

CURRICULUM VITAE
The Johns Hopkins University School of Medicine

April 2018

Charles J. Love, MD

DEMOGRAPHIC AND PERSONAL INFORMATION

Current Appointments

7/1/17 - present Professor of Clinical Medicine, Department of Medicine, Johns Hopkins University

Hospital

7/1/17 - present Attending Physician, Director of Cardiac Rhythm Device Services, Johns Hopkins Hospital

Personal Data

Business Address Section of Cardiac Electrophysiology
Division of Cardiology
Department of Medicine
Johns Hopkins Hospital
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Education and Training

Undergraduate

1974-1978 BA Biology Earlham College, Richmond IN

Doctoral/graduate

1979-1983 MD Medicine University of Pittsburgh, Pittsburgh PA

Postdoctoral Experience

1983-1984	Internal Medicine	Calvin Kunin	The Ohio State University, Columbus, OH
1984-1986	Internal Medicine	Ernest Mazzaferri	The Ohio State University, Columbus, OH
1986-1988	Cardiology	Richard Lewis	The Ohio State University, Columbus, OH

Professional Experience

Academic Appointments

7/88-1/90	Clinical Assistant Professor of Medicine	The Ohio State University, Columbus OH
2/90-5/98	Assistant Professor of Clinical Medicine	The Ohio State University, Columbus OH
6/98-6/04	Associate Professor of Clinical Medicine	The Ohio State University, Columbus OH
7/04-1/14	Professor of Clinical Medicine	The Ohio State University, Columbus OH
2/14-5/17	Professor of Clinical Medicine	New York University, New York, NY
7/17-present	Professor of Medicine	Johns Hopkins University, Baltimore MD

Hospital Appointments

6/88-1/14	Staff Physician, OSU Medical Center
6/90-1/14	Staff Physician, Arthur G. James Cancer Hospital

6/95-12/13	Memorial hospital of Union County
8/95-9/13	Mt Carmel Medical Center, Columbus Ohio
1/96-12/99	Adena Medical Center, Chillicothe Ohio
8/97-12/13	Lancaster Fairfield Medical Center, Lancaster Ohio
7/01-7/13	Southeastern Ohio Regional Medical Center, Cambridge Ohio
7/02-6/04	University of Cincinnati Medical Center, Cincinnati Ohio
10/03-10/06	Select Specialty Hospital, Columbus OH
6/04-12/13	Lima Memorial Hospital, Lima Ohio
6/05-1/14	Nationwide Children's Hospital, Columbus Ohio
6/06-12/13	Marion General Hospital, Marion Ohio
10/22-1/14	Chalmers P. Wylie VA Medical Center, Columbus OH
2/14-5/17	Staff Physician, New York University Langone Medical Center
9/14-5/17	Staff Physician, Bellevue Hospital Center, New York, NY
6/15-5/17	Staff Physician, New York Harbor VA Medical Center, New York, NY
7/17-present	Staff Physician, Johns Hopkins Hospital, Baltimore, MD

PUBLICATIONS

Original Reports

1. Wilson JH, **Love CJ**. Clinical Evaluation of an Automatic Sensitivity Adjustment Feature in the Cosmos-II. Pacing and Clinical Electrophysiology: Pacing Clin Electrophysiol. 1990;13(11):1220-1223.
2. Nelson SD, Stanley M, **Love CJ**, Coyne KS, Schaal SF. The Autonomic and Hemodynamic Effects of Oral Theophylline in Patients with Vasodepressor Syncope. Arch Intern Med. 1991;151(Jan): 2425-2429.
3. Feld GK, **Love CJ**, Camerlo J, Marsella R. A new pacemaker algorithm for continuous capture verification and automatic threshold determination: Elimination of pacemaker after potential utilizing a triphasic charge balancing system. Pacing Clin Electrophysiol. 1992;15(2):171-178.
4. Smith HJ, Fearnot NE, Byrd CL, Wilkoff BL, **Love CJ**, Sellers TD. Five-years experience with intravascular lead extraction. US Lead Extraction Database. Pacing Clin Electrophysiol. 1994;17(11, Part II.): 2016-2020.
5. Nelson SD, Dunn LR, Johnston BC, Burroughs JM, **Love CJ**, Schaal SF. The relationship between cardiac autonomic tone and T-wave morphology during ambulatory monitoring. American Journal of Noninvasive Cardiology. 1994;8(2):73-76.
6. **Love,C,J**; Frumin,H; Duncan,J,L. Initial experience with a new endocardial steroid screw-in lead. HEARTWEB. 1996;2(1): U195-U202.
7. Nelson SD, Meier M, Mehdirad AA, **Love CJ**, Schaal SF. Clinical significance of an equivocal signal-averaged electrocardiogram. Am J Cardiol. 1997;79(11):1541-1543.
8. Mehdirad A, **Love CJ**, Nelson S, Schaal S, Collins J, Huffman K. Alternating Current Electrocutation Detection and Termination by an Implantable Cardioverter Defibrillator. Pacing Clin Electrophysiol: PACE. 1997;20(7):1885-1886.
9. Mehdirad AA, Nelson SD, Love CJ, Schaal SF, Tchou PJ "QRS duration widening: Reduced synchronization of endocardial activation or transseptal conduction time?" Pacing Clin Electrophysiol. 1998;21(8): 1589-1594.
10. Wilkoff BL, Byrd CL, **Love CJ**, Hayes DL, Sellers TD, Schaerf R, Parsonnet V, Epstein LM, Sorrentino RA, Reiser C. ;"Pacemaker lead extraction with the laser sheath: Results of the pacing lead extraction with the excimer sheath (PLEXES) trial.;" J Am Coll Cardiol. 1999;33(6):1671-1676.
11. Mehdirad AA, Stohr EC, **Love CJ**, Nelson SD, Schaal SF. ;"Implantable Defibrillators Impedance Measurement Using Pacing Pulses Versus Shock Delivery with Intact and Modified High Voltage Lead System.;" Pacing Clin Electrophysiol: PACE. 1999;22(3):437-441.
12. Mehdirad AA, **Love CJ**, Stanton MS, Strickberger SA, Duncan JL, Kroll MW. Preliminary clinical results of a biphasic waveform and an RV lead system. Pacing Clin Electrophysiol. 1999;22(1):594-599.
13. Mehdirad AA, **Clem KL**, **Love CJ**, Nelson SD, Schaal SF. Improved clinical efficacy of external cardioversion by fluoroscopic electrode positioning and comparison to internal cardioversion in patients with atrial fibrillation. Pacing Clin Electrophysiol: PACE. 1999;22(1 Part II):233-237.
14. Kay GN, Brinker JA, Kawanishi DT, **Love CJ**, Lloyd MA, Reeves RC, Pioger G, Fee JA, Overland MK, Ensign LG, Grunkemeier GL. Risks of spontaneous injury and extraction of an active fixation pacemaker lead: report of the Accufix Multicenter Clinical Study and Worldwide Registry. Circulation. 1999;100(23): 2344-2352.
15. Epstein LM, Byrd CL, Wilkoff BL, **Love CJ**, Sellers TD, Hayes DL, Reiser C. Initial experience with larger laser sheaths for the removal of transvenous pacemaker and implantable defibrillator leads. Circulation. 1999;100(5) :

16. Byrd CL, Wilkoff BL, **Love CJ**, Sellers TD, Turk KT, Reeves R, Young R, Crevey B, Kutalek SP, Freedman R, Friedman R, Trantham J, Watts M, Schutzman J, Oren J, Wilson J, Gold F, Fearnot NE, Van Zandt HJ. Intravascular extraction of problematic or infected permanent pacemaker leads: 1994-1996. U.S. Extraction Database, MED Institute. *Pacing Clin Electrophysiol.* 1999;22(9):1348-1357.
17. Kumins NH, Tober JC, **Love CJ**, Culbertson TA, Gerhardt MA, Irwin RJ, Smead WL. Arteriovenous fistulae complicating cardiac pacemaker lead extraction: Recognition, evaluation and management. *J Vasc Surg.* 2000;32(6):225-1228.
18. Ellenbogen KA, Stambler BS, Orav EJ, Sgarbossa EB; Tullo EG, **Love CA**, Wood, MA, Goldman L, Lamas GA. Clinical characteristics of patients intolerant to VVIR pacing. *Am J Cardiol.* 2000;86(1):59-63.
19. Bain AC, Swerdlow CD, **Love CJ**, Ellenbogen KA, Deering TF, Brewer JE, Augostini RS, Tchou PJ. Multicenter study of principles-based waveforms for external defibrillation. *Ann Emerg Med.* 2001;37(1): 5-12.
20. **Love CJ**, Byrd C, Wilkoff B, Kutalek S, Schaerf R, Goode L, Norlander B, Heise T, Van Zandt H. Lead Extraction Using a Bipolar Electrosurgical Dissection Sheath: An Interim Report. *Europace.* 2001;3(2): 223-228.
21. Byrd CL, Wilkoff BL, **Love CJ**, Sellers TD, Reiser C. Clinical study of the laser sheath for lead extraction: The total experience in the United States. *Pacing Clin Electrophysiol.* 2002;25(5):804-808.
22. Stambler BS, Ellenbogen K, Zhang X, Porter TR, Xie F, Malik R, Small R, Burke M, Kaplan A, Nair L, Belz M, Fuenzalida C, Gold M, **Love CJ**, Sharma A, Silverman R, Sogade F, Van Natta B, Wilkoff BL; ROVA Investigators. Right ventricular outflow versus apical pacing in pacemaker patients with congestive heart failure and atrial fibrillation. *J Cardiovasc Electrophysiol.* 2003;14(11):1180-1186.
23. **Baker C**, **Love CJ**, Moeschberger ML, Orsinelli DA, Yamokoski L, Leier CV. Time intervals of cardiac resynchronization therapy in heart failure. *Am J Cardiol.* 2004;94(9):1192-1196.
24. Adamson PB, Abraham WT, **Love CJ**, Reynolds D. The evolving challenge of chronic heart failure management: a call for a new curriculum for training heart failure specialists. *J Am Coll Cardiol.* 2004;44(7): 1354-1357.
25. Wilkoff BL, Belott PH, **Love CJ**, Scheiner A, Westlund R, Rippy M, Krishnan M, Norlander BE, Steinhaus B, Emmanuel J, Zeller PJ. Improved extraction of ePTFE and medical adhesive modified defibrillation leads from the coronary sinus and great cardiac vein. *Pacing Clin Electrophysiol.* 2005;28(3):205-211.
26. Smith MC, **Love CJ**. Extraction of Transvenous Pacing and ICD Leads. *Pacing Clin Electrophysiol.* 2008; 31(6): 736-752.
27. **Mehta R**, **Doshi AA**, **Hasan AK**, **Love CJ**, **Pizzuto M**, Sai-Sudhakar C, **Chan DP**. Device Interactions in Patients with Advanced Cardiomyopathy. *J Am Coll Cardiol.* 2008;51(16):613-1614.
28. **Love CJ**, Ahlberg SE, Hiniduma-Lokuge P, Brabec S, Iaizzo PA. Novel visualization of intracardiac pacing lead extractions: methodologies performed within isolated canine hearts. *J Interv Card Electrophysiol.* 2009;24(1): 27-31
29. Hansen LK, Brown M, Johnson D, Palme DF, **Love CJ**, Darouiche R. In Vivo Model of Human Pathogen Infection and Demonstration of Efficacy by an Antimicrobial Pouch for Pacing Devices. *Pacing Clin Electrophysiol.* 2009;32(7):898-907
30. Varma N, Epstein A, Irimpen A, Gibson L, **Love C**. Event Notifications by Remote monitoring systems performing automatic daily checks: Load, characteristics and clinical utility. *Eur Heart J.* 2009;51(16):307-308
31. Wazni O, Epstein LM, Carrillo RG, **Love C**, Adler SW, Riggio DW, Karim SS, Bashir J, Greenspon AJ, DiMarco JP, Cooper JM, Onufer JR, Ellenbogen KA, Kutalek SP, Deentry—Mabry S, Ervin CM, Wilkoff BM. Lead Extraction in the Contemporary Setting: The LEXICON Study An Observational Retrospective Study of Consecutive Laser Lead Extractions. *J Am Coll Cardiol.* 2010;55(6):579-586.
32. Varma N, Epstein AE, Irimpen A, Schweikert R, **Love C**. Efficacy and Safety of Automatic Remote Monitoring For Implantable Cardioverter Defibrillator Follow-Up. *Circulation.* 2010;122(4):325-332.
33. **Maffett S**, Boyd JM, **Love CJ**, Daoud EG, Weiss R, Augostini RS, **Hasan A**, Liu Z, Hummel JD, **Houmsse M**, Kalbfleisch SJ. Pacemaker and Implantable Cardioverter-Defibrillator Implantation During Chronic Anticoagulation: Continuation of Warfarin versus Bridging with Heparin. *The Journal of Innovations in Cardiac Rhythm Management.* 2011;2(Jan):154-158.
34. **Houmsse M**, Mentzer G, Winner M, Adams C, **Love CJ**. Cardiac Magnetic Resonance Imaging Utilization for Optimal Pacemaker Placement in Stented Baffle in Transposition of Great Arteries. *Ibnosina Journal of Medicine.* 2011;3(2):21-23
35. Binkley PF, Porterfield JG, Porterfield LM, Beau SL, Corbiserio R, Greer GS, **Love CJ**, Turkel M, Bjoring A, Qu F, Farazi TG. Feasibility of using multivector impedance to monitor pulmonary congestion in heart failure patients. *J Interv Card Electrophysiol.* 2012;35(2):197-206.

36. Pretorius V, Birgersdotter-Green U, Heywood JT, Hafelfinger W, **Love CJ**. An implantable left atrial pressure sensor designed for percutaneous extraction using standard techniques. *Pacing Clin Electrophysiol*. 2013;36(5):570-577.
37. Tomassoni G, Baker J, Corbisiero R, **Love C**, Martin D, Niazi I, Sheppard R, Worley S, Beau S, Greer GS, Aryana A, Cao M, Harbert N, Zhang S; Promote® Q CRT-D and Quartet® Left Ventricular Heart Lead Study Group. Postoperative Performance of the Quartet Left Ventricular Heart Lead. *J Cardiovasc Electrophysiol*. 2013;4:449-56.
38. Maytin M, Wilkoff BL, Brunner M, Cronin E, **Love CJ**, Bongioni MG. Multicenter experience with extraction of the Riata/Riata ST ICD Lead. *Heart Rhythm*. 2014;11(9):1613-1618.
39. **Tsai SF, Houmsse M**, Dakhil B, Augostini R, Hummel JD, Kalbfleisch, Liu Z, Love C, **Rhodes T, Tyler J**, Weiss R, **Hamam I, Winner M**, Daoud EG. QTc compared to JTc for monitoring drug-induced repolarization changes in the setting of ventricular pacing. *Heart Rhythm*. 2014;11(3):485-491.
40. Herzog A, Bogdan S, Glikson M, Ishaaya AA, **Love C**. Selective tissue ablation using laser radiation at 355 nm in lead extraction by a hybrid catheter; a preliminary report. *Lasers Surg Med*. 2016;48(3): 281-7.
41. Varma N, Epstein AE, Schweikert R, Michalski J, **Love CJ**. Role of Automatic Wireless Remote Monitoring Immediately Following ICD Implant: The Lumos-T Reduces Routine Office Device Follow-Up Study (TRUST) Trial. *J Card Electrophysiol*. 2016;27(3):321-6.
42. Tomassoni G, Baker J, Corbisiero R, **Love C**, Martin D, Sheppard R, Worley S, Lee K, Niazi I. Rationale and Design of a randomized trial to assess the safety and efficacy of MultiPoint Pacing (MPP) in cardiac resynchronization therapy: MPP Trial. *Ann Noninvasive Electrophysiol* 2017;22 [DOI: 10.1111/anec.12448]
43. Nielsen JC, Giudici M, Viu JMT, Chew E, Sommerijns E, Wold N, Evert L, **Love CJ**, Stein K, Olaf H. Safety and effectiveness of a 6-French MRI conditional pacemaker lead: The INGEVITY clinical investigation study results. *Pacing Clin Electrophysiol*. 2017 40(10):1121-1128
44. **Torbey E, Love CJ** Failure to shock: What is the mechanism? *Pacing Clin Electrophysiol* 2018 <https://doi.org/10.1111/pace.13322>
45. Varma N, Love CJ, Schweikert R, Moll P, Michalski J, Epstein AE. Automatic remote monitoring utilizing daily transmissions: transmission reliability and implantable cardioverter defibrillator battery longevity in the TRUST trial. *EP Europace*. 2018; 20(4):622-628

Review Articles

1. **Love CJ**. Current concepts in extraction of transvenous pacing and ICD leads. *Cardiol Clin*. 2000;18(1):193-217.
2. **Love CJ, Smith MC**. Extraction of Pacing Leads: Overview of Current Techniques. *J Cardiovasc Electrophysiol*. 2006;17(1):1-5.
3. **Love CJ**. Lead Extraction. *Heart Rhythm*. 2007;4(9):238-1243.
4. **Love CJ**. Lead Extraction - Indications, Techniques, and Complications. *US Cardiol*. 2010;7(2).
5. **Love, CJ**. Update on indications, techniques, and complications of cardiac implantable device lead extraction. *Curr Treat Options Cardiovasc Med*. 2012;(14):565-570.

