
Signature

CURRICULUM VITAE

PETER P. KARPAWICH, MSc, M.D.

OFFICE ADDRESS:

Children's Hospital of Michigan
Pediatric Cardiology
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EDUCATION:

Hahnemann (Drexel) University Medical College
Philadelphia, Pennsylvania
M.D., 1975

University of Detroit
Detroit, Michigan
Biological Sciences
M.Sc., 1971

Holy Cross College
Worcester, Massachusetts
A.B., 1969

Assumption Preparatory
Worcester, Massachusetts
1965

TRAINING:

Specialty Fellowship, Pediatric Cardiology
Texas Children's Hospital
Baylor College of Medicine
Houston, Texas
1978 – 1981

Residency, Pediatrics (PL-2,3)
Children's Medical Center
University Texas S.W.
Dallas, Texas
1976 – 1978

Internship, Pediatrics (PL-1)
Children's Medical Center
University Texas S.W.
Dallas, Texas
1975 - 1976

FACULTY APPOINTMENTS:

Professor of Pediatric Medicine
Department of Pediatrics (Cardiology)
Central Michigan University
2019 – present

Professor of Pediatric Medicine
Department of Pediatrics (Cardiology)
Wayne State University School of Medicine
1996 – 2020

Associate Professor of Pediatric Medicine
Department of Pediatrics (Cardiology)
Wayne State University School of Medicine
1990 – 1995

Assistant Professor of Pediatric Medicine
Department of Pediatrics (Cardiology)
Wayne State University School of Medicine
1984 – 1989

Assistant Professor of Pediatric Medicine
Department of Pediatrics (Cardiology)
University of Medicine and Dentistry of New Jersey (Rutgers)
1982 – 1984

Clinical Instructor
Department of Pediatrics
Baylor College of Medicine
1980 - 1981

HOSPITAL APPOINTMENTS:

Director, Cardiac Electrophysiology and Pacemaker Services
Associate in Pediatric Cardiology
The Children's Hospital of Michigan
Detroit Medical Center
Detroit, Michigan
1984 – Present

Director, Pediatric Cardiology Research Laboratory
Wayne State University School of Medicine
1984 -1995

Director, Cardiac Electrophysiology Services
Associate in Pediatric Cardiology
Children's Hospital of New Jersey
University of Medicine and Dentistry of New Jersey (Rutgers)
United Hospitals Medical Center
Newark, New Jersey
1981 - 1984

Consulting Staff, Pediatrics/Cardiology:
Hutzel Hospital 1984 - present
Harper-Grace Hospital 1989 - present
William Beaumont Hospital 1989 - 1991
Crittenton Hospital 1990 - 2008
Henry Ford Hospital 1994 - present
Detroit Riverview Hospital 1994 - 2006
Huron Valley Hospital 1994 - present
St Joseph-Mercy Hospital 1997 - present
St Joseph Mt Clemens Hospital 1998 - present

PROFESSIONAL SOCIETIES:

American Heart Association Member
1979 – Present
Council Cardiovascular Disease of the Young
Elected Fellow (FAHA) 2009

American Medical Association Member
1981 - 1990

Pediatric and Congenital Electrophysiology Society Member
1983 - present

Member, Midwest Pediatric Cardiology Society
1988

American College of Cardiology Member
Affiliate in Training 1980, Affiliate 1981 - 1992
Fellow (FACC) (# 437032) 1993 - present

Member, Pediatric Radiofrequency Ablation Registry 1992 - 1998

Member, Undersea and Hyperbaric Medical Society
1984

American Academy of Pediatrics Member
Fellow (FAAP) 1985 - present
Specialty Fellow, Section of Cardiology 1993 - present

Member, North American Society of Pacing and
Electrophysiology (Heart Rhythm Society) # 762
1985 – present
Elected Fellow (FHRS) 2011

HONORS AND AWARDS:

2021 Listed in **America's Top Doctors** by Castle Connolly Medical Ltd

2020 Listed in **America's Top Doctors** by Castle Connolly Medical Ltd

2019 Listed in **America's Top Doctors** by Castle Connolly Medical Ltd

2018 **Recipient, School of Medicine College Teaching Award**,
Wayne State University School of Medicine

2018 Listed in **Albert Nelson Marquis Lifetime Achievement Award**, *Marquis Who's Who*

2018 Listed in **America's Top Doctors** by Castle Connolly Medical Ltd

2017 Listed in **America's Most Honored Professionals**, American Registry

2016 Listed in **Patient Choice Awards** by Vitals Health Review

2016 Listed in **America's Top Doctors** by Castle Connolly Medical Ltd

2015 Listed in **America's Top Doctors** by Castle Connolly Medical Ltd

2014 Listed in **America's Top Doctors** by Castle Connolly Medical Ltd

2013 Listed as **Top Ten Cardiologist Award** by Vitals Health Review

2013 Listed in **Best Doctors in Detroit**, Hour Detroit Magazine

2013 Listed as **Top Pediatric Cardiologist Award** by Health Tap

2011 Selected as **Detroit Super Doctor**, The Detroit News and Free Press

2010-2011 **Recipient, Department of Pediatrics Faculty Teaching Award**,
Department of Pediatrics, Wayne State University School of Medicine.

2010-2011 **Recipient, School of Medicine Teaching Award**, Wayne State
University School of Medicine

2010 Selected as a **Top Pediatrician in Detroit** by the International Association
of Pediatricians

2010 Elected **Fellow of the Heart Rhythm Society**

2009 Elected **Fellow of the American Heart Association**

Listed in **America's Top Pediatricians** 2006, 2007, 2008, 2009

Listed in **Best Doctors in Detroit**, Hour Detroit Magazine 10/2005

Listed in **Best Doctors in Detroit**, Hour Detroit Magazine 10/2006

Finalist: **Research Teacher of the Year Award** 2003

Department of Pediatrics, Wayne State University School of Medicine

National Leadership Award, Physician's Advisory Board, National Republican Congressional Committee 2001

Recipient, Teaching Award for Excellence, 1998, 2010-2011, 2012, 2018
Wayne State University School of Medicine

Finalist, **Clinical Research Teacher of the Year Award** 1997

Department of Pediatrics, Wayne State University
School of Medicine

Finalist, **Teacher of the Year Award** 1991, 1994, 1996, 1997

Department of Pediatrics, Wayne State University
School of Medicine

International Research Travel Award 1988, 1992, 1994

Wayne State University School of Medicine
Detroit, MI

Research Fellowship Award 1969 - 1971

Department of Life Sciences
University of Detroit

Research Fellowship Award 1972

Pennsylvania Department of Public Health
Philadelphia, PA

National Honor Society 1965

SERVICE:

Central Michigan University

Scholastic Oversight Committee 2020 - present
CMU School of Medicine
Pediatric Cardiology Fellowship Program

Clinical Competency Committee 2020 - present
CMU School of Medicine
Pediatric Cardiology Fellowship Program

Wayne State University

Scholastic Oversight Committee
Wayne State University School of Medicine 2014-2019
Central Michigan University College of Medicine 2019-2021
Pediatric Cardiology Fellowship Program

Clinical Competency Committee
Wayne State University School of Medicine 2014-2019
Central Michigan University College of Medicine 2019-2021
Pediatric Cardiology Fellowship Program

Radiology Review Committee
Wayne State University School of Medicine, 2008

Curriculum Vitae

Task Force on Pediatric Research, Children's Hospital
Wayne State University School of Medicine, 2003

Task Force on Pediatric Education, Children's Hospital
Wayne State University School of Medicine, 2001

Cardiopulmonary Resuscitation (CPR) Committee
Dept Pediatrics, Children's Hospital of Michigan 1996

Pharmacy and Therapeutics Committee
Dept Pediatrics, Children's Hospital of Michigan 1995 - 1996

Animal Investigation Committee (AIC)
Wayne State University
1993 - 1996

Diet Therapy Committee, Pediatrics
Children's Hospital of Michigan
1990 – 1993

Research Planning Committee, Dept. of Pediatrics
Wayne State University School of Medicine, 1989 - 1990

Speaker's Bureau Wayne State University School of Medicine 1987
Research Committee, Dept. of Pediatrics, WSU
Children's Hospital of Michigan 1987 - 1991

Institutional Research Grants and Investigations Committee (IRB),
Children's Hospital of Michigan
1986 - 1989

Lande Research Steering Committee
Wayne State University School of Medicine
1986 - 1989

The Children's Hospital of Michigan

Refer also to HOSPITAL APPOINTMENTS (above)

Founder and Director, Cardiac Arrhythmia Catheter Ablation Service,
Children's Hospital of Michigan, 1992 - present

Founder and Director, Cardiovascular Surgical Arrhythmia Service,
Children's Hospital of Michigan 1990 - 1992

Founder and Director, Clinical Pacemaker Implant and Outpatient Service,
Children's Hospital of Michigan 1985 - present

Founder and Director, Clinical Electrophysiology Service,
Children's Hospital of Michigan 1984 –

Professional Organizations

See Professional Societies above and Consultation below

Community

2017 St John Providence Hospital & Medical Center, Detroit
Invited Judge, Resident Research Day Scientific Sessions

2018 St John Providence Hospital & Medical Center, Detroit
Invited Judge, Resident Research Day Scientific Sessions

See Presentations below

Other

Initiated and Director, Clinical Electrophysiology Service,
Children's Hospital of New Jersey, 1981-1983

PROFESSIONAL CONSULTATION: Consultant: Medtronic Inc, Minneapolis (by invitation):
Cardiac Pacing Lead Development 1985 - present
Cardio-Care Telemetry Systems 1989 - 1993
Scientific Forum 1991
Bradycardia Pacing Research Advisory Committee 1995, 1996, 1997, 1998, 1999
Pacing Lead Steering Committee, 2000, 2001, 2002
Visible Heart (Univ Minnesota) 2000-2001
Select Site Pacing Committee 2002-2005
Pediatric EP Focus Group 2003-2008
Physiologic Research Laboratories 2006 -

Consultant: **Guidant Inc**, Minneapolis (by invitation)
Cardiac Pacing Lead Development 2002 - 2004

Consultant: **City of Detroit Historical Department** (by invitation)
Historic Fort Wayne Museum 1985 - 1991 (W. Phenix, curator)

Consultant : **American Board of Pediatrics, Sub-Board Cardiology**
Invited Subspecialty Certification Examination 1993, 1994, 1996, 1997

Consultant: **U.S. Dept of Health & Human Services** (by invitation)
Food and Drug Administration Center for Devices and Radiologic Health, 1994

Consultant: **Channel 56 (Public Television)** (by invitation)
Health Matters: Sudden Cardiac Death, 1994

Consultant: **American Heart Association** (by invitation)
68th Scientific Sessions Program, 1995

Consultant: **North American Society of Pacing and Electrophysiology**
(by invitation) 17th Scientific Sessions Program, 1996

Consultant: **Swiss National Science Foundation, Division of Biology and Medicine** (by invitation), 1995

Consultant: **U.S. Dept of Health & Human Services** (by invitation)
Food and Drug Administration Center for Devices and Radiologic Health, 1996

Consultant: **North American Society of Pacing and Electrophysiology / Heart Rhythm Society (Abstract reviewer)**
(by invitation) 18th Scientific Session Program, 1997
19th Scientific Session Program 1998
20th Scientific Session Program 1999
21st Scientific Session Program 2000
22nd Scientific Session Program 2001
23rd Scientific Sessions Program 2002
24th Scientific Sessions Program 2003
25th Scientific Sessions Program 2004
26th Scientific Sessions Program 2005
27th Scientific Sessions Program 2006
28th Scientific Sessions Program 2007
29th Scientific Sessions Program 2008
30th Scientific Sessions Program 2009
31st Scientific Sessions Program 2010
32nd Scientific Sessions Program 2011
33rd Scientific Sessions Program 2012
34th Scientific Sessions Program 2013
35th Scientific Sessions Program 2014
36th Scientific Sessions Program 2015
37th Scientific Sessions Program 2016
38th Scientific Sessions Program 2017
39th Scientific Sessions Program 2018

Curriculum Vitae

40th Scientific Sessions Program 2019
 40th Scientific Sessions Program 2020
 42nd Scientific Sessions Program 2021
 43rd Scientific Sessions Program 2022

Consultant: U.S. News & World Report, issue 9/20/99
 Interview: Re-use of Invasive Cardiac Catheters
 Consultant, **Thrasher Research Fund**, Salt Lake City, UT, 2002

Consultant, Pritchett & Hull Publishers, 2002
 Reviewer, Pediatric Pacemaker Book for Parents

Consultant, **American Heart Association**
 (by invitation) Scientific Session Program 2006
 (by invitation) Scientific Session Program 2007
 (by invitation) Scientific Session Program 2008
 (by invitation) Scientific Session Program 2011
 (by invitation) Scientific Session Program 2012

SCHOLARLY SERVICE

Associate/Section Editor, Pediatric Cardiology/Electrophysiology
Pacing and Clinical Electrophysiology (Wiley Pubs) 2006 - 2020

Associate/Section Editor, Electrophysiology
Progress in Pediatric Cardiology (Elsevier Pubs) 2015 - 2019

Section Editor, Pediatric Cardiology
Case Reports in Medicine (Hindawi Pubs) 2009 - present

Editor
Future Medicine and Future Science (Future Science Group London, UK) 2013-16

Editorial Board
Heart Rhythm Journal (Elsevier Pubs) 2017 - present
Journal of Cardiovascular Electrophysiology (Wiley Pubs) 2020 -

Editorial Reviewer, Peer Review Journals (by invitation):
American Heart Journal 1986 - 1992
American Journal of the Medical Sciences 1992 – 1993
American Journal of Cardiology 1994 - present
Pacing and Clinical Electrophysiology 1992 – present
Journal of the American College of Cardiology, 1999- present
Journal of Interventional Cardiac Electrophysiology, 2000 – present
Heart, 2001- 2010
Europace, 2004 – present
Heart Rhythm 2004 - present
Pediatrics 2005 – present
Pediatrics International 2005 – present
Remedica Medical Education and Publishing Ltd 2007-present
Congenital Heart Disease 2007 – present
The Anatolian Journal of Cardiology 2013 - present

NATIONAL, INTERNATIONAL BOARDS AND COMMITTEES:

American Heart Association
 Council, Cardiovascular Disease of the Young, 1979 - present

1Xth World Symposium on Cardiac Pacing and Electrophysiology
 Invited Member, Academic Curriculum Program
 Washington, D.C., 1991

Pediatric Electrophysiology Society

Curriculum Vitae

Steering Committee Member on Atrial Flutter, 1992

U.S. Department of Health & Human Services, Food and Drug Administration Center for Devices and Radiological Health:

Invited Member, Committee on Review of Steroid-Eluting Epicardial Pacing Leads, Rockville, MD, June, 1994

American College of Cardiology, Michigan Chapter

Invited Member, Academic Curriculum Program
7th Annual Scientific Session, 1995

Cardiostim, International Congress on Cardiac Stimulation

Invited Member, Academic Curriculum Program
10th Scientific Session, 1996

Swiss National Science Foundation

Invited Member, Research Grant Advisory Board, 1995

U.S. Dept Health & Human Services, Food and Drug

Administration Center for Devices and Radiologic Health

Invited Member: Committee on Review of Epicardial Steroid-Eluting Pacing Leads, Rockville, MD, July 1996

**North American Society of Pacing and Electrophysiology
Heart Rhythm Society**

Invited Member, Academic Curriculum Program (Abstract reviewer)

16th Scientific Session, 1995

17th Scientific Session, 1996

18th Scientific Session, 1997

19th Scientific Session, 1998

20th Scientific Session, 1999

22nd Scientific Session, 2001

23rd Scientific Sessions, 2002

24th Scientific Sessions, 2003

25th Scientific Sessions, 2004

26th Scientific Sessions, 2005

27th Scientific Sessions, 2006

29th Scientific Sessions, 2008

30th Scientific Sessions, 2009

31st Scientific Sessions, 2010

32rd Scientific Sessions, 2011

33rd Scientific Sessions, 2012

34th Scientific Sessions, 2013

35th Scientific Sessions, 2014

36th Scientific Sessions 2015

37th Scientific Sessions 2016

38th Scientific Sessions 2017

39th Scientific Sessions 2018

40th Scientific Sessions 2019

41st Scientific Sessions 2020

42nd Scientific Sessions 2021

43rd Scientific Sessions 2022

American Heart Association

Committee on Congenital Cardiac Defects (by appointment 2000-2002)

Reappointment 2002 - 2004

American Heart Association

National Expert Panel on Congenital Cardiac Defects (by appointment 2004)

American College of Cardiology

Quality Metric Working Group, Pediatric Electrophysiology

2007 – 2012

American College of Cardiology

Curriculum Vitae

Adult Congenital and Pediatric Cardiology

Steering Committee 2009 – present

American Academy of Pediatrics**Section on Advances in Therapeutics and Technology**

2011 – present

American Academy of Pediatrics**Section on Cardiology and Cardiac Surgery****Fellowship Research Award Committee**

2012- 2013

American College of Cardiology

FDA Network of Experts Panel

2012-present

American College of Cardiology**Adult Congenital & Pediatric Cardiology Committee**

Tetralogy of Fallot Quality Metrics: Chairman, Invasive Testing

2 Published Consensus Statements on Quality Metrics

2012 – 2017

Pediatric and Congenital Electrophysiology Society

2013-2014 Writing Committee member:

PACES/HRS Expert Consensus Statement on the Management of Arrhythmias in Adults with Congenital Heart Disease.**Pediatric and Congenital Electrophysiology Society**

2020-2021 Writing Committee member:

PACES/HRS Expert Consensus Statement on Cardiac Implantable Electronic Device Indications and Management in Children.**Heart Rhythm Society**

2021-2022 Writing Committee member

“Guidelines on Cardiac Physiological Pacing in Heart Failure”

STATE BOARDS AND COMMITTEES:

Member, Medical Society of New Jersey

1981 - 1984

Cardiology Committee, Essex County (elected)

New Jersey State Medical Society 1982 - 1984

Member, Essex County (NJ) Medical Society

1981 - 1984

Member, Michigan State Medical Society 1984 -present

Member, Wayne County (MI) Medical Society

1984 - present

Member, Michigan Peer Review Organization

1985 - present

TEACHING:

Refer also to FACULTY APPOINTMENTS/INVITED SEMINARS**Development of and Director, Pediatric Cardiology and Cardiovascular****Research Laboratory, Wayne State University, School of Medicine 1986 – 1996**

Cardiology Fellow/Resident/Student research instruction

Attending/Teaching Staff, Cardiology Services

Children's Hospital of Michigan, WSU

Daily instruction to Fellow/Resident/Medical Students

Cardiology Outpatient Clinic Attending (2 - 4 days/week)

Children's Hospital of Michigan,

Curriculum Vitae
Fellow/Resident/Medical Student instruction

Invited Academic Faculty 1Xth World Symposium on Cardiac Pacing and Electrophysiology, 1991
Curriculum: "Non Pharmacologic Therapy of Arrhythmias"

Finalist, Teacher of the Year
Wayne State University School of Medicine,
Department of Pediatrics, Residency Training Program
1991, 1994, 1996, 1997, 1998, 2003

Development of and Coordinator,
Fellow/Resident Weekly ECG/Electrophysiology teaching conferences
1991 - present
Cardiology Fellow Core Curriculum Lecture Series 1992 - present

Student Research Mentor: Wayne State University School of Medical - Student Summer Research Program Grant
1993
First Prize Award for student research project
(M. Facktor, 3rd yr Medical Student)

Finalist, Clinical Research Teacher of the Year
Wayne State University School of Medicine,
Department of Pediatrics, Residency Training Program 1997, 2003

North American Society of Pacing and Electrophysiology (NASPE)
Invited Core Curriculum Faculty, 16th Scientific Sessions, 1995 Curriculum: "Controversies in Pediatric Pacing"

American Heart Association
Invited Scientific Abstract Reviewer, 68th Scientific Session, 1995 Category: "Pediatric Electrophysiology"

American College of Cardiology Michigan Chapter
Invited Academic Faculty, 7th Annual Scientific Session
Curriculum: "Case Presentations"

North American Society of Pacing and Electrophysiology (NASPE)
Invited Academic Faculty, 17th Scientific Sessions, 1996 Curriculum: Clinical Tutorials, "Pacemaker Leads"
Invited Scientific Abstract Reviewer, 17th Scientific Sessions, 1996
Category: Technology - Devices and Leads

International Congress of Cardiac Stimulation (CARDIOSTIM)
Invited Academic Faculty, 10th International Congress, 1996
Curriculum: "New Perspectives in Pacing in Cardiomyopathies"

North American Society of Pacing and Electrophysiology (NASPE)
Invited Academic Faculty, 18th Scientific Sessions,
1997 Curriculum: Clinical Tutorials, "Pacemaker Leads"

North American Society of Pacing and Electrophysiology (NASPE)
Invited Abstract Reviewer, 18th Scientific Session
Category: Technology-Devices and Leads

Resident Research Mentor, Pediatric Cardiology Speciality Fellowship Training Program, Children's Hospital/WSU: **Wolf Zuelzer Research Fellow Award** Finalist;
(Volkan Tuzcu MD, Fellow-in-Training) 1997.

