council of Nuclear Cardiology, October 1996

**Academic Appointments**

* Chief Resident, Internal Medicine, Emory University Affiliated Hospitals, Grady Memorial Hospital, July 1991 – June 1992
* Assistant Clinical Professor of Medicine,Vanderbilt University Medical Center, September 1998 – April 2005
* Associate Clinical Professor of Medicine and Radiological Sciences, Vanderbilt University Medical Center, June 2005 – June 2006
* Assistant Professor of Medicine and Radiological Sciences, Vanderbilt University Medical Center, July 2006 – June 2009
* Assistant Professor of Medicine and Radiological Sciences, Vanderbilt University Medical Center, July 2006 – July 2008
* Associate Professor of Medicine and Radiological Sciences*,* Vanderbilt University Medical Center, July 2009 – 2014
* Adjunct Associate Professor of Medicine, Vanderbilt University Medical Center, December 2014 – November 2017
* Associate Clinical Professor of Medicine, Yale School of Medicine, July 2016 – June 2021

**Hospital Appointments**

* Baptist Hospital, Medical Staff, July 1994 – June 2006
* St. Thomas Hospital, Medical Staff, July 1994 - June 2006
* Livingston Regional Hospital, June 1996 – 2014
* Muhlenberg Community Hospital 2000 – 2014
* University Medical Center, 2008 – 2014
* Vanderbilt University Medical Center, 1998 – 2014
* Yale New Haven Hospital, 2015 -

**Professional Organizations**

* American Association of Nuclear Cardiology, Full Member
* American Society of Echocardiography, Member
* American College of Cardiology, Fellow
* American Heart Association, Fellow
* American College of Physicians, Fellow

**Professional Activities**

* Director, American Society of Nuclear Cardiology Working Group for Middle Tennessee 2002-2004
* Member, Quality Assurance Committee, American Society of Nuclear Cardiology, 2004-2008
* Member/Liaison, Science Advisory and Coordinating Committee, American Heart Association 2012-2017
* Member, Diversity Leadership Committee, American Heart Association, 2012-present
* Member, Hospital Accreditation Committee, American Heart Association, 2013-2015
* Member, Mission Lifeline Out of Hospital Task Force, American Heart Association, 2013- present
* Member, Nashville Board of the American Heart Association, 2004 – 2014
* President, Nashville Board of the American Heart Association, 2010-11
* Member, Southeastern Affiliate Board, American Heart Association, 2011-14
* Vice President, Greater Southeast Affiliate, American Heart Association, 2012-2013
* President, Southeastern Affiliate Board, American Heart Association, 2013-14
* Member, YNHH Joint Leadership Council, 2015 -
* Member, YNHH Medical Leadership Council, 2015 -
* Member, YNHH Clinical Advisory Board, 2015 -
* Member, YNHH Physician Advisory Board, 2015 -
* Member, Get with the Guidelines Advisory Committee American Heart Association, 2015 -
* Member, Diversity Leadership Liaison on the Social Determinants of Health Committee of the Epidemiology & Prevention (EPI) Council, American Heart Association, 2016 -
* Member, Founders Affiliate, American Heart Association, 2016
* Member, Yale New Haven Hospital Transplant Center Leadership Advisory Committee, 2016
* Co-Chair, Northeast Health Equity Consortium, American Heart Association, 2016
* Chair, National Health Equity Task Force, American Heart Association, 2016 –
* Member, American Heart Association National Nominating Committee, 2016 -
* President, Founders Affiliate, American Heart Association, 2017 -19
* Member, American Heart Association Scientific Sessions Planning Committee, 2017 -

**Teaching Activities**

* Co-Director, the American College of Physicians, Georgia Scientific Sessions, St. Simon's Island, May 1992
* Harrison Service Clinical Attending, Cardiovascular Service 1999 - 2009
* Nuclear Cardiology Yearly lecture series (Initiated series, lectures —3 times each year 2005 - Present)
* Cardiovascular Imaging Research Conference (Initiated conference, monthly meeting, 2011- present)
* Hypertrophic Cardiomyopathy Clinical Conference (Initiated conference – monthly meeting, 2012 – present)
* Vanderbilt 28thi Annual Research Forum, Review Committee, April 22, 2010
* Originator and Course Director (with Douglas Vaughan, MD), Cardiology 2002 -2003, Vanderbilt Cardiology Symposium [Now in its 16th year]
* Presenter and Coordinator, Nuclear Cardiology Quarterly Review and Quality Assurance 2010 – Present
* Vanderbilt Cardiology Valve Symposium 2012, Course Director (with Drs. John Byrne and David Zhao)