Case Reports

1. Reina T, **Love C**, Halpern D, Cecchin F. Rise in Defibrillation Threshold After Post-Operative Cardiac Remodeling in a Patient with Severe Ebstein's Anomaly. *Heart Rhythm Case Reports* 2017; In Press

Book Chapters and Monographs

1. **Love CJ**. Refractory Ventricular Tachycardia. In *Contemporary Internal Medicine; Clinical Case Studies*. Bowen JM, Mazzaferri EL (eds). New York: Plenum Medical Book Co, 1991.
2. **Love CJ**. Clinical Follow-up of Rate-adaptive Pacing Systems. In *Rate Adaptive Pacing*. Benditt, DG (ed). Osney Mead: Blackwell Scientific Publ, 1993.
3. **Love CJ**. Fine Tuning Therapy for Sinus Node Dysfunction: META DDR 1254. San Antonio: Teletronics Pacing Systems. 1994
4. **Love CJ, Hayes DL**. Differential Diagnosis of Pacemaker Malfunction. In *Clinical Cardiac Pacing*. Ellenbogen, Kay, Wilkoff (eds). Philadelphia: Saunders, 1995.
5. **Love CJ**. Pacemakers and Implantable Defibrillators. In *Handbook of Cardiovascular Emergencies*. Hoekstra JW (ed). New York: Little/Brown Co Inc. 1996.
6. **Love CJ, Levine PA**. Differential Diagnosis of Pacemaker Malfunction. In *Clinical Cardiac Pacing and Defibrillation*. 2nd Ed. Ellenbogen, Kay, Wilkoff (eds). Philadelphia: WB Saunders, 1999:827-875.

7. **Love CJ.** Pacemakers and Implantable Defibrillators. In Handbook of Cardiovascular Emergencies. 2nd Ed. Hoekstra J (ed). Philadelphia: Lippincott Williams/Wilkins, 2001.
8. **Love CJ.** Extraction of Pacing and Defibrillator Lead Systems: State of the Art. In New Developments in Cardiac Pacing and Electrophysiology. Ovsyshcher IE (ed). Austin: Futura, 2002.
9. **Love CJ.** Extractions of Pacing and Defibrillator Leads. In The Fifth Decade of Cardiac Pacing. Barold SS, Mugica JM (eds). Oxford: Futura/Blackwell, 2004.
10. **Love CJ.** New electrode and lead designs for pacemakers. In New Arrhythmia Technologies. Wang PJ (ed). Oxford: Blackwell Futura, 2005.
11. **Love CJ.** Differential Diagnosis of Pacemaker Malfunction. In Clinical Cardiac Pacing and Defibrillation. 3rd Ed. Ellenbogen, Kay, Wilkoff (eds). Philadelphia: WB Saunders, 2006.
12. **Love CJ.** Device Interrogations and Utilization of Diagnostic Data. In Electrophysiology: The Basics. Steinberg JS, Mittal S (eds). Philadelphia: Lippincott Williams & Wilkins, 2010.
13. **Love CJ.** Monitoring Daily Changes in Cardiac Muscle Intramyocardial Electrograms (IMEG) A New Technology for Noninvasive Remote Heart Failure Monitoring. Whitepaper Report. (5/10).
14. **Love CJ, Houmsse M.** Pacemakers and Defibrillators. In Specialty Board Review: Cardiology. Baliga RR (ed). Columbus: McGraw-Hill, 2011;833-848
15. **Love CJ.** Device Interrogations and Utilization of Diagnostic Data. In Electrophysiology: The Basics. 2nd Ed. Steinberg JS, Mittal S (eds). Philadelphia: Lippincott Williams/Wilkins, 2016.
16. **Love CJ.** Lead Extraction and Management. Card Electrophysiol Clin. Elsevier. 2018 (10) 127-136
17. **Love CJ.** Palliation and non-extraction approaches to cardiac implantable electronic device pocket infection. Card Electrophysiol Clin. Elsevier In press 2018

Books, Textbooks

1. **Love CJ, Collins J.** Basic Permanent Pacing. Columbus: Ohio State Univ Medical Center, Div Cardiology, 1990.
2. **Love CJ, Collins J.** Basic Permanent Pacing, 2nd Ed. Columbus: Ohio State Univ Medical Center, Div Cardiology, 1991.
3. **Love CJ, Collins J.** Basic Permanent Pacing, 3rd Ed. Columbus: Ohio State Univ Medical Center, Div Cardiology, 1992.
4. **Love CJ, Collins J, Huffman K.** Basic Permanent Pacing, 4th Ed. Columbus: Ohio State Univ Medical Center, Div Cardiology, 1993.
5. **Love CJ, Collins J, Huffman K.** Basic Permanent Pacing, 5th Ed. Columbus: Ohio State Univ Medical Center, Div Cardiology, 1994.
6. **Love CJ.** Handbook of Cardiac Pacing. Austin: Landes Bioscience, 1998.
7. **Love CJ.** Cardiac Pacemakers and Defibrillators. 2nd Ed. Georgetown: Landes Bioscience, 2006.
8. Ellenbogen K, **Love CJ.** Cardiac Electrophysiology Clinics 2014

Other Publications

1. **Love CJ.** Your Electrophysiology Study. Columbus: Ohio State Univ Medical Center, Div Cardiology, 1988.
2. **Love CJ.** Guide to Your Pacemaker and the Pacemaker Clinic. Columbus: Ohio State Univ Medical Center, Div Cardiology, 1989.
3. **Love CJ.** Monitoring Your Pacemaker. Columbus: Ohio State Univ Medical Center, Div Cardiology, 1989.
4. **Love CJ.** Examination for EP Qualification: An Important Step In Training and in Practice. XV World Congress of Arrhythmias Congress News 2015.

Other Publications (Proceedings, Guidelines, Editorials)

1. **Love CJ, Wilkoff BL, Byrd CL, Belott PH, Brinker JA, Fearnot NE, Friedman RA, Furman S, Goode LB, Hayes DL, Kawanishi DT, Parsonnet V, Reiser C, Van Zandt HJ.** Recommendations for extraction of chronically implanted transvenous pacing and defibrillator leads: indications, facilities, training. North Am Soc Pacing and Electrophysiology Lead Extraction Conf Faculty. Pacing Clin Electrophysiol. 2000;23(4, part 1): 544-551.
2. Wilkoff BL, Auricchio A, Brugada J, Cowie M, Ellenbogen KA, Gillis AM, Hayes DL, Howlett JG, Kautzner J, **Love CJ**, Morgan JM, Priori SG, Reynolds DW, Schoenfeld MH, Vardas PE, et al. HRS / EHRA Expert Consensus on the Monitoring of Cardiovascular Implantable Electronic Devices (CIEDs): Description of techniques, indications, personnel, frequency and ethical considerations. Developed in partnership with Heart Rhythm Society (HRS). Europace. 2008;10(6): 707-725.
3. Wilkoff BL, **Love CJ**, Byrd CL, Bongiorno MG, Cariollo RG, Crossley GH, Epstein LM, Friedman RA,

- Kennergren CEH, Mitkowski P, Schaerf RHM, Wazni OM. Transvenous Lead Extraction: Heart Rhythm Society Expert Consensus on Facilities, Training, Indications, Patient Management. *Heart Rhythm*. 2009;6(7):1085-104
4. Deharo,JC, Bongiorno MG, Rozkovec A, Bracke F, Defaye P, Fernandez-Lozano F, Golzio PG, Hansky B, Kennergren C, Manolis AS, Mitkowski P, Palteu S **Love CJ**, Wilkoff BL. Pathways for training and accreditation for transvenous lead extraction:European Heart Rhythm Assn position paper. *Europace*. 2012;14(1):124-134.
 5. Slotwiner, David; Varma, Niraj; Akar, Joseph G; Jd, George Annas; Beardsall, Marianne; Fogel, Richard I; Galizio, Nestor O; Glotzer, Taya; Leahy, Robin A; **Love, Charles J**; McLean, Rhondalyn C; Mittal, Suneet; Morichelli, Loredana; Patton, Kristen K; Raitt, Merritt H; Ricci, Renato Pietro; Rickard, John; Schoenfeld, Mark H; Serwer, Gerald A; Shea, Julie; Varosy, Paul; Verma, Atul; Yu, Cheuk-Man; Blanc, Isabelle Le. HRS Expert Consensus Statement on Remote Interrogation and Monitoring for Cardiovascular Electronic Implantable Devices. *Heart Rhythm*. 2015;12(7):69-100.
 6. Wilkoff BL, Kennergren C, **Love CJ**, Kutalek SP, Epstein LM, Carrillo R. Bridge to surgery: Best practice protocol derived from early clinical experience with the Bridge Occlusion Balloon. Federated Agreement from the Eleventh Annual Lead Management Symposium. *Heart Rhythm* 2017; 14(10):1574-1578
 7. Love CJ. Lead reliability: How can we do better? *Heart Rhythm* 2017; 14(10):1504-1505
 8. Kusumoto FM, Schoenfeld MH, Wilkoff BL, Berul CI, Birgersdotter-Green UM, Carrillo R, Cha YM, Clancy J, Deharo JC, Ellenbogen KA, Exner D, Hussein AA, Kennergren C, Krahn A, Lee R, **Love CJ**, Madden RA, Mazzetti HA, Moore JC, Parsonnet J, Patton KK, Rozner MA, Selzman KA, Shoda M, Srivathsan K, Strathmore NF, Swerdlow CD, Tompkins C, Wazni O, 2017 HRS expert consensus statement on cardiovascular implantable electronic device lead management and extraction. *Heart Rhythm* 2017 14(12):e503-e551

Editorials

1. **Love CJ**. Retention Wire: Déjà vu all over again? *Pacing Clin Electrophysiol*. 2004;27(12):1587.
2. **Love CJ**. The Digital Pacemaker. *Pacing Clin Electrophysiol*. 2004;27(6): 707-708.
3. **Love CJ**. Perioperative management of anticoagulation in patients undergoing cardiac rhythm device procedures: a bridge to nowhere?. *Pacing Clin Electrophysiol*. 2010;33(4):383.
4. **Love CJ**. ICD replacement using a functioning fidelis lead: Vigilance is the word. *Heart Rhythm*. 2012; 9(9): 1452-1453.
5. Epstein LM, **Love CJ**, Wilkoff BL. Superior Vena Cava Defibrillator Coils Make Transvenous Lead Extraction More Challenging and Riskier. *J Am Coll Cardiol*. 2013;61(9):987-989.
6. **Love CJ**, Estes NAM. Following leads to improve patient outcomes: It's about time. *Heart Rhythm*. 2014; 11(12):2163-4.
7. Mehdirad, Ali; **Love, Charles**. Acute Effects of Multi-Site Biventricular Pacing: are Two Leads Really Better Than One? *J Cardiac Fail*. 2017;In Press.
8. **Chrispin J, Love CJ**. Cardiac Implantable Electronic Device Infections and Lead Extraction: Are patients with renal insufficiency special? *Circ Arrhythm Electrophysiol*. 2018;11:e006101. DOI: 10.1161/CIRCEP.117.006101

Letters, Correspondence

1. Adamson,P,B; Abraham,W,T; **Love,C**; et al. Heart failure training: Care for older adults with chronic heart failure - Reply. *J Am Coll Cardiol*. 2005;45(12):2098-2098.
2. **Mehta,R; Love,C,J**; Sai-Sudhakar,C; et al. Letter to the Editor. *J Cardiovasc Electrophysiol*. 2007;8(11): E27.
3. **Mehta R, Doshi AA, Hasan AK, Love CJ, Pizzuto M, Sai-Sudhakar C** Device Interactions in Patients with Advanced Cardiomyopathy. *J Am Coll Cardiol*. 2008;51(16):613-14.
4. Maytin,M; **Love,CJ**; Fischer A; et al. Multicenter Experience With Extraction of the Sprint Fidelis Implantable Cardioverter-Defibrillator Lead Reply. *J Am Coll Cardiol*. 2011;57(5):636-636.

Media Releases and Interviews

1. Fisher JD, **Love CJ**, Wilkoff BL. Use of ICDs in Post-Infarction Patients. *Medical Roundtable*. 2012;3(1):61-67

Other media (videos, websites)

1. **Love CJ**. Lead Management: Beyond "See one, do one." *Cardiac Rhythm News*. 2009;6(Oct):18. www.cardiacrhythmnew.com.
2. **Love, CJ**. Jan 2008. Lead Extraction with the Visible Heart Preparation [DVD] Moving Image 2007. I originated the idea of doing lead extraction using the isolated visible heart preparation to demonstrate the 3 different types of lead extraction and the intracardiac effects.

FUNDING (partial list. Information for majority of clinical studies was not recorded from Ohio State)

EXTRAMURAL FUNDING

Clinical Extramural Funding

Current

8/27/14 – 5/17 Adapt Response
Medtronic
\$12,500 to date
Role: Local PI, 100%

12/3/14– 5/17 WRAP-IT
Medtronic
\$7,500 to date
Role: Local PI, 100%

12/1/15 – 5/17 QP ExCELs
Biotronik
\$10,000 to date
Role: Co-Investigator, 50%

Pending - None

Previous

Prior to 2002 Local PI for the following clinical studies (data on grant amounts and dates not available) Meta
DDDR minute ventilation pacemaker (Telectronics), Synchrony DDDR pacemaker (Pacesetter),
Synergyst DDDR pacemaker (Medtronic), Regency AutoCapture Algorithm (Pacesetter)

4/02 - 12/05 Synergistic effects of risk factors for sudden cardiac death. SERF
Guidant
\$3,200
Role: Local PI, 100%

5/202 - 12/05 Resynchronization hemodynamic treatment for heart failure management study (RHYTHM ICD)
St Jude Medical
\$39,000
Role: Local PI, 80%

10//02 - 10/05 Home monitoring technology for ICD therapy (WAMMI)
Biotronik
\$10,000.
Role: Local PI, 100%

2/03 - 1/09 Study for atrial fibrillation reduction (SAFARI)
Vitatron
\$2,725
Role: Local PI, 100%

4/04 – 9/07 OPTION CRT/ATx cardiac resynchronization therapy and atrial therapy
Medtronic
\$18,450
Role: Local PI, 80%

1/06 – 1/12 Lumos-T safely reduces routine office device follow-up (TRUST)
Biotronik
\$29,250
Role: Local PI, 100%

8/06 – 5/09	MADIT II Risk Guidant \$2,120 Role: Local PI, 100%
9/07 – 12/08	UNITY Guidant \$22,286 Role: Local PI, 80%
4/08 – 4/09	LExICon study Spectranetics \$9,249 Role: Local PI, 100%
6/23/14-10/16/15	Evera MRI Study Medtronic \$10,000
5/18/15 -12/1/16	Evera MRI Continued Access Medtronic \$10,000 Role: Local PI, 100%

CLINICAL ACTIVITIES

Clinical Focus:

My activities are focused on device therapy and optimization of devices for the best hemodynamic response and longevity as well as safety. It has never seemed right to place a highly-sophisticated device into a patient, then leave it set to “out of the box” parameters. Taking each patient’s unique needs into account, it is possible to improve quality of life and to extend the life of the device as well. I have implanted approximately 9,000 cardiac implantable electronic devices and extracted nearly 3,000 leads. Managing and optimizing care in the device clinics utilizing databases and clinical support tools takes about 40% of my time with the rest spent in the EP lab doing device related procedures. I also have developed strong collaborative ties with infectious disease, cardiac surgery and heart failure colleagues so that we can work together to provide coordinated care for complex patient issues such as device related infections, lead extraction, and CRT “non-responders.” I have also developed and run the CIED MRI program for non-MRI labeled devices at NYU.

Certification

Medical

1/84 – 7/20	Medical License: State Medical Board of Ohio
1/14 – 9/19	Medical License: New York State Education Department
2/17 – 9/18	Medical License: Maryland
2/17 – 2/19	Certified: Advanced Cardiac Life Support
1/18 – 1/20	Certified: Basic Cardiac Life Support

Boards, other specialty certification

1/86 - No Exp	Board Certified: American Board of Internal Medicine
1/89 – 12/23	Board Certified: Cardiovascular Medicine, ABIM
9/91 – exempt	Board Certified Cardiac Device Specialist: International Board of Heart Rhythm Examiners
11/94 – 12/24	Board Certified, Clinical Cardiac Electrophysiology: ABIM

Clinical (Service) Responsibilities

7/1/88 -1/31/14	Staff Cardiologist and Electrophysiologist, Ohio State Univ. Medical Center General Cardiology service responsibilities until 2007, then EP inpatient and consultation only.
7/1/88 -1/31/14	Director, Cardiac Rhythm Device Services, Ohio State Univ Medical Center; Responsible for all activities and policy decisions of the device service.