North American Society of Pacing and Electrophysiology (NASPE)
Invited Abstract Reviewer, 19th Scientific Session, 1998
Invited Academic Faculty:
Core Curriculum: "Pacing Leads"
Clinical Tutorial: "Interpretation of Complex Rhythm Tracing"

Curriculum Vitae

Egyptian Society of Cardiology, 26th Scientific Session

Invited Academic Moderator & Faculty

Topics: "New Concepts in Pacing"

"Pacing in Congenital Heart Disease"

"Electrophysiology Studies"

Visiting Clinical Professor, Cardiology Department

Ain Shams University, Cairo, Egypt; February 14 - 19, 1999

North American Society of Pacing and Electrophysiology (NASPE)

Invited Abstract Reviewer, 20th Scientific Session, 1999

Invited Academic Chairman & Faculty; Clinical Tutorial: "Pacing Leads: State of the Art 1999"; Clinical Tutorial: "Pacing, the Next 20 Years in Children"**Xlth World Congress on Cardiac Pacing and Electrophysiology**

Invited Abstract Reviewer, 1999; Category: Pediatric Cardiology

Resident Research Mentor, Pediatric Residency Program, WSU / Children's Hospital (Anuja Gupta, MD) O.D.I.C.H. meeting presentation, Toledo, May 1999**North American Society of Pacing and Electrophysiology (NASPE)**Invited Abstract Reviewer, 21st Scientific Session, 2000**Resident Research Mentor**, Pediatric Residency Program, WSU / Children's Hospital (Sanjeev Agarwal, MD) O.D.I.C.H. meeting presentation, Detroit, May 1999.**Resident Research Mentor**, Pediatric Specialty Fellowship Program, WSU / Children's Hospital (Silvana Horenstein, MD) O.D.I.C.H. meeting presentation, Detroit, May 1999.**Egyptian Society of Cardiology**, Electrophysiology and Pacing, January 11-12, 2001, Cairo, Egypt**Visiting Clinical Professor**, Cardiology Department

Ain Shams University, Cairo, Egypt, January 12 - 16, 2001

Resident Research Mentor, Pediatric Residency Program, WSU / Children's Hospital (Laila Tutunji MD) Society of Pediatric Research Meeting presentation, Baltimore, April 2001**North American Society of Pacing and Electrophysiology (NASPE)****Invited Academic Faculty**, 22nd Scientific Session, 2001

Mini Course: "Pacemakers and ICD's in Children"

Meet the Experts: "Pacing in Congenital Heart Disease"

Resident Research Mentor, Pediatric Residency Program, WSU / Children's Hospital (Sanjeev Agarwal, MD) Midwest Pediatric Cardiology Meeting presentation, Omaha, NE, November 2001**Resident Research Mentor**, Pediatric Cardiology Specialty Fellowship Program, WSU / Children's Hospital (Silvana Horenstein MD), AAP annual meeting, Section Cardiology, **Young Investigator Cardiology Travel Grant Award**, San Francisco, CA, October 2001**North American Society of Pacing and Electrophysiology (NASPE)****Invited Chairman and Academic Faculty**, 23rd Scientific Session, 2002

Core Curriculum: "Congenital AV Block from Infancy to Adolescents"

Abstract Reviewer: Lead Technology**Resident Research Mentor**, Pediatric Cardiology Specialty Fellowship Program, WSU / Children's Hospital (Kavitha Chintala MD) ACC Scientific Session Abstract presentation March 2003**Resident Research Mentor**, Pediatric Cardiology Specialty Fellowship Program, WSU / Children's Hospital (Sawati Garekar, MD)

Resident Research Mentor, Pediatric Residency Program, WSU / Children's Hospital (Bhanumathy Kumar, MD)

North American Society of Pacing and Electrophysiology (NASPE)

Invited Academic Faculty, 24th Scientific Session, May 2003

Core Curriculum: "AV Block in Congenital Heart"

Abstract Reviewer: Lead Technology

Invited Faculty: "PediRhythm" International Symposium, Istanbul, Turkey, July 30 - Aug 1, 2003

Program Chairman: Pediatric Pacing Patients **Faculty Core Curriculum Lecture**: Pacing in Postoperative)

Meet the Experts Faculty: Pacing Indications and Pacing Modes

Workshops Faculty: Electrical Therapy

Visiting Clinical Professor, Cardiology Department

Invited Faculty Presentation: Alternate-Site Ventricular Pacing

Ain Shams University, Maadi Military Hospital, Cleopatra Hospital, Cairo, Egypt, August 4, 2003

Invited Faculty, South East Pediatric Cardiology Society Scientific Meeting. "Alternate Site Ventricular Pacing". Little Rock, AR, September 2003.

Invited Faculty, Pediatric Electrophysiology Focus Group. "Optimizing Ventricular Function". Minneapolis, MN, September, 2003.

Invited Faculty, Cardiostim Scientific Session. "Long Term Apical Pacing and Cardiac Performance in Pediatrics, Nice, France, June 2004.

North American Society of Pacing and Electrophysiology (NASPE)

Invited Academic Faculty, 25th Scientific Session, May 2004

Core Curriculum: "Epicardial vs Transvenous Pacing"

Clinical Tutorial: "Pediatric Pacing"

Abstract Reviewer: Lead Technology

Finalist, Ralph E. Kauffman Award for Research Teacher of the Year
WSU Department of Pediatrics Residency Program 2003

Invited Faculty, Egyptian Society of Cardiology International Symposium Cairo, Egypt, January 2005

Invited Faculty, "PediRhythm 2 International Symposium", Antalya, Turkey, June 22-25, 2005

Faculty: "Newer Pacemaker Applications.

Faculty: "Defibrillators in Children"

Chairman: Featured Symposium, Defibrillators in Children

Heart Rhythm Society (NASPE/HRS)

Invited Academic Faculty, 26th Scientific Session, May 2005

Core Curriculum: "Customizing and Troubleshooting Device Therapy in the Young"

Invited Faculty, "Select Secure Pacing"

Medtronic Educational Services, Las Vegas, NV, November 2005

Resident Research Mentor, Pediatric Cardiology Specialty Fellowship Program, WSU / Children's Hospital (Pooja Gupta, MD) Amer College Cardiology Michigan, **First Prize, Fellow Competition** 2005

Heart Rhythm Society

Invited Academic Faculty, 27th Scientific Session, May 2006

Abstract Reviewer: Device Technology

Chairman, Core Curriculum: "Ventricular Resynchronization in Children"

Curriculum Vitae

Invited Faculty, "Synchronicity; Resynchronization in Congenital Heart"
Children's Hospital of Boston, Harvard Medical School, May 2006

Invited Faculty, "Select Secure Pacing Implant in Congenital Heart"
Medtronic Educational Symposium, Boston, May 2006

Invited Faculty, "International Congress on Arrhythmias in Pediatrics"
University of Groningen, the Netherlands, October 2006

American Heart Association

Invited Faculty, "New Frontiers in Acute and Chronic Pediatric Heart Failure" Scientific Session, Chicago, Nov 2006

American Heart Association

Invited Faculty, "Update on Hypertrophic Cardiomyopathy – Genetics, Medical and Surgical Management of the Pediatric Patient", Scientific Session, Chicago, Nov 2006.

Resident Research Mentor, Pediatric Cardiology Specialty Fellowship Program, WSU / Children's Hospital (Pooja Gupta, MD) Amer Acad Pediatrics, Cardiology Section 2006

Invited Faculty, "Select Secure Pacing"
Medtronic Educational Services, San Francisco, CA, February 2007

Invited Faculty, "**PediRhythm 3 International Symposium**", Istanbul, Turkey, October 3-6, 2007

Chairman: Electrocardiography in Children

Chairman: Pacing in Infants

Faculty Lecture: "Pacemaker ECG interpretation"

Faculty Lecture: "Selective Site Pacing"

Resident Research Mentor, Pediatric Cardiology Specialty Fellowship Program, WSU / Children's Hospital (Ashraf Harahsheh, MD) Amer Acad Pediatrics, Cardiology Section 2007

Resident Research Mentor, Pediatric Cardiology Specialty Fellowship Program, WSU / Children's Hospital (Ashraf Harahsheh, MD) Amer College Cardiology Michigan, **First Prize, Fellow Competition** 2007

American Heart Association

Invited Abstract Reviewer, Scientific Sessions, Orlando, FL, Nov 2007.

Heart Rhythm Society

Invited Academic Faculty,

"New Lead Technologies and Optimizing Lead Placement".

"Cardiac Rhythm Management Devices in Adult Congenital Heart"

29th Scientific Session, San Francisco, CA, May 2008;

American Heart Association

Invited Abstract Reviewer, Scientific Sessions, New Orleans, LA, Nov 2008.

Heart Rhythm Society

Invited Academic Faculty, Chairman

"Cardiac Resynchronization Therapy in Children and Congenital Heart".

30th Scientific Session, Boston, MA, May 2009

Invited Academic Faculty: World Congress of Paediatric Cardiology and Cardiovascular Surgery

"Resynchronization; the New Panacea"

5th Scientific Sessions, Cairns, Australia, June 2009

Curriculum Vitae

Resident Research Mentor, Pediatric Cardiology Specialty Fellowship Program, WSU / Children's Hospital (Asra Khan, MD) Amer Acad Pediatrics, Cardiology Section 2009

38th Ohio Area Doctors Interested in Congenital Heart Session

Invited Key Note Speaker: Medicine in Transition: the 19th Century
Detroit, MI, May 2010

Heart Rhythm Society**Invited Academic Faculty**

Core Curriculum: "Pacing Leads in Pediatrics".
31st Scientific Session, Denver, CO May 2010

Heart Rhythm Society**Invited Academic Faculty**

Lecture: Clinical Pearls: "Optimal Sites for Pacing".
31st Scientific Session, Denver, CO May 2010

Invited Faculty, "PediRhythm IV International Symposium",

Ismir, Turkey, September 22-25, 2010

Faculty Lecture: "Pacemaker Complications and Troubleshooting"

Faculty Lecture: "Defibrillator Programming"

Resident Research Mentor, Pediatric Cardiology Specialty Fellowship Program, WSU / Children's Hospital (Sujatha Buddhé, MD) Amer Acad Pediatrics, Cardiology Section 2010 **Young Investigator Award Competition**

Resident Research Mentor, Pediatric Cardiology Specialty Fellowship Program, WSU / Children's Hospital (Swati Arya, MD) Amer Acad Pediatrics, Cardiology Section 2010, **Young Investigator Award Competition**

Heart Rhythm Society**Invited Academic Faculty/Chairman**

Core Curriculum: "Atrial Fibrillation in Congenital Heart":
32nd Scientific Session, San Francisco, CA, May 2011

Invited Faculty, 25th Annual Symposium, *Cardiology at the Bix*

Genesis Medical Center, University of Iowa School of Medicine

"Interventions in the Adult with Congenital Heart"

Davenport, IA, July 2011

Resident Research Mentor, Pediatric Cardiology Specialty Fellowship Program, WSU / Children's Hospital (Yamuna Sanil, MD) Heart Failure Society Scientific Meeting, **Research Travel Grant Award** 2011

American Heart Association

Invited Academic Faculty/Chairman, "Tracings, Pacers and Defibrillators",
Scientific Sessions, Orlando, FL, Nov 2011.

Heart Rhythm Society**Invited Academic Faculty/Chairman**

Core Curriculum: "Optimizing Pacing Strategies in Pediatrics".
33rd Scientific Session, Boston, MA, May 2012

American Heart Association

Invited Academic Faculty/Chairman, "Pediatric Electrophysiology: Pacing and Defibrillation", Scientific Sessions, Los Angeles, CA, Nov 2012.

PediRhythm V International Symposium**Invited Faculty/Chairman**

Faculty Lecture: "Pacemaker Troubleshooting"

Faculty Lecture: "Lumenless Pacing Leads"

Faculty Lecture: "Cardiac Resynchronization Indications"

Curriculum Vitae

Faculty Moderator: "ICD Follow-up"
Istanbul, Turkey, November 2012

Heart Rhythm Society***Invited Academic Faculty/Chairman***

Meet the Experts "Funding in Pediatric Cardiology Research".

Meet the Experts: "Pioneers in Pediatric Cardiac Electrophysiology"

34th Scientific Session, Denver, CO, May 2013

Polish Heart Society**Section of Non-invasive Electrocardiology and Telemedicine*****Invited Faculty***

Faculty Lecture: Pacing Effects on the Heart

Scientific Session, Kościelisko, Poland, March 2014

American Association for Thoracic Surgery***Invited Academic Faculty/Chairman***

Faculty lecture: "Pacing and Resynchronization in Congenital Heart Disease"

Scientific Sessions, Toronto, Ontario, Canada, April, 2014.

Heart Rhythm Society***Invited Academic Faculty/Chairman***

"Recommendations for Bradyarrhythmias and Pacemakers in Adult Congenital Heart Disease".

35th Scientific Session, San Francisco, CA May 2014

PediRhythm VI International Symposium***Invited Faculty/Chairman***

Faculty Lecture: Implantable Device Programming and Troubleshooting
Reasons/Advantages for Select Site pacing

Chairman: Resynchronization Pacing

Istanbul, Turkey, November 2014

Heart Rhythm Society***Invited Academic Faculty/Chairman***

"Atypical AV Node Reentrant Tachycardias"

36th Scientific Session, Boston, MA, May 2015

Heart Failure Society of America***Invited Academic Faculty***

"Is Biventricular Resynchronization Pacing an Option for Congenital Heart Patients?"

19th Scientific Session, National Harbor, MD, DC, September 2015

Heart Rhythm Society of America***Invited Academic Faculty/Chairman***

Core Curriculum: Pushing the Frontiers –

New Applications of Fluoro-less Techniques".

37th Scientific Session, San Francisco, CA May 2016

8th Global Cardiologists Meeting***Invited Faculty/Chairman:***

1. "Performance of the 4.1 French Diameter Pacing Lead"

2. "Contractility-Guided Resynchronization Pacing"

Berlin, Germany, October 2016

Heart Failure Society of America***Invited Academic Faculty/Chairman: Session: Heart Failure in ACHD***

"Is Biventricular Resynchronization Pacing an Option for Congenital Heart Patients?"

38th Scientific Session, Orlando, FL, September 2016

13th European Cardiology Conference***Invited Key Note Speaker and Faculty***

Curriculum Vitae

1. "Congenital/Structural Heart Into the 21st Century: Advances in Diagnosis and Intervention"
 2. "When the Guidelines don't Apply: Contractility (dP/dt-max) -guided Resynchronization Pacing Among Patients with Congenital Heart and Heart Failure"
- Madrid, Spain, December 2016

PediRhythm VII International Symposium***Invited Faculty/Chairman*****Faculty Lectures:**

1. "ICD Programming in Genetic Arrhythmias"
2. "VT Storm in ICD Patients"
3. "Current Guidelines for ICD in Children and CHD Patients"

Chairman: Complete AV Block from Fetus to Adolescent
Thessaloniki, Greece, February 2017

7th World Congress of Pediatric Cardiology & Cardiac Surgery***Invited Faculty/Chairman***

Chairman: Session: Bridging Together: Electrophysiology and Adult Congenital Heart Disease

Faculty Lecture: "Understanding Basic Pacemaker Timing Cycles"
Barcelona, Spain July 2017

Heart Rhythm Society of America***Invited Academic Faculty / Chairman***

Mini Course: The Future is Now. What Electrophysiologists Should Know About Emerging Technology and Cutting Edge Research.

Faculty Lecture: "Reverse Thinking: How the Electrophysiologist Can Invent with Industry".