**Civic Activities**

* Nashville Symphony Association, Board of Directors, 2012 - 2014
* Nashville Symphony Association Annual Campaign Chair, 2013
* Music Director Search Committee, New Haven Symphony Orchestra, 2016 -
* Board Member, Columbus House, New Haven, CT 2016 –
* Board Member, New Haven Symphony Orchestra, 2017 –
* New Haven American Heart Association Walk Co-Chair, 2016-17

**Honors and Awards**

* Edward Massie Award in Cardiology, Washington University School of Medicine, June 1987
* Alpha Omega Alpha, accepted Emory University, 1990
* Selection as one of the "Best Doctors in America" by Best Doctors, 2001-2013
* Selection as one of the "Top Cardiologists" by Guide to America's Top Cardiologists, 2006-2012
* Nashville Alliance Public Schools Hall of Fame Inductee, 2009
* Trumpet Award (Presented by the Trumpet Award Foundation) for Medicine, 2010
* Joshua Award "The Jericho Project" Tennessee State University, April 2011
* Selection as one of the “Best Doctors in Nashville” by *Nashville Business Journal*, 2012, 2013
* Selection as one of the “Top Doctors in Nashville” by *Nashville Lifestyles*, 2006, 2008, 2011, 2013
* AT&T Tennessee African American History Calendar (Highlighting the contributions of African-Americans across the state), 2013

**Institutional Service**

* Medical Director, The Page Campbell Vanderbilt Heart Institute, July 2000-April 2004
* Interviewer, Vanderbilt University School of Medicine Medical School Applicants 2004-2014
* Interviewer, Vanderbilt University Medical Center Internal Residency Applicants, 2006 - 2014
* Associate Medical Director, Vanderbilt Heart Institute 2006- March 2008
* Medical Director, Cardiac Imaging, Vanderbilt Heart and Vascular Institute March 2008-November 2014
* Executive Medical Director, Vanderbilt and Heart Vascular Institute March 2008-June 2009
* Director, Anticoagulation Advisory Committee, November 2008-2010
* Executive Director/Chief Medical Officer, Vanderbilt Heart and Vascular Institute July 2009-November, 2014
* Co-Clinical Director, Nuclear Cardiology, Vanderbilt Heart and Vascular Institute 2009 - 2014

**Invited Lectures**

* Medical Grand Rounds, "Cardiac PET Imaging," University of Tennessee, Knoxville, October 1998.
* Physician Liaison Program, "Non-Invasive Strategies for the evaluation of Ischemic Heart Disease — Is There a Right Approach?" Bedford County Medical Center, April 2001.
* University of Mississippi — Cardiology Grand Rounds, Jackson, Mississippi, May 10, 2001.
* American College of Cardiology — Strategies for Success, "EMR Adaptation into Physician Culture — An Impossible Task?" Bermuda, June 27, 2001.
* ASNC Symposium and Scientific Session — 6th Annual Read with the Experts, "Focus on CAD," Boston, Massachusetts, September 2001.
* Redmond Regional Medical Center — Fall Medical Symposium," Cardiovascular Disease in Women: Why, How and with What," Rome, Georgia, September 26, 2001.
* "Women and Heart Disease," Parkway East Center, Oak Ridge, Tennessee, November 13, 2001.
* Vanderbilt School of Nursing, "Long Term Medical/Surgical Therapy After MI," Nashville, Tennessee, May 24, 2002.
* Facilitating the Advancement of Rural Medicine, "Risk Stratification," Madison, Tennessee, June 24, 2002.
* "Patient Selection for CV Imaging," Pensacola, Florida, June 27, 2002.
* Facilitating the Advancement of Rural Medicine, "Risk Stratification," Lenoir City, Tennessee, September 10, 2002.
* Cardiolite Imaging Meeting, "Risk Stratification," Jackson, Tennessee, December 4, 2002.
* Society of Nuclear Medicine, Southeastern Conference, "Myocardial Imaging Techniques," Nashville, Tennessee, October 2004.
* Cardiology Grand Rounds, Vanderbilt University Medical Center, “Myocardial PET Imaging”, March 21, 2007.
* Medical Grand Rounds, Vanderbilt University Medical Center, “Myocardial Viability”, August 20, 2009.
* Vanderbilt Valve Symposium, "Mitral Valve Case Studies", October 30, 2009.
* Vanderbilt Symposium 2010 "Athletes and Heart Disease", February 26, 2010.
* Vanderbilt Critical Skills Summit, “Utility of TEE in the ICU”, May 23, 2010.
* Vanderbilt Heart and Vascular Institute, Middle Tennessee Cardiovascular Disease Update Conference, “What is the Appropriate Screening for Athletes?” August 27, 2011.
* American College of Cardiology Annual Meeting 2012, “The Development of the Academic Cardiovascular Institute”.
* Vanderbilt Valve Symposium, “Financial Implication of TAVR”, October 2012.
* ACC Cardiovascular Summit, “Academic Cardiovascular Service Lines”, January 2013
* YNHHS National Symposium on Value Innovation at Yale, “The Drivers of Improved Value for Heart and Vascular Destination Services, April 27, 2016.
* Healthcare Financial Management Association Conference, “The Quality-First Approach to

Engaging Physicians in Value Innovation”, Las Vegas, Nevada, June 27, 2016.