2/1/14-5/5/17 Staff Cardiologist and Electrophysiologist, NYU Medical Center
 2/1/14-5/5/17 Director, Cardiac Rhythm Device Services, NYU Medical Center
 7/1/17-present Staff Cardiologist and Electrophysiologist, Johns Hopkins Hospital
 7/1/17-present Director, Cardiac Rhythm Device Services, Johns Hopkins Hospital

Clinical Productivity

While at Ohio State from 1988 to 2014, I built the device clinic from 300 patients to over 5,000 active patients. I initiated outreach activities to 11 clinical sites around the state of Ohio, and developed or expanded device implant and lead extraction programs at 5 of these sites. My first year at Ohio State saw 104 device implants, and that volume expanded to over 1,100 implants by the time I left the program. I personally performed approximately 500 implants a year. I also developed an internationally recognized lead extraction/management program, being the first cardiologist to use a Laser to extract a lead from the heart in 1994. Over my 3 years at NYU, the device clinic was completely reorganized to be efficient and to assure follow up of many patients that were not receiving appropriate device follow up. We also dramatically expanded the use of remote monitoring from about 10% of the patients to over 80%. The lead extraction program also greatly expanded under my direction, and I developed the device MRI program there as well. While there, I spent 50% of my time doing procedures in the EP labs at 3 hospitals, and 40% of my time administering and seeing patients in the device clinics. At Johns Hopkins I have brought in new referrals by developing the best lead management/extraction program in the region. We have revamped the device clinic and expanded remote monitoring services. We have also standardized follow up at several of our sites and are transitioning to an enterprise computer database for device patients. In addition, I have transformed the device service from a revenue negative to a revenue positive operation.

Clinical Draw

In Ohio, I have treated patients from many countries and states. I regularly drew patients from Michigan, Indiana, Kentucky and Pennsylvania. Patients have recently come from around the country to see me at NYU for lead extraction from around the country, including Washington, Texas and Florida to name a few. This is now the case at Johns Hopkins as well.

Membership in or examiner for Specialty Board

1992-present Member, Writing Committee for International Board of Heart Rhythm Examiners examination for competency in cardiac pacing and defibrillation
 2005-present Chair, Writing Committee for International Board of Heart Rhythm Examiners examination for competency in cardiac pacing and defibrillation
 2005-present President and Chairperson, Board of Directors, International Board of Heart Rhythm Examiners

Clinical Program Building / Leadership

1988-2014 Developed nationally recognized CIED device follow up program at Ohio State Univ Wexner Medical Center following more than 5,000 patients
 1988-2014 Served as Director of Cardiac Rhythm Device Services at Ohio State Univ
 1989-2014 Developed internationally recognized lead extraction program at Ohio State Univ Wexner Medical Center
 2014 Developed integrated CIED device clinic / heart failure clinic for patients with CRT devices at NYU Langone Medical Center
 2014-2017 Served as Director of Cardiac Rhythm Device Services at NYU Langone Medical Center and Bellevue Hospital
 2017-present Served as Director of Cardiac Rhythm Device Services at Johns Hopkins Hospital

Clinical Demonstration Activities

1996-2004 Proctor for Lead Extraction hands on sessions. OSU Medical Center (Spectranetics)

Other

1986 Developed and designed clinical databases for reporting and research for Echocardiography, Electrophysiology, Pacemaker and Defibrillator Implants and Follow Up, Cardiac Exercise Stress Testing utilizing proprietary software at Ohio State University Medical Center
 1988 Developed a proprietary software program to perform measurements and calculations on electrogram recordings from clinical electrophysiology studies at Ohio State University Medical Center

1996 Assisted in the development of integration of the Paceart clinical database follow up software program with the reporting and billing systems at Ohio State University Medical Center, allowing paperless direct billing for separate technical and professional fees for the first time at the medical center.

Development of nationally/internationally recognized clinical standard of care

In 1997 I convened and chaired a meeting at NASPE to gain a consensus regarding lead management, and was first author on the guidance document that led to the initial guidelines for standard of care in this expanding area. I have remained deeply involved in the evolution of this process, with a follow up meeting in 2008 and follow up document in 2009, and we have another document in press at this time. I have also consulted with the European Heart Rhythm Association on their document as well. I was also involved in the conference and document to establish the standard of care for follow up of cardiac implantable electronic devices.

EDUCATIONAL ACTIVITIES

Educational Focus

I have been a leader at both OSUMC and NYULMC in housestaff and fellow education related to device implant, therapy, function/malfunction, and management. I also taught the "Acute Management of Arrhythmia Emergencies" lecture for the housestaff as well as the "Arrhythmia Pharmacology and Treatment" lectures for the 4th year medical students and fellows. My passion is educating not only the next generation of device therapy specialists, but assuring that those in practice are able to provide the best and most contemporary device care possible through instruction and certification.

Teaching

Classroom Instruction

2002-2014 Annually taught basic cardiac arrhythmias and pharmacologic treatment at The Ohio State University School of Medicine to 4th year medical students
2005-2014 Annually taught basic electrocardiography sessions at The Ohio State University School of Medicine to third year medical students
1988-2017 Many lectures on device therapy, sudden cardiac death prevention, management of arrhythmias, and concepts of pacing and defibrillation to residents and cardiology fellows at OSU and NYU.

Clinical Instruction

Since starting on staff at Ohio State, and continuing to the present time, I have regularly trained physicians in both general cardiology and electrophysiology.

1988-2007 General cardiology service attending at The Ohio State University Wexner Medical Center
2007-2014 Electrophysiology service and consult attending at The Ohio State University Wexner Medical Center
1990-present Mentor and teacher to cardiology EP fellows in the EP lab, consult service and outpatient arrhythmia and device clinics at The Ohio State University Wexner Medical Center, NYU Medical Center, Bellevue Hospital Center, NY Harbor VA Medical Center and Johns Hopkins Hospital

CME Instruction Included elsewhere in this document under invited lectures

Workshops / Seminars

National

1/89-1/90 Instructor, Fellows Pacemaker Course, Medtronic Inc., Minneapolis MN
1/90 Instructor, Fellows Pacemaker Course, CPI/Guidant, Inc. St. Paul MN
1/94 Instructor, Fellows Pacemaker Course, Medtronic, Inc., Minneapolis MN
4/95-4/96 Chair and faculty member, Basic Cardiac Pacing, Columbus OH
1/90-1/97 Faculty and Course Director, Teletronics Implant Seminars, Denver CO
5/97 Conference Chair, Extraction of Chronically Implanted Pacing and Defibrillator Leads, North American Society of Pacing and Electrophysiology (NASPE), San Francisco CA
1/00 Instructor, Fellows Pacemaker Course, CPI/Guidant, Inc., St. Paul MN
4/09 Educator/Trainer, St. Jude Medical Device Representative CRT Training Program, Columbus, Ohio
10/10 Course Director, Managing Cardiac Implantable Lead Systems and Complications 2010: Guidance from the Experts, OSUMC, Columbus, Ohio
5/10 Course Faculty, Practical Implementation of Quality Care in Every EP Lab, Denver, CO

7/10 Course Director, 1st Annual Northeast Lead Management Symposium: Update on Indications, Techniques and Controversies for Lead Extraction, New York, New York

9/11 Faculty: 2nd Annual Northeast Lead Management Symposium: Update on Indications, Techniques and Controversies for Lead Extraction, Boston, Massachusetts

1/12 Panelist, RIATA ICD LEAD SUMMIT, review available data and develop a consensus regarding patient management, Bloomington

5/13 Chair, Heart Rhythm Society, Practical Issues in Lead Management, Denver CO

3/30/14 Session Chair, American College of Cardiology Annual Scientific Session, ACS HRS Joint Symposium on Lead Management, Washington, DC

5/10/17 Course faculty, Lead Management 2017. Heart Rhythm Society Satellite Symposium, Chicago IL

5/12/17 Seminar Faculty, Risk Mitigation Following CIED Surgery. Heart Rhythm Society Annual Scientific Sessions, Chicago IL

1/27/18 Course faculty and program director: Regional Fellows Seminar on Lead Management. Baltimore

4/14/18 Course faculty: Meet The Masters. Philadelphia, PA

International

12/96 Presenter, Extraction of Chronic Pacemaker Leads: A Live Demonstration of Pacemaker Lead Extraction. Tel Aviv, Israel

3/04 -10/18 Faculty, International Dead Sea Symposium. Jerusalem/Tel-Aviv, Israel

Post-Doctoral Advisees / Mentees None

Thesis Committees None

Educational Program Building/Leadership

2007-2008 Fellowship Director, Cardiac Electrophysiology Program, Ohio State University

Educational Demonstration Activities to external audience None

RESEARCH ACTIVITIES

Research Focus

I have been involved and continue to be involved in studies of new pacing and ICD systems as well as leads and lead extraction. My main area of interest continues to be lead extraction and lead management strategies, with an emphasis on new tools to reduce complications and strategies to reduce infection. I have participated in research focusing on pharmacologic treatment of arrhythmias, and clinical outcomes of various treatment strategies as well. I was recently the national PI on the Boston Scientific INGEVITY PMA lead study.

Research Program Building / Leadership None

Research Demonstration Activities None

Inventions, Patents, Copyrights

9/06 Bjorklund VL, Sommer JL, Hine DS, **Love CJ**, Hess DN, Lokhoff NM. Deployable medical lead fixation system and method. Medtronic: US 07107105

Technology Transfer Activities

2004 Savacor: Worked with developers to create implant techniques for this trans-septal left atrial pressure monitoring device. Helped develop tools to perform the procedure from a superior approach, and was the first to implant one in a human using this new technique. Percent effort 10%. Device name: Heart Pod. Product went through clinical studies, company purchased by St. Jude Medical

2012 QRS Systems: Clinical applications partner and advisor. Implantable device to monitor changes in septal impedance to manage heart failure patients. I managed and performed the animal implants and worked directly with the developer of this technology to prove efficacy and safety of the system. Product name: IMEG (Intramyocardial Electrogram) monitor.

2012 Leadexx: Medical advisor and clinical partner in the development of a self-propelled lead extraction device. Devised bench and animal models to test the efficacy of the device. Also provided technical

- assistance in the development of this product. Product name: LEADREX Device. Company did first in man in 2017
- 2013 Eximo: Clinical partner in the development of a new Laser to extract chronically implanted pacing and ICD leads. Worked with animal models to show efficacy and safety of this new Laser system. Product Name: Eximo Hybrid Lead Extraction System.
- 2018 MDSG Technology: Medical advisor in the development of a new mechanical lead extraction tool. Worked with basic engineering and using the device in simulator models as well as animal models.

SYSTEM INNOVATION AND QUALITY IMPROVEMENT

System Innovation Focus

System Innovation and Quality Improvement efforts within JHMI

- 2018 Developed and deployed complication adjudication and management database for invasive electrophysiology and device implants across all JHH regional hospitals.
- 2018 Initiated computer database for device patient follow up and tracking to manage all patients in the JHH system, and to track recalled and advisory devices.

System Innovation and Quality Improvement efforts outside of JHMI

- 2014-2017 Review of products utilized for device procedures at NYU, Bellevue and NY VAMC to improve consistency of quality during CIED device implants, and to reduce the medical waste on each procedure. Standardized infection prevention protocols over the 3 hospitals for which we provided EP services.
- 2015 Developed “off label” MRI scanning protocol to allow for critically needed MRI studies on patients who had CIEDs that were not labeled as MRI Conditionally Safe. This was done in concert with the Department of Radiology and various safety groups in the medical center as well as the Institutional Review Board.
- 2016-2017 Developed protocols for enhanced safety and quality for high risk lead extraction procedures performed at NYU, now adopted as standard of care at this institution
- 2017 Developed Safety and quality protocol for peri-operative management of patients with CIEDs undergoing surgical procedures at NY

System Innovation and Quality Improvement Program Building/Leadership

ORGANIZATIONAL ACTIVITIES

Institutional Administrative Activities

- 1988-2014 Director, Cardiac Rhythm Device Services, OSUMC
- 1993-1997 Space Committee, The Ohio State University, College, College of Medicine
- 1995-1996 Clinical Information Access Committee, The Ohio State University, University
- 1995-1996 Medical Records Committee, The Ohio State University, University
- 1995-1996 Computer Committee, The Ohio State University
- 1996-1997 EP and Pacing Quality Assurance Committee, Mt. Carmel Medical Center
- 1998-2000 Deputy Director Cardiovascular Medicine, OSU Medical Center
- 1998-2000 Director of Clinical Affairs for Cardiology, OSU Medical Center
- 2001-2002 Computer Committee, Chair, The Ohio State University
- 2003-2006 Grievance and Appeals Committee, The Ohio State University
- 2012-2013 Ross Heart Hospital Product Value Analysis Committee, The Ohio State University
- 2012-2013 Ross Heart Hospital CV Mortality Reduction Council, The Ohio State University
- 2014-2017 Director, Cardiac Rhythm Device Services, NYULMC and Bellevue Hospital
- 2017-present Director, Cardiac Rhythm Device Services, Johns Hopkins Hospital

Editorial Activities

Editorial Board Appointments

- 2002-2004 Founder and Editor, Cardiogram - The Division of Cardiovascular Medicine Monthly Newsletter
- 2004-present Editorial Board, *Pacing and Clinical Electrophysiology (PACE)*
- 2006-2013 Section Editor, *Pacing and Clinical Electrophysiology*

2010-2013 Editorial Board, *Congestive Heart Failure*
 2012-present Editorial Board, *The Journal of Innovations in Cardiac Rhythm Management*
 2013-present Associate Editor, *Pacing and Clinical Electrophysiology*
 2017-2019 Editorial Board, *Circulation: Arrhythmias and Electrophysiology*
 2018-2019 Editorial Board, *Heart Rhythm*

Journal Peer Review Activities

2004 *Mayo Clinic Proceedings*
 2004-2006 *Faculty of 1000 Medicine*
 2004-present *Journal of the American College of Cardiology*
 2005 *Chest*
 2006-present *Journal of Clinical Electrophysiology*
 2007-present *Pacing and Clinical Electrophysiology (PACE)*
 2008-2014 *Clinical Cardiology*
 2008-present *Journal of Interventional Cardiac Electrophysiology*,
 2008-present *European Journal of Pacing and Cardiac Electrophysiology*
 2009-present *European Journal of Cardiology*
 2010-present *Circulation*
 2012-present *Cardiovascular Engineering and Technology*
 2012-present *Circulation: Arrhythmia and Electrophysiology*
 2012-present *Medical Principles and Practice*
 2012-present *The Journal of Innovations in Cardiac Rhythm Management*
 2017-2019 *Circulation: Arrhythmias and Electrophysiology*
 2017-present Polish Archives of Internal Medicine

Other Peer Review activities

1995 Expert Analyst, Cardiology Journal Club Journal
 1995-2014 Abstract Reviewer, American College of Cardiology Scientific Sessions
 2005-present Abstract Reviewer, Heart Rhythm Society
 2008-present Abstract Reviewer, International Dead Sea Symposium
 2018 Abstract Reviewer, European Heart Rhythm Association

Advisory Committees, Review Groups

1992-2001 Policy Committee Member, North American Society of Pacing and Electrophysiology (NASPE)
 1994-2001 Advisory Expert Team, Ohio ACC Electrophysiology
 1996-2002 Committee, American College of Cardiology Clinical Electrophysiology
 1997-1998 Primary Care Committee Member, North American Society of Pacing and Electrophysiology (NASPE)
 2000-2018 International Advisory Board Member, Dead Sea Symposium on Cardiac Arrhythmias and Device Therapy
 2000-2002 Advisory Council Member, North American Society for Pacing and Electrophysiology (NASPE)
 2003 International Advisory Board Member and Faculty, XII World Congress on Cardiac Pacing and Electrophysiology, Hong Kong, China
 2008-2010 Member, Health Policy Committee, Heart Rhythm Society
 2008-2012 PACE-MI Study Data Safety Monitoring Board, Bethesda, Maryland
 2008-present Chair, IBHRE Grievance Committee: International Board of Heart Rhythm Examiners (IBHRE)
 2009-2011 Committee Member, Heart Rhythm Society Medical Policy Committee
 2009-2017 Committee Member, St. Jude Medical PROMOTE-Q Study National Steering Committee
 2010-2018 Executive Scientific Board Committee Member, 10th International Dead Sea Symposium on Cardiac Arrhythmias and Device Therapy
 2010-2012 Committee Member, Heart Rhythm Society Health Policy
 2011 Member, International Scientific Advisory Board, CardioRhythm
 2011-2013 Member, Heart Rhythm Society, Certification/Accreditation Task Force
 2011-2013 Member, Heart Rhythm Society, Governance Committee

- 2014-2017 Steering Committee Member, St. Jude Medical Quartet Clinical Trial
 2017-present Associate Member, Association for Advancement of Medical Instrumentation

Professional Societies

- 1981-present Member, American Medical Association
 1994-1996 Member of Board of Trustees, American Heart Association, Franklin County Division
 1995-present Fellow, American College of Cardiology
 1995-present Fellow, American Heart Association, Council on Clinical Cardiology

Conference Organizer

- 1/93 Today's Pacing Technology (Course Director) Holy Cross Hospital, Ft. Lauderdale, Florida
 4/93 Cardiac Pacing Symposium and Implant Workshop (Course Director), Englewood, Colorado
 5/97 NASPE Policy Conference on Extraction of Chronic Pacing and Defibrillation Leads at North American Society of Pacing and Electrophysiology (NASPE) 18th Annual Scientific Sessions, New Orleans, Louisiana
 10/10 Managing Cardiac Implantable Lead Systems and Complications 2010, Guidance from the Experts, OSUMC, Columbus, Ohio
 7/10 1st Annual Northeast Lead Management Symposium, Update on Indications, Techniques and Controversies for Lead Extraction, New York, New York
 9/15 China Society of Pacing and Electrophysiology, XV World Congress of Arrhythmias, Beijing, China, Sept 17-18 2015. Organizing Committee and Faculty Member
 11/18/17 Fellows EP Seminar. Management for Ventricular Tachycardia. New York, NY. Program organizer and Director:
 1/27/18 Lead Management Fellows Symposium. Renaissance Harbor Hotel, Baltimore MD. Program organizer and speaker