39th Scientific Session, Boston, MA May 2018

2nd World Congress of Cardiology***Keynote Speaker / Invited Faculty***

Resynchronization Pacing for Early Heart Failure among Adults with Repaired Congenital Heart Disease
Rome, Italy, July 2018

PediRhythm VIII International Symposium***Invited Academic Faculty / Chairman*****Faculty Lectures:**

1. Pacing in heart failure: Alternative Pacing Sites
 2. MRI in Patients with Devices
- Munich, Germany, October 2018

Pediatric and Congenital Electrophysiology Society Symposium***Invited Academic Faculty***

Advancing the Field: Forum on Practice Innovation, Scientific Achievement, and Career Advancement for Pediatric and Adult Congenital Electrophysiology

Invited Faculty Lecture

1. "Pacemaker Technology"
- Orlando, FL November 2018

Pediatric and Congenital Electrophysiology Society Research Symposium***Invited Academic Faculty: Controversies in Electrophysiology***

"Para-His Bundle Pacing" Pros and Cons
San Francisco, CA May 2019

Heart Rhythm Society of America***Invited Academic Faculty / Chairman***

Pediatric Electrophysiology Potpourri
40th Scientific Sessions, San Francisco, CA May 2019

World Heart Congress 2019***Keynote Speaker / Invited Faculty***

Curriculum Vitae

Cardiac Resynchronization Pacing for Heart Failure among Congenital Heart Patients: Patient Selection and Non-Invasive ECHO Imaging
Edinburgh, Scotland, September 2019

PediRhythm IX International Symposium
Invited Academic Faculty

Faculty Lectures:

1. Ablation for Preexcitation Dyssynchrony
 2. Site-Specific Pacing
- Cracow, Poland, September 2020

STUDENT MENTORSHIP: Research projects completed with Students, Nurses, Residents, Specialty Fellows

(all projects were presented at scientific meetings and/or published)

1. Atrial Natriuretic Factor in the Immature Canine Myocardium (S. Womack, MD, 1989)
2. Transthoracic Atrial Impedance (S. Womack, MD, 1989)
3. Paced Myocardial Function in the Immature Heart (J. Vincent, MD, 1993)
4. Neurologic Aspects of Long QT Syndrome (A. Michon, RN, 1993)
5. AV Node Modification in the Immature Heart (M. Facktor, Medical Student, 1993)
- **First Prize Award for WSU student research project**
6. Steroid-Eluting Pacing Leads (N. Cutler, MD, 1994)
7. Intracellular Action Potential Alterations in the Paced Myocardium (N. Cutler, MD, 1995)
8. Myocardial-Specific Creatine Phosphokinase in Children (M. Pappas, MD, 1996)
9. P-wave Signal Averaging in Fontan Patients (V. Tuzcu, MD, 1996)
10. Arrhythmia Tele-monitoring in Children (J. Vincent, MD, 1997)
11. Comparative Paced Ventricular Function (S. Mital, MD, 1997)
12. Signal-Averaged ECG in Anthracycline Therapy (V. Tuzcu, MD, 1997)
- **CHM Wolf Zuelzer Research Fellow Award Finalist**
13. Conscious Sedation during Ablation Procedures (A. Boyle, RN, 1997)
14. Myocardial Flow Reserve (T. Singh, MD, 1998)
15. Tachycardiomyopathy in Adolescents (M. Horenstein, MD, 2000)
16. Arrhythmia Recurrence Following Ablation Therapy (A. Gupta, MD, 2000)
17. Epicardial Steroid Pacing Leads in Children (M. Horenstein, MD, 2001)
18. Tilt Testing in Syncope Children (L. Tutunji, MD, 2001)
19. Superior Vena Cava Dimensions in Children (S. Aggarwal, MD, 2001)
20. Pacemaker Syndrome in Children (M. Horenstein, MD, 2001)
- **Young Investigator Award, American Academy of Pediatrics, Cardiology**
21. Transthoracic Echocardiography in Atrial Fibrillation (M. Horenstein, MD, 2002)
22. Site-Specific Pacing in Congenital Heart (M. Horenstein, MD, 2002)
23. Venous Stents and Pacing Leads (K. Chintala, MD, 2003)
24. Sinus Node Function in Growing Children (S. Aggarwal, MD, 2003)

25. Pacing in Children with Congenital Heart Block (B. Kumar, MD, 2003)
26. 3-D Echo Evaluation of Paced Myocardial Function (S. Garekar, MD, 2003)
27. Cardiac Resynchronization Pacing in Post-Partum Cardiomyopathy (R. Batra, MD, 2004)
28. Pacing-induced Tachycardiomyopathy (P. Gupta MD, 2005)
- **First Prize Award, American College of Cardiology Michigan Fellow Research Competition**
29. Resynchronization Pacing as a Bridge to Heart Transplant (P. Gupta, MD 2006)
30. Infective Endocarditis with Pacing Leads (Deemah Mahadin, MD 2006)
31. Concealed Atrial Arrhythmias among Children with Wolff-Parkinson-White (Ashraf Harahsheh MD 2007)
- **First Prize Award, American College of Cardiology Michigan Fellow Research Competition**
32. Radiofrequency vs Cryothermal Ablation Efficacy in Children (Anitha Malaisamy, MD 2007)
32. Adult Congenital Heart and Associated Risk Factors (Ashraf Harahsheh, MD 2007)
33. QRS Fragmentation in repaired Tetralogy of Fallot (Kanisththa Agarwal, 2008)
34. Pericardial Effusions following Arrhythmia Ablation Therapy (Premchand Anne MD, 2008)
35. Mustard Baffle Obstructions in repaired Transposition of Great arteries (Sheetal Patel MD, 2009)
36. Comparison of Chronic Pacing Lead Performances at Alternate Implant Sites (Asra. Khan MD, 2009)
37. 4.1 French Diameter Pacing Lead Effects on Atrioventricular Valves. (Jie. Sun MD, 2010)
- **Best Trainee Abstract Award, Midwest Pediatric Cardiology**
38. Risk Factors for Sudden Death in Young Adults Post Tetralogy of Fallot Repair (Swati Arya MD, 2010)
- **Young Investigator Award Competition, American Academy of Pediatrics, Cardiology**
39. Recurrence of Atrial Arrhythmias in the Radiofrequency and Cryoablation Era (Sujatha Buddhe MD, 2010)
- **Young Investigator Award Competition, American Academy of Pediatrics, Cardiology**
40. Resynchronization Pacing in Congenital Heart Disease (Yamuna Sanil, MD, 2011)
- **Travel Grant Award, Heart Failure Society of America**
41. Comparative Valve Effects of the 4.1Fr Diameter Pacing Lead (Jie Sun, MD, 2011)
42. Vascular Stent Efficacy: 10 Year Evaluation (Daisuke Kobayashi, MD, 2012)
43. Fluoroscopic vs Non-fluoroscopic Imaging during Catheter Ablation (Yamuna Sanil, MD, 2012)
44. Intraoperative cryoablation for Arrhythmias in Tetralogy of Fallot Patients (Daisuke Kobayash, MD, 2012)
- **Young Investigator Award Competition, American Academy of Pediatrics, Cardiology** -
Travel Grant Award
45. Tetralogy of Fallot Patients Risk for Sudden Death (Swati Sehgal MD 2012)
46. Arrhythmia Differentiation following Effective Ablation (Deepti Bhat, MD, 2013)
47. Valve and Vascular Effects of Pacemaker Leads in Children (Apinya Bharmanee, MD 2013)
48. Optimizing Patient Selection for Resynchronization Pacing (Neha Bansal, MD 2014)
49. Risk Stratification for Sudden Death among WPW patients (Apinya Bharmanee, MD 2014)
50. Early Repolarization in Children (Raya Safa MD 2015)
51. 10 Year Evaluation of the 4.1Fr Diameter Pacing Lead (Neha Bansal MD, Sharmeen Samuel MD 2016)
52. Echocardiographic Efficacy After SVT Ablation (Shahnawaz Amdani MD, 2016)

53. Resynchronization Pacing in Congenital Heart (Neha Bansal MD, Sharmeen Samuel MD 2017)
Travel Grant Award CRT 2017 Scientific Sessions (Bansal)
54. Chronic Epicardial Pacing Lead Performance in Congenital Heart Patients (N. Bansal MD 2018)
55. Complications of Ablation with Reliance on Only 3D Anatomical Mapping (N. Bansal, MD 2018)
56. Echocardiographic Efficacy in Resynchronization Pacing Therapy (D. Menon, MD 2019-2020)
57. Arrhythmia Ablation Therapy in the Coronary Sinus (Diana Torpoco Rivera 2020-2021)
58. Improved Echocardiographic Measurements in Cardiac Pacing (Diana Torpoco Rivera 2020-2021)
59. Arrhythmia risk among children with Wolff-Parkinson-White syndrome (Snigha Bhatia 2022-2023)

GRANT SUPPORT:

A. BASIC RESEARCH GRANTS:

1. Grant-in-Aid #82-22 \$19,947
Principal Investigator
Developmental Cardiac Electrophysiology
American Heart Association
New Jersey Affiliate 1982 - 1983
2. Grant-in-Aid
Approved - Nonfunded
Co-investigator (S. Clapp, M.D.)
Hemodynamic and Electrophysiologic Effects of Amiodarone with other
Dysrhythmic Agents in the Immature Heart; National Institute of Health
1984
3. Grant-in-Aid \$7,680
Principal Investigator, Epicardial Pacing Lead Technology
Medtronic Corporation, Minneapolis 1985 - 1986.
4. Grant-in-Aid #49 - Approved, Nonfunded
Principal Investigator, Response of the Immature Heart to Ventricular
Pacing, American Heart Association of Michigan 1985
5. Grant-in-Aid #1Ro1H634679-01
Approved - Nonfunded
Principal Investigator,
Anti-Dysrhythmia Drugs in a Developmental Animal Model
Department of Health & Human Services, N.I.H. 1985
6. Grant-in-Aid \$22,980
Principal Investigator
Ventricular Pacing Effects in the Immature Heart
Children's Hospital of Michigan Intramural Funding Award 1985 - 1986
7. Grant-in-Aid - Approved, Non-funded
Co-investigator (S. Clapp, M.D.)
Dysrhythmia Drug Interactions In Adult and Immature Animals
American Heart Association 1985
8. Grant-in-Aid # 34 \$19,197
Principal Investigator
Response of the Immature Heart to
Ventricular Pacing
American Heart Association of Michigan 1986 - 1987

Curriculum Vitae

9. Grant-in-Aid \$23,774
Co-investigator (S. Womack, M.D.)
Cardiac Function and Bioimpedance in Experimental Pulmonary Edema
Children's Hospital of Michigan
Intramural Funding Award 1988 - 1989
10. Grant-in-Aid \$25,000
Principal Investigator
Platinized-Steroid Electrode Technology
in the Immature Myocardium
Medtronic Corporation, Minneapolis 1988 - 1990
11. Grant-in-Aid \$18,975
Co-investigator (R. Humes, M.D.)
Determinants of Pulmonary Blood Flow
and Cardiac Output in an Experimental
Model of Right Heart Exclusion
Intramural Funding Award 1989 - 1990
12. Grant-in-Aid #29 - Approved, Nonfunded
Sponsor (S. Gellman, M.D.)
Atrial Contribution to Cardiac Output
During Upright Exercise
American Heart Association of Michigan 1990
13. Grant-in-Aid #22G923 \$25,500
Principal Investigator
Septal Ventricular Pacing in the Immature Heart
American Heart Association of Michigan 1992 - 1993
14. Grant-in-Aid \$25,000
Principal Investigator
Evaluation of A New Steroid-Eluting Epimyocardial
Bipolar Electrode in Immature Canines
Medtronic, Inc. Minneapolis 1992 - 1993
15. Grant-in-Aid \$2,500
Sponsor, Matthew Facktor (Medical Student, WSU)
Paced Left Ventricular Physiologic Response
Wayne State University School of Medicine, Detroit, MI 1993
16. **Co-investigator** (R. Ross, M.D.)(approved/non funded)
Carbon-1 Hydroxyephedrine Evaluation of Cardiac Sympathetic
Function in a Canine Model of Congestive Heart Failure;
Children's Hospital of Michigan
Research Endowment Fund, 1994 - 1995
17. Grant-in-Aid \$15,000
Principal Investigator
High Impedance 1-French Transvenous Pacing Lead

B. CLINICAL RESEARCH GRANTS:

1. **Principal Investigator**
Clinical Evaluation of Steroid-eluting Transvenous Pacing
Electrode (\$5,500)
Medtronic Inc., Minneapolis, MN
1987 - 1989
2. **Principal Investigator**
Clinical Evaluation of Steroid-eluting Epicardial Pacing Electrode,
Model 10295A (\$12,000)
Medtronic Inc., Minneapolis, MN
1990 - 1994
3. **Co-investigator** (S. Clapp, M.D.)(approved/non funded)

Curriculum Vitae

Comparison of Intermittent Intravenous Bolus Ketamine Versus
Continuous Intravenous Sedation during Cardiac Catheterization;
Children's Hospital of Michigan Research Endowment Fund
1995 - 1996

4. **Principal Investigator**
Clinical Evaluation of Steroid Epicardial Pacing Electrode
Model 4965 (\$18,000)
Medtronic Inc., Minneapolis, MN
1995 - 1996
5. **Principal Investigator**
Pharmacokinetics of Sotalol in Pediatrics
Berlex Laboratories, Wayne , NJ
1999 (\$34,000)
6. **Principle Investigator**
Steerable Catheter-placed Leads for Site Specific Pacing Therapy
Medtronic, Corporation, Minneapolis
2002-2003
7. **Co-Investigator** (D. Friedman MD)
SCCOR Grant Neonatal Lupus
N.I.H. approved non-funded 2004
8. **Co-Investigator** (S. Stine MD)
Maternal Opioid Treatment: Human Experimental Research (MOTHER)
NIH submitted 2008 (\$442,078).

NATIONAL COLLABORATIVE FUNDED STUDIES

1. **Co-Investigator:** Arrhythmia Radiofrequency Ablation in Children
National Radiofrequency Ablation Registry
Pediatric Electrophysiology Society 1992 -present
2. **Co-Investigator:** Molecular Genetic Inheritance of Congenital Long QT
Syndrome National Familial Long QT Registry
1992 – present
3. **Co-Investigator:** Sequel of Radiofrequency Ablation in Children
Pediatric Electrophysiology Society 1992 - present
4. **Co-Investigator:** Radiation Dosimetry during Radiofrequency Ablation
Pediatric Electrophysiology Society (F. Fish, M.D.) 1995 – 1996
5. **Co-Investigator:** Digoxin Efficacy in Infants with Supraventricular
Tachycardia (SAMIS Trial) 2007 – 2010
6. **Co-Investigator:** Junctional Ectopic Tachycardia in Children
2007 – 2011
7. **Co-Investigator:** ICD Upper Limit of Vulnerability Trial (LOVEPATCH)
2010 – 2014
9. **Co-Investigator:** Catecholnergic ventricular tachycardia 2012-2018
10. **Co-Investigator:** Use of IV Sotalol in Pediatric Arrhythmia Patients
2018 - present

ORIGINAL OBSERVATIONS IN REFEREED JOURNALS

Curriculum Vitae

1. Wood PJ and **Karpawich PP**: Studies of the Coagulation Process in the Crayfish, Orconectes Virilis: Attempts to Identify a Fibrinogen-Like Factor. Comparative Biochemistry and Physiology 42B: 41-48, 1972.
2. **Karpawich PP**, Duff DF, Mullins CE, Cooley DA and McNamara DG: Ventricular Septal Defect with Associated Aortic Valve Insufficiency: Progression of Insufficiency and Operative Results in Young Children. Journal of Thoracic and Cardiovascular Surgery 82: 182-189, 1981.
3. **Karpawich PP**, Gillette PC, Garson A, Hesslein PS, Porter CJ, McNamara DG: Congenital Complete Atrioventricular Block: Clinical and Electrophysiologic Predictors of Need for Pacemaker Insertion. American Journal of Cardiology 48: 1098-1102, 1981
4. Porter CJ, Gillette PC, Garson A, Hesslein PS, **Karpawich PP**, McNamara DG: The Effects of Verapamil on Supraventricular Tachycardia in Children. American Journal of Cardiology 48: 487-491, 1981
5. Gillette PC, Garson A, Hesslein PS, **Karpawich PP**, Tierney RC, Cooley DA, McNamara DG: Successful Surgical Treatment of Atrial, Junctional, and Ventricular Tachycardias in Infants and Children. American Heart Journal 102: 984-991, 1981
6. **Karpawich PP**, Gumbiner CH, Gillette PC, Shih J, Zinner A, Lewis R: Comparative Electrophysiologic Effects of Digoxin in the Nonsedated Chronically Instrumented Puppy. American Heart Journal 103: 1001-1007, 1982.
7. **Karpawich PP**, Gillette PC, Lewis R, Zinner A, McNamara DG: Chronic Epicardial His Bundle Recordings in Awake Non-Sedated Dogs. American Heart Journal 105: 16-21, 1983.
8. Agarwal KC, Ali Khan MA, **Karpawich PP**, Amato JJ: Successful Surgical Repair of Absent Pulmonary Valve Syndrome in Infancy. American Heart Journal 109: 174-177, 1985.
9. **Karpawich PP**: Junctional Ectopic Tachycardia in an Infant: An Electrophysiologic Evaluation. American Heart Journal 109: 159-160, 1985.
10. **Karpawich PP**, Bush CP, Antillon JR, Amato JJ, Marbey ML, Agarwal KC: Modified Blalock-Taussig Shunt in Infants and Young Children: Clinical and Catheterization Assessment. Journal of Thoracic and Cardiovascular Surgery 89:275-279, 1985.
11. **Karpawich PP**, Parker S, Amato JJ, Ali Khan MA: Emergency Transvenous Pacing in Infants. American Heart Journal 109: 385-386, 1985.
12. **Karpawich PP**, Antillon JR, Cappola PR, Agarwal KC: Pre- and Postoperative Electrophysiologic Assessment of Children with Secundum Atrial Septal Defect. American Journal of Cardiology 55: 519-521, 1985.
13. Clapp SK, Perry BL, Farooki ZQ, Jackson WL, **Karpawich PP**, Hakimi M, Arciniegas E, Green EW: Surgical and Medical Results of Complete Atrioventricular Canal: A Ten Year Review. American Journal of Cardiology 59: 454-458, 1987.
14. **Karpawich PP**, Perry BL, Farooki ZQ, Clapp SK, Jackson WL, Cicalese CA, Green, EW: Pacing in Children and Young Adults with Nonsurgical Atrioventricular Block: Comparison of Single Rate Ventricular and Dual Chamber Modes. American Heart Journal 113: 316-321, 1987.
15. **Karpawich PP**, Hart ZH, Perry BL, Chang CH, Nigro MA, Green EW: Childhood Periodic Paralysis With Dysrhythmias: Electrophysiologic and Histopathologic Evaluation. American Heart Journal 114: 186-189, 1987.
16. **Karpawich PP**, Bharati S, Justice CD, Clapp SK: Simultaneous Transepical His Bundle Mapping and Ablation in Immature Canines: A Precise Technique for Atrioventricular Block. Cardiac Pacing and Electrophysiology, Proceedings, VIIIth World Symposium on Cardiac Pacing and Electrophysiology 409-411, 1987.
17. **Karpawich PP**, Jackson WL, Cavitt DL, Perry BL: Late Onset Unprecedented Complete Atrioventricular Block following Tetralogy of Fallot Repair: Electrophysiologic Findings. American Heart Journal 114:654-656, 1987.
18. **Karpawich PP**, Stokes KB, Helland JR, Justice CD, Roskamp JO: A New Low Threshold Platinized Epicardial Pacing Electrode: Comparative Evaluation in Immature Canines. Pacing and Clinical Electrophysiology 11:1139-1148, 1988.
19. **Karpawich PP**, Bharati S, Roskamp JO, Lev M: Selective Transepical Ablation in the Immature Canine Myocardium: A More Precise Method. Journal of Thoracic and Cardiovascular Surgery 97:893-899, 1989.