* Vizient Research / HFMA AMC CFO, “Building and Supporting the Case for Changing Care Delivery Patterns in Faculty Practice Plans, Mary O’Connor, MD and Stephen Allegretto, Scottsdale, Arizona, November 9, 2016.
* Medical Grand Rounds, Rush University School of Medicine, Chicago, Illinois

The Cardiovascular Institute in a Clinical Academic Care Setting: How does it work? March 22, 2017

* New England Healthcare Financial Management Association Conference Capstone Address: Cost and Quality Together Forever, Mary O’Connor, MD and Stephen Allegretto, Uncasville, CT, May 25, 2017.

**Publications and Presentations**

***Original Investigations***

Patterson RE, Pilcher WC, **Churchwell KB**, Goodman MM, Garcia EV, Eisner RL. Positron Emission Tomographic Imaging of the Cardiovascular System: an emerging clinical tool. Heart Disease and Stroke 1994 Nov-Dec; 3(6): 330-7

Patterson RE, **Churchwell KB**, Eisner RL. Diagnosis of coronary artery disease in women: roles of three-dimensional imaging with magnetic resonance or positron emission tomography. American Journal of Cardiac Imaging 1996 January 10 (1): 78-88

Darbar D, Yang T, **Churchwell K**, Wilde AAM, Roden DM. Unmasking of Brugada syndrome by lithium. *Circulation*. 2005 Sept 13; 112(11): 1527–1531

Stankewicz MA, Mansour CS, Eisner RL, **Churchwell KB**, Williams BR, Sigman SR, Streeter J, Patterson RE. Myocardial viability assessment by PET: (82)Rb defect washout does not predict the results of metabolic-perfusion mismatch. *J Nucl Med*. 2005 Oct; 46(10): 1602-9.

Fong PP, Jackson EB, **Churchwell KB**, Steaban R, Starmer JM, Johnson DC, McNeil JD, Klint Z, Scalf SL, Parsons CM, Cortez S, Christensen D, French T, McPherson JA. Acute coronary syndrome pathways: alignment with a bundled care reimbursement model. *Critical Pathways in Cardiology: A Journal of Evidence-Based Medicine*. March 2011; 10(1): 1-8.

Brittain, EL, Goyal SK, Sample M, Leacche M, Absi T, Papa F, **Churchwell K**, Ball S, Byrne, J, Maltais, S, Petracek M, Mendes L. Minimally invasive fibrillating mitral valve replacement for patients with advanced cardiomyopathy: A safe and effective approach. *Journal of Thoracic and Cardiovascular Surgery* (IN PRESS)

***Book Chapters***

Patterson RE, Cloninger K, **Churchwell KB**, Shonkoff DW, Sullivan KW, Williams BR, Eisner RL. Special problems with cardiovascular imaging to assess coronary artery disease in women. *Women & Heart Disease.* 91-117, 1993.

***Reviews, Case Reports, Letters, Editorials:***

Hansen CL, Goldstein RA, Berman DS, **Churchwell KB**, Cooke CD, Corbett JR, Cullom SJ, Dahlberg ST, Galt JR, Garg RK, Heller GV, Hyun MC, Johnson LL, Mann A, McCallister BD Jr, Taillefer R, Ward RP, Mahmarian JJ; Quality Assurance Committee of the American Society of Nuclear Cardiology. Myocardial perfusion and function single photon emission computed tomography. *J Nucl Cardiol*. 2006 Nov; 13(6):e97-120.

Hansen CL, Goldstein RA, Akinboboye OO, Berman DS, Botvinick EH, **Churchwell KB**, Cooke CD, Corbett JR, Cullom SJ, Dahlberg ST, Druz RS, Ficaro EP, Galt JR, Garg RK, Germano G, Heller GV, Henzlova MJ, Hyun MC, Johnson LL, Mann A, McCallister BD Jr, Quaife RA, Ruddy TD, Sundaram SN, Taillefer R, Ward RP, Mahmarian JJ; American Society of Nuclear Cardiology. Myocardial perfusion and function: single photon emission computed tomography.*J Nucl Cardiol*. 2007 Nov-Dec; 14(6):e39-60.

**Churchwell K**. State smoking ban "Issues related to second hand smoke" (published in the *Tennessean* Newspaper, Monday, October 26, 2009).