Session Chair (partial listing)

- 1995-2017 Abstract Session Chair, North American Society of Pacing and Electrophysiology (NASPE) / Heart Rhythm Society (HRS) Annual Scientific Sessions, various locations
 1996-2017 Abstract Session Chair, Cardiostim/EHRA Scientific Sessions, various locations
 2006-2014 Abstract Session Chair, Am College Cardiology Annual Scientific Sessions, various locations
 6/11 Chair, 4th Session - 1st International Workshop on Lead Extraction, Pisa, Italy
 5/12 Chair and Faculty, Raising Expectations for CRT, Multipolar Pacing: Taking advantage of expanded options, presented at CME program at Heart Rhythm Society, Denver, CO
 10/13 Chair, Riata, Fidelis and the next safety alert, Venice Arrhythmia Meeting, Venice, Italy
 10/13 Chair, Device Infection Prevention: Risk Factors, Outcomes, Management Options, Asian Pacific Heart Rhythm Society and Cardiorhythm 2013, Hong Kong, China
 11/13 Chair, Riata Leads with Externalized Conductors Cannot Be Trusted, American Heart Association Annual Scientific Sessions, Dallas, Texas
 6/15 Session Chair, European Heart Rhythm Association Annual Scientific Sessions, Milan, Italy
 5/10/17 Chair, Lead Extraction Summit at Heart Rhythm Society Annual Scientific Sessions, Chicago IL
 10/14/17 Chair, Prevention of AF in device patients, Asian Pacific Heart Rhythm Society, Yokohama Japan

Consultantships

- 1/86 -1/93 American Nursing Care, Columbus, Ohio. Advisory Board Member
 1/87 – 1/90 American Nursing Care Advisory Board, Columbus, Ohio, Chairperson
 1/89 – 1/96 Teletronics Medical Advisory Board, Member
 1/89 – present Paceart/Medtronic Physician Advisory Board Member
 1/90 – present Abbott/St. Jude Medical/Pacesetter, Physician Advisory Board Member
 1/90 – present Medtronic, Inc., Physician Advisory Board Member
 1/90 – present Cook Medical, Physician Advisory Board Member
 1/92 – 12/00 CPI/Guidant/Intermedics/Boston Scientific. Physician Advisory Board Member
 1/94 – present Philips/Spectranetics, Physician Advisory Board Member
 1/94 – 1/02 Accufix Research Institute, Physician Advisory Board Member
 1/97 Spectranetics, Laser Sheath FDA Panel Submission Participant
 1/00 – 12/04 Vitatron, Physician Advisory Board Member

1/05 – 12/06	Proctor and Gamble, Physician Advisory Board Member
1/07 – 12/07	Boston Scientific, Physician Advisory Board Member
1/07 – 12/13	QRS Systems. Physician Advisory Board Member
7/08 – 6/09	State Medical Board of Ohio, Expert consultant
1/08 – 12/10	TyRx Pharma, Physician Advisory Board Member
1/08 – 12/12	H.L. Gore, Inc, Physician Advisory Board Member
1/08 – 12/12	Derringer Ney / Medical Interconnect, Physician Advisory Board Member
1/10 – 12/17	Leadexx, Physician Advisory Board Member
1/10 – 12/12	Lake Region Medical, Physician Advisory Board Member
3/10 – 5/16	Boston Scientific. Physician advisor to Ingevity Lead development and study. National Primary Investigator for this project. Product brought to market after successful clinical study 2016
1/12 – present	EXIMO, Physician Advisory Board Member
1/18 – present	Braveheart, Physician Medical Advisor
3/18 – present	MDSG Technology, Physician Medical Advisor

RECOGNITION

Awards, Honors

1/03 – 12/17	America's Top Physicians, Consumer's Research Council of America
1/05 – 12/17	America's Best Doctors, U.S. News and World Report
1/11 – 12/12	Top Reviewers, Journal of Interventional Cardiac Electrophysiology

Invited Talks

Regional

6/85	Cardiology Grand Rounds speaker, "The Use of Digitalis in Patients with CHF and Sinus Rhythm," Ohio State University Medical Center, Columbus, Ohio.
1/86	Cardiology Grand Rounds speaker, "Mechanisms of Atrial Flutter," Ohio State University Medical Center, Columbus, Ohio
9/87	Cardiology Grand Rounds speaker, "Signal Averaged Electrocardiography," Ohio State University Medical Center, Columbus, Ohio
1/88	Cardiology Grand Rounds speaker, "Rate Responsive Pacemakers," Ohio State University Medical Center, Columbus, Ohio
2/88	Speaker, Dimensions in Cardiac Care Conference, "Automatic Implantable Cardioverter-Defibrillators," Mount Carmel Medical Center, Columbus, Ohio
3/88	Speaker, Anesthesia Kaleidoscope Conference "Intra-Operative Management of Patients with Pacemakers," Ohio State University Medical Center, Columbus, Ohio
4/88	Medicine Grand Rounds speaker, "Q-Wave Vs. Non Q-Wave Infarction: Current Concepts and Therapy," Union County Memorial Hospital, Marysville, Ohio
6/88	Speaker, Educational Workshop on Permanent Pacemakers, "Overview of Rate Adaptive Pacing," Doctor's Hospital, Columbus, Ohio
6/88	Speaker, Educational Workshop on Permanent Pacemakers, "Indications for Dual Chamber Pacing," Doctor's Hospital, Columbus, Ohio
1/89	Speaker, Seminar on Dual Chamber Pacing, "Dual Chamber Rate Responsive Pacing," Pacesetter Medical Conference in Traverse City, Michigan,
1/89	Grand Rounds speaker, "Current Concepts of Pacing," Chillicothe Veterans Administration Hospital, Chillicothe, Ohio
3/89	Speaker, 38th Annual Scientific Sessions of American College of Cardiology, "Computer Assisted Interval Measurement and Calculation for Electrophysiology Studies,"
10/89	Speaker, Introduction to DDDR Pacing Meeting, "Hemodynamic Considerations in DDDR Pacing," sponsored by Pacesetter, Columbus, Ohio
11/89	Anesthesiology Grand Rounds speaker, "Intra-Operative Management of Patients with Permanent Pacemakers," Ohio State University Medical Center, Columbus, Ohio
1/90	Cardiology Grand Rounds speaker, "Selection of Pacemaker Therapy in the 1990s," Ohio State University Medical Center, Columbus, Ohio

- 4/90 Medicine Grand Rounds speaker, "Update on Cardiac Pacemakers," Ohio State University Medical Center, Columbus, Ohio
- 5/90 Course Faculty, Educational Seminar on Basic Permanent Pacing, "Upper Rate Behavior in Dual Chamber Pacing," "Introduction to Rate Responsive Pacing," and "Overview of Dual Chamber Rate Responsive Pacing," Ohio State University, Columbus, Ohio
- 6/90 Course Faculty, Cardiac Arrhythmias: Approach and Therapy, "Rate Modulated Pacing: Indications and Options," Ohio State University Medical Center, Columbus, Ohio
- 11/90 Speaker, Cardiology Continuing Medical Education Seminar, "Rate Responsive Sensor Technology," "Chronic Pacemaker Lead Extraction Using the Cook Devices," "Hemodynamics of Cardiac Pacing," and "Indications for Dual Chamber Pacing," Mansfield General Hospital Mansfield, Ohio
- 11/90 Medical Grand Rounds speaker, "Current Trends in Rate Responsive and Dual Chamber Pacing," Good Samaritan Hospital, Zanesville, Ohio
- 5/91 Course Director, Educational Seminar on Basic Permanent Pacing, "Upper Rate Behavior in Dual Chamber Pacing," "Overview of Dual Chamber Rate Responsive Pacing," "Introduction to Rate Responsive Pacing," Ohio State University, Columbus, Ohio
- 5/91 Medicine Grand Rounds speaker, "Cardiac Pacing in the 90's: An Emphasis on Normal Physiology," Ohio State University Medical Center Columbus, Ohio
- 10/91 Speaker, Cardiology Update Symposium. "Therapeutic Interventions for the Treatment of Syncope," Ohio State University Medical Center, Columbus, Ohio
- 10/91 Speaker, Interactive Sessions, "Pacemakers: Indications and Management, Ohio Medical Education Satellite Network, Columbus, Ohio
- 4/92 Course Director, Educational Seminar on Basic Permanent Pacing, "Upper Rate Behavior in Dual Chamber Pacing," "Introduction to Rate Responsive Pacing," "Overview of Dual Chamber Rate Responsive Pacing," Ohio State University Medical Center, Columbus, Ohio
- 9/92 Speaker, Medtronic Regional Sales Conference, "Cost Effectiveness and Benefits of DDD Pacing," Sponsored by Medtronic, Columbus, Ohio
- 5/93 "Cardiac Pacing in the Elderly." Presented at Columbus, Ohio. Geriatric Clinical Update
- 5/93 Course Director, Central Ohio Pacing and Electrophysiology Group, "Basic Cardiac Pacing," University Ramada, Columbus, Ohio
- 2/94 Speaker, Spring Cardiovascular Program, "Evaluation of Pacemaker ECG Problems," American Heart Association, Bellefontaine, Ohio
- 4/94 Speaker, Annual Arrhythmia Symposium, "Ventricular Arrhythmias: When to Treat," Sponsored by American Heart Association, Columbus, Ohio
- 6/94 Speaker, Central Ohio Pacing and Electrophysiology Educational Seminar, "Basic Cardiac Pacing," Columbus, Ohio
- 8/94 Speaker, Emergency Department Grand Rounds, "Emergency Department Evaluation and Management of Pacemaker Malfunction," Ohio State University Medical Center, Columbus, Ohio
- 3/95 Speaker, Medicine Grand Rounds, "Cardiac Pacing in 1995: An Update," Lancaster-Fairfield Hospital, Lancaster, Ohio
- 10/95 Speaker, OSU Department of Internal Medicine, Update in Internal Medicine, "Cardiac Pacing in the 1990's," Ohio State University, Columbus, Ohio
- 2/97 Speaker, Cardiology Grand Rounds, "ICD Implants: Who, When, Where and Why?" Ohio State University Medical Center, Columbus, Ohio
- 11/97 Speaker, Ohio State University Medical Center Implant Workshop, "Indications for Permanent Pacemaker Insertion," "Pacemaker Implant Techniques," "Hemodynamics and Cost Issues in Cardiac Pacing," Columbus, Ohio (Nov 1997)
- 2/2000 Speaker, MedFlight Grand Rounds, "State of the Art in Cardiac Pacing and Defibrillation," Columbus, Ohio
- 10/00 Speaker at Department of Cardiovascular Medical Services Visiting Professor Series, "Newer Pacing Methods for Congestive Heart Failure," Mt. Carmel Medical Center, Columbus, Ohio
- 9/01 Grand Rounds speaker, "Update on Pacing Therapy," Southern Ohio Regional Medical Center Hospital, Cambridge, Ohio
- 11/01 Keynote speaker, Ohio Society of Pacing and Electrophysiology, "Lead Extraction for Pacemaker and ICD Complications: State of the Art," Central Columbus, Ohio

1/02 Keynote speaker, Current Concepts in Pacing Therapy, "Cardiac Resynchronization Therapy for Heart Failure," Zanesville, Ohio

10/02 Medicine Grand Rounds speaker, "Approach to Ventricular Arrhythmias in the Post MADIT Era," Ohio State University East Medical Center, Columbus, Ohio

7/03 Speaker, Medicine Lecture Series, "Acute Treatment of Cardiac Rhythm Emergencies," Ohio State University Medical Center, Columbus, Ohio

1/04 Speaker, Medicine Lecture Series, "SA and AV Node Dysfunction and Pacemakers," Ohio State University Medical Center, Columbus, Ohio

5/04 Speaker, Issues in Cardiology, "Management of AV Block and Indications for Pacing," Ohio State University East Medical Center, Columbus, Ohio

7/04 Anesthesiology Grand Rounds speaker, "Update and Management of Device Patients for Anesthesiologists," Ohio State University Medical Center, Columbus, Ohio

12/04 Speaker, International Cardiology Rounds Webcast, "Programmable Waveforms for ICD Therapy," Ohio State University Medical Center, Columbus, Ohio

3/05 Speaker, Cardiothoracic Surgery Grand Rounds, "Overview of Cardiac Pacemakers and ICDs," Ohio State University Medical Center, Columbus, Ohio

7/06 Speaker Medicine Lecture Series, "Management of Acute Cardiac Rhythm Disorders," Ohio State University Medical Center, Columbus, Ohio

4/07 Invited Speaker, The Heart of it All Cardiac and Vascular Nursing Conference, "Sudden Cardiac Death: Long QT and Brugada Syndromes," Columbus, Ohio

4/07 Invited Speaker, Cardiac Surgery Symposium 2007: Past and Present, "Indications for ICD and CRT Therapy," Lima Memorial Hospital, Lima, Ohio

3/08 Speaker, Medicine Lecture Series, "Evaluation and Therapy of Cardiac Arrhythmias," Ohio State University Medical Center, Columbus, Ohio

3/09 Speaker, Medical Therapeutics Conference, "Management of Cardiac Arrhythmias 2009," Ohio State University Medical Center, Columbus, Ohio

4/09 Speaker, Monthly Lecture Series, "Management of Patients with Cardiac Rhythm Devices," sponsored by MedFlight Ohio, Columbus, Ohio

6/09 Electrophysiology Grand Rounds speaker, "Pacing and ICD Leads," Ohio State University Medical Center, Columbus, Ohio

7/09 Speaker, Fundamentals of Medicine, "Management of Acute Heart Rhythm Emergencies," Ohio State University Department of Medicine, Columbus, Ohio

11/09 Invited speaker, Heart of it All Cardiac Nursing Conference, "Acute Management of Arrhythmias," Columbus, Ohio

10/10 Speaker, Program Chair and Organizer, Managing Cardiac Implantable Lead Systems and Complications 2010: Guidance from the Experts, "Think before you implant to prevent the need for extraction and to make extraction easier," Ohio State University Medical Center, Columbus, Ohio

7/11 Cardiology Grand Rounds speaker, "Acute Management of arrhythmias," Ohio State University Medical Center, Columbus, Ohio

8/11 Electrophysiology Grand Rounds speaker, "Lead, Pacer ICD design and function," Ohio State University Medical Center, Columbus, Ohio

9/11 Electrophysiology Grand Rounds speaker, "Pacer/ICD stored data; unique features; optimal device programming; device timing parameters," Ohio State University Medical Center, Columbus, Ohio

10/11 Electrophysiology Grand Rounds speaker, "Device extraction; indications, technique, complications and equipment," Ohio State University Medical Center, Columbus, Ohio

1/12 Electrophysiology Grand Rounds speaker, "Does every device implantation patient, pacer and ICD need to stay overnight?" Ohio State University Medical Center, Columbus, Ohio

3/12 Speaker, annual meeting, "Primary Prevention of Sudden Cardiac Death," Arab American Medical Society, Columbus OH

2012 Speaker, "Pacemaker and ICD for the first responder," Sponsored by Medflight, Columbus, Ohio

5/2/14 Speaker at Division of Cardiology Grand Rounds, New York University Medical Center, "Lead Management 2014," New York, New York

11/7/14 Speaker, Advanced Cardiology Program, "Complex Lead Management Issues," sponsored by NYU Langone Medical Center, New York, New York

- 4/11/15 Speaker, Invasive Cardiology Update, New York University Medical Center, "New Innovations in Cardiac Device Management," New York, New York
- 4/9/16 Speaker, NYU Invasive Cardiology Update, New York University Medical Center, "New Innovations in Cardiac Device Therapy," New York, New York
- 1/27/18 Speaker and organizer, Lead Management Fellows Program. "Infection Management," "Establishing a new extraction program at your hospital, safety protocols, room set up, Go Live Process," Importance of partnering with your institution, surgeon, referrals, shared procedures, billing." Baltimore, MD
- 4/12/18 Speaker, Cardiac Anesthesiology Conference, Johns Hopkins Hospital. "Anesthesia issues during lead extraction procedures."