20. Kopec JS, Grifka RG, **Karpawich PP**: Isolated Staphylococcal Pericarditis Following Varicella in an Adolescent: An Unusual Age-Associated Complication. Pediatric Emergency Care 6:38-39, 1990.
21. Ross RD, Womack SJ, **Karpawich PP**, Gunther S, Pinsky WW: Opposing Responses of Atrial Natriuretic Factor and Plasma Catecholamines to Volume Shifts in the Immature Canine. Proceedings, Heart Failure - Mechanisms and Management 402, 1989.
22. Clapp SK, Perry BL, Farooki ZQ, Jackson WL, **Karpawich PP**, Hakimi M, Arciniegas E, Green EW, Pinsky WW: Down's Syndrome, Complete Atrioventricular Canal and Pulmonary Vascular Obstructive Disease. Journal of Thoracic and Cardiovascular Surgery 100:115-121, 1990.
23. **Karpawich PP**, Justice CD, Cavitt DL, Chang CH: Developmental Sequelae of Fixed-Rate Ventricular Pacing in the Immature Canine Heart: An Electrophysiologic, Hemodynamic and Histopathologic Evaluation. American Heart Journal 119:1077-1083, 1990.
24. **Karpawich PP**, Justice CD, Chang CH, Gause CY, Kuhns LR: Septal Ventricular Pacing in the Immature Canine Heart: A New Perspective. American Heart Journal 121:827-833, 1991.
25. Ross, RD, Womack SJ, Gunther S, **Karpawich PP**, Justice C, Pinsky WW: Atrial Natriuretic Factor and Sympathetic Nervous Output in Response to Volume Shifts in the Immature Canine Circulation. Peptides 12:No.1, 95-99, 1991.
26. Farooki ZQ, Ross RD, Paridon SM, Humes RA, **Karpawich PP**, Pinsky WW: Spontaneous Regression of Cardiac Rhabdomyomas. American Journal of Cardiology 67:897-899, 1991.
27. **Karpawich PP**, Arciniegas E, Hakimi M, Cavitt DL, Stokes KB. Initial Clinical Experience with a New Low Threshold Pacing Leads Pacing and Clinical Electrophysiology 593-598, 1991.
28. **Karpawich PP**, Paridon SR, Pinsky WW: Failure of Rate Responsive Ventricular Pacing to Improve Physiologic Performance in the Univentricular Heart. Pacing and Clinical Electrophysiology, 14:2058-2061, 1991.
29. Paridon SM, **Karpawich PP**, Pinsky WW: Exercise Performance with Single Chamber Rate Responsive Pacing in Congenital Heart Defects After Operation. American Journal of Cardiology 68:1231-1233, 1991.
30. Fish FA, Gillette PC, Benson DW, for the Pediatric Electrophysiology Group (**Karpawich PP**, contributing investigator): Proarrhythmia, Cardiac arrest and Death in Young Patients Receiving Encainide and Flecainide. Journal of the American College of Cardiology 18:356-365, 1991
31. **Karpawich PP**, Hakimi M, Arciniegas E, Cavitt DL: Improved Chronic Epicardial Pacing in Children: Steroid Contribution to Porous Platinized Electrodes. Pacing and Clinical Electrophysiology 15:1151-1157, 1992.
32. **Karpawich PP**, Gates J, Stokes KB: Septal His-Purkinje Ventricular Pacing in Canines: A New Endocardial Electrode Approach. Pacing and Clinical Electrophysiology 15: 2011-2015, 1992.
33. **Karpawich PP**, Cavitt DL, Sugalski JS: Ambulatory Arrhythmia Screening in Symptomatic Children: Comparative Effectiveness of Holter and Telephone Event Recordings. Pediatric Cardiology 14: 147-150, 1993.
34. Paridon SM, **Karpawich PP**, Pinsky WW: The Effects of Rate-responsive Pacing on Exercise Performance in the Post-operative Univentricular Heart. Pacing and Clinical Electrophysiology 16: 1256-1262, 1993.
35. Silka MJ, Kron J, Dunnigan A, Dick M for the Pediatric Electrophysiology Society (**Karpawich PP**, contributing investigator). Sudden Cardiac Death and the Use of Implantable Cardioverter-Defibrillators in Pediatric Patients. Circulation 87: 800 - 807, 1993.
36. **Karpawich PP**: Septal His-Purkinje Pacing. Letter-to-the-editor Reply (by invitation). Pacing and Clinical Electrophysiology 16: 1083-1084, 1993.
37. **Karpawich PP**, Vincent JA: Comparative Paced Myocardial Function in the Immature Heart: Benefits of Septal Versus Apical Stimulation. Proceedings, Euro-Pace '93, Cardiac Pacing 219-222, 1993.
38. **Karpawich PP**, Stokes KB, Proctor K, Schallhorn R, McVenes R, Factkor M: Improved Epimyocardial Pacing: Initial Experience with a New, Bipolar, Steroid-Eluting, High Impedance Lead Design. Pacing and Clinical Electrophysiology 17: 2032 - 2037, 1994.

Curriculum Vitae

39. Danford DA, and Participating Members of the Pediatric Electrophysiology Society (**Karpawich PP**, contributing member) - The American Journal of Cardiology 75: 587-590, 1995.
40. Mulla N, **Karpawich PP**: Ventricular Fibrillation Following Adenosine Termination of Narrow QRS Supraventricular Tachycardia in a Neonate. Pediatric Emergency Care 11: 238-239, 1995.
41. Pappas M, Hasan R, Anene O, **Karpawich PP**: Alterations in Myocardial-Specific Creatine Phosphokinase in Children with Severe Reactive Airway Disease Treated with Intravenous Isoproterenol. Pediatric Asthma, Allergy & Immunology 10:19-24, 1996.
42. Vincent JA, Cavitt DL, **Karpawich PP**: Diagnostic and Cost Effectiveness of Tele-monitoring in the Pediatric Pacemaker Patient. Pediatric Cardiology 18: 86-90, 1997.
43. **Karpawich PP**, Mital S: Comparative Left Ventricular Function following Atrial, Septal and Apical Single Chamber Right Heart Pacing in the Young. Pacing and Clinical Electrophysiology 20: 1983 - 1988, 1997.
44. Schaffer M, and Participating Members of the Pediatric Electrophysiology Society (**Karpawich PP**, contributing member): Inadvertent Complete Atrioventricular Block following Radiofrequency Ablation, Circulation 94(12) 3214-3220, 1996
45. Clapp S, Konduri G, Perry B, **Karpawich P**, Farooki Z, Hakimi M: Pulmonary Vascular Reactivity in Patients with Complete Atrio-ventricular Canal Defect: Interpretation of Catheterization Data and Role of Tolazoline in Evaluation of Operability Pediatric Cardiology (submitted).
46. Goldman-Cutler N, **Karpawich PP**, Cavitt D, Hakimi M, Walters H: Steroid-eluting Epicardial Pacing Electrodes: Six Year Experience in a Growing Pediatric Population. Pacing and Clinical Electrophysiology 20: 2943-2948, 1997.
47. Savasan S, Tuzcu V, Warriar I, **Karpawich PP**: Cardiac Rhythm Abnormalities during Intravenous Immunoglobulin G Infusion for Treatment of Thrombocytopenia. J Pediatric Hematology/Oncology 19(3); 254-257, 1997.
48. Kugler JD, Danford DA and Members of the Pediatric EP Society, Radiofrequency Catheter Ablation Registry (**Karpawich PP** contributing member): Radiofrequency Catheter Ablation for Paroxysmal Supraventricular Tachycardia in Children and Adolescents without Structural Heart Disease. American Journal of Cardiology 80:1438-1443, 1997.
49. **Karpawich PP**, Stokes KB, Proctor K, Schallhorn R, McVenes R: "In-Line" Bipolar, Steroid-eluting, High Impedance, Epi-myocardial Pacing Lead. Pacing and Clinical Electrophysiology 21: 503-508, 1998.
50. **Karpawich PP**, Walters H, Hakimi M: Chronic Performance of a Transvenous Steroid Pacing Lead as an Epi-intramyo-cardial Electrode. Pacing and Clinical Electrophysiology 21: 1486-1488, 1998.
51. Tuzcu V, Ozkan B, Sullivan N, **Karpawich PP**, Epstein ML: P Wave Signal-averaged Electrocardiogram a New Marker for Atrial Tachyarrhythmias in Post-operative Fontan Patients. J Amer Coll Card 36: 602-607, 2000.
52. Giudici M and **Karpawich PP**: Alternative Site Pacing: It's Time to Define Terms. Pacing and Clinical Electrophysiology 22: 551 – 553, 1999
53. **Karpawich PP**, Rabah R, Padiyar N, Haas J: Altered Cardiac Histology Following Apical Right Ventricular Pacing in Patients with Congenital Atrioventricular Block. Pacing and Clinical Electrophysiology 22: 1372 – 1377, 1999
54. **Karpawich PP**, Vincent J, Forbes T, Keller G, Cavitt D, Webster P. Performance of Transvenous Leads Inserted into Vascular Stents. Proceedings, International Congress on Cardiac Pacing and Electrophysiology 2000, 137-141.
55. Rodriguez-Cruz E, **Karpawich PP**, Lieberman RA, Tantengco MV: Biventricular Pacing as Alternative Therapy for Dilated Cardiomyopathy Associated with Congenital Heart Disease Pacing and Clinical Electrophysiology, 24: 235 –237, 2001.
56. Saul P, Schaffer M, **Karpawich PP**, Erickson C, Epstein MR, Melikian A, Shi J, Karara A, Cai B, Hinderling P: Single Dose Pharmacokinetics of Sotalol in a Pediatric Population with Supraventricular and / or Ventricular Tachyarrhythmias. J Clin Pharmacol 41: 35-43, 2001
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136. Karpawich PP, Sanil Y, Singh H, Zelin K. Beyond 35% Ejection Fraction: Choosing Resynchronization Pacing for Congenital Heart Patients as a Bridge to Transplant. The Journal of Heart and Lung Transplant 34; S331, 2015.

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137. Karpawich PP, Sanil Y, Bansal N, Zelin K. Heart Failure CRT Pacing in Congenital Heart: Acute Ventricular Paced Contractility (dP/dt) is an Effective Marker to Predict Chronic Efficacy. The Journal of Heart Disease 12, No 1; 9, 2015.
138. Karpawich PP, Sanil Y, Bansal N, Zelin K. Fifteen Years of Cardiac Resynchronization Pacing for Heart Failure Among Congenital Heart Patients: Direct Contractility not Guidelines Determines Responders. Journal Of Cardiac Failure 21, no 8S; S94, 2015.
138. Safa R, Karpawich PP. Early QRS Repolarization Patterns and Arrhythmias in the Young: Not Always a Benign Finding. Congenital Heart Disease 10; no 5: 514, 2015
139. Karpawich PP. Ten Year Performance of the 4.1French, Lumenless, Catheter-delivered Pacing Lead among Patients with and without Congenital Heart. J Clin Exp Cardiology 7; (6 Supp) 13, 2016
140. Karpawich PP. Contractility (dP-dt-max)-Guided Determination of Resynchronization Pacing Therapy for Heart Failure Among Patients with Congenital Heart. J Clin Exp Cardiology 7; (6 Supp) 57, 2016
141. Karpawich PP Bansal N, Sanil Y. Sixteen Years of Cardiac Resynchronization Pacing Among Congenital Heart Patients: Contractility (dP/dt) Screening when the Guidelines Don't Apply. J Amer Coll Cardiol, Cardiovasc Interventions 10 (Supp) 2017
142. Samuel S, Karpawich PP. Clinical factors predicting therapeutic response to cardiac resynchronization therapy among congenital heart patients. World J Pedi and Congenital Heart Surgery 8, (1 Supp) 2017
143. Samuel S, Karpawich PP, Fountain R. Histiocytoid cardiomyopathy associated with Wolff-Parkinson-White syndrome: A rare fatal combination in infancy. Abstracts, Midwest Pediatric Cardiology, 2017
144. Menon D, Aggarwal S, Kadiu G, Karpawich PP: Cardiac Resynchronization Therapy: Can Echocardiographic Parameters Predict Response? Amer Acad Pediatrics, Cardiology 2019
145. Karpawich PP, Menon D, Kadiu G, Zelin K, Aggarwal S. Resynchronization Pacing for Heart Failure among Congenital Heart Patients, a Twenty Year Review of Defining Success: Think Beyond Ejection Fraction. Heart Rhythm, 17: S34, 2020
146. Torpoco D, Aggarwal S, Kadiu G, Karpawich PP. Left Epicardial vs. Best-site Right Ventricular Transvenous Pacing in Congenital Heart Block Patients: Ventricular Function Comparisons using 2D Speckle Imaging. Pediatrics 2021; Mar, 147: 388-389
147. Torpoco D, Aggarwal S, Kadiu G, Karpawich PP. Updated Echocardiographic Effects of Long-term Pacing in Left Ventricular and Left Atrial Function in Patients with Congenital Heart Block: Outflow Tract vs Apical Pacing Sites. Pediatrics 2021; Mar, 147: 374-375
148. Baskar S, Spar D, LePage M, Dechert-Crooks B, Ochoa L. Karpawich PP, Torpoco-Rivera D, Follansbee W, Czosek RJ. Multicenter Study Evaluating the Practice Patter and Outcome of Ablation within the Coronary Sinus in Pediatric Patients. Heart Rhythm HRS 2021

PRESENTATIONS AT REFEREED SCIENTIFIC MEETINGS

1. Karpawich PP, Duff DF, Mullins CE, Cooley DA and McNamara DG: Ventricular Septal Defect with Associated Aortic Valve Insufficiency. Presented to Section on Cardiology, American Academy of Pediatrics, San Francisco, California, October 1979.
2. Karpawich PP, Duff DF, Mullins CE, Cooley DA and McNamara DG: Ventricular Septal Defect with Associated Aortic Valve Insufficiency. Presented to American Heart Association, Anaheim, California, November 1979.

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3. Karpawich PP and Gillette PC: Clinical and Electrophysiologic Prediction of Pacemaker Insertion in Children with Congenital Complete Atrioventricular Block. Presented to Cardiovascular Section, Southern Society for Pediatric Research, New Orleans, Louisiana, January 1981.
4. Karpawich PP and Gillette PC: Clinical and Electrophysiologic Prediction of Pacemaker Insertion in Children with Congenital Complete Atrioventricular Block. Presented to American College of Cardiology, San Francisco, California, March 1981.
5. Karpawich PP, Gillette PC, Lewis RM, Zinner A and McNamara DG: Chronic Epicardial His Bundle Recordings in Awake Dogs: A New Method. Presented to American College of Cardiology, Atlanta, Georgia, April 1982.
6. Karpawich PP: Drug Efficacy in Developmental Electrophysiology. Presented to American Heart Association, New Jersey Affiliate, Cardiovascular Research Update. New Brunswick, New Jersey, October 1983.
3. Karpawich, PP, Perry BL, Farooki ZQ, Cicalese CA, Green EW: Comparative Hemodynamic Response of Ventricular and "Physiologic" Pacing in Children with Nonsurgical Atrioventricular Block. Presented at American Heart Association, Washington, D.C., November 1985.
8. Karpawich PP, Clapp SK, Justice CD, Jackson WL: Simultaneous Transepical His Bundle Mapping and Ablation in Immature Canines. Presented to Symposium on Frontiers in Cardiac Surgery, University of Western Ontario, London, Ontario, Canada, May 1986.
9. Karpawich PP, Stokes K, Helland JR, Roskamp JO, Jackson WL, Clapp SK: Comparative Efficacy of Platinumized Epicardial Pacing Electrodes in Immature Canines. Presented at X World Congress of Cardiology, Washington, D.C., September 1986.
10. Karpawich PP, Stokes K, Helland JR, Clapp SK, Jackson WL: Evaluation of a New Low Threshold Epicardial Pacing Electrode in Immature Canines. Presented at 59th Scientific Session, American Heart Association, Dallas, TX, November 1986.
11. Karpawich PP, Bharati S, Justice CD, Clapp SK: Simultaneous Transepical His Bundle Mapping and Ablation in Immature Canines: A Precise Technique for Atrioventricular Block. Presented at VIIIth World Symposium on Cardiac Pacing and Electrophysiology, Jerusalem, Israel, June 1987.
12. Karpawich PP, Stokes KB, Helland JR, Clapp SK, Jackson WL: Initial Evaluation of a New Low Threshold Epicardial Pacing Electrode In Canines. Presented at Symposium, 20 years of Programmed Electrical Stimulation of the Heart, Maastricht, The Netherlands, June, 1987.
13. Karpawich PP, Stokes KB, Helland JR, Clapp SK, Jackson WL: A New Platinumized Epicardial Pacing Electrode: Comparative Evaluation in Immature Canines. Presented at VIIIth World Symposium on Cardiac Pacing and Electrophysiology, Jerusalem, Israel, June 1987.
14. Karpawich PP, Bharati S, Justice CD, Clapp SK, Jackson WL: Selective Pharmacologic Ablation of the His Bundle in Immature Canines: A New Transepical Technique. Presented at International Conference in The Management of Cardiac Arrhythmias, London, United Kingdom, September 1987.
15. Karpawich PP, Justice CD, Cavitt DL: Rate-responsive Pacing in Immature Canines. Presented at 17th Annual American Heart Association of Michigan Cardiovascular Research Forum, Lansing, Michigan, September, 1987.
16. Karpawich PP, Bharati S, Justice CD, Cavitt DL: Selective Pharmacologic His Bundle Ablation in Immature Canines. Presented at 17th Annual American Heart Association of Michigan Cardiovascular Research Forum, Lansing, September, 1987
17. Karpawich PP, Clapp SK, Jackson WL: Electrophysiologic and Histologic Effects of Single Rate Ventricular Pacing in Young Canines. Presented at 29th Annual Meeting, Section of Cardiology, American Academy of Pediatrics, New Orleans, LA, October 1987.
18. Karpawich PP, Justice CD, Cavitt DL: Rate-responsive Pacing in Immature Canine: Exercise Response with Single and Dual Chamber Modes. Presented at 60th Scientific Session, American Heart Association, Anaheim, CA, November, 1987.

