UNIVERSITY OF PENNSYLVANIA - SCHOOL OF MEDICINE

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March 29, 2024

Curriculum Vitae

Revision date: 3/29/2024

John W. Hirshfeld, Jr. M.D.

Cardiac Catheterization Laboratory Hospital of the University of Pennsylvania 11-109 South Pavilion 3400 Civic Center Blvd. Philadelphia, PA 19104 Telephone: 215-662-2181 FAX: 215-615-3073 Email address: hirshfel@pennmedicine.upenn.edu Date of birth July 25, 1943 Education: Cornell University, Ithaca, NY (Chemistry) 1965 A.B. 1969 M.D. Cornell University Medical College, New York, NY Postgraduate Training and Fellowship Appointments: 1968-69 Predoctoral fellow in Pharmacology, Cornell University Medical College, New York, NY Intern in Medicine, Yale New Haven Hospital, New Haven CT 1969-70 Resident in Medicine, Yale New Haven Hospital, New Haven CT 1970-71 NIH Research Fellow, Cardiology Branch, National Heart Lung 1971-73

and Blood Institute, Bethesda, MD Fellow in Cardiovascular Disease, Duke University Medical 1973-74 Center, Durham, NC

Military Service: None

Faculty Appointments:

1969-71	Instructor in Medicine, Department of Medicine, Yale University
	School of Medicine
1973-74	Instructor in Medicine, Department of Medicine, Duke University
	School of Medicine
1974-78	Samuel Bellet Assistant Professor of Cardiology, Department of
	Medicine, University of Pennsylvania School of Medicine
1978-81	Assistant Professor of Medicine, University of Pennsylvania
	School of Medicine

1981-88	Associate Professor of Medicine at the Hospital of the University
	of Pennsylvania, University of Pennsylvania, School of Medicine
1988 -2018	Professor of Medicine at the Hospital of the University of
	Pennsylvania, University of Pennsylvania, School of Medicine
2018 -	Emeritus Professor of Medicine at the Hospital of the University of
	Pennsylvania, University of Pennsylvania, School of Medicine

Hospital and Administrative Appointments:

1974 - 1976	Assistant Director, Cardiac Catheterization Laboratory, Hospital of
	the University of Pennsylvania
1976-2003	Director, Cardiac Catheterization Laboratory, Hospital of the
	University of Pennsylvania
2000 - 2011	Training Program Director, Interventional Cardiology Training
	Program University of Pennsylvania Medical Center
2003 - 2018	Director of Cardiovascular Education, Cardiovascular Division,
	University of Pennsylvania School of Medicine

Specialty Certification:

1970	Diplomate, National Board of Medical Examiners
1973	Internal Medicine, American Board of Internal Medicine -043631
1975	Cardiovascular Disease, American Board of Internal Medicine - 043631
1999	Interventional Cardiology, American Board of Internal Medicine - 043631

Licensure:

Pennsylvania MD-015654-E

Awards, Honors and Memberships i	n Honorary Societies:
1968	Alpha Omega Alpha
1969	Sigma XI
1969	The Harold G. Wolff Memorial Prize for Research Cornell University Medical College
1983	University of Pennsylvania Medical Student Government Faculty Honor Role for Excellence in Teaching
1990	University of Pennsylvania Lindback Award for Distinguished Teaching
1990,91,92,93	3,98, 99 02, 04 University of Pennsylvania Medical Students'
	Commendation for Outstanding Teaching
1999	Penn Pearls Award for medical student teaching
2004	University of Pennsylvania Cardiovascular Division Fellows' award for outstanding teaching
2005	Penn Pearls Award for Medical student teaching
2006	Distinguished Fellow Award – American College of Cardiology
2007	Best Course Director – University of Pennsylvania School of Medicine
2008	Best Lecturer in Cardiology Course – University of Pennsylvania School of Medicine
2009	Edward Cooper Award – American Heart Association

2011	Best Lecturer in Cardiology Course - University of Pennsylvania
	School of Medicine
2011	University of Pennsylvania Dean's Award for Outstanding
	Teaching
2016	Penn Cardiovascular Division Outstanding Teaching Award in
	Cardiac Catheterization and Interventions
2018	University of Pennsylvania Mark Josephson Award for
	Outstanding Teaching

Memberships in Professional and Scientific Societies: (Include offices held)

National Societies:

American Heart Association

1976 Fellow of Council on Clinical Cardiology

American Board of Internal Medicine

1997 – 03 Member Interventional Cardiology Test Writing Committee

American College of Cardiology

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1980	Fellow
1992 - 95	Member, Allied Health Professionals Committee
1995 - 97	President - Pennsylvania Chapter
1995 - 98	Governor - Eastern Pennsylvania Region
1995 - 98	Member - Board of Governors Working Group on Academic
Issues	
1996 - 02	Chair - Cardiac Catheterization Committee
1996 - 98	Member - Nominating Committee
1997 - 01	Member - Board of Governors Steering Committee
1997 - 00	Member - Executive Committee
1998 - 03	Member, ACC/AHA/ACP Task Force on Clinical Competence
1998 - 01	Member, Bethesda Conferences Committee
1998 - 99	Chair - Board of Governors
2000 - 05	Member, Board of Trustees
2000 - 02	Chair, Task Force to Develop a Cardiac Catheterization Laboratory
	CQI Tool
2003 - 05	Member, Nominating Committee
2003 - 05	Member Annual Scientific Session Program Committee
2004 - 07	Member Writing Committee – Adult Cardiovascular Medicine
	Core Training Committee (COCATS)
2004 - 08	Member Writing Committee – Guidelines for Percutaneous
	Coronary Intervention
2006	Distinguished Fellow
2007 - 10	Member, Awards Committee
2009 -	Member Innovations in Interventions Program Executive
	Committee
2012 -2018	Co-Chair Writing Committee to write patient radiation protection
	document

Society	for	Cardiac	Angiog	graphy	and	Interventions	

1990 - 93	Trustee
1994 - 99	Chair - Certificate of Proficiency Committee
1995 -	Governor - Pennsylvania
1997 - 00	Trustee

Local Societies:

1985 Fellow - The College of Physicians of Philadelph	hia
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National Scientific Committees:

	1990 - 93	Member - Thrombolysis in Myocardial Ischemia Morbidity and Mortality Classification Committee
	1990 - 92	Executive Committee - NHLBI Critical Issues in Intravascular
	1770 72	Contrast Agents Workshop
	1994 - 5	Ad Hoc Reviewer NHLBI Clinical Trials Review Committee
	1993 - 00	Member Working Group 1, American College of Cardiology,
		American College of Radiology, National Electrical Manufacturers
		Association Digital Imaging and Communications in Medicine
		Standards Committee
	1997 - 03	Member, American Board of Internal Medicine Interventional
		Cardiology Test Writing Committee
	1998 - 00	Member HALT-MI Data Safety and Monitoring Board
	1998 - 01	Member Beta-Cath Data Safety and Monitoring Board
	1999 - 01	Member, American Council on Graduate Medical Education
		Interventional Cardiology Committee
	2000 - 01	Chair Data and Safety Monitoring Board Hepacoat Stent Study
	2003 - 06	Consultant, Food and Drug Administration Circulatory Devices
		Panel.
	2006 - 2009	Member Food and Drug Administration Circulatory Devices Panel
	2009 - 2011	Chair Food and Drug Administration Circulatory Devices Panel
	2009 - 2015	Member ATTRACT Data Safety and Monitoring Board
Editorial Positions:		
	1980-84	Editorial Board - International Journal of Cardiology
	1987-	Editorial Board - Catheterization and Cardiovascular Diagnosis -
	1999 - 2016	Editorial Board - ACCEL (The American College of Cardiology
		audio journal)
	2015	

2015 - Guest Editor Journal of the American College of Cardiology Interventions.

Academic Committees at the University of Pennsylvania and Affiliated Hospitals:

1977 - 92	Member, Committee on Studies Involving Human Beings
1982 - 83	Member, Bridge Curriculum Planning Task Force
1983 - 98	Member, Bridge Curriculum Committee-Cardiovascular System
	Chairman
1983 -	Department of Medicine, Housestaff Selection Committee
1985 - 87	Member, Student Recommendation Committee for the Class of
	1989
1986 - 87	Member, Committee to Review Department of Surgery

1987 - 88	Task Force to Plan Patient Services for the Department of Medicine
1007	
1987 -	Member, Council on Undergraduate Medical Education
	(Also member Curriculum Evaluation subcommittee)
1987 - 90	Member, Faculty Senate Executive Committee
1988 - 91	Member, Interviewing Panel for Selection of Winner of Spencer
	Morris Prize
1988 - 90	Member, Search Committee for Chief of Pulmonary Medicine
1989 - 96	Member, Department of Medicine