National

- 4/89 Speaker, Fellows Seminar on Cardiac Pacing, "Dual Chamber Pacing: Indications, Operation, and Implant Techniques," Medtronic, Minneapolis, Minnesota
- 8/89 Speaker, Advanced Cardiac Pacing Seminar for Physicians, "History of Cardiac Pacing," "Single Chamber Timing Diagrams and ECG Analysis," and "Evaluation of Intracardiac Electrograms During Pacemaker Implantation," "Overview of Sensor Technology for Rate Responsive Pacing," sponsored by NASPE and The Cleveland Clinic Foundation, Chicago, Illinois
- 9/89 Speaker, Colloquium on Pacing, "Rate Responsive Pacing: Physiologic Sensors," Miami, Florida
- 10/89 Speaker, International Medical Education Corporation Seminar, "Introduction to Physiologic Pacing," Minneapolis, Minnesota
- 11/89 Speaker, Evening Seminar on Rate Responsive Pacing, sponsored by Teletronics, "Introduction to Physiologic Sensors," Memphis, Tennessee
- 3/90 Speaker, Fellows Implant Course sponsored by Pacesetter, "Permanent Pacemaker Implant Techniques and Pearls," Dallas, Texas,
- 2/92 Speaker, Introduction to Today's Pacing Technology Conference, "Patient Evaluation and Indications for Cardiac Pacing," Holy Cross Hospital, Ft. Lauderdale, Florida
- 3/90 Speaker, Physician Seminar on Cardiac Pacing, sponsored by Teletronics, "In Depth Review of Sensors for Rate Responsive Pacing," "Hemodynamics of Atrial Function in AAI and DDD Pacing," and "Case Studies in Rate Responsive Pacing," Snowmass Village, Colorado
- 3/90 Speaker at National Meeting sponsored by Squibb/Argon, "Cardiac Pacing and Electrophysiologic Studies," Orlando, Florida
- 5/90 Clinical Tutorial Faculty, 11th Annual Scientific Session of the North American Society of Pacing and Electrophysiology, "Application of Computers in Pacemaker Practice: From Implantation to Follow-up," San Diego, California
- 9/90 Course Director and Instructor, Cardiac Pacing Symposium and Implant Workshop sponsored by Teletronics, "Sensor Driven Cardiac Pacing," Englewood, Colorado
- 9/90 Speaker, Heartbeats: Fast and Slow, sponsored by the North American Society of Pacing and Electrophysiology, "Matching the Patient and the Rate Modulated System and its Response," The Cleveland Clinic Foundation, Cleveland, Ohio
- 10/90 Speaker, National Sales Meeting, sponsored by Pacesetter, "VVIR Vs. DDD: A Debate," and "Introduction to Arrhythmias and Electrophysiology Studies," Scottsdale, Arizona
- 10/90 Course Director and Instructor, Cardiac Pacing Symposium and Implant Workshop, sponsored by Teletronics, "Pacemaker Implant Techniques," "Hemodynamics of Cardiac Pacing," and "Indications for Cardiac Pacing," Englewood, Colorado
- 12/90 Faculty and Course Director, Cardiac Pacing Symposium and Implant Workshop, sponsored by Teletronics, "Sensor Driven Cardiac Pacing," "Pacemaker Implant Techniques," "Indications for Cardiac Pacing," "Implantation Workshop," "Hemodynamics of Cardiac Pacing," and "Sensor Driven Cardiac Pacing," Englewood, Colorado
- 1/91 Speaker, Cardiac Pacemaker Seminar sponsored by Pacesetter, "Dual Chamber Pacemaker Function: Idiosyncrasies, Special Features, and Algorithms," "Sensor Driven Cardiac Pacing," "Dual Chamber Case Study Workshop," and "Pacemaker Follow-up and Troubleshooting," Holy Cross Hospital, Ft. Lauderdale, Florida
- 1/91 Course Director and Instructor, Cardiac Pacing Symposium and Implant Workshop sponsored by Teletronics, "Pacemaker Implant Techniques,," Englewood, Colorado

- 1/91 Speaker at Medtronic F.C.E. / C.E.M. Meeting sponsored by Medtronic, "Our Common Goal in Biomedical Research," and "Clinical Study Excellence: An Investigators Point of View," Marathon, Florida
- 1/91 Faculty and Course Director, Cardiac Pacing Symposium and Implant Workshop sponsored by Teletronics, "Sensor Driven Cardiac Pacing," "Pacemaker Implant Techniques," "Indications for Cardiac Pacing," "Implantation Workshop," "Hemodynamics of Cardiac Pacing," and "Sensor Driven Cardiac Pacing," Englewood, Colorado
- 2/91 Course Director and Instructor, Cardiac Pacing Symposium and Implant Workshop sponsored by Teletronics, "Sensor Driven Cardiac Pacing," "Implantation Workshop," "Hemodynamics of Cardiac Pacing," "Indications for Cardiac Pacing," "Pacemaker Implant Techniques," Englewood, Colorado
- 2/91 Course Faculty and Presenter, Cardiac Pacemaker Seminar sponsored by Pacesetter, "Selection of Proper Pacing Modes," "Rate Modulated Case Study Workshop," Holy Cross Hospital, Ft. Lauderdale, Florida
- 2/91 Course Faculty, Focus Meeting on Cardiac Pacing sponsored by Teletronics, "Physiologic Sensor Review," "Dual Sensors and Automaticity," "Hemodynamics of Dual Chamber Pacing," and "Overview of AICD Function," Aspen, Colorado
- 2/91 Speaker Medical Grand Rounds, "Adaptive Rate Pacing and Hemodynamics of Dual Chamber Pacing," Allentown, Pennsylvania
- 4/91 Course Faculty, Cardiac Pacemaker Seminar sponsored by Pacesetter, "Sensor Driven Cardiac Pacing," "Selection of Proper Pacing Modes," "Rate Modulated Case Study Workshop," Holy Cross Hospital, Ft. Lauderdale, Florida
- 5/91 Speaker at Surgical Grand Rounds, "Indications for Cardiac Pacing and Hemodynamics of Pacing," Holy Cross Hospital, Chicago, Illinois
- 6/91 Course Faculty, Fellow's Seminar on Cardiac Pacing, "Mode Selection for Cardiac Pacing," "Hemodynamics of Cardiac Pacing," "Cardiac Pacing Sensor Technology," Philadelphia, Pennsylvania
- 6/91 Speaker, FDA Panel Submission, "Meta-DDDR," Washington, District of Columbia
- 8/91 Speaker, Advanced Cardiac Stimulation Seminar sponsored by Pacesetter, "Utilization of Diagnostic Features in the Implanted Pacing System," "Sensor Technology," "Pacemaker System Follow-up," Chicago, Illinois
- 8/91 Speaker, Advanced Course in Cardiac Pacing Seminar, "Pacing Timing Cycles: VVI/AAI and DDD," "Overview of AICD Therapy," "Implications of DDD mode: Crosstalk, Upper Rate, PMT," "Implantation Techniques," "History of Pacing," "Hemodynamics of Cardiac Pacing," "Case Studies of Pacing Problems," New York, New York
- 8/91 Presenter, Cardiovascular Conference, "Cardiac Pacing and Defibrillator Therapy in 1991: An Emphasis on Restoring Normal Physiology," Melbourne Beach, Florida
- 9/91 Course Director and Instructor, Cardiac Pacing Symposium and Implant Workshop sponsored by Teletronics, "Sensor Driven Cardiac Pacing," "Implantation Workshop," "Hemodynamics of Cardiac Pacing," "Indications for Cardiac Pacing," "Pacemaker Implant Techniques," Englewood, Colorado
- 9/91 Speaker at Cardiac Rhythm Management Seminar sponsored by CPI, "Physiologic Pacing: A Grand Rounds," "Case Studies in Cardiac Pacing," St. Paul, Minnesota
- 10/91 Speaker at Central Colorado Seminar on Cardiac Pacing sponsored by Teletronics, "Rate Modulated Pacing: An Overview," "Dual Chamber Rate Modulated Pacers," "Implantable Cardioverter/Defibrillators (ICDs): An Overview," Colorado Springs, Colorado
- 12/91 Speaker at Evolution and Current Application of Cardiac Pacing Technology Seminar, St. Mary's Hospital, "Surgical Implantation of Dual Chamber Pacemaker Systems," "Rate Modulated Pacing: An Overview," "Practical Applications of Multiprogrammability," "Dual Chamber Rate Modulated Pacemakers," Lavonia, Michigan
- 1/92 Presenter, Advanced Function Pacing Seminar sponsored by Pacesetter, "Rate Modulated Pacing; Sensor Technology and Clinical Results," "Dual Chamber Functional Characteristics: Lower Rate," "Clinical Experience with ATP/ICD Devices," Harborplace Hotel, Baltimore, Maryland
- 2/92 Speaker, Introduction to Today's Pacing Technology sponsored by Pacesetter, "Technical Aspects of Sensors," "Pacemaker Follow-Up," "Effect of Mode Selection on Hemodynamics," "Assessment of

- Chronotropic Function," "Differential Diagnosis of Pacing System Malfunction," "Anti-Tachycardia Pacing and the Implantable Defibrillator," Holy Cross Hospital, Ft. Lauderdale, Florida
- 2/92 Speaker, Device Therapy and Technology sponsored by Telectronics, "Review of Rate Responsive Pacing and Sensors," "Drugs vs. Devices in the Treatment of Ventricular Arrhythmias," Aspen, Colorado
- 3/92 Speaker, Device Therapy and Technology Seminar, sponsored by Telectronics "Review of Rate Responsive Pacing and Sensors," "Hemodynamics of Cardiac Pacing," "Drugs vs. Devices in the Treatment of Ventricular Arrhythmias," New Orleans, Louisiana,
- 3/92 Speaker, Elite Customer Meeting on Device Therapy sponsored by Medtronic, "Pacing for Optimal Patient Benefit," "Clinic Experience with the Medtronic Elite Pacemaker," Phoenix, Arizona
- 4/92 Speaker, Review Course in Cardiac Pacing: Device Therapy for Arrhythmias, "Therapy of Ventricular Tachycardia," "Therapy of Supraventricular Tachycardia," Dallas, Texas
- 4/92 Speaker, Introduction to Today's Pacing Technology sponsored by Pacesetter, "Technical Aspects of Sensors" "Pacemaker Follow-Up," "Effect of Mode Selection on Hemodynamics," "Differential Diagnosis of Pacing System Malfunction," "Patient Evaluations and Indications for Cardiac Pacing," "Assessment of Chronotropic Function," "Anti-Tachycardia Pacing and the Implantable Defibrillator," Holy Cross Hospital, Ft. Lauderdale, Florida
- 5/92 Speaker at Annual Scientific Sessions, sponsored by North American Society of Pacing and Electrophysiology (NASPE), "Rate Modulated Pacemakers: Programming and Novel Uses," "Computers in Pacemaker Follow-Up," Chicago, Illinois
- 5/92 Speaker, Cardiology Grand Rounds, Texas Heart Institute, "Non-Pharmacologic Treatment of Arrhythmias," "Current Concepts in Dual Chamber and Rate Responsive Pacing," Cardiology, Houston, Texas
- 5/92 Speaker, Cardiology Grand Rounds, Methodist Hospital, "Current Concepts in Dual Chamber and Rate Responsive Pacing," Houston, Texas
- 5/92 Speaker, Buffalo Pacemaker Club, "Current and Future Sensor Technology in Rate Modulated Pacing," Buffalo, New York
- 5/92 Speaker, Physician Pacemaker Update sponsored by Pacesetter, "Advantages of Dual Chamber Pacing and an Update on Sensors," Detroit, Michigan
- 6/92 Course Director, Cardiac Pacing Symposium and Implant Workshop sponsored by Telectronics, "Sensor Driven Cardiac Pacing," "Pacemaker Implant Techniques," "Indications for Cardiac Pacing," "Implantation Workshop," "Hemodynamics of Cardiac Pacing," Englewood, Colorado
- 8/92 Speaker, Electrocardiography of Pacemaker Rhythms, "Utilization of Event Counter Telemetry," "Sensing and Refractory Periods," "Lower Rate Limit Behavior and Crosstalk," Oak Brook, Illinois
- 10/92 Speaker, Pacemaker Conference sponsored by Telectronics, "Use of Minute Ventilation Rate Responsive Pacemaker," Baton Rouge, Louisiana
- 10/92 Course Director, Cardiac Pacing Symposium and Implant Workshop, "Sensor Driven Cardiac Pacing," "Pacemaker Implant Techniques," "Indications for Cardiac Pacing," "Implantation Workshop," "Hemodynamics of Cardiac Pacing," Englewood, Colorado
- 10/92 Speaker, Cardiology Grand Rounds, New England Deaconess Hospital, "Physiologic Pacing in the 90's: An Emphasis on Restoring Normal Physiology," Boston, Massachusetts.
- 11/92 Course Director, Cardiac Pacing Symposium and Implant Workshop sponsored by Telectronics, "Sensor Driven Cardiac Pacing," "Pacemaker Implant Techniques," "Indications for Cardiac Pacing," "Implantation Workshop," "Hemodynamics of Cardiac Pacing," Englewood, Colorado
- 1/93 Speaker, Introduction to Today's Pacing Technology sponsored by Pacesetter, Holy Cross Hospital, "Technical Aspects of Sensors," "Pacemaker Follow-Up," "Effect of Mode Selection on Hemodynamics," "Differential Diagnosis of Pacing System Malfunction," "Patient Evaluations and Indications for Cardiac Pacing," "Assessment of Chronotropic Function," "Anti-Tachycardia Pacing and the Implantable Defibrillator," Ft. Lauderdale, Florida
- 2/93 Speaker, Practicing Cardiologists Pacing Meeting sponsored by Pacesetter, "Use of Telemetry and Histograms in Pacemaker Follow Up," Sioux Falls, South Dakota
- 2/93 Speaker, Device Therapy and Technology Seminar, "Physician Viewpoint of the Future." Park City, Utah

- 2/93 Speaker, Pacemaker Programmer Workshop sponsored by Medtronic, "Optimal Pacing Therapy," Phoenix Biltmore, Phoenix, Arizona
- 2/93 Speaker, Introduction to Today's Pacing Technology sponsored by Pacesetter, Holy Cross Hospital, "Technical Aspects of Sensors," "Pacemaker Follow-Up," "Effect of Mode Selection on Hemodynamics," "Differential Diagnosis of Pacing System Malfunction," "Patient Evaluations and Indications for Cardiac Pacing," "Assessment of Chronotropic Function," "Anti-Tachycardia Pacing and the Implantable Defibrillator," Ft. Lauderdale, Florida
- 2/93 Speaker, Device Therapy and Technology Seminar sponsored by Pacesetter, "Expanding the Indications of DDDR Pacing," "Dual Chamber Interactive Case Studies," "Anti-Tachycardia Pacing," Park City, Utah
- 3/93 Speaker, Introduction to Today's Pacing Technology sponsored by Pacesetter, Holy Cross Hospital, "Technical Aspects of Sensors," "Pacemaker Follow-Up," "Effect of Mode Selection on Hemodynamics," "Differential Diagnosis of Pacing System Malfunction," "Patient Evaluations and Indications for Cardiac Pacing," "Assessment of Chronotropic Function," "Anti-Tachycardia Pacing and the Implantable Defibrillator," Ft. Lauderdale, Florida
- 3/93 Course Director, Cardiac Pacing Symposium and Implant Workshop sponsored by Telectronics, "Optimal Pacing Therapy," "Driven Cardiac Pacing," "Pacemaker Implant Techniques," "Indications for Cardiac Pacing," "Implantation Workshop," "Hemodynamics of Cardiac Pacing," Englewood, Colorado
- 4/93 Speaker, Educational Conference on Device Therapy, "Differential Diagnosis of Pacemaker Malfunction," "Current Concepts in Pacing," Northwest Community Hospital, Chicago, Illinois
- 4/93 Speaker, Cardiology Grand Rounds, "Cardiac Pacing in the 90's: Emphasis on Restoring Normal Physiology," Kettering Medical Center, Dayton, Ohio
- 5/93 Speaker, Annual Scientific Sessions North American Society of Pacing and Electrophysiology (NASPE), "Management of Difficult Pacemaker Patients," "Interpretation of Complex Pacemaker ECGs," "Dual Chamber Rate Adaptive Pacing: The Incremental Benefit," San Diego, California
- 6/93 Speaker, Cardiology Grand Rounds Wyoming Medical Center, "Physiological Pacing," Casper, Wyoming
- 6/93 Speaker, Cardiology Grand Rounds Metro Hospital, "Cardiac Pacing in the 90's," Cleveland, Ohio
- 8/93 Course Director, Advanced Function Pacemaker Seminar sponsored by Pacesetter, "Ventricular Based DDD Timing," "Radiology of Pacemakers," "Overview of Sensor Technology," Oak Brook Hill, Illinois
- 8/93 Speaker, Pacemaker Technology Focus Meeting sponsored by Telectronics, "Pacemaker System Trouble Shooting," "Pacemaker Sensor Function," Napa Valley, California
- 8/93 Presenter, Pacemaker Technology Focus Meeting, Napa Valley, California
- 9/93 Speaker, Cardiac Pacing Update sponsored by Medtronic, "Single-Chamber Pacemaker ECG Interpretation," "Perspectives on the Past, Present, and Future of Cardiac Pacing," Blennerhassett Hotel, Parkersburg, West Virginia
- 9/93 Course Director, Cardiac Pacing Symposium and Implant Workshop sponsored by Telectronics, "Optimal Pacing Therapy," "Driven Cardiac Pacing," "Pacemaker Implant Techniques," "Indications for Cardiac Pacing," "Implantation Workshop," "Hemodynamics of Cardiac Pacing," Englewood, Colorado
- 10/93 Speaker, Cardiology Grand Rounds University of Southern Alabama "Current Concepts in Physiologic Cardiac Pacing," Mobile, Alabama
- 1/94 Course Director, Cardiac Pacing Symposium and Implant Workshop sponsored by Telectronics , "Optimal Pacing Therapy," "Driven Cardiac Pacing," "Pacemaker Implant Techniques," "Indications for Cardiac Pacing," "Implantation Workshop," "Hemodynamics of Cardiac Pacing," Englewood, Colorado
- 1/94 Speaker, Fellows Pacing Seminar sponsored by Medtronic, "Technical Aspects of Pacing Sensors," "Optimal Pacing Therapy," Minneapolis, Minnesota
- 2/94 Speaker, Practicing Physicians Pacing Seminar sponsored by Medtronic, "Optimal Pacing Therapy," Phoenix Biltmore Conference Center, Phoenix, Arizona
- 2/94 Speaker, Practicing Physicians Pacing Seminar sponsored by Pacesetter, "Introduction to Today's Pacing Technology," Ft. Lauderdale, Florida