 **Churchwell K**. “Black Lives Do Matter – Association of Hospital Physician Characteristics and Care Processes with Racial Disparities in Procedural Outcomes Among contemporary patients Undergoing Coronary Artery Bypass Grafting Surgery”, American Heart Association Circulation. 2015; 020085.

***Abstracts***

**Churchwell KB**, Eisner RL, Patterson , RE, et al. Accuracy of PET Rubidium-82 Myocardial Perfusion Imaging (MPI) to Diagnose Coronary Artery Disease: New Software for Objective Quantitative Analysis. *Journal of Nuclear Medicine* Volume 35. Issue 3. 23P (abstract presented at the Society of Nuclear Medicine annual meeting, Orlando, Florida, June, 1994).

Streeter T, **Churchwell KB**, Patterson RE, et al. A Comparison of High Dose vs. Low Dose Dipyridamole Infusion for Pharmacological Stress Testing. (abstract presented at the Institute for Clinical PET Sixth Annual International Conference, October 1994).

**Churchwell KB**, Pilcher WC, Eisner RL, Barclay AB, Patterson RE. Quantatitative Analysis of Positron Emission Tomography: The "Women's test for Coronary Artery Disease. Journal of Nuclear Medicine

1995. Volume 36. Issue 3 41P (presented at the 42°d Society of Nuclear Medicine annual meeting, Minneapolis, Minnesota, June 1995).

Huntsinger DR, Martin W, **Churchwell K**, Delbeke D. Value of Prone Myocardial Perfusion Spect Imaging (MPI) for Patients with Chest Pain in the Emergency Department. Journal of Nuclear Cardiology 2002. Volume 9. Issue 4. S 12 (abstract presented at ASNC Annual Meeting, September 2002).

Oddis CV, Byrne D, Myers JS, Churchwell AL, **Churchwell KB**.Vanderbilt University Medical Center and The Page-Campbell Cardiology Group, Nashville, Tennessee. Effect of Patient Positioning on Left Ventricular Functional and Volumetric Measurements by Quantitative Gated Myocardial SPECT. (presented at the American Society of Nuclear Cardiology Annual Meeting, September 16, 2005).

Delbeke D, Kronenberg MW, **Churchwell K**, Mazer M, Martin WH, Brenner R, Forrester J, Patton JA; Sandler MP. Integrated rest/stress myocardial perfusion SPECT (MPS) and 64-slice coronary CT Angiography (CCTA): Impact on management in patients post-revascularization. Vanderbilt University (presented at the Society of Nuclear Medicine Annual Meeting June, 2008).

Mohamed T, Sathappan K, Theilade C, **Churchwell K**. The outcome of minimally invasive mitral valve surgery in patients with severe mitral stenosis without aortic cross clamping. (Accepted for poster presentation SCA Annual Meeting June, 2008).

Delbeke D, Kronenberg M, **Churchwell K**, Mazer M, Martin W, Brenner R, Forrester J, Patton JA, Sandler M; Vanderbilt Hospital, Nashville, TN. Integrated rest/stress myocardial perfusion SPECT

(MPS) and 64-slice coronary CT Angiography (CCTA): Impact on management of patients post-revascularization. (Accepted for presentation, American Society of Nuclear Cardiology Annual Meeting, September 2008).

Brittain EL, Goyal S, Leacche M, Absi T, Balaguer JM, **Churchwell KB**, Mendes LA, Byrne JG, Ball SK, Petracek MR, Vanderbilt University Medical Center, Nashville, TN, USA, Veterans Affairs Medical Center, Nashville, TN. Mitral Regurgitation: Novel Surgical and Percutaneous Observations. (Accepted for presentation, American College of Cardiology Annual Meeting March 2012).

Brittain EL, Goyal S, Marzia Leacche M, AbsiT, ByrneJG, Petracek MR, Ball SK, **Churchwell KB**, Mendes LA. Pre-operative Left Ventricular Size and Function Predict Outcome After Minimally-Invasive Mitral Valve Replacement in Patients with Advanced Heart Failure. Division of Cardiovascular Medicine1 and Department of Cardiac Surgery2, Vanderbilt University Medical Center, and Department of Cardiac Surgery, Veterans Affairs Medical Center3, Nashville, TN (Accepted for presentation, Heart Valve Society of America April 2012 Scientific Sessions).

Brittain EL, Goyal S, Leacche M, Absi T, **Churchwell KB**, Mendes LA, Byrne JG, Ball SK, Petracek MR, Vanderbilt University Medical Center, Nashville, TN, USA. Minimally-Invasive Mitral Valve Replacement without Aortic Cross-Clamp is Safe in Patients with Severe Cardiomyopathy (submitted for presentation, American Heart Association 2012 Scientific Sessions November 2012).