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19. Karpawich PP, Chang CH, Justice CD, Bharati S: Developmental Cardiac Sequelae of Single Rate Ventricular Pacing in Immature Canines. Presented at the 9th Annual Scientific Session, North American Society of Pacing and Electrophysiology, Los Angeles, May, 1988.
20. Karpawich PP, Chang CH, Kuhns LR, Justice CD, Gause CY: Normalized Ventricular Paced Depolarization Sequences in the Immature Canine Myocardium: A New Transepical Septal Approach. Presented at 18th Annual Cardiovascular Research Forum, American Heart Association of Michigan, Lansing, Michigan, September, 1988.
21. Karpawich PP, Chang CH, Kuhns LR: Transepical Septal Pacing in Young Canines: A New Approach. Presented at the 30th Annual Meeting, American Academy of Pediatrics, Cardiology Section, San Francisco, CA, October 1988.
22. Karpawich PP, Chang CH, Kuhns LR, Justice CD, Gause CY: Transepical Septal Pacing: A New Approach to Normalize Paced Depolarization Sequences in Immature Canines. Presented at the Midwest Pediatric Cardiology Society Meeting, Cleveland, OH, September 1988.
23. Karpawich PP, Chang CH, Kuhns LR: Electrophysiologic and Histopathologic Comparison Between Apical and Transepical Septal Ventricular Pacing in the Immature Canine Myocardium: Evaluation of a New Method. Presented at the 38th Annual Scientific Session, American College of Cardiology, Anaheim, March 1989.
24. Karpawich)PP, Chang CH, Kuhns LR, Justice CD: Initial Histologic Comparisons Between Apical and a New Septal Ventricular Pacing Method in Immature Canines. Presented at 4th European Symposium on Cardiac Pacing, Stockholm, Sweden, May 1989.
25. Karpawich PP, Stokes KB, Helland JR, Justice CD: Preliminary Experience with a New Steroid-Eluting Pacing Electrode in Puppies. Presented at 19th Annual Cardiovascular Research Forum, American Heart Association of Michigan, Detroit, Michigan, September 1989.
26. Karpawich PP, Hakimi M, Cavitt DL, Schallhorn R: Clinical Comparison of Low Threshold Platinized and New Steroid-Eluting Platinized Transvenous Pacing Leads in Children. Presented at 31st Annual Meeting, American Academy of Pediatrics, Cardiology Section, Chicago, IL, October 1989.
27. Karpawich PP, Hakimi M, Arciniegas E, Stokes KB, Cavitt DL: Initial Clinical Experience with a New Low Threshold Platinized Epicardial Electrode in Children. Presented at Annual Meeting, Midwest Pediatric Cardiology Society, Kansas City, Missouri, September 1989.
28. Karpawich PP, Hakimi M, Arciniegas E, Cavitt DL, Stokes KB: A New Low Threshold Platinized Epicardial Pacing Electrode: Initial Experience in Children. Presented at 39th Annual Scientific Session, American College of Cardiology, New Orleans, LA, March 1990.
29. Karpawich PP: Non Pharmacologic Treatment of Arrhythmias in Children: Pacing for Bradycardia. Invited Faculty, 1Xth World Symposium on Cardiac Pacing and Electrophysiology. Washington, D.C. May 1991.
30. Karpawich PP, Cavitt D, Sugalski J: Comparative Effectiveness Between Holter and Event Recording Monitoring in the Young with Suspected Dysrhythmias. Presented at the 1Xth World Symposium on Cardiac Pacing and Electrophysiology. Washington, D.C., May 1991.
31. Karpawich PP, Paridon SM, Pinsky WW: Failure of Rate-Responsive Ventricular Pacing to Improve Physiologic Performance in the Univentricular Heart. Presented at 1Xth World Symposium on Cardiac Pacing and Electrophysiology. Washington, D.C., May 1991.
32. Karpawich PP, Arciniegas E, Hakimi M, Cavitt D, Stokes K: Initial Clinical Experiences with a New Low Threshold Platinized-Platinum Epicardial Pacing Electrode Lead in The Young. Presented at Second International Symposium on Pacing Leads, Ferrara, Italy, April, 1991.
33. Karpawich PP, Hakimi M, Arciniegas E, Cavitt DL: Epicardial Pacing in the Young: Evaluation of Steroid Elution and New Electrode Surface. Presented at 33rd Annual Meeting, American Academy of Pediatrics, Cardiology, New Orleans, LA, October 1991.
34. Karpawich PP, Stokes KB, Gates JT, Justice CD: Septal His-Purkinje Pacing: A New Concept to Improve Paced Ventricular Function. Presented at 41st Annual Meeting, American College of Cardiology, Dallas, TX, April 1992.

35. Karpawich PP, Chang CH, Cavitt DL: Ventricular Pacing-Induced Histopathology in the Young with Congenital Heart Block. Presented at 41st Annual Meeting, American College of Cardiology, Dallas, TX, April 1992.
36. Karpawich PP, Stokes KB, Gates JT, Justice CD: Septal His-Purkinje Pacing in Canines: A New Endocardial Electrode Approach. Presented at Cardiosim '92, 8th International Congress on Pacing and Electrophysiology, Nice, France, June 1992.
37. Karpawich PP, Vincent JA: Improved Left Ventricular Function with Septal Compared to Right Ventricular Apical Pacing in Immature Canines. Presented at 2nd International Symposium on Heart Failure, Geneva, Switzerland, May 1993.
38. Karpawich PP, Vincent JA: Comparative Paced Myocardial Function in the Immature Heart: Benefits of Septal versus Apical Ventricular Stimulation. Presented at 6th European Symposium on Cardiac Pacing, Ostend, Belgium, June 1993.
39. Karpawich PP: Ventricular Pacing Site Comparison: Improved Acute Cardiac Function with Septal Compared to Right Ventricular Apical Pacing. Presented at 23rd Annual Michigan Cardiovascular Research Forum, American Heart Association, East Lansing, MI, September 1993.
40. Karpawich PP, Stokes KB: Improved Pacing: Initial Experience with a New Bipolar, Epimyocardial, High Impedance, Steroid-Eluting Lead. Presented at 15th Annual Scientific Sessions, North American Society of Pacing and Electrophysiology, Nashville, TN, May 1994.
41. Karpawich PP: Ventricular Pacing Site Does Make a Difference: Improved Left Ventricular Function with Septal Pacing. Presented at 15th Annual Scientific Sessions, North American Society of Pacing and Electrophysiology, Nashville, TN, May 1994.
42. Karpawich PP, Stokes KB: A New Bipolar, High Impedance, Steroid-Eluting, Epi-myocardial Pacing Lead: Initial Experience. Presented at 9th International Congress, Cardiosim 94, Nice, France, June 1994.
43. Karpawich PP, Goldman-Cutler N: Chronic Low Output (2.5/1.6 Volt) Pacing is Safe in Children with Steroid-Eluting Electrodes. Presented at 9th International Congress, Cardiosim 94, Nice, France, June 1994.
44. Karpawich PP, Vincent JA: Pacemaker Follow-up in the Young: Is Trans-Telephonic Monitoring an Effective Diagnostic Screen? Presented at 9th International Congress, Cardiosim 94, Nice, France, June 1994.
45. Karpawich PP: Epicardial Bipolar Pacing: Initial Experience With an Improved Concept in Pacing Lead Design. Presented at 67th Scientific Sessions, American Heart Association, Dallas, TX, November 1994.
46. Karpawich PP, Mital S: Septal Pacing Improves Single Chamber-Paced Left Ventricular Function: A Comparative Evaluation with Atrial and Apical Pacing. Presented at 44th Annual Scientific Session, American College of Cardiology, New Orleans, LA, March 1995.
47. Karpawich PP: "Controversies in Pediatric Pacing: Dual chamber physiologic pacing is better than single chamber pacing", Antagonist discussion. Presented at 16th Annual Scientific Sessions, North American Society of Pacing and Electrophysiology, Boston, MA, May 1995.
48. Karpawich PP: "Case Presentations: Aborted Sudden Death in Adolescence" 7th Annual Scientific Session, American College of Cardiology Michigan Chapter, Travis City, MI, October 1995.
49. Karpawich PP: "Epicardial Pacemaker Leads". Clinical Tutorial, presented at 17th Annual Scientific Sessions, North American Society of Pacing and Electrophysiology, Seattle, WA, May, 1996.
50. Karpawich PP: "Septal Cardiac Stimulation". Presented at 10th Annual Scientific Sessions, Cardiosim '96, Nice, France, June, 1996.
51. Karpawich PP: "Pacemaker Leads: Tip to Connector". Clinical Tutorial, presented at 18th Annual Scientific Sessions, North American Society of Pacing and Electrophysiology, New Orleans, LA, May, 1997.
52. Karpawich PP: "Interpretation of Complex Rhythm Tracings from Pediatric Patients". Clinical Tutorial, presented at 19th Annual Scientific Sessions, North American Society of Pacing and Electrophysiology, San Diego, CA, May, 1998.
53. Karpawich PP: "Pacing Leads: Still the Weak Link?" Core Curriculum presented at 19th Annual Scientific Sessions, North American Society of Pacing and Electrophysiology, San Diego, CA, May, 1998.

54. Karpawich PP: "New Concepts in Pacing: septal and outflow pacing: Presented at 26th Scientific Session, Egyptian Society of Cardiology, Cairo, Egypt, February, 1999.
55. Karpawich PP: " Electrocardiogram in Congenital Heart" Presented at 26th Scientific Session, Egyptian Society of Cardiology, Cairo, Egypt, February, 1999
56. Karpawich PP: " Cardiac Pacing in Congenital Heart" Presented at 26th Scientific Session, Egyptian Society of Cardiology, Cairo, Egypt, February, 1999.
57. Karpawich PP: "Pediatric Electrocardiogram" Presented at 26th Scientific Session, Egyptian Society of Cardiology, Cairo, Egypt, February, 1999.
58. Karpawich PP: "Pacing Leads: State of the Art 1999" Presented at 20th Annual Scientific Sessions, North American Society of Pacing and Electrophysiology, Toronto, May 1999
59. Karpawich PP: "Pacing: The Next 20 Years in Pacing in Children and Adolescents" Presented at 20th Annual Scientific Sessions, North American Society of Pacing and Electrophysiology, Toronto, May, 1999
60. Karpawich PP, Vincent J, Forbes T, Keller G, Cavitt D, Webster P: Performance of Pacing Leads Inserted Through Intravascular Stents: Angiographic and Ultrasound Findings. Presented at 21st Annual Scientific Sessions, North American Society of Pacing and Electrophysiology, Washington, DC, May, 2000
61. Karpawich PP, Vincent J, Forbes T, Keller G, Cavitt D, Webster P: Performance of Chronic Pacing Leads After Insertion Through Intravascular Stents: Presented at the International Congress on Cardiac Pacing and Electrophysiology, Istanbul, Turkey, September 2000
62. Karpawich PP: "Pacemaker Follow-up in the Young". Presented at 2nd International Meeting, Egyptian Working Group of Electrophysiology, Society of Cardiology, Cairo, Egypt, January 2001.
63. Karpawich PP: "Ablation in Children and Young Adults". Presented at 2nd International Meeting, Egyptian Working Group of Electrophysiology, Society of Cardiology, Cairo, Egypt, January 2001.
64. Karpawich PP: "Ten Year Follow-up of Steroid-eluting versus Non-steroid-eluting Pacing Leads in Pediatric Patients. Presented at World Congress of Pediatric Cardiology, Toronto, Canada, May, 2001.
65. Karpawich PP: "Pacemakers and ICD's in Children" Presented at North American Society of Pacing and Electrophysiology 22nd Scientific Session, Invited Faculty Mini Course, Boston, MA, May, 2001.
66. Karpawich PP: "Pacing in Children with Congenital Heart Disease". Presented at North American Society of Pacing and Electrophysiology 22nd Scientific Session. Meet the Experts Panel. Boston, MA, May 2001.
67. Karpawich PP: "Pros and Cons of Early Pacemaker Intervention in Congenital Atrioventricular Block" Presented at North American Society of Pacing and Electrophysiology 23rd Scientific Session, Invited Chairman and Faculty Mini Course, San Diego, CA, May 2002.
68. Karpawich PP, Horenstein S, Webster P: "Site-specific Right Ventricular Implant Pacing to Optimize Paced Left Ventricular Function in the Young with and without Congenital Heart". Presented at North American Society of Pacing and Electrophysiology 23rd Scientific Session, San Diego, CA, May 2002.
69. Karpawich PP: "Atrioventricular Block and Congenital Heart". Presented at North American Society of Pacing and Electrophysiology 24th Scientific Session, Washington, DC, May 2003.
70. Karpawich PP: "Epicardial vs Transvenous Pacing". Presented at North American Society of Pacing and Electrophysiology (Heart Rhythm Society) 25th Scientific Session, San Francisco, CA, May 2004.
71. Karpawich PP: "Advances in Pediatric Pacemaker Therapy" Presented at North American Society of Pacing and Electrophysiology (Heart Rhythm Society) 25th Scientific Session, San Francisco, CA, May 2004.
72. Karpawich PP: "Right Ventricular Apical Pacing: The Pediatric Perspective" Presented at Cardiosim, 14th World Congress, Nice, France, June 2004.
73. Karpawich PP: "Alternate Site Pacing in Congenital Heart". Presented at Egyptian Society of Cardiology Scientific Sessions, Cairo, Egypt, January 2005.

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74. Karpawich PP: "Techniques in Ablation Therapy in Congenital Heart". Presented at Egyptian Society of Cardiology Scientific Sessions, Cairo, Egypt, January 2005.
75. Karpawich PP: "Technical Hurdles in Device Implantation and Removal" Presented at 26th Annual Scientific Sessions, Heart Rhythm Society, New Orleans, LA, May 2005.
76. Karpawich PP: "Applications of Alternative Pacing Sites and Newer Pacing Modalities in Children" Presented at Pedirhythm II, Antalya, Turkey, June 2005.
77. Karpawich PP: "Indications for Defibrillator Therapy in Children" Presented at Pedirhythm II, Antalya, Turkey, June 2005.
78. Karpawich PP: "Need for Associated Interventional Devices during Ablation and Pacemaker Implant in Young Adults with Transposition/Mustard Anatomy. Presented at Heart Rhythm Society 27th Scientific Session, Boston, MA, May 2006
79. Karpawich PP: "Technical Aspects of Pacing in Congenital Heart" Presented at Symposium, Arrhythmias from Neonate to Adult, Groningen, The Netherlands, October 2006
80. Karpawich PP: "Update on Hypertrophic Cardiomyopathy: Non-surgical Management" Presented at American Heart Association Scientific Session, Chicago, IL, November 2006
81. Karpawich PP: "Interpretation of the Pacemaker ECG" Presented at PediRhythm III, Istanbul, Turkey, October 2007
82. Karpawich PP: "Selective Site Pacing". Presented at PediRhythm III, Istanbul, Turkey, October 2007
83. Karpawich PP and Zelin K: "Chronic Alternate Site Pacing Performance of a New Catheter-Delivered Lead in Young Patients with Congenital Heart" Presented at Venice Arrhythmias 2007, Venice, Italy, October 2007.
84. Karpawich PP and Gupta P: "Cardiac Resynchronization Therapy in Young Adults with Congenital Heart Disease and Heart Failure: A Bridge to Transplant" Presented at Venice Arrhythmias 2007, Venice, Italy, October 2007.
85. Karpawich PP, Harahsheh A, Du W, Singh H: "Inducible Atrial Flutter/Fibrillation in the Young with Wolff-Parkinson White Syndrome" Presented at Venice Arrhythmias 2007, Venice, Italy, October 2007
86. Karpawich PP, Zelin K. Chronic Alternate Site Pacing Efficacy of a New Stylet-less, Catheter-delivered Lead in Congenital Heart. Presented at 57th Scientific Sessions, American College of Cardiology, Chicago, March, 2008.
87. Karpawich PP, Zelin K. Chronic Performance of a New Stylet-less, Catheter-delivered Pacing Lead in the Adult with Congenital Heart. Presented at 18th International Symposium on Adult Congenital Heart Disease, Toronto, June 2008.
88. Karpawich PP: "Cardiac Resynchronization Therapies: Single Pacing Site". Presented at 5th World Congress of Paediatric Cardiology and Cardiac Surgery, Cairns, Australia, June 2009
89. Karpawich PP, Zilberman M, Du W. Prevention of Paced Myocardial Dysfunction: A Comparative Analysis of Chronic Pacing Sites in the Young. Presented at 13th Annual Scientific Meeting of the Heart Failure Society of America. Boston, MA, September 2009
90. Karpawich PP: Medicine in Transition; the 19th Century. Invited Keynote Speaker, 38th Scientific Session, Ohio Area Doctors Interested in Congenital Heart. Detroit, MI May 2010
91. Karpawich PP: Choosing the Optimal Lead Site in Pediatric Patients: New Tools and Technologies. Presented at 31st Scientific Session, Heart Rhythm Society, Denver, CO, May 2010.
92. Karpawich PP: Complex Pacemaker Cases: How to Place with the Thought of Removal. Presented at 31st Scientific Session, Heart Rhythm Society, Denver, CO, May 2010.
93. Karpawich PP: Acute Contractility (dP/dt) Improvement Predicts Chronic Resynchronization Pacing Efficacy for Refractory Heart Failure in Congenital Heart" Presented at 14th Annual Scientific meeting of the Heart Failure Society of America San Diego, CA, September 2010.
94. Karpawich PP. "Pacemakers and Defibrillators II: Pacemaker Follow-up. Complications & Reprogramming" Presented at PediRhythm IV, Izmir, Turkey, September 2010.

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95. Karpawich PP. "Pacemakers and Defibrillators IV: Defibrillator Follow-up, Programming" Presented at PediRhythm IV, Izmir, Turkey, September 2010.
96. Karpawich PP, "Interventional Cardiology in the Adult with Congenital Heart" Presented at 25th Scientific Sessions, Cardiology at the Bix, Genesis Medical Center, University of Iowa School of Medicine, Davenport, IA, July 2011
97. Karpawich PP. Beyond Threshold: Septal Lead Implant Guided by Contractility Response Among Patients with and without Congenital Heart. Presented at 33rd Scientific Session, Heart Rhythm Society, Boston, MA, May 2012
98. Karpawich PP. Contractility-Guided Ventricular Lead Implant Optimizes Pacing Among Patients with Structural Heart Disease. Presented at 17th World Congress on Heart Disease, Toronto, CN, July 2012
99. Karpawich PP. "Troubleshooting Pacing Systems". Presented at PediRhythm V, Istanbul, November 2012.
100. Karpawich PP. "Lumenless Pacing Leads" Presented at PediRhythm V, Istanbul, Turkey, November 2012
101. Karpawich PP. "Current Indications for Cardiac Resynchronization" Presented at PediRhythm V, Istanbul, Turkey, November 2012.
102. Karpawich PP: "Changing Risk Factors for Arrhythmias and Sudden Death Among Adults with Repaired Tetralogy of Fallot in the Current Era". Presented at 6th World Congress, Paediatric Cardiology and Cardiac Surgery, Capetown, South Africa, February 2013.
103. Karpawich PP: Meet the Experts session: "The Economics of Medical Devices in Pediatric EP". The Business of Pediatric EP. Presented at 34th Scientific Sessions, Heart Rhythm Society, Denver, May 2013.
104. Karpawich PP. "Determination of Recurrent Tachycardia Following Successful Ablation in Subjectively Symptomatic Children". Presented at 18th World Congress on Heart Disease, Vancouver, BC, Canada, July 2013.
105. Karpawich PP. "Direct Ventricular Contractility Evaluation Assures Response for Resynchronization Pacing among Congenital Heart Patients with Refractory Heart Failure". Presented at 63rd Scientific Sessions, American College of Cardiology, Washington, DC, March 2014.
106. Karpawich PP. "Improved Resynchronization Pacing Efficacy among Congenital Heart Disease Patients with Refractory Heart Failure". Presented at 19th World Congress on Heart Disease. Boston, MA, July 2014
107. Karpawich PP. "Pacing Effects on the Heart" Presented at Polish Heart Society, Scientific Session, Kościelisko, Poland, March 2014.
108. Karpawich PP. "Pacing and Resynchronization in Congenital Heart Disease". American Thoracic Society Scientific Sessions, Toronto, Ontario, Canada, April, 2014.
109. Karpawich PP. "Recommendations for Bradyarrhythmias and Pacemakers in Adult Congenital Heart Disease". Heart Rhythm Society, 35th Scientific Session, San Francisco, CA, May 2014.
110. Karpawich PP. "Implantable Device Programming and Troubleshooting", "Reasons/Advantages for Select Site Pacing" Presented at PediRhythm VI, Istanbul, Turkey, November 2014.
111. Karpawich PP. "Beyond 35% Ejection Fraction: Choosing Resynchronization Pacing for Congenital Heart Patients as a Bridge to Transplant. Presented at 35th Scientific Sessions, International Society for Heart and Lung Transplantation, Nice, France, April 2015.
112. Karpawich PP. "Heart Failure CRT Pacing in Congenital Heart: Acute Ventricular Paced Contractility (dP/dt) is an Effective Marker to Predict Chronic Efficacy". To be presented at 20th World Congress on Heart Disease, International Academy of Cardiology, Vancouver, BC, July 2015
113. Karpawich PP. "Fifteen Years of Cardiac Resynchronization Pacing for Heart Failure among Congenital Heart Patients: Direct Contractility not Guidelines Determines Responders. Presented at 19th Scientific Sessions, Heart Failure Society of America, National Harbor, Maryland September 2015.
114. Karpawich PP. Ten Year Performance of the 4.1French, Lumenless, Catheter-delivered Pacing Lead Among Patients with and without Congenital Heart. Presented at 8th Cardiologists & Echocardiography Scientific Sessions, Berlin, Germany, July 2016