- 3/94 Speaker, Pacing Focus Seminar sponsored by Telectronics, "Pacemaker EGC Puzzles," "Extraction of Chronic Pacemaker Leads," "Current Concepts of Implantable Defibrillator Technology," Squaw Valley, California
- 4/94 Course Director, Cardiac Pacing Symposium and Implant Workshop sponsored by Telectronics, "Optimal Pacing Therapy," "Driven Cardiac Pacing," "Pacemaker Implant Techniques," "Indications for Cardiac Pacing," "Implantation Workshop," "Hemodynamics of Cardiac Pacing," Englewood, Colorado
- 5/94 Speaker, Annual Scientific Sessions North American Society of Pacing and Electrophysiology (NASPE), "New Techniques in Pacemaker Insertion and Extraction," "Management of Complex Pacemaker Patients," Nashville, Tennessee
- 10/94 Course Director, Cardiac Pacing Symposium and Implant Workshop sponsored by Telectronics, "Optimal Pacing Therapy," "Driven Cardiac Pacing," "Pacemaker Implant Techniques," "Indications for Cardiac Pacing," "Implantation Workshop," "Hemodynamics of Cardiac Pacing," Englewood, Colorado
- 11/94 Speaker, Technology Seminar, "Pacing Hemodynamics and Clinical Application of Sensor Technology," Boston, Massachusetts
- 11/94 Course Director, Cardiac Pacing Symposium and Implant Workshop sponsored by Telectronics, "Optimal Pacing Therapy," "Driven Cardiac Pacing," "Pacemaker Implant Techniques," "Indications for Cardiac Pacing," "Implantation Workshop," "Hemodynamics of Cardiac Pacing," Englewood, Colorado
- 11/94 Speaker, Cardiology Grand Rounds Norwood Hospital, "Emerging Indications for Implantation of Permanent Cardiac Pacemakers," Boston, Massachusetts
- 2/95 Course Director, Cardiac Pacing Symposium and Implant Workshop sponsored by Telectronics, "Optimal Pacing Therapy," "Driven Cardiac Pacing," "Pacemaker Implant Techniques," "Indications for Cardiac Pacing," "Implantation Workshop," "Hemodynamics of Cardiac Pacing," Englewood, Colorado
- 2/95 Speaker, Advanced Function Pacemaker Seminar sponsored by Pacesetter, "Ventricular Based Timing," "Pacemaker Implant Techniques," "Complications of Pacemaker Implantation," "Overview of Sensor Technology," Ft. Lauderdale, Florida
- 3/95 Speaker, Device Therapy and Technology Seminar sponsored by Telectronics, "Therapeutic Strategies for Treating Sustained VT/VF," "Clinical Issues in Lead Selection," "New and Emerging Indications for Cardiac Pacing," "Clinical and Economic Controversies in Cardiac Pacing," Breckenridge, Colorado
- 4/95 Course Director, Cardiac Pacing Symposium and Implant Workshop sponsored by Telectronics, "Optimal Pacing Therapy," "Driven Cardiac Pacing," "Pacemaker Implant Techniques," "Indications for Cardiac Pacing," "Implantation Workshop," "Hemodynamics of Cardiac Pacing," Englewood, Colorado
- 4/95 Speaker, Arrhythmia Symposium, "New Indications for Pacing Therapy," "An Approach to Lead Failure: Telectronics 801 J-Lead," The Christ Hospital, Cincinnati, Ohio
- 5/95 Presenter, Introduction to Today's Pacing Technology sponsored by Pacesetter, "Surveillance of Arrhythmia Control Device Therapy," "Pacemaker Follow-up and Management," "Lead Connectors, Pacemaker Headers, and Adapters," "Effect of Mode Selection on Hemodynamics," "Differential Diagnosis of Pacemaker Malfunction," "Clinical Application of Sensors," Cleveland, Ohio
- 5/95 Speaker, North American Society of Pacing and Electrophysiology (NASPE) 16th Annual Scientific Sessions, "Lead Extraction: Indications, Technique, Complications," "Automaticity: Automatic Regulation of Stimulus Intensity, Sensing, and Rate Response," "Access Routes for Implantation of Permanent Pacemakers"
- 6/95 Course Director, Cardiac Pacing Symposium and Implant Workshop sponsored by Telectronics, "Optimal Pacing Therapy," "Driven Cardiac Pacing," "Pacemaker Implant Techniques," "Indications for Cardiac Pacing," "Implantation Workshop," "Hemodynamics of Cardiac Pacing," Englewood, Colorado
- 8/95 Speaker, Advanced Function Pacemaker Seminar sponsored by Pacesetter, "Uncommon Indications for Cardiac Pacing," "Technical Aspects of Sensors," "Lower Rate Limit Behavior and Crosstalk," "Implant Techniques," "Diagnosis and Management of Non-Electrical Pacing System Complications," La Jolla, California

- 8/95 Speaker, Medical Grand Rounds Episcopal Heart, "Pacemakers, Sensors, and Hemodynamics," Philadelphia, Pennsylvania
- 9/95 Speaker, Device and Therapy Workshop sponsored by Telectronics, "Management of Accufix Implanted Patients," "Mechanisms and Therapy of Atrial Fibrillation," Galena, Illinois
- 10/95 Course Director, Cardiac Pacing Symposium and Implant Workshop sponsored by Telectronics, "Optimal Pacing Therapy," "Driven Cardiac Pacing," "Pacemaker Implant Techniques," "Indications for Cardiac Pacing," "Implantation Workshop," "Hemodynamics of Cardiac Pacing," St. Joseph's Hospital, Englewood, Colorado
- 10/95 Invited Speaker, "Extraction of Chronic Pacing Leads," Ventritex, Inc., Sunnyvale, California
- 2/96 Speaker, Introduction to Today's Pacemakers sponsored by St. Jude Medical, "Technical and Clinical Aspects of Sensors," "Single Chamber Pacing Case Studies," "Rate Responsive Pacing Case Studies," "Radiology of Pacemakers," "Pacemaker Follow-up," "Indications for Cardiac Pacing," "Effect of Mode Selection on Hemodynamics," "Dual Chamber Pacing Case Studies," Ft. Lauderdale, Florida
- 3/96 Speaker, Device Therapy and Technology Seminar sponsored by Telectronics, "Extraction of Chronic Pacemaker Leads," "Clinical and Economic Controversies in Pacemaker Selection," Keystone, CO
- 5/96 Speaker, Advanced Function Pacemaker Physician's Seminar, "Potential Complications of Pacemaker Implantation," "Pacemaker Implantation Techniques," "Overview of Pacemaker Sensor Technology," "Lower Rate Behavior, Atrial Based Timing, and Crosstalk," "Evaluation and Follow-up of DDDR Pacemakers," Ft Lauderdale FL
- 9/96 Speaker, Annual Cardiovascular Symposium sponsored by Kentucky Chapter of the American College of Cardiology, "Update of Pacemaker Technology," Lexington KY
- 9/96 Speaker, Ventritex Fellow's Seminar sponsored by Ventritex, "Extraction of Chronically Implanted Pacing and Defibrillator Leads," San Francisco CA
- 10/96 Speaker, Symposium on Cardiac Pacing and Arrhythmia Management sponsored by St. Jude Medical, "Programming Techniques Workshop," "Follow-up of Rate Modulated Pacing Systems," "Arrhythmia Control Device Therapy," Bahia Mar, Ft. Lauderdale FL
- 10/96 Speaker, "Pacemaker Implantation Seminar and Workshop." Ohio State University, Columbus, Ohio
- 10/96 Speaker, Interventions in the Treatment of Heart Disease, "Laser Lead Removal Sheath: Principles and Clinical Results," New York
- 11/96 Speaker, Implantation Techniques for Today's Pacing Technology sponsored by St. Jude Medical, "Implantation of Permanent Pacemakers," Medical Education Research Institute, Memphis TN
- 2/97 Speaker, Introduction to Today's Pacing Technology sponsored by St. Jude Medical, "Advanced Concepts in Pacing," "Radiology of Pacemakers," "Indications for Cardiac Pacing," "Follow-up Programming," "Effect of Mode Selection on Hemodynamics," "Clinical and Technical Aspects of Pacemaker Sensors," Ft Lauderdale FL
- 3/97 Speaker, Implantation Techniques for Today's Pacing Technology sponsored by St. Jude Medical, "Post-Implant Complications," "Pacemaker Implant Techniques," "Advanced Concepts in Pacing," Medical Education and Research Center, Memphis TN
- 3/97 Speaker, St. Joseph's Hospital, "Pacemaker Implant Techniques, Live demonstration," "Overview of Sensor Driven Pacemakers," "Indications for Permanent Pacemaker Insertion," "Hemodynamics and Cost Issues in Cardiac Pacing," Englewood CO
- 4/97 Speaker, Device Therapy and Technology Seminar sponsored by Telectronics, "Extraction of Pacemaker And Defibrillator Leads," Vail CO
- 5/97 Speaker, Update: Brady Device Therapy sponsored by Medtronic, "Point / Counterpoint: Lead Extraction," "Challenging Cases in Device Therapy," Aspen CO
- 5/97 Program Chair, 18th Annual Scientific Sessions Lead Extraction, North American Society of Pacing and Electrophysiology (NASPE), "NASPE Policy Conference on Extraction of Chronic Pacing and Defibrillation Leads," New Orleans LA
- 5/97 Speaker, Annual Scientific Sessions North American Society of Pacing and Electrophysiology, "Advances in Laser Lead Extraction," New Orleans LA
- 9/97 Speaker, Pacemaker Symposium, "Troubleshooting Cardiac Pacemakers," "ECG Workshop In Cardiac Pacing," Seattle WA
- 9/97 Speaker, Cardiovascular Conference at Eagle Ridge, "Cardiac Pacing in the 90's: An Emphasis on Restoring Normal Physiology," Eagle Ridge IL

- 10/97 Speaker, Advanced Function Pacemaker Seminar sponsored by St. Jude Medical, "Uncommon Indications for Pacing," "Radiographic Interpretation," "New Indications in Lower and Upper Rate Behavior," "Mode Selection and Hemodynamic Considerations," "Lower Rate Limit Behavior and Crosstalk," "Implantation Techniques," "Complications of Pacemaker Implantation," "Case Study Analysis," Ft Lauderdale, Florida
- 11/97 Speaker, National Symposium on Cardiac Arrhythmia Management sponsored by St. Jude Medical, "Radiographic Techniques in Device Troubleshooting," "Pacemaker Implantation: A Blockbuster Approach," "Diagnosis and Management of Ventricular Arrhythmias," Phoenix, Arizona
- 12/97 Speaker, Pacemaker Therapy Enhancement Seminar sponsored by St. Jude Medical, "New and Controversial Indications for Cardiac Pacing," "Features and functionalities of DDDR Pacing Systems," "Bradycardia Case Studies," New York, New York
- 12/97 Speaker, Cardiology Society, "Catheter Ablation of Cardiac Arrhythmias," Ft Myers, Florida
- 1/98 Speaker, St. Jude Medical Rhythm Management Division National Initiatives Series sponsored by St. Jude Medical, "Is Same Day Discharge Following Pacemaker Implant Feasible?" "Clinical Utility of Pacemaker Features," Sylmar, California
- 8/98 Speaker, Arrhythmias 1998: Therapy Advances in a Cost Conscious Environment sponsored by Teletronics, "Risk Stratification for Ventricular Tachycardia and Fibrillation," Napa Valley, California
- 9/98 Speaker, National Cardiac Symposium on Cardiac Rhythm Management sponsored by St. Jude Medical, "Radiographic Techniques in Device Troubleshooting," "Implantation of Cardiac Pacemakers: A Blockbuster Approach," Phoenix, Arizona
- 10/98 Speaker, Pacemaker Implant Workshop sponsored by St. Jude Medical, "Troubleshooting Utilizing X-Ray Analysis," "Pacemaker Implantation Techniques," Medical Education and Research Institute, Memphis, Tennessee
- 10/98 Speaker, Cardiac Rhythm Management Seminar for Physicians, "New Indications for Pacing," "Lower and Upper Rate Behavior," "Differential Diagnosis of Pacemaker Abnormalities," Ft Lauderdale, Florida
- 10/98 Speaker, Cardiology Symposium sponsored by Mt Carmel Medical Center, "Evaluation of Chest Pain in the Pacemaker Patient," Orlando, Florida
- 3/99 Speaker, National Fellows Symposium on Cardiac Rhythm Management sponsored by Medtronic, "Pectoral Implant Technique," "Extraction of Chronic Pacing Leads," "Defibrillators for Beginners," Orlando, Florida
- 4/99 Live Animal Implant Lab Instructor (lecture and live implant workshop) sponsored by St. Jude Medical, "Pacemaker Implant Techniques," Medical Education and Research Institute, Memphis, Tennessee
- 4/99 Speaker, Update on Pacing Technology Sponsored by St. Jude Medical, "Automatic Capture Verification in Bradycardia Pacing Systems," Santa Monica, California
- 9/99 Keynote speaker, Cardiac Device Symposium sponsored by St. Jude Medical, "The Use and Function of Autocapture in Permanent Pacing," Sioux City, Iowa
- 9/99 Speaker, International Symposium on Pacing, "Extraction of Chronic Pacing Leads: The Difficult Leads," Jewish Hospital, Louisville, Kentucky
- 10/99 Speaker, Pacemaker Implant Seminar sponsored by St. Jude Medical, "Radiology of Pacing," "Pacemaker Implant Techniques: A Live Lead Implant Workshop," "Extraction of Chronic Pacing Leads," Memphis, Tennessee
- 10/99 Keynote Speaker, Cardiology Consultants Evening Symposium, "Management of Pacemaker and Lead Complications," St Louis, Missouri
- 11/99 Course Coordinator and Faculty, Practical Approaches to Arrhythmia Management sponsored by Medtronic, "The Role of Pacing in Heart Failure Management," "Radiology of Permanent Pacing," "Managing Pacemaker and Lead Complications," Scottsdale, Arizona
- 3/00 Speaker, Practical Approaches to Arrhythmia Management sponsored by St. Jude Medical, "Treatment Options for Atrial Fibrillation," "New Indications for Pacemaker and ICD Therapy," Vail, Colorado
- 3/00 Speaker, Cardiology Grand Rounds University of Michigan School of Medicine, "Management of Pacemaker Complications," Ann Arbor, Michigan

- 4/00 Speaker, Cardiac Rhythm Management Seminar for Electrophysiology Fellows sponsored by Guidant, "Device Selection and Therapy Prescription," "Advanced Case Studies and Troubleshooting," Minneapolis, Minnesota
- 4/00 Speaker, Practical Approaches to Arrhythmia Management sponsored by Medtronic, "Atrial Fibrillation: Drugs v. Devices," "Advances in Heart Failure Management," Key Largo, Florida
- 5/00 Keynote Speaker, Arrhythmia Symposium for Cardiologists, "New Indications for Cardiac Pacing," Portland, Oregon
- 6/00 Speaker, Arrhythmias in Clinical Practice sponsored by North Canton Medical Foundation, "Complications of Device Therapy," Canton, Ohio
- 8/00 Speaker, Medical Grand Rounds Kettering Hospital, Kettering Medical Center, "Update on Cardiac Pacing," Dayton, Ohio
- 8/00 Speaker, New Trends in Arrhythmia Management, "Risk Stratification of VT / VF Patients," "Emerging Technologies in Bradycardia," Charleston, South Carolina
- 8/00 Program Director, Arrhythmia Management Practices in Y2K sponsored by Medtronic, "Device Therapy for CHF," Nemacon Woodlands, Farmington, Pennsylvania
- 9/00 Speaker, Cardiac Rhythm Management Seminar for Electrophysiology Fellows sponsored by Guidant, "Device Selection and Therapy Prescription," "Advanced Case Studies and Troubleshooting," Minneapolis, Minnesota
- 10/00 Course Director, Practical Approaches to Arrhythmia Management sponsored by Medtronic, "Pacing as a New Therapy for Congestive Heart Failure," "Management of Pacemaker and ICD Complications," San Francisco, California
- 10/00 Speaker, Updates in Cardiac Rhythm Management for Cardiologist sponsored by Medtronic, "Lead Extraction: How to, When, Where, etc.," New York, New York
- 11/00 Course Director, Cardiology Technology Symposium sponsored by Teletronics, "Minute Ventilation and Blended Sensors, Function and Utility," Sarasota, Florida
- 12/00 Speaker, the 12th Annual Cardiovascular Disease Symposium, "Extraction of Permanent Pacing and ICD Leads," University of Toledo/Medical College of Ohio, Toledo, Ohio
- 1/01 Speaker, Future of Cardiac Rhythm Management Symposium, "Managing Atrial Fibrillation with Patient-Focused Diagnostics," Naples, Florida
- 3/01 Speaker, Annual Scientific Sessions American College of Cardiology, "Lead Extraction: Indications and Techniques," Orlando, Florida
- 4/01 Speaker, Annual Meeting Indiana/Kentucky Chapter American Association Medical Transcriptionists, "Arrhythmias: Etiology, Diagnosis and Treatment," Ft. Wayne, Indiana
- 5/01 Speaker, Annual Scientific Sessions North American Society of Pacing and Electrophysiology (NASPE), "Controversies in Bradycardia Pacing: A Debate," Boston, Massachusetts
- 6/01 Speaker, International Symposium on Advances in Interventional Electrophysiology, "Techniques for Pacemaker and ICD Lead Extraction," University of Louisville, Louisville, Kentucky
- 6/01 Speaker, Arrhythmia Management Conference sponsored by Medtronic, "Benefits of Minute Ventilation Sensor in Pacing," "Pacing Case Studies," Farmington, Pennsylvania
- 6/01 Speaker, International Symposium on Advances in Interventional Electrophysiology, "How to Implant an ICD in the EP Lab," University of Louisville, Louisville, Kentucky
- 10/01 Speaker, Cardiology Grand Rounds, "Implant Techniques for Pacemakers and ICDs: Special Situations," University of Louisville, Kentucky
- 1/02 Speaker, Advances in Heart Rhythm Therapy, "Suppression Therapy for Atrial Fibrillation," Charlotte, North Carolina
- 1/02 Guest Faculty, "Management of Pacemaker Complications," "Implantation Techniques for Pacemakers and ICDs," Arrhythmia Technology Institute, Greenville, South Carolina
- 2/02 Symposium Speaker and Program Director, Navigating a Course for Arrhythmia Management: National Physician Education sponsored by Medtronic, "Cardiac Resynchronization for CHF," Steamboat, Colorado
- 4/02 Speaker, National Fellow Symposium on Cardiac Rhythm Management sponsored by St. Jude Medical, "An Overview of Atrial Tachycardias," San Antonio, Texas
- 12/02 Speaker, Clinical Applications and Beyond sponsored by St. Jude Medical, "Detection and Treatment of Atrial Arrhythmias in ICD Patients," New York, New York

- 3/03 Speaker, Annual Scientific Sessions American College of Cardiology, "Usefulness of Advanced Diagnostics in Pacemaker Troubleshooting," Chicago, Illinois
- 5/03 Speaker, Annual Scientific Sessions; Tutorial, North American Society of Pacing and Electrophysiology (NASPE), "Diagnosis and Causes of Insulation and Conductor Failures," Washington, DC
- 8/03 Featured Speaker University of Kentucky sponsored by St. Jude Medical, "Pacemaker Based Atrial Fibrillation Suppression," Louisville, Kentucky
- 8/03 Speaker, Cardiology Fellows Heart Rhythm Symposium sponsored by St. Jude Medical, "Lead Extraction: Indications to Complications," San Francisco, California
- 9/03 Speaker, National Physician Seminar sponsored by Vitatron, "Device Based Therapy for Atrial Fibrillation: Is It Possible?" "Cardiac Synchronization Therapy for CHF and SCD: A Hybrid Approach," Lake Lanier, Georgia
- 10/03 Speaker, Advancements in Device Technology and Therapy National Physician Seminar sponsored by Medtronic, "Remote Monitoring of Arrhythmia Control Devices," Sonoma, California
- 12/03 Speaker, Cardiovascular Grand Rounds, "Management of Pacemaker and ICD Complications." Peoria, Illinois
- 5/04 Speaker, Cardiac Implant Workshop for Fellows sponsored by St. Jude Medical, "X-Ray Analysis in Pacing," "Pacemaker Implantation Techniques," "Lead Placement Workshop," The Medical Education & Research Institute, Memphis, Tennessee
- 5/04 Speaker, Annual Scientific Sessions North American Society of Pacing and Electrophysiology (NASPE), "Venous Occlusions and Vegetations in Pacing and ICDs," San Francisco, California
- 10/04 Speaker, New Arrhythmia Technologies Retreat, "New Pacing Lead Technologies," Chicago, Illinois
- 2/05 Guest Faculty Lecturer, Arrhythmia Technologies Institute, "Permanent Pacemaker Implant Techniques," Greenville, South Carolina
- 5/05 Speaker, Annual Scientific Sessions Heart Rhythm Society, "Update of CRT Implantation Techniques," "Registries, Databases and Recalls," "Lead Extraction Cases," New Orleans, Louisiana
- 5/05 Speaker, Lead Extraction Satellite Symposium, "Implant Techniques to Avoid the Need for Lead Extractions," New Orleans, Louisiana
- 6/05 Faculty and Session Chair, 5th International Symposium on Advances in Interventional Electrophysiology sponsored by St. Jude Medical, "Review of Current Pacing Trials," Peoria, Illinois
- 6/05 Speaker, Pacemaker Fellows Seminar, "Management of Pacemaker Complications," San Diego, California
- 7/05 Speaker, Annual Scientific Sessions Puerto Rico Society of Cardiology's 12th Congress on Cardiology, "Cardiac Contractility Modulation Pacing Therapy in Heart Failure," "Benefits of AV Sequential Cardiac Pacing Instead of Concomitant Bi-Ventricular Pacing in Heart Failure," Ponce, Puerto Rico
- 5/06 Speaker, Biodesign Summit Conference, Stanford University, "Autonomic Control of Arrhythmias," Stanford, California
- 5/06 Speaker, Pacemaker Implant Workshop, Midwest Regional Research Institute, "Management of Pacemaker and ICD Complications," "Implant Techniques for Cardiac Devices," Memphis, Tennessee
- 6/06 Speaker, Cardiology and Cardiac Surgery Update, "Who Needs an ICD?" "Cardiac Resynchronization Therapy for Heart Failure," Pikeville, Kentucky
- 8/06 Speaker, Cardiology Fellows Symposium, sponsored by St. Jude Medical, "Management of Pacemaker and ICD Complications," San Francisco, California
- 3/07 Speaker, Annual Scientific Sessions of The American College of Cardiology, "Challenges in Device Implantation and Extraction," New Orleans, Louisiana
- 4/07 Speaker, Pacemaker Implant Workshop, Midwest Regional Research Institute, "Management of Pacemaker and ICD Complications," "Implant Techniques for Cardiac Devices," Memphis, Tennessee
- 5/07 Speaker, Cardiovascular Grand Rounds, Washington Hospital Center, "Management of Device Complications," "Avoiding Device Implant Mistakes," Washington, DC
- 5/07 Speaker, Annual Scientific Sessions Heart Rhythm Society, "How to Avoid and Manage Lead Problems," Denver, Colorado

- 8/07 Speaker, Pacemaker Implant Workshop, Midwest Regional Research Institute, "Management of Pacemaker and ICD Complications," "Implant Techniques for Cardiac Devices," "Avoidance of Device Implant Complications," Midwest Regional Research Institute, Memphis, Tennessee
- 8/07 Speaker, National Fellows Training Seminar sponsored by St. Jude Medical, "Management and Avoidance of Device Complications," Austin, Texas
- 11/07 Speaker, Setting the Pace Physicians Symposium sponsored by St. Jude Medical, "Lead Extraction: When, Where, and What is on the Horizon," "ICD and CRT Implant Techniques," presented at Philadelphia, Pennsylvania
- 11/07 Invited Speaker, The American Heart Association Annual Scientific Sessions, "7 Leads? No Problem," Orlando, Florida
- 3/08 Speaker, Annual Scientific Sessions of the American College of Cardiology, "Debate: All Implantable Cardiac Devices Should be Interrogated by a Cardiologist Prior to Non-Cardiac Surgery," Chicago, Illinois
- 4/08 Course Director, Midwest Research and Education Institute Fellows Program sponsored by St. Jude Medical, "Implantation of Left Ventricular Leads for CRT Pacing," "Implantation of Cardiac Pacemakers," "Radiology of Cardiac Pacing" Memphis, Tennessee
- 5/08 Speaker, Annual Scientific Sessions Heart Rhythm Society, "Success and Risks of Lead Extraction," "HRS & EHRA Guidance on Implantable Device Follow-up: Personnel and Their Responsibilities," "How to Perform a Lead Extraction in a Chronically Occluded Subclavian Vein to Create a Channel for Access or Upgrade," San Francisco, California
- 11/08 Speaker, Live Webcast. New Standards for CRMD Antibiotic Protection sponsored by North American Center for CME, "Prevention of Device Related Infections,"
- 1/09 Speaker, Annual Meeting sponsored by UC Davis and the California Chapter of the ACC, "Lead Extractions: Facility Requirements, Importance of Operative Backup and Complications," Sacramento, California
- 3/09 Speaker, Annual Scientific Sessions, American College of Cardiology, "Update on Lead Extraction," Orlando, Florida
- 3/09 Speaker, Annual Meeting sponsored by Heartbeat International, "Management of Cardiac Rhythm Device Complications," Orlando, Florida
- 4/09 Course Director, Midwest Research and Education Institute Fellows Program sponsored by St. Jude Medical, "Implantation of Left Ventricular Leads for CRT Pacing," "Implantation of Cardiac Pacemakers," "Radiology of Cardiac Pacing," Memphis, Tennessee
- 5/09 Speaker, Annual Meeting Heart Rhythm Society 2009, "You Should Never Leave an Abandoned Lead in the Body," "Transvenous Lead Extraction Patient Management: HRS Consensus 2009," "Debate: All Superfluous Leads Should be Removed (Protagonist)," "Lead Extraction in 2009: Clinical Results," "Core Curriculum: Update on Lead Extractions," Boston, Massachusetts
- 6/09 Speaker, Lead Management Seminar Cardiology Roundtable sponsored by Spectranetics, "Update on Lead Extraction: New Indications for 2009 and Beyond," Detroit, Michigan
- 12/09 Invited Speaker, "Current Trends in Device Lead Management" sponsored by Spectranetics, Philadelphia, Pennsylvania
- 12/09 Speaker, Cardiology Grand Rounds University of Pittsburgh Medical Center, "Current Trends in Lead Management," Pittsburgh, Pennsylvania
- 5/10 Speaker, HRS Satellite Symposium Practical Implementation of Quality Care in Every EP Lab sponsored by Cleveland Clinic, "Thinking Small, What are the Minimum Number of Important Measures of Quality?" Denver Colorado
- 5/10 Speaker, Heart Rhythm Society 2010 Annual Scientific Sessions, "Practical Implementation of Quality Care in Every EP Lab," "Quality Commentator: Lead Extraction in 2010,," "Optimizing Leads, Programming and Management of Pacemakers," "Live Case Presentations Commentator," "Lead Extraction Techniques and Novel Lead Technology," "Credentialing Issues for Lead Extraction," Denver, Colorado
- 7/10 Invited Speaker, 1st Annual Northeast Lead Management Symposium: Update on Indications, Techniques and Controversies for Lead Extraction sponsored by Spectranetics, "Think Before You Choose - Planning the Implant," New York, New York

- 11/10 Speaker, Contemporary, Challenging and Controversial Issues in Electrophysiology sponsored by Medtronic, "Extraction Indications and Techniques," "Device Troubleshooting Workshop," "Rate Response Pacing: When, Why, How?" New York City, New York
- 3/11 Speaker, Western Update in Advanced Cardiac Implantable Electronic Devices and Lead Management sponsored by Medtelligence, "Think Before You Choose: Implantation is Only the First Step Along the Path of Lead Management," Los Angeles, California
- 4/11 Speaker, Introduction to Invasive Cardiology sponsored by St. Jude Medical, "Pacemaker and ICD Implantation," "Hands On Training - RA/RV/LV Lead Implant Techniques," Austin, Texas
- 5/11 Speaker, Heart Rhythm Society Annual Scientific Sessions, "LV Lead Extraction: Risk Assessment and Techniques," "Diagnosing and Identifying Impending Lead Failures," San Francisco, California
- 5/11 Speaker, Comprehensive Management of CIED Infection Satellite Symposium sponsored by Cleveland Clinic, "Case Presentations and Panel Discussion," San Francisco, California
- 9/11 Speaker, East Coast Lead Management Symposium sponsored by Medtelligence, "Think before you choose: an implanter's guide to lead management," Boston MA
- 11/11 Speaker, Cardiology Grand Rounds Sanger Clinic, "Remote monitoring," "Lead Extraction and Management Remote monitoring," Charlotte, North Carolina
- 12/11 Speaker, Heart Rhythm Society Webinar, "Current and future Research on Riata, Durata and optimum," "Background of Riata Lead"
- 3/12 Speaker, Annual Scientific Sessions American College of Cardiology, "Should all Leads be Extracted," Chicago IL
- 4/12 Speaker, Western Lead Management Conference sponsored by Medtelligence, "Think before you choose: an implanter's guide to lead management," "Current Lead Advisories," "Capping vs. Extracting Leads," San Francisco CA
- 4/12 Keynote Speaker, Annual Scientific Sessions Heart Rhythm Society, "Why Should We Trust/Not Trust Durata," "Planning for Lead Extraction Starts at the Time of Implant," "Core Curriculum: Patient Safety in Lead Extraction," "Abstract Plus Session AB31 on Lead Extraction," Boston MA
- 5/12 Speaker, Satellite Symposium on CRT Therapies Sponsored by St. Jude Medical, "Multipolar Pacing," Boston MA
- 5/12 Speaker, Satellite Symposium on Extraction sponsored by Cleveland Clinic, "Non-Infected Lead Extractions," "Comprehensive Management of CIED Infection," Boston MA
- 6/12 Speaker, Cardiology Review, "Extraction indications and Training Pacemakers & ICDs Unknown Cases," Boston University Medical Center, Boston MA
- 11/12 Speaker, 4th Annual St. Paul Lead Extraction Symposium sponsored by Medtelligence, "Indications in Patient Selection," "How to do a Lead Extraction," St. Paul, MN
- 2/13 Speaker, Miami Update on Lead Management, University of Miami, "Lead Management for Cardiac MRI," "Femoral Tools Made Fun," Miami, Florida
- 5/13 Speaker, Annual Scientific Sessions Heart Rhythm Society, "Selecting the Best Lead for Each Purpose and Patient," "Lead Recalls," "Quality Assurance and Minimizing Complications," "Defibrillation Testing Must Be Performed at Implant," Denver, Colorado
- 5/13 Invited Speaker, First Annual Worldwide Lead Management Collaborative Community Meeting, "Vulnerable and Recalled Leads Should Be Extracted Before Failing," Denver, Colorado
- 5/13 Speaker, 2013 Stanford Biodesign New Arrhythmia Technologies Retreat sponsored by Stanford University, "Leadexx extraction device: A New Self Propelled Extraction Tool," at Denver, Colorado
- 6/13 Speaker, Electrophysiology Grand Rounds New York University Medical Center, "Management of St. Jude Riata Leads, and Can Durata Be Trusted?" New York
- 7/13 Speaker, Worldwide Webinar From Lead Implant to Extraction, and Everything in Between – Tips & Pearls sponsored by Spectranetics, "Optimal Lead Selection"
- 9/13 Speaker, Electrophysiology Grand Rounds Cornell University, "Management of St. Jude Riata Leads, and Can Durata Be Trusted?" New York
- 9/13 Speaker, Practical Knowledge to Succeed in EP Fellows Conference sponsored by St. Jude Medical, "Lead Management-Practical Advice for Electrophysiologists," Newport, Rhode Island
- 10/13 Speaker, 5th Annual Minneapolis Lead Extraction Program sponsored by Alina Health Care, "MRI and Implanted Cardiac Rhythm Devices," "Femoral Tools Made Fun," Minneapolis, Minnesota
- 11/13 Speaker, Annual Scientific Sessions American Heart Association, "Riata Leads with Externalized Conductors Cannot Be Trusted (protagonist)," Dallas, Texas