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115. Karpawich PP. Contractility (dP-dt-max)-Guided Determination of Resynchronization Pacing Therapy for Heart Failure Among Patients with Congenital Heart. Presented at 8th Cardiologists & Echocardiography Scientific Sessions, Berlin, Germany, July 2016
116. Karpawich PP. When the Guidelines Don't Apply: Contractility (dP/dt-max)-guided Resynchronization Pacing Among Patients with Congenital Heart and Heart Failure. Presented at 13th European Cardiology Congress, Madrid, Spain, December 2016.
117. Karpawich PP:: 1. "ICD Programming in Genetic Arrhythmias"; 2. "VT Storm in ICD Patients"; 3. "Current Guidelines for ICD in Children and CHD Patients" PediRhythm VII International Symposium Thessaloniki, Greece February 2017.
118. Karpawich PP: "Understanding Basic Pacemaker Timing Cycles" 7th World Congress of Pediatric Cardiology & Cardiac Surgery Barcelona, Spain July 2017.
119. Karpawich PP: "Reverse Thinking, Inventing with Industry", Mini Course, "The Future is Now". Presented at 38th Scientific Sessions, Heart Rhythm Society, Boston, MA, May 2018
120. Karpawich PP. "Alternate Pacing Sites (His Pacing and Others) in Endocardial Pacing". Presented at PediRhythm VIII, Munich, Germany, October 2018.
121. Karpawich PP" Para-Hisian / High Septal Pacing Should be the Standard in Pediatric Transvenous Pacing" Pediatric and Congenital Heart Electrophysiology Society Scientific Session, San Francisco, CA, May 2019,
122. Karpawich PP: Cardiac Resynchronization Pacing for Heart Failure Among Congenital Heart Patients: Patient Selection and Non-invasive ECHO Imaging, World Heart Congress, Edinburgh, Scotland, September 2019.
123. Karpawich PP: Resynchronization Pacing for Heart Failure among Congenital Heart Patients: A Twenty Year Review of Defining Success: Think Beyond Ejection Fraction. Presented online (Covid 19) Heart Rhythm Society 41st Scientific Sessions, May 2020

INVITED SEMINARS/LECTURES

1. University of Medicine and Dentistry of New Jersey, Section of Cardiovascular Surgery. "Newer Trends in Cardiovascular Medicine and Surgery." Secaucus, New Jersey, October 1982.
2. Children's Hospital of New Jersey, Department of Medical Education. "Pediatric Critical Care." Newark, New Jersey, January 1983.
3. Children's Hospital of New Jersey, Department of Medical Education. "Pediatric Critical Care." Newark, New Jersey, October 1983.
4. American Heart Association of Michigan, Children's Hospital of Michigan Department of Continuing Education and Wayne State University School of Medicine. "Pediatric Advanced Life Support." Detroit, Michigan, April, 1985.
5. Children's Hospital of Michigan, Wayne State University School of Medicine. "Cardiology for the Pediatrician." Detroit, Michigan, June 1985.
6. St. Joseph Hospital, Dept of Medical Education. "Pediatric Advanced Life Support". Mt. Clemens, MI, Sept. 1985.
7. Educational Services, Medtronic Inc., "Pacemaker Sensor Technology". Detroit, Michigan, Nov 1985.
8. Children's Hospital of Michigan, Wayne State University School of Medicine. "Basic Electrocardiography". Detroit, Michigan, November 1985.
9. Children's Hospital of Michigan, Wayne State University School of Medicine. "Electrocardiography and Pacing". Detroit, Michigan, March 1986.
10. Medtronic Inc., "Platinized Epicardial Pacing Lead Technology". Minneapolis, Minnesota, July 1986.

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11. Children's Hospital of Michigan, Wayne State University School of Medicine. "The Normal Pediatric Electrocardiogram". Detroit, Michigan, October 1986.
12. Harper-Grace Hospitals, Wayne State University School of Medicine, Division of Cardiology. "Pediatric Echocardiography". Detroit, Michigan, October 1986.
13. Children's Hospital of Michigan, Wayne State University School of Medicine. "Pediatric Dysrhythmias". Detroit, Michigan, November 1986.
14. Children's Hospital of Michigan, Wayne State University School of Medicine. "Vascular Anomalies Causing Stridor". Detroit, Michigan, January 1987.
15. Sinai Hospital of Detroit, Department of Medical Education. "Neonatal Dysrhythmias". Detroit, Michigan, January 1987.
16. Department of Physiology, Wayne State University School of Medicine. "The Beagle Puppy as an Animal Model in Electrophysiology Research". Detroit, Michigan. April 1987.
17. Children's Hospital of Michigan, Wayne State University School of Medicine. "Current Pacemaker Technology". Presented at 30th Annual Clinic Days, Detroit, Michigan, May 1987.
18. Children's Hospital of Michigan, Wayne State University School of Medicine. "Pediatric Arrhythmias and Management". Detroit, Michigan, August 1987.
19. Department of Anesthesiology, Children's Hospital of Michigan, Wayne State University. "Pharmacologic Management of Dysrhythmias" Detroit, Michigan, October 1987.
20. Department of Anesthesiology, Children's Hospital of Michigan, Wayne State University. "Pediatric Pacemaker Therapy - Current Concepts". Detroit, Michigan, April 1988.
21. Department of Internal Medicine, Cardiology Division, Harper-Grace Hospitals, Wayne State University. "The Approach to Dysrhythmias in Children". Detroit, Michigan, May 1988.
22. Department of Internal Medicine, Cardiology Division, Research Symposium, Wayne State University. "Electrophysiologic Studies in the Intact Immature Canine". Detroit, Michigan, May 1988.
23. Wayne State University School of Medicine, Clinical Core Curriculum. "Congenital Heart Disease in Pediatrics". Detroit, Michigan, October 1988.
24. Department of Pediatrics Research Seminar, Children's Hospital of Michigan, Wayne State University. "Progress in Pediatric Pacing". Detroit, Michigan, November 1988.
25. Wayne County Community College, Department of Biology. "Heart Disease and Infections in Children". Detroit, Michigan, December 1988.
26. Heart and Vascular Institute, Henry Ford Hospital and Medtronic, Inc. "Cardiac Effects of Pacing Mode and Electrode Position: Experimental and Clinical Correlates". Detroit, Michigan, December 1988.
27. Children's Hospital of Michigan, Wayne State University School of Medicine. "The Normal and Abnormal Pediatric Electrocardiogram". Detroit, Michigan, January 1989.
28. University of Texas, Southwestern Medical School, Department of Pediatrics. "Evaluation of Syncope In Children". Dallas, Texas, January 1989.
29. Children's Hospital of Michigan, Wayne State University School of Medicine. "Anti-Dysrhythmic Drug Therapy in Children". Detroit, Michigan, April 1989.
30. Children's Hospital of Michigan, Wayne State University. Clinical Pathology Conference. "Fetal Dysrhythmias". Detroit, Michigan, May 1989.
31. Children's Memorial Hospital, Northwestern University Medical School and Medtronic, Inc. "Comparison Between Holter and Transtelephonic Event Recordings in Pediatric Cardiology". Chicago, ILL, May 1989.

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32. Pediatric Grand Rounds: Children's Hospital of Michigan, Wayne State University. Clinical Case Presentations - "Multifocal Dysrhythmias". Detroit, MI August 1989.
33. Detroit Heart Club and Medtronic Inc. "Cardiac Event Detection". Detroit, MI, September 1989.
34. CardioCare Systems and Medtronic, Inc. "Use of Telephone Telemetry Devices in Pediatrics". New York, NY October 1989
35. Sinai Hospital of Detroit, Department of Cardiology. "Pacemakers and Dysrhythmias in Congenital Heart Disease" Detroit, MI, December 1989.
36. Abraham Lincoln Historical Society, Detroit Historical Museum. "The Science and Practice of Mid-nineteenth Century Medicine". Redford, MI, April 1990.
37. Department of Anesthesia, Children's Hospital of Michigan, Wayne State University School of Medicine. "Recent Advances in Detection and Treatment of Cardiac Dysrhythmias." Detroit, MI, April 1990.
38. Children's Hospital of Michigan, Wayne State University School of Medicine. "Common Cardiac Dysrhythmias in the Young." Detroit, MI, May 1990.
39. Department of Emergency Medicine, Children's Hospital of Michigan, Wayne State University School of Medicine. "Cardiac Rhythm Abnormalities: Emergency Room Interpretation." Detroit, MI, July 1990.
40. Children's Hospital of Michigan, Wayne State University School of Medicine. "Interpretation of the Pediatric Electrocardiogram". Detroit, MI, August 1990.
41. Detroit Historical Museum. "Medicine in Transition: The American Civil War". Detroit, MI, October 1990.
42. Wayne State University School of Medicine, Combined Internal Medicine and Pediatrics Residency Program. "Interpretation of EKG's: The Pediatric Aspect". Detroit, MI, October 1990.
43. Children's Hospital of Michigan, Wayne State University School of Medicine. "Evaluation of the Infant with Cyanotic Congenital Heart Disease". Detroit, MI, November 1990.
44. Elecath Corporation and Children's Hospital of Michigan Department of Continuing Education, Wayne State University School of Medicine. "Recent Advances in Cardiac Electrophysiology". Detroit, MI, February 1991.
45. Medtronic Inc. and Department of Internal Medicine, Harper Hospital, Wayne State University School of Medicine. "Recent Advances in Pacemaker Lead and Electrode Technology". Detroit, MI, March 1991.
46. Department of Anesthesia, Children's Hospital of Michigan, Wayne State University School of Medicine. "Cardiac Pacing in Children". Detroit, MI, March 1991.
47. Department of Pediatrics, Children's Hospital of Michigan, Wayne State University, School of Medicine. "Pathophysiologic Mechanisms of Dysrhythmias", Detroit, MI, October 1991.
48. Department of Pediatrics, Wayne State University, School of Medicine, "Medical and Surgical Treatment of Rhythm Disorders". Detroit, MI, November 1991.
49. Scientific Forum, Medtronic, Inc. "Comparison of Apical and His-Purkinje Ventricular Pacing in the Immature Canine". Minneapolis, MN, December 1991.
50. Medtronic, Inc. "Surgical Approach to Septal Ventricular Electrode Implantation in Canines". Minneapolis, MN, December 1991.
51. Department of Pediatrics, St. Joseph Mercy Hospital Grand Rounds: "Approach to Abnormal Heart Rhythms in the Young". Pontiac, MI, December 1991.
52. Department of Anesthesia, Children's Hospital of Michigan, Wayne State University School of Medicine. "Common Cardiac Arrhythmias and Management". Detroit, MI, January 1992.
53. Department of Pediatrics, Cardiology Core Curriculum, Children's Hospital of Michigan, Wayne State University School of Medicine. "Cellular Cardiac Electrophysiology". Detroit, MI, March 1992.

54. Department of Emergency Medicine, Grace-Harper Hospital, Wayne State University School of Medicine. "Identification and Management of Supraventricular Dysrhythmias". Detroit, MI, July 1992.
55. Department of Pediatrics, Children's Hospital of Michigan, Wayne State University School of Medicine. "Cardiac Arrhythmias and Treatment in Children". Detroit, MI, August 1992.
56. Department of Pediatrics, Neonatal-Perinatal Medicine Seminar, Children's Hospital of Michigan, WSU School of Medicine. "Recognition and Management of Arrhythmias in the Neonate". Detroit, MI, October 1992.
57. Department of Anesthesia, Children's Hospital of Michigan, Wayne State University School of Medicine. "Management of Arrhythmias in Children". Detroit, MI, October 1992.
58. Ticker Club, Children's Hospital of Michigan: "New Advances in Pacemaker Therapy". Detroit, MI, October 1992.
59. Department of Emergency Medicine, Detroit Receiving Hospital and University Health Center, Wayne State University School of Medicine, "Congenital Heart Disease and Dysrhythmias". Detroit, MI, January 1993
60. Division of Laboratory and Animal Research, Wayne State University School of Medicine. "Electrophysiology Research in the Immature Canine Model". Detroit, February 1993.
61. Ticker Club, Children's Hospital of Michigan: "Cardiac Dysrhythmias, New Trends for the 90's". Detroit, MI, March 1993.
62. Department of Educational Services, Children's Hospital of Michigan, Wayne State University School of Medicine, 36th Annual Medical Clinic Days: "Advances in Cardiac Electrophysiology". Detroit, May, 1993.
63. Grand Rounds, Department of Pediatrics: Children's Hospital of Michigan, Wayne State University School of Medicine. "Interpretation and Management of Cardiac Arrhythmias in Pediatrics". Detroit, July, 1993.
64. American Association for Laboratory Animal Sciences, Wayne State University School of Medicine Division of Laboratory Animal Resources: "Septal Ventricular Pacing in the Immature Heart: The Evolution and Effects of Pacemakers in Children using a Canine Model". Detroit, October, 1993.
65. Graduate Perinatal Nurse-Clinician Program, Wayne State University School of Nursing, Children's Hospital of Michigan: "Interpretation of the Pediatric Electrocardiogram", Detroit, November 1993
66. Detroit Living History Society, Detroit Historical Museum: "Nineteenth Century Medicine in America", Detroit, January 1994.
67. Bakken Educational Center, Medtronic Inc: "Clinical Indications and Applications of Cardiac Pacing", Minneapolis, MN, April, 1994.
68. Specialty Grand Rounds, Department of Pediatric Neurology, Children's Hospital of Michigan, Wayne State University School of Medicine: "Neuro-cardiac Syncope", Detroit, May, 1994.
69. Division of Cardiology, Department of Pediatrics, Children's Hospital of Philadelphia, University of Pennsylvania School of Medicine: "New Applications and Advances in Pacemaker Therapy", Philadelphia, PA, May, 1994.
70. U.S. Department of Health and Human Services, Food and Drug Administration: "Clinical Application and Need for Epicardial Steroid-Eluting Pacing Leads", Rockville, MD, June 1994.
71. Wayne State University School of Medicine, USMLE Board Review: "Congenital Heart Disease", Detroit, August, 1994.
72. Department of Anesthesia, Children's Hospital of Michigan, Wayne State University School of Medicine: "Diagnosis and Management of Cardiac Arrhythmias", Detroit, MI, September 1994.
73. Department of Nursing, Surgical Recovery Unit, Children's Hospital of Michigan: "Interventional Approaches to Cardiac Arrhythmias", Detroit, October, 1994.
74. Department of Internal Medicine, Division of Cardiology, Wayne State University School of Medicine: "Advances in Pediatric Cardiac Pacing/Electrophysiology using an Immature Animal Model", Detroit, October, 1994

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75. Graduate Perinatal Nurse-Clinician Program, Wayne State University School of Nursing, Children's Hospital of Michigan "Interpretation of the Normal and Abnormal Pediatric Electrocardiogram", Detroit, November, 1994.
76. Midwest Civil War Round Table Association: "Medical History: Nineteenth Century Practices" Farmington Hills, November, 1994.
77. Grand Rounds, Department of Pediatrics Children's Hospital of Michigan: " Interventional Therapy of Cardiac Rhythm Disorders in Children", Detroit, MI, January 1995.
78. Henry Ford Hospital, Medical Education Grand Rounds: "Medicine during the American Civil War", Detroit, MI, January, 1995
79. Department of Cardiology, Harper Hospital, Wayne State University School of Medicine and Medtronic, Inc: "New Concepts and Advances in Cardiac Pacing", Detroit, MI, February 1995.
80. Department of Emergency Care Medicine, Children's Hospital of Michigan: "Emergency Treatment of Cardiac Rhythm Disturbances in Children", Detroit, MI, February 1995.
81. Bradycardia Pacing Research Symposium, Medtronic, Inc., "New Pacing Applications to Improve Ventricular Function" Minneapolis, MN, May 1995.
82. Grand Rounds, Department of Pediatrics, Children's Hospital of Michigan, Wayne State University School of Medicine: "Cardiac Eurhythmics: Normal Variations in ECG Interpretation in Children", Detroit, August, 1995.
83. Wayne State University School of Medicine, USMLE Board Review Course: "Congenital Heart Disease". Detroit, September, 1995.
84. Wayne State University School of Nursing, Neonatal Nurse Practitioner Program: "Pediatric Electrocardiogram Interpretation". Detroit, November 1995.
85. Wayne State University School of Medicine, Children's Hospital of Michigan Pediatric Physiology Conference Series: "Electrophysiology for the Pediatrician", Detroit, November 1995.
86. Wayne State University School of Medicine, Children's Hospital of Michigan Department of Emergency Medicine, "Identification and Management of Myocarditis", Detroit, December 1995
87. Bradycardia Pacing Research Symposium, Medtronic, Inc. "Multi-site Pacing" Santa Cruz, CA, January 1996.
88. Department of Nursing Education, Pediatric Intensive Care, Children's Hospital of Michigan, Competency Day: "Temporary Dual Chamber Cardiac Pacing", Detroit, March, 1996.
89. Department of Critical Care Medicine, Children's Hospital of Michigan, Wayne State University School of Medicine. "Arrhythmia Evaluation and Management", Detroit, April, 1996.
90. Department of Emergency Medicine, Harper Hospital, Wayne State University School of Medicine: "Cardiac Arrhythmias - Emergency Room Identification and Therapy", Detroit, April, 1996.
91. Wayne State Univ School of Medicine, Student Lecture . "Congenital Heart Disease". Detroit, May, 1996.
92. Bakken Educational Center, Medtronic Inc, "Epicardial Steroid Pacing Electrodes", Minneapolis, MN, June 1996
93. U.S. Dept of Health and Human Services, Food and Drug Administration, "Clinical Need for Epicardial Steroid Pacing Electrodes", Rockville, MD, July, 1996.
94. Wayne State University School of Medicine. National Board Review in Pediatrics: "Congenital Heart Disease". Detroit, MI, August, 1996.
95. Wayne State University School of Medicine. Medical Student Lecture Series: "Cardiology". Detroit, MI, August, 1996.
96. Department of Pediatrics, Children's Hospital of Michigan: "Pediatric Cardiac Emergencies", Detroit, MI, December, 1996
97. Bradycardia Research Pacing Symposium, Medtronic, Inc. "Therapeutic Intervention in Cardiology", Daytona, FL,

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January, 1997

98. Department of Pediatrics, Children's Hospital of Michigan: "Pediatric Board Review - Electrocardiography", Detroit, MI, March, 1997
99. Wayne State Univ School of Medicine, National Board Review: "Congenital Heart". Detroit, August, 1997
100. Wayne State University School of Medicine, Third Year Student Lecture Series: "Introduction to Congenital Heart Disease", Detroit, MI, August, 1997
101. Department of Pediatrics, Children's Hospital of Michigan: "Electrocardiography for the Pediatrician", Detroit, September, 1997.
102. Department of Anesthesia, Children's Hospital of Michigan, "ECG interpretation and Dysrhythmias, Detroit, October, 1997.
103. Bradycardia Research Pacing Symposium, Medtronic, Inc: "Gene Transfer, a New Catheter Approach", Minneapolis, MN, October, 1997.
104. Cardiac Pacing Leads Symposium: "Alternate Site Lead Placement: Site Specific", Medtronic, Inc. Minneapolis, MN, March 1998.
105. Wayne State University School of Medicine, National Board Review in Pediatrics: "Congenital Heart". Detroit, August, 1998.
106. Henry Ford Hospital Medical Education: "Pediatric Cardiac Dysrhythmias and Therapy" Detroit, August, 1999
107. Wayne State University School of Medicine, Internal Medicine/Pediatrics Residency Program: "The Electrocardiogram in Congenital Heart", Detroit, January 1999
108. Medtronic Worldwide Leads Symposium: "Improved Pacing in Pediatrics and Congenital Heart", Minneapolis, March, 1999
109. Department of Pediatrics, Children's Hospital of Michigan, "ECG's for the Pediatrician", Detroit, March 1999.
110. NASPExAM - AP Electrophysiology Review Course: "Mechanism of Arrhythmias", St Paul, MN, March 1999.
111. NASPExAM - AP Electrophysiology Review Course: "Pediatric Electrophysiology", St Paul, MN, March 1999.
112. Bradycardia Research Symposium: "Epicardial Leads and Delivery Tools", Medtronic, Toronto, Ontario, May 1999.
113. Wayne State University School of Medicine, Emergency Medicine Residency Program: "Pediatric Electrocardiographic Interpretation in the Emergency Room", Detroit, August, 1999.
114. Henry Ford Hospital Medical Education: "Identification and Treatment of Pediatric Cardiac Arrhythmias", Detroit, October 1999.
115. Department of Pediatrics, Children's Hospital of Michigan, "Cardiac Emergencies", Detroit, MI, December, 1999.
116. Department of Anesthesia, Children's Hospital of Michigan, "Identification and Management of Cardiac Arrhythmias", Detroit, March, 2000.
117. Medtronic Worldwide Leads Symposium: "Hemodynamic Variables for Optimal Paced Ventricular Function", Minneapolis, MN, March, 2000.
118. NASPExAM - AP Electrophysiology Review Course, "Pacemaker History and Technology", Reston, VA, April, 2000.
119. NASPExAM - AP Electrophysiology Review Course, "Sudden Cardiac Death", Jacksonville, FL, April, 2000.
120. Henry Ford Hospital Medical Education, Grand Rounds: "New Concepts in Permanent Pacing", Detroit, MI, April, 2000.
121. Berlex Laboratories, Drug Development and Technology: "Sotalol Investigation in Pediatric Patients", Stuart, FL, April, 2000

123. Medtronic Inc, "Pacing Lead Design and Application Technology", Washington, DC, May, 2000
124. Department of Pediatrics, Emergency Medicine Fellowship Program. "Emergency Room Identification and Treatment of Pediatric Arrhythmias", Detroit, July, 2000
125. Primary Children's Medical Center, Pediatric Cardiology "Cardiac Pacing in Congenital Heart: New Applications", Salt Lake City, UT, August, 2000.
126. Henry Ford Hospital Medical Education: "Pediatric Cardiac Arrhythmias", November, 2000
127. Department of Dentistry, Children's Hospital of Michigan, "Dental Care in Congenital Heart Disease" April, 2001
128. Pacing Lead Research Panel, Medtronic, Inc: "Catheter Lead Delivery Systems", Boston, May, 2001
129. Pacing Lead Research Panel, Medtronic, Inc: "His Bundle Pacing", Boston, May, 2001
130. Children's Medical Center, Pediatric Cardiology, University of Texas SW, "New Applications in Pacemaker Therapy in Children. Dallas, TX, August 2001.
131. University of Minnesota, Cardiology Research Laboratory and Medtronic, Inc. "In Vivo Alternate Site Lead Placement". Minneapolis, MN, August, 2001.
132. Grand Rounds, Pediatrics, Children's Hospital of Michigan, WSU School of Medicine. "Pericardial Disease", September, 2001.
133. Henry Ford Hospital Medical Education. "Recognition and Treatment of Pediatric Cardiac Emergencies". Detroit, October, 2001
134. Pediatric Electrophysiology Focus Group, Medtronic, Inc. "Clinical Arrhythmia Decision Making In Pediatric Electrophysiology". Minneapolis, MN, January, 2002
135. Guidant Inc. "Pacing Lead Design and Septal Site Application". Minneapolis, MN, February, 2002.
136. Pacing Lead Research Panel, Medtronic, Inc. "Use of Steerable Lead Introducer Sheaths", Dallas, TX, March 2002
137. Southeastern Michigan Association of Neonatal Nurses Symposium. "Neonatal ECG and Arrhythmia Recognition and Management". Detroit, March, 2002.
138. WSU Department of Pediatrics, Emergency Medicine Fellowship Program. "Identification and Treatment of Pediatric Arrhythmias". Detroit, June, 2002.
139. Medical Society of Iowa and Genesis Medical Center, 12th Annual Cardiology Symposium. "Sudden Death in Children and Young Adults". Davenport, IA, July, 2002.
140. Grand Rounds, Dept of Pediatrics, West Virginia University School of Medicine. "Identification and Management of Sudden Cardiac Death in the Young", Morgantown, WV, August, 2002
141. Department of Pediatrics, Residency Program Children's Hospital of Michigan, Wayne State University School of Medicine. "Interpretation of Surface Electrocardiography in the Young". Detroit, MI, September, 2002
142. Pediatric Electrophysiology Focus Group and Medtronic, Inc. "Right Ventricular Site-Specific Septal Implant Mapping" Minneapolis, MN, October, 2002
143. Pediatric Electrophysiology Focus Group and Medtronic, Inc. "Rate Responsive Single and Dual Chamber Pacing in the Young." Minneapolis, MN, October, 2002.
144. Michigan Society for Pacing and Electrophysiology Associated Professionals. "Sudden Death in Young Athletes", Livonia, MI, December, 2002.
145. Department of Pediatrics, Residency Program Children's Hospital of Michigan, Wayne State University School of Medicine. "Interpretation of Abnormal Heart Rhythms in the Young". Detroit, MI, December 2002.
146. Department of Pediatrics, Residency Program St Christopher's Hospital, Hahnemann University School of Medicine, "Sudden Cardiac Death in the Young", Philadelphia, PA, January 2003

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147. Grand Rounds, Internal Medicine Cardiology, Henry Ford Hospital. "The Athlete Dying Young", Detroit, MI, February 2003.
148. International Symposium, Program Chairman and Faculty: Pedirhythm Symposium, "Pacing in Postoperative Patients"; "Pacing Indications and Modes"; "Electrical Therapy" Istanbul, Turkey, July 2003
149. Department of Cardiology, Ain Shams University School of Medicine / Maadi Hospital, "Alternate-Site Ventricular Pacing" Cairo, Egypt, August 2003
150. South Eastern Pediatric Cardiology Society Scientific Meeting, "Biventricular Pacing", Little Rock, AK, September 2003
151. Pediatric Electrophysiology Focus Group, Medtronic, Inc. Minneapolis, MN, September 2003.
152. Department of Pediatrics, Residency Program Children's Hospital of Michigan, Wayne State University School of Medicine. "ECG Interpretation of Clinical Arrhythmias". Detroit, MI, September, 2003
153. Neonatology Cardiac Physiology Seminar, Residency Program Children's Hospital of Michigan, Wayne State University School of Medicine. "Developmental Cardiac Physiology". Detroit, MI, November, 2003
154. Department of Pediatrics, Section of Cardiology Seminar: "Alternate Site Cardiac Pacing" Detroit, MI, November 2003
155. Bradycardia Lead Systems, Medtronic Inc, "His Bundle Pacing". Minneapolis, MN, December
156. Neonatology Cardiac Physiology Seminar, Residency Program Children's Hospital of Michigan, Wayne State University School of Medicine. "Developmental Cardiac Physiology". Detroit, MI, December, 2003
157. Department of Internal Medicine, Wayne State University School of Medicine. Cardiology Fellowship Seminar: "CRT / Alternate Site Pacing", Detroit, MI, January 2004
158. Department of Pediatrics, Section of Cardiology Seminar: "Cardiac Electrophysiology" Detroit, MI, January 2004
159. Pediatric Electrophysiology Advisory Board, Medtronic, Inc. "Pediatric Pacemaker Applications", Minneapolis, MN, March 2004
160. Department of Internal Medicine, Wayne State University School of Medicine. Cardiology Fellowship Seminar: "Sudden Death in Young Athletes", Detroit, MI, April 2004
161. Cardiostim Scientific Session Special Symposium Invited Faculty: Selective Site Pacing in the Right Heart: "Long Term Apical Pacing and Cardiac Performance – the Pediatric Perspective", Nice, France, June 2004.
162. Department of Pediatrics, Section of Cardiology, University of Pennsylvania School of Medicine, Children's Hospital of Philadelphia. "Advances in Cardiac Pacing in Children". Philadelphia, PA, June 2004.
163. Grand Rounds, St John's Medical Center & Medical Center, "Heart Rhythm Therapy in Children and Young Adults: Ablation and Devices". Detroit, MI, August 2004.
164. Department of Pediatrics, Residency Program Children's Hospital of Michigan, Wayne State University School of Medicine. "ECG Interpretation of Clinical Arrhythmias". Detroit, MI, September, 2004.
165. Department of Pediatrics, Emergency Medicine, Emergency Medicine, Children's Hospital of Michigan, Wayne State University School of Medicine. "Clinical Arrhythmias". Detroit, MI, November, 2004.
166. Department of Pediatrics, Section of Cardiology, Sibley Congenital Heart Center, Emory University School of Medicine, Atlanta, GA, "Advances in Pacemaker Application in Children and Adults with Congenital Heart", December, 2004
167. Grand Rounds, NYU School of Medicine, Dept of Pediatrics. "Interventional Device Therapy in Children", May 2005
168. St Jude Medical, Heart Rhythm Society. "Concepts and Strategies in Pediatric Pacing" May, New Orleans, May 2005
169. Grand Rounds, Department of Pediatrics, Montefiore Children's Hospital, Albert Einstein School of Medicine, "Pacing and Device Therapy in Children", August 2005.
- 170 Pediatric Electrophysiology Advisory Board, Medtronic, Inc. "SelectSecure Pacing System Use in Children", Minneapolis, MN, September 2005

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- 171 Pediatric Electrophysiology Advisory Board, Medtronic, Inc. "Alternate Site Pacing", Minneapolis, MN, September 2005
- 172 Medtronic, Inc, "SelectSecure Catheter Delivery System Implantation Techniques", Las Vegas, NV, December 2005.
- 173 Children's Hospital of Michigan Nursing Education, "Interpretation of the Pediatric Electrocardiogram in Health and Disease", Detroit, January 2006.
- 174 Department of Pediatrics, Wayne State University School of Medicine, "Arrhythmia Identification and Treatment in Pediatrics", Detroit, February 2006.
- 175 Department of Cardiology, Children's Hospital of Boston, Harvard Medical School. "Synchronicity: A Multidisciplinary Approach to Cardiac Resynchronization in Congenital Heart". Boston, May 2006.
- 176 Educational Service Department, Medtronic, Inc: "Select Secure Pacing System Applications in Congenital Heart" Boston, May 2006
170. Carnegie Institute, Medical Technologist Training Program, "Interventional Cardiac Electrophysiology", Detroit, June, 2006
171. Children's Hospital of Michigan, Intensive Care Research and Education Program, "Arrhythmia Management in the Current Era: Intervention Not Drugs", Detroit, June 2006.
179. Educational Services, Physiologic Research Laboratories, Medtronic Inc, " Cardiac Resynchronization Therapy in Children", Minneapolis, September 2006
180. Educational Services, Physiologic Research Laboratories, Medtronic, Inc, "Quality Care in Pediatric Pacing Applications", Minneapolis, September, 2006.
181. Educational Services, Physiologic Research Laboratories, Medtronic, Inc, "Alternate Site Pacing in Congenital Heart with a Catheter-delivered Pacing Lead" Minneapolis, MN, September 2006.
182. Educational Services, Physiologic Research Laboratories, Medtronic, Inc. "Pacing in Congenital Heart: Always a Challenge", Minneapolis, MN, September 2006
183. Children's Hospital of Michigan, Emergency Medicine Symposium, "Cardiac Emergencies in Pediatric Emergency Medicine", Detroit, October, 2006.
184. Education Service, Medtronic, Inc: "Reinventing Arrhythmia Management – Select Site Pacing", San Francisco, CA, February, 2007
185. Educational Services, Physiologic Research Laboratories, Medtronic, Inc. "Quality Application in Congenital Heart Device Therapy", Minneapolis, MN, April, 2007.
186. Education Services, Medtronic, Pediatric Electrophysiology Focus Group, "Three Year Experience with the Catheter-delivered Pacing Lead System in Congenital Heart". September, 2008
187. Children's Hospital of Michigan, Neonatology Department, "Pediatric ECG Interpretation", Detroit, September, 2009.
188. Children's Hospital of Michigan, Emergency Medicine, "Pediatric ECG Interpretation", Detroit, December, 2009.
189. Education Services, Medtronic, Pediatric Electrophysiology Focus Group, "Initial Experience with the 49cm Catheter-Delivered 4Fr Pacing Lead". Minneapolis, MN, February, 2010
190. University of Michigan, Division of Cardiovascular Medicine, Passport to Wellness Symposium. " Sudden Death in the Young Athlete and Current Therapies". Ypsilanti, MI, October, 2010.
191. Huron Valley-Sinai Hospital, Pediatric Education. "Neonatal Heart Murmurs". Commerce Township, MI, November 2010.
192. Hospital of the University of Haiti, Department of Pediatrics, Pediatric Education. "Electrocardiographic Interpretation in the Young", "Heart Murmurs in Children", "Sudden Death in the Young" Port-au-Prince, Haiti, July 2011
193. Children's Hospital of Michigan, Continuing Education, Emergency Medicine, "Pediatric ECG Interpretation", Detroit, July 2012.

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194. Children's Hospital of Michigan, Continuing Education, Emergency Medicine, "Pediatric ECG Interpretation", Detroit, November 2013.
195. University of Iowa, Carver College of Medicine Internal Med Dept/Cardiology Division, **3rd Annual Advances in Cardiovascular Diagnosis & Therapy**, "Arrhythmias among Congenital Heart Patients: Not Just the kids Anymore", Iowa City, February 2016
196. Children's Hospital of Michigan, Continuing Education, Pediatric Residency Program, "Identification and Treatment of Cardiac Arrhythmias" Detroit, April 2016.
197. 13th European Cardiology Congress, **Keynote Address**: Congenital/Structural Heart into the 21st Century: Advances in Diagnosis and Intervention. Madrid, Spain December 2016
198. 2nd World Congress on Cardiology, **Keynote Address**: Resynchronization Pacing for Early Heart Failure Among Young Adults with Repaired Congenital Heart Disease, Rome, Italy, July 2018
199. World Heart Congress 2019. **Keynote Address**: Cardiac Resynchronization Pacing for Heart Failure Among Congenital Heart Patients: Patient Selection and Non-invasive ECHO Imaging, Edinburgh, Scotland, September 2019
200. Oregon Health & Science University, Department of Pediatrics, Division of Cardiology, **50th Cazden Visiting Professor Lecture Series**, Cardiac Pacing/Arrhythmias in Pediatrics, June 2021 (virtual, Covid 19)

ATTENDED SCIENTIFIC MEETINGS

- | | |
|------|--|
| 1978 | American Academy of Pediatrics, Chicago, IL |
| 1979 | American Academy of Pediatrics, San Francisco, CA
American Heart Association, 52nd Session, Anaheim, CA |
| 1980 | American Academy of Pediatrics, Detroit, MI
Southern Society of Pediatric Research, New Orleans, LA
Amer Coll Card, Heart House: Antiarrhythmic Therapy |
| 1981 | American College of Cardiology, San Francisco
Southern Society of Pediatric Research, New Orleans
American Heart Assoc, Symposium: Congenital Heart Disease, Charleston, SC |
| 1982 | American College of Cardiology, Atlanta, GA
American Heart Association, 55th Session, Dallas, TX
University of Medicine of New Jersey Symposium: Cardiovascular Disease |
| 1983 | American Academy of Pediatrics, San Francisco
American Heart Association, 56th Session, Anaheim, CA
Pediatric Electrophysiology Society, Anaheim
VIIIth World Congress on Cardiac Pacing; Vienna, Austria
Amer Heart Assoc, New Jersey Symposium: Cardiovascular Research Update
Amer Coll Card, Heart House: Pediatric Electrocardiography & Electrophysiology |
| 1983 | Univ Med New Jersey Symposium: Cardiovascular Disease
Academy of Medicine of NJ, Symposium: Antiarrhythmic Therapy
Long Island Jewish Medical Center Symposium: Pediatric Review |
| 1984 | Undersea Medical Society: Diving Medicine
American Heart Association, 57th Session, Miami, FL
Pediatric Electrophysiology Society, Miami
Texas Heart Institute Symposium, Tachydysrhythmias |
| 1985 | American Coll Card, Heart House: Pediatric Electrocardiography,
Electrophysiology and Pacing Cook County Graduate School of Medicine,
Chicago: Specialty Review in Pediatric Cardiology
American Heart Association, 58th Session, Washington, DC
Pediatric Electrophysiology Society, Washington, DC |
| 1986 | University of Maryland School of Medicine: Current Controversies and |

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Techniques in Congenital Heart Surgery
 University of Western Ontario, London, Ontario, Canada: Frontiers in
 Cardiac Surgery
 North American Society of Pacing and Electrophysiology, New Orleans
 X World Congress of Cardiology, Washington, DC
 Pediatric Electrophysiology Society, Dallas
 American Heart Association, 59th Session, Dallas, TX

- 1987 American Heart Association and Medtronic Scientific and Education
 Services: How to Approach Complex Arrhythmias. Miami, FL
 Symposium, 20 Years of Programmed Electrical Stimulation of the Heart.
 Maastricht, The Netherlands
 VIIIth World Symposium on Cardiac Pacing and Electrophysiology,
 Jerusalem, Israel
 British Heart Foundation, International Conference on the Management of
 Cardiac Arrhythmias, London, England
 American Heart Association of Michigan Research Forum,
 East Lansing, Michigan
 American Academy of Pediatrics, Section of Cardiology, New Orleans, LA
 Pediatric Electrophysiology Society, Anaheim, California
 American Heart Association, 60th Session, Anaheim, CA
- 1988 Primary Children's Medical Center, University of Utah: Postgraduate
 Course in Pediatric Cardiac Surgery
 North American Society of Pacing & Electrophysiology, Los Angeles
 Cook County Graduate School of Medicine: Pediatric Cardiology, Chicago
 American Heart Association of Michigan. 18th Annual Cardiovascular
 Research Forum, Ann Arbor
 Midwest Pediatric Cardiology Society, Annual Meeting, Cleveland, Ohio
 American College of Cardiology, Heart House: Patient Management and
 Decisions in Pediatric and Congenital Heart Disease
 American Academy of Pediatrics, Section of Cardiology, San Francisco, CA
 Pediatric Electrophysiology Society, Washington, D.C.
 American Heart Association, 61st Session, Washington, D.C.
- 1989 The Children's Hospital, Denver: Team Approach to Pediatric Cardiac
 Disease, Colorado
 American College of Cardiology, 38th Scientific Session, Anaheim, CA
 4th European Symposium on Cardiac Pacing, Stockholm, Sweden
 University of Nebraska Medical Center: Current Controversies and
 Techniques in Congenital Heart Surgery, Baltimore, Maryland
 American Heart Association of Michigan. 19th Annual Cardiovascular
 Research Forum, Detroit, Michigan.
 Midwest Pediatric Cardiology Society Annual Meeting, Kansas City, MO
 American Academy of Pediatrics, Section of Cardiology, Chicago, IL
 Pediatric Electrophysiology Society, New Orleans, LA
 American Heart Association, 62nd Session, New Orleans, LA
- 1990 Mount Sinai Medical Center, Miami, FL and Medtronic, Inc: Pacemaker
 Therapy Symposium
 Primary Children's Medical Center, Salt Lake City, Utah:
 Postgraduate Course in Pediatric Cardiac Surgery
 American College of Cardiology, 39th Annual Scientific Session,
 New Orleans, LA
 Pediatric Electrophysiology Society, Dallas, TX.
 American Heart Association, 63rd Session, Dallas, TX
- 1991 The Children's Hospital, University of Colorado: Team Approach to Pediatric
 Congenital Heart Disease, Denver, CO
 American College of Cardiology, 6th Charleston Symposium on Congenital Heart
 Disease, Charleston, SC
 1X World Symposium on Cardiac Pacing and Electrophysiology,
 Washington, DC
 American Academy of Pediatrics, Section of Cardiology, New Orleans, LA

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Pediatric Electrophysiology Society, Anaheim, CA
American Heart Association, 64th Session, Anaheim, CA

- 1992 University of Utah School of Medicine: Postgraduate Course in Pediatric Cardiac Surgery, Park City, Utah
American College of Cardiology, 41st Scientific Session, Dallas, Texas
North American Society of Pacing and Electrophysiology, 13th Scientific Session, Chicago, Illinois
National Center for Advanced Medical Education, Specialty Review in Pediatric Cardiology, Chicago, Illinois
Cardiostim '92, 8th International Congress, Nice, France
American Academy of Pediatrics, Section of Cardiology, San Francisco, CA
Pediatric Electrophysiology Society, New Orleans, LA
American Heart Association, 65th Session, New Orleans, LA
- 1993 The Children's Hospital, University of Colorado: Team Approach to Pediatric Cardiac Disease, Denver, CO.
North American Society of Pacing and Electrophysiology, 14th Scientific Session, San Diego, CA
Pediatric Radiofrequency Ablation Registry, San Diego, CA
Heart Failure, Mechanisms and Management: Geneva, Switzerland
6th European Symposium on Cardiac Pacing, Ostend, Belgium
23rd Annual Michigan Cardiovascular Research Forum, East Lansing, MI
Advanced Pacing Concepts, Medtronic Inc, Sante Fe, NM
American Heart Association, 66th Session, Atlanta, GA
Pediatric Electrophysiology Society Annual Meeting, Atlanta, GA
Pediatric Radiofrequency Ablation Registry, Atlanta, GA
- 1994 Primary Children's Medical Center, University of Utah School of Medicine: Postgraduate Course in Pediatric Cardiac Surgery, Salt Lake City, UT
American College of Cardiology, 43rd Scientific Session, Atlanta, GA
North American Society of Pacing and Electrophysiology, 15th Scientific Session, Nashville, TN
Pediatric Radiofrequency Ablation Registry, Nashville, TN
Cardiostim 94, 9th International Congress, Nice, France
American Heart Association, 67th Session, Dallas, TX
Pediatric Radiofrequency Ablation Registry, Dallas, TX
Pediatric Electrophysiology Society Annual Meeting, Dallas, TX
- 1995 University of Colorado School of Medicine: Team Approach to Pediatric Cardiac Disease, Denver
American College of Cardiology, 44th Scientific Session, New Orleans, LA
North American Society of Pacing and Electrophysiology, 16th Scientific Session, Boston, MA
Pediatric Radiofrequency Ablation Registry, Boston, MA
American College of Cardiology, Michigan Chapter, 7th Scientific Session, Travis City, MI
American Academy of Pediatrics, Section of Cardiology, San Francisco, CA
- 1996 Research Advisory Panel, Bradycardia Pacing, Medtronic Inc, San Jose, CA
Primary Children's Medical Center, University of Utah School of Medicine: Postgraduate Course on Pediatric Cardiovascular Disease, Salt Lake City, UT
North American Society for Pacing and Electrophysiology, 17th Session, Seattle, WA
Pediatric Radiofrequency Ablation Registry, Seattle, WA
Cardiostim 96, 10th International Scientific Session, Nice, France
U.S. Dept Health & Human Services, FDA Advisory Panel, Rockville, MD
American Academy of Pediatrics, Section of Cardiology, Boston, MA
American Heart Association, 69th Session, New Orleans, LA
- 1997 Research Advisory Panel, Bradycardia Pacing, Medtronic, Inc. Daytona, FL
The Children's Hospital, Univ Colorado School of Medicine: Team Approach to Pediatric Cardiac Disease, Vail, CO
North American Society for Pacing and Electrophysiology, 18th Session, New Orleans, LA
Pediatric Radiofrequency Ablation Registry, New Orleans, LA
American Heart Association, 70th Session, Orlando, FL
Pediatric Electrophysiology Society, Orlando, FL

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Research Advisory Panel, Bradycardia Pacing, Medtronic Inc, Stillwater, MN

- 1998 Primary Children's Medical Center, University of Utah School of Medicine:
 Postgraduate Course on Pediatric Cardiovascular Disease, Salt Lake City, UT
 Pacing Leads Symposium, Medtronic, Minneapolis, MN
 North American Society for Pacing and Electrophysiology, 19th Session, San Diego, CA
 Pediatric Radiofrequency Ablation Registry, San Diego, CA
 American Academy of Pediatrics, Section on Cardiology, San Francisco, CA
- 1999 Sotalol Investigational Meeting, Berlex, Atlanta, GA
 Egyptian Society of Cardiology 26th Session, Cairo, Egypt
 The Children's Hospital, Univ Colorado School of Medicine: Team Approach to Pediatric Cardiac Disease, Vail, CO
 North American Society of Pacing and Electrophysiology, 20th Scientific Session, Toronto
 Worldwide Leads Symposium, Medtronic, Minneapolis, MN
 American Heart Association 71st Scientific Session, Atlanta, GA
- 2000 Primary Children's Medical Center, University of Utah School of Medicine:
 Postgraduate Course on Pediatric Cardiovascular Disease, Salt Lake City, UT
 North American Society for Pacing and Electrophysiology, 21st Session, Washington, DC
 International Congress on Cardiac Pacing and Electrophysiology, Istanbul, Turkey
 American Academy of Pediatrics, Section of Cardiology, Chicago, IL
 American Heart Association 72nd Scientific Session, New Orleans, LA
 Pediatric RF Ablation Registry Meeting, New Orleans, LA
 Amiodarone Investigators Meeting, San Diego, CA
- 2001 International Meeting of Egyptian Working Group of Electrophysiology and Pacing, Cairo
 The Children's Hospital, Univ Colorado School of Medicine: Team Approach to Pediatric Cardiac Care, Vail, CO
 Pediatric Academic Societies Meeting, Baltimore, MD
 North American Society for Pacing and Electrophysiology, 22nd Session, Boston, MA
 World Congress of Pediatric Cardiology, Toronto, Canada
 American Academy of Pediatrics, Section of Cardiology, San Francisco, CA
 American Heart Association 73rd Scientific Session, Anaheim, CA
 Pediatric Electrophysiology Society Meeting, Anaheim, CA
- 2002 Pediatric Electrophysiology Focus Group, Minneapolis, MN.
 Primary Children's Medical Center, University of Utah School of Medicine:
 Postgraduate Course on Pediatric Cardiovascular Disease, Salt Lake City, UT
 North American Society for Pacing and Electrophysiology, 22nd Session, San Diego, CA
 Pediatric Electrophysiology Society Meeting, San Diego, CA
 Pediatric Electrophysiology Focus Group, Minneapolis, MN
 American Academy of Pediatrics, Section of Cardiology, Boston, MA
 American Heart Association 74th Scientific Session, Chicago, IL
 Council, Cardiovascular Disease in the Young, Amer Heart Assoc, Washington, DC
 Pediatric Electrophysiology Society Meeting, Chicago, IL
- 2003 The Children's Hospital, Univ Colorado School of Medicine and Univ Oregon:
 Team Approach to Pediatric Cardiac Care, Vail, CO
 American College of Cardiology 52nd Scientific Sessions, Chicago, IL
 North American Society for Pacing and Electrophysiology, 23rd Session, Washington, DC
 Pedi Rhythm International Symposium, Istanbul, Turkey
 Pediatric Electrophysiology Focus Group, Minneapolis, MN.
 South Eastern Pediatric Cardiology Scientific Session, Little Rock, AK
 American Heart Association 75th Scientific Session, Orlando, FL
 Pediatric Electrophysiology Society, Orlando, FL
- 2004 Primary Children's Medical Center, University of Utah School of Medicine:
 Postgraduate Course on Pediatric Cardiovascular Disease, Salt Lake City, UT
 Pediatric EP Advisory Board, Medtronic Inc, Minneapolis, MN
 American College of Cardiology 53rd Scientific Sessions, New Orleans, LA
 Council, Cardiovascular Disease in the Young, Amer Heart Assoc, Washington, DC
 Heart Rhythm Society, 24th Scientific Session, San Francisco, CA
 Pediatric Electrophysiology Society Meeting, San Francisco, CA
 Select Site Pacing Meeting, Medtronic, Nice, France

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14th Scientific Session, Cardiostim, Nice, France

Pediatric Electrophysiology Focus Group, Minneapolis, MN

- 2005 Egyptian Society of Cardiac Electrophysiology
The Children's Hospital, Univ Colorado School of Medicine: Team Approach to Pediatric Cardiac Care, Vail, CO
Pediatric EP Advisory Board, Medtronic Inc, Minneapolis, MN
Heart Rhythm Society, 26th Scientific Session, New Orleans, LA
Pediatric Electrophysiology Society Meeting, New Orleans, LA
PediRhythm II, Antalya, Turkey
Pediatric Electrophysiology Focus Group, Minneapolis, MN
Amer Acad Pediatrics, Cardiology Section, Washington, DC
- 2006 Primary Children's Medical Center, University of Utah School of Medicine:
Postgraduate Course on Pediatric Cardiovascular Disease, Salt Lake City, UT
Alternate Site Pacing/Select Secure Delivery System, Las Vegas, NV
Heart Rhythm Society, 27th Scientific Session, Boston, MA
Synchronicity, Heart Failure Management, Boston, MA
Select Secure Pacing Symposium Boston, MA
Pediatric Electrophysiology Focus Group, Minneapolis, MN
Amer Acad Pediatrics, Cardiology Section, Atlanta, GA
Amer Heart Association 78th Scientific Sessions, Chicago, IL
Alternate Site Pacing/Select Secure Delivery System, San Francisco, CA
- 2007 University of Colorado, Children's Hospital, Postgraduate Course on Pediatric Cardiovascular Disease, Vail, Colorado
Heart Rhythm Society, 28th Scientific Sessions, Denver, CO
Sudden Cardiac Arrest in the Young, PACES meeting, Denver, CO
PediRhythm III, Istanbul, Turkey
Venice Arrhythmias 2007, Venice, Italy
Amer Acad Pediatrics, Cardiology Section, San Francisco, CA
- 2008 Primary Children's Medical Center, University of Utah School of Medicine:
Postgraduate Course on Pediatric Cardiovascular Disease, Salt Lake City, UT
American College of Cardiology 57th Scientific Sessions
Heart Rhythm Society, 29th Scientific Sessions, San Francisco, CA
Adult Congenital Heart, 18th International Symposium, Toronto, Canada
Pediatric Electrophysiology Focus Group, Medtronic, Minneapolis, MN
Amer Heart Association, 80th Scientific Sessions, New Orleans, LA
Heart Failure Society of America, 12th Scientific Sessions, Toronto, Canada
- 2009 University of Colorado, Children's Hospital, Postgraduate Course on Pediatric Cardiovascular Disease, Vail, Colorado
American College of Cardiology 58th Scientific Sessions, Orlando, FL
Heart Rhythm Society, 30th Scientific Sessions, Boston, MA
5th World Congress of Paediatric Cardiology and Cardiovascular Surgery, Cairns, AU
Amer Acad Pediatrics, Cardiology Section, Washington, DC
Amer Heart Association, 81st Scientific Sessions, Orlando, FL
- 2010 University of Utah, Primary Children's Hospital, Postgraduate Course on Pediatric Cardiovascular Disease, Salt Lake City, UT
Pediatric Electrophysiology Focus Group, Medtronic, Minneapolis, MN
American College of Cardiology 59th Scientific Sessions, Atlanta, GA
Ohio Area Doctors Interested in Congenital Heart, 38th Scientific Session, Detroit, MI
Heart Rhythm Society, 31st Scientific Sessions, Denver, CO
Heart Failure Society of America, 14th Scientific Sessions, San Diego, CA
PediRhythm IV, Izmir, Turkey
Amer Acad Pediatrics, Cardiology Section, San Francisco, CA
- 2011 University of Colorado, The Children's Hospital, Postgraduate Course on Pediatric Cardiovascular Disease, Vail, CO
American College of Cardiology, 60th Scientific Sessions, New Orleans, LA
Heart Rhythm Society, 32nd Scientific Sessions, San Francisco, CA

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- Pediatric Electrophysiology Society Meeting, San Francisco, CA
 Cardiology at the Bix, 25th Scientific Session, Davenport, IA
 Heart Failure Society, 15th Annual Scientific Sessions, Boston, MA
 Amer Acad Pediatrics, Cardiology Section, Boston, MA
 Amer Heart Association, 83rd Scientific Sessions, Orlando, FL
- 2012 University of Utah, Primary Children's Hospital, Postgraduate Course on Pediatric Cardiovascular Disease, Salt Lake City, UT
 Heart Rhythm Society, 33rd Scientific Sessions, Boston, MA
 Pediatric Electrophysiology Society Meeting, Boston, MA
 International Academy of Cardiology, 17th World Congress on Heart Disease, Toronto
 Amer Acad Pediatrics, Cardiology Section, New Orleans, LA
 Amer Heart Association, 84th Scientific Sessions, Los Angeles, CA
 PediRhythm V, Istanbul, Turkey
- 2013 6th World Congress of Pediatric Cardiology and Cardiac Surgery, Capetown, SA
 American College of Cardiology, 62nd Scientific Sessions, San Francisco, CA
 Heart Rhythm Society, 34th Scientific Sessions, Denver, CO
 Pediatric Electrophysiology Society Meeting, Denver, CO
 International Academy of Cardiology 18th World Congress on Heart Disease, Vancouver
 Amer Heart Association, 85th Scientific Sessions, Dallas, TX
- 2014 20th Scientific Sessions, Polish Heart Society, Kościelisko, Poland
 American College of Cardiology 63rd Scientific Sessions, Washington, DC,
 Heart Rhythm Society, 35th Scientific Sessions, San Francisco, CA
 Pediatric Electrophysiology Society Meeting, San Francisco, CA
 International Academy of Cardiology 19th World Congress Heart Disease, Boston, MA
 PediRhythm VI, Istanbul, Turkey
 Amer Acad Pediatrics, Cardiology Section, San Diego, CA
 Amer Heart Assoc, 86th Scientific Sessions, Chicago, IL
- 2015 International Soc for Heart and Lung Transplant, 35th Scientific Sessions Nice, France
 American College of Cardiology, 64th Scientific Sessions, San Diego, CA
 Heart Rhythm Society, 36th Scientific Sessions, Boston, MA
 Pediatric Electrophysiology Society Meeting, Boston, MA
 20th World Congress on Heart Disease, International Acad of Cardiology, Vancouver, BC
 19th Scientific Sessions, Heart Failure Society of America, National Harbor, Maryland
 Amer Acad Pediatrics, Cardiology Section, Washington, DC
 Amer Heart Assoc, 87th Scientific Sessions, Orlando, FL
- 2016 American College of Cardiology, 65th Scientific Sessions, Chicago, IL
 Heart Rhythm Society, 37th Scientific Sessions, San Francisco, CA
 Pediatric Electrophysiology Society Meeting, San Francisco, CA
 20th Scientific Sessions, Heart Failure Society of America, Orlando, FL
 8th Global Cardiologists & Echocardiography Scientific Sessions, Berlin, Germany
 Amer Acad Pediatrics, Cardiology Section, San Francisco, CA
 Amer Heart Assoc, 88th Scientific Sessions, New Orleans, LA
 13th European Cardiology Congress, Madrid, Spain
- 2017 PediRhythm VII, Thessaloniki, Greece
 American College of Cardiology, 66th Scientific Sessions, Washington DC
 Heart Rhythm Society, 38th Scientific Sessions, Chicago, IL
 Pediatric Electrophysiology Society Meeting, Chicago, IL
 7th World Congress of Pediatric Cardiology and Cardiac Surgery, Barcelona, Spain
 Amer Acad Pediatrics, Cardiology Section, Chicago, IL
 Amer Heart Assoc, 89th Scientific Sessions, Anaheim, CA
- 2018 American College of Cardiology 66th Scientific Sessions, Orlando, CA
 Heart Rhythm Society, 39th Scientific Sessions, Boston, MA
 Pediatric Electrophysiology Society Meeting, Boston, MA

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- 2nd World Congress of Cardiology, Rome, Italy
PediRhythm VIII, Munich, Germany
Amer Acad Pediatrics, Cardiology Section, Orlando, FL
Pediatric and Congenital Electrophysiology Society Forum, Celebration, FL
Amer Heart Assoc, 90th Scientific Sessions, Chicago, IL
- 2019 American College of Cardiology 67th Scientific Sessions, New Orleans, LA
Heart Rhythm Society, 40th Scientific Sessions, San Francisco, CA
Pediatric Electrophysiology Society Meeting, San Francisco, CA
World Heart Congress, Edinburgh, Scotland
Amer Acad Pediatrics, Cardiology Section, New Orleans, LA
Amer Heart Assoc, 91st Scientific Sessions, Philadelphia, PA
- 2020 PediRhythm IX, Cracow, Poland (Virtual)
Amer Acad Pediatrics, Cardiology Section, (Virtual)
- 2021 Heart Rhythm Society, 41st Scientific Sessions, Boston, MA
Amer Acad Pediatrics, Cardiology Section (Virtual)