- 3/14 Speaker, Advanced Concepts in Laser Lead Extraction sponsored by University of Miami, "Tips and Tricks in Lead Extraction" and "Multi-Venous Approach," Miami, Florida
- 5/7/14 Speaker, Lead Management Satellite Symposium sponsored by Cleveland Clinic, "Palliative Management of CIED Infections," San Francisco, California
- 5/14 Speaker, Annual Scientific Sessions Heart Rhythm Society, "Hot Topics In CIED Treatment," "Cephalic, Subclavian, Axillary or Entirely Subcutaneous Lead Implant," "New Spectranetics Mechanical Implant Tools," Implantation Techniques and Technologies that will Reduce the Risks of Lead Malfunction and Lead Extraction," "Lead Extraction: Meet the Experts," "Abandoning vs Extracting Unnecessary Leads," "Economic Considerations in Remote Monitoring of CIEDs," San Francisco, CA
- 5/31/14 Speaker, Advanced Concepts in Arrhythmia Management, "Lead Management: When to Monitor, When to Extract," University of San Diego, CA
- 6/13/14 Speaker, Cardiac Device Summit sponsored by Mayo Clinic, "Extract or Abandon Non-Functioning Leads; Pros and Cons" and "Cardiac Device Self-Assessment," Chicago, IL
- 11/11/14 Speaker, Electrophysiology Grand Rounds University of Alabama Birmingham, "Managing Unnecessary Leads in 2014," Birmingham AL
- 11/17/14 Speaker, Debate at American Heart Association Annual Scientific Sessions, "Let Recalled Leads Fail, Then Extract," Chicago IL
- 12/13/14 Invited Speaker, EP Symposium sponsored by Medtronic, "Lead Integrity Alert and Avoiding Unnecessary Shocks," New York
- 1/29/15 Speaker, Lead Extraction Summit sponsored by Medtelligence, "Managing Lead Extraction for Class II Indications," Atlanta GA
- 4/11/15 Speaker, Advance Concepts in Device Management sponsored by St. Jude Medical, "Does DFT Testing Matter Anymore?" and "Quadripolar Pacing Benefits for HF Patients," New York
- 5/15 Speaker, Heart Rhythm Society Annual Scientific Session, "Single- vs. Dual-Coil Defibrillator Leads: Effects on Defibrillation Thresholds and Lead Extraction Complications," "MRI and the Indications for Lead Extraction," "My Patient with Complete AV Block has a PPM that is at ERI; the LVEF is 40%. Do I upgrade to a CRT-P? – Debate Antagonist," "Risk Mitigation of Infection Following CIED Surgery: Surgical Techniques and Antibiotic Prophylaxis," Session Chair "Lead and Device Management Summit," and "Infected System Management Case Presentations," Boston MA
- 9/17/16 Speaker, Heart Valve Society 2nd Annual Scientific Meeting, "CIEDs and Endocarditis," New York
- 10/29/16 Speaker, 2016 Lead Extraction Symposium, United Heart & Vascular Clinic/Alina Health (Co-Sponsored by Heart Rhythm Society), "Future Directions in Lead Extraction," "How I Approach Lead Extraction," "Lead Extraction Case Studies," Minneapolis, MN
- 5/10/17 Faculty, HRS Satellite Symposium. Lead Management 2017: A Case Based Approach
- 10/26/17 Speaker, University of Pittsburgh Medical Center Cardiac Electrophysiology Fellows meeting "Challenging device cases and electrograms." Pittsburgh PA
- 11/8/17 Speaker, Carolinas Healthcare Electrophysiologists. "ECG and EGM interpretation for device therapy." Charlotte, NC
- 11/9/17 Speaker, Cardiology Grand Rounds, Sanger Clinic. "Lead Management 2017: Focus on Infection," Charlotte, NC
- 11/18/17 Speaker and Program Chair: Management for Ventricular Arrhythmias. "Patient Selection for ICD, CRT and LVAD therapy." New York
- 4/14/18 Speaker, Meet The Masters. "Device Management and Challenges." Philadelphia, PA
- International**
- 1/95 Speaker, Cardiac Pacing Seminar sponsored by Toronto General Hospital, "New and Emerging Indications for Cardiac Pacing," "Implantable Cardioverter Defibrillators: State of the Art." Lake Louise, Canada
- 10/95 Program Chair, International Conference on Accufix, "Telectronics 801 Lead Recall," Paris, France.
- 2/96 Speaker, Advanced Pacemaker Seminar sponsored by Toronto General Hospital, Update on US Health Care Directions, "Extraction of Chronic Pacemaker Leads," "Overview of Newer Indications for Pacemaker Implantation," Lake Louise, Canada
- 4/96 Conference Chair, International Conference on the Telectronics Accufix Lead sponsored by Telectronics, "Extraction of Chronic Pacemaker Leads: Superior Approach," Nassau, Bahamas

- 12/96 Speaker, Cardiology Grand Rounds Tel Hashomer, "Update on Accufix and Encor Leads," Tel Aviv, Israel
- 12/96 Speaker, International Symposium on Progress in Clinical Pacing, "Lead Extraction: When to Extract or Abandon," Rome, Italy
- 2/97 Speaker, Third Annual Conference on Cardiac Arrhythmias sponsored by Toronto General Hospital, "Tachycardia Case Study Workshop," "New Techniques for Extraction of Chronic Pacemaker Leads," "Automaticity in Permanent Pacemaker Systems," Lake Louise, Alberta, Canada
- 6/97 Speaker, European Society of Cardiology Annual Scientific Sessions, "PLEXES Study Results," "Indications for Lead Extraction: Current and Future," Athens, Greece
- 10/97 Speaker, Current Cardiology Care Symposium Sponsored by University of Utah, "Permanent Pacing: What's New for 1997?" "Overview and Current Status of the Implantable Cardioverter Defibrillator," Cancun, Mexico
- 2/98 Speaker, Workshop for the Management of Cardiac Rhythm Disturbances sponsored by Toronto General Hospital, "Lead Extraction Update," "Arrhythmia Case Studies," Lake Louise, Canada
- 5/98 Speaker, 4th International Dead Sea Symposium on Cardiac Arrhythmias, "Use of the Excimer Laser to Extract Pacing and ICD Leads," "Pacing in Hypertrophic Obstructive Cardiomyopathy," "All Redundant Pacing Leads Should Be Extracted: A Debate," Dead Sea, Israel
- 6/98 Speaker, Cardiostim '98 Nice Acropolis, "Lead Extraction: The Femoral Approach," "Laser Assisted Lead Extraction: Future Applications and Special Cases," Nice, France
- 5/99 Speaker, North American Society of Pacing and Electrophysiology (NASPE) 1999 Scientific Sessions, "Lead Extraction: Past and Present Tools," Toronto, Canada
- 5/99 Keynote Speaker, New Frontiers in Arrhythmia Management NASPE 1999, "Closed Loop Stimulation and AV Arrhythmia Discrimination," Toronto, Canada
- 6/00 Speaker, 4th Annual Symposium on Pacing and ICD Leads, "Which is the Optimal Lead Extraction Method Available Today? Is Mechanical Extraction Superior to Laser Assisted Lead Extraction?" "Abandoned Leads: Should they be Explanted?" Nice, France
- 6/00 Speaker, 7th Advanced Didactic Course on Cardiac Pacing, "Conventional Pacemaker Follow-up is Outdated," Nice, France
- 6/01 Speaker, Europace Annual Scientific Sessions, "Lead Extraction Using a Bipolar Electrosurgical Dissection Sheath, Copenhagen, Denmark
- 9/01 Speaker, 7th Asian Pacific Society of Pacing and Electrophysiology Annual Scientific Sessions, "Laser Assisted Lead Extraction: Materials and Methods," Beijing, China
- 6/02 Speaker, Cardiostim Scientific Sessions, "Unusual Lead Complications: Case Studies," Nice, France
- 6/02 Speaker, 8th Advanced Didactic Course on Cardiac Pacing, "Lead Extraction; Current Status," Nice, France
- 2/03 Speaker, XII World Congress on Cardiac Pacing and Electrophysiology Scientific Sessions "Alternative Implant Techniques and Minimally Invasive Epicardial Lead Implantation," Hong Kong, China
- 6/04 Speaker, Cardiostim Scientific Sessions Didactic Course on Pacing and Defibrillation, "Evolving Indications for Cardiac Resynchronization Therapy," Nice, France
- 10/04 Invited Speaker, International Dead Sea Symposium Scientific Sessions, "The Toolbox for Lead Extraction 2004," "Should All Redundant Leads be Extracted?" Tel-Aviv, Israel
- 12/04 Invited Speaker, Brazil Cardiology Society Congress Scientific Sessions, "Resynchronization Therapy: Where Are We After the Trials?" "Primary Prevention of Sudden Death in CRT Patients," "Controversy: CRT for Patients without LBBB," Belo Horizonte, Brazil
- 6/06 Speaker, Cardiac Device Technology Seminar, "Management of Pacemaker and ICD Complications," Versailles, France
- 10/06 Speaker, International Dead Sea Symposium Scientific Sessions, "What's New in the Extraction Toolbox?" "Debate: All Leads Should be Extracted (Protagonist)," Tel Aviv, Israel
- 8/07 Keynote Speaker, Japanese Heart Rhythm Society, "Importance and Process of Pacing Certifications," Tokyo, Japan
- 6/08 Speaker, Japanese Heart Rhythm Society Annual Scientific Sessions "Opening Address on Success of JHRS and HRS Collaboration," "Lead Management Using Laser-Assisted Lead Removal Technology," "Lead Management Using Laser Assisted Lead Removal Technology," "Cardiac Device Representatives and Role of Certification," Tokyo, Japan

- 9/09 Speaker, Cardiology Grand Rounds Asia Heart Hospital, "Post Implant CRT Device Optimization," WuHan, China
- 9/09 Speaker, Cardiology Grand Rounds Shanghai Hua Dong Hospital, "Patient Selection for ICD Primary Prevention in Ischemic Cardiomyopathy Patients," Shanghai, China
- 9/09 Speaker, "Live CRT Device Implantation Demonstration," Shanghai Hua Dong Hospital Shanghai, China
- 9/09 Speaker, "Live CRT Device Implant Demonstration," Asia Heart Hospital, WuHan, China
- 9/09 Invited Speaker, North Regional China Cardiovascular Conference, "Lead Extraction for the Management of Device Complications," "IBHRE Exam: Introduction from the President," Beijing International Convention Center, Beijing, China
- 9/09 Speaker, Cardiology Conference Asia Heart Hospital, "How to Select ICD/CRT Patients Based on Current Indications," "CRT Implant Tips and Tricks," WuHan, China
- 9/09 Speaker, Cardiology Conference Shanghai Hua Dong Hospital, "How to Handle Pocket Infection Post Device Implant," Shanghai, China
- 9/09 Speaker, China Heart Rhythm Society Meeting, "CRT Implant Tips and Tricks," Beijing International Convention Center, Beijing, China
- 2/10 Speaker, The 10th Annual International Dead Sea Symposium on Cardiac Arrhythmias and Device Therapy Scientific Sessions, "What is New in the Recent HRS Extraction Expert Consensus Paper - an Overview," "Syncope and Pacing," "Difficulties with Venous Access During Implantation," Tel Aviv, Israel
- 6/10 Speaker, Cardiostim 2010 17th World Congress in Cardiac Electrophysiology & Cardiac Techniques Scientific Sessions, "Choosing the Right Technique for Each Patient." Nice, France
- 8/11 Invited Speaker, China Heart Congress Annual Scientific Sessions, "Tips and Tricks for CRT Implant," "Management of CRT Infections," "Results of the Improve HF Trial," "Remote Monitoring of Pacemakers," "Overview of Lead Extraction," "Difficult CRT Cases," Beijing, China
- 2/2012 Speaker, International Dead Sea Symposium Scientific Sessions, "Think Before You Choose: Planning and Preventing Lead Extraction at the Time of Implant," "Should all Abandoned (Unused) Leads Be Extracted?" "New Self-Propeller Device for ICD & Pacemaker Lead Extraction," "Extraction and Lead Management," Jerusalem, Israel
- 3/12 Invited Speaker, "Electromagnetic interference Cardiac rhythm management devices." Presented at 8th annual internat congress of updated in Cardiology and Cardiovascular surgery, Antalya, Turkey.
- 6/12 Speaker, Cardiostim Scientific Sessions, "Results of the Lead Extraction Device Evaluation and Results (LEADER) Database," "Hands on Lead Extraction," "Femoral, Transjugular, Surgical, Hybrid and Other Non Standard Lead Extraction Techniques," "Percutaneous Extraction of an Implantable Left Atrial Pressure Monitor," "Long Term Clinical Performance of the Quartet Left Ventricular Lead," Nice, France
- 6012 Invited Speaker, Israel Heart Society, Israel Heart Society-EP Working Group, Riata Lead Recall Status," Tel-Aviv Israel
- 7/12 Speaker, 17th World Congress on Heart Disease Annual Scientific Session, "Results of the Lead Extraction Device Evaluation and Results (LEADER) Database," Toronto, Ontario, Canada
- 8/13 Speaker, China Heart Failure Meeting Annual Scientific Sessions, "Selection of patients for CRT Therapy: Who Will Respond and Who Will Not?" "Current Management of CIED Infections," Dalian, China
- 10/13 Invited Speaker, Venice Arrhythmia Meeting, "What are the Treatment Options for Patients with CIED Infection?" "Riata, Fidelis and the Next Safety Alert," Venice, Italy
- 10/13 Speaker, Asian Pacific Heart Rhythm Society and Cardiorhythm Annual Scientific Sessions 2013, "Reflections on Fidelis, Riata, Accufix and Coaxial Polyurethane Leads," "Device Infection Prevention: Risk Factors, Outcomes, Management Options," Hong Kong, China
- 3/14 Speaker, International Dead Sea Symposium, "New Self Propelled Lead Extraction Device," "The Use of ECG as a Tool to Assess Normal and Abnormal Device Function," "The Use of New Tools for Lead Extraction," Tel-Aviv, Israel
- 6/14 Speaker, Cardiostim Scientific Sessions, "Managing Functional And Non-Functional Leads," "Multipolar Leads: Are they Effective and Should They Become the Gold Standard?" "Lead Management: The Right Tools for the Right Patients," "Extract or Abandon Faulty ICD Leads," "Implant Techniques to Decrease Lead Related Complications," Nice, France

- 6/15 Speaker, European Heart Rhythm Association Annual Scientific Sessions, "Patient Selection for Lead Extraction," "Remote Monitoring of CIEDs," "Unanswered Questions in Lead Management: Session Chair," Milan Italy
- 9/15 Speaker, China Society of Pacing and Electrophysiology XV World Congress of Arrhythmias, "Managing Patients with Threatened or Manifest Lead Dysfunction," "Optimal Lead Placement: Meet The Experts Session," "SCD, What do the Trials Tell Us?" "Incidence and Prevention of SCD in the USA," "HRS Indications for Lead Extraction," Beijing China
- 10/16 Speaker, Asia Pacific Heart Rhythm Society 9th Annual Scientific Sessions, "New Tools for Extraction of Chronically Implanted CIED Leads," "Remote Monitoring; Is It Worth the Time and Effort?" Seoul, South Korea
- 4/17 Speaker, Joint meeting of the Japanese Cardiac Device Representative (CDR) and Japanese Heart Rhythm Society, "10 years' experience with certification; Where do we go from here?." Tokyo, Japan
- 6/17 Speaker, European Heart Rhythm Society Scientific Sessions, "Predicting Lead Extraction Peri-Procedural Complications" and "CIED Lead Technology: Failures and Fears. St. Jude Riata Lead." Vienna, Austria
- 10/14/17 Speaker, Asian Pacific Heart Rhythm Society Scientific Sessions, "Role of pacing sites and algorithms to prevent atrial fibrillation." Yokohama Japan
- 10/16/17 Speaker, Asian Pacific Heart Rhythm Society Scientific Session, "Accreditation system in the United States; Application in Japan." Yokohama Japan
- 3/18/18 Speaker. European Heart Rhythm Association Annual Scientific Sessions. "My Nightmare Case: When all the tools you have are not enough." Barcelona, Spain

OTHER PROFESSIONAL ACCOMPLISHMENTS

Military Service

Community Services

- 1988-2013 Volunteer, First Aid Services for The Memorial PGA Golf Tournament
- 5/05-1/14 Member, Board of Trustees, Congregation Tifereth Israel Synagogue, Columbus OH
- 2007-2014 Website designer and Webmaster, Website for Congregation Tifereth Israel
- 2008 Volunteer for "Take It To The Streets" community health care campaign
- 5/08-5/10 Vice President, Congregation Tifereth Israel Synagogue, Columbus, Ohio
- 2009-2011 Member Communications Committee, Congregation Tifereth Israel
- 5/10-1/14 Member and Chair, Chevra Kadisha Committee (Holy Burial Society) Tifereth Israel Synagogue, Columbus OH

Humanitarian Services

Philanthropic Activities

1. Co-Chair, American Heart Association Golf Classic Sponsorship Committee, Jan 1996 - Jan 1997.
2. American Heart Association Golf Classic Sponsorship Committee Member, Jan 1996 - Jan 2000.

Other

Posters (note: oral and posters may be mixed) – Meeting Presentations

- 3/89 **Love, CJ**. "Extraction of Permanent Pacing Leads Using the Cook Extraction Set: Initial Clinical Experience." Presented at The American College of Cardiology 39th Annual Scientific Sessions
- 3/89 Schaal SF, Berlinger S, Duyardin JP, Nelson SD, **Love CJ** "Autonomic Dysfunction in Vasodepressor Syncope Associated with Mitral Valve Prolapse." Presented at North American Society of Pacing and Electrophysiology, Toronto, Canada.
- 6/90 **Love CJ**, Nelson SD, Schaal SF "Analysis of Dual Chamber Pacing Mode Retention In A Tertiary Care Institution." Presented at Cardiosim, Nice, France.
- 11/90 Nelson SD, Stanley MR, **Love CJ**, Schaal SF "Chronic Oral Theophylline for the Management of Vasodepressor Syncope." Presented at American Heart Association Annual Meeting, Dallas, Texas.
- 5/91 Feld G, **Love CJ**, Camerlo J. "A new pacemaker algorithm for automatic threshold determination and capture verification." Pacing and Clinical Electrophysiology: PACE. 1991 Vol. 14(4A): 728. North American Society of Pacing And Electrophysiology Scientific Sessions.

- 6/92 **Love CJ**, Smith HJ, Fearnot NE, Byrd CL, Wilkoff BL, Sellers TD "The effect of time material on success of intravascular lead extraction." Presented at Cardiostim, Nice, France.
- 11/93 Burroughs JM, Rome MP, Schaal SF, Nelson SD, **Love CJ** "Atrial Electrogram Characteristics Associated with Successful Radio Frequency Catheter Ablation of the Slow AV Node Pathway." Presented at American Heart Association Annual Scientific Sessions, Atlanta, Georgia .
- 11/93 Burroughs JM, Rome MP, Lenhart MB, Schaal SF, **Love CJ**, Nelson SD, "Persistent Dual AV Node Physiology after Successful Slow AV Nodal Pathway Ablation for AV Node Reentry Tachycardia." Presented at American Heart Association Annual Scientific Sessions, Atlanta, Georgia.
- 5/97 **Love CJ**, Wilkoff BL, Heggs KS, "Incidence of Mode Switch in a General Pacemaker Population." Presented at North American Society of Pacing and Electrophysiology (NASPE) Annual Scientific Sessions.
- 6/97 Frumin H, **Love CJ**, Lundeen T, Mehdirad A, Duncan J "Experience with a New Steroid Screw-In Lead in Atrial and Ventricular Applications (Pacesetter Model 1388T)." Presented at Europace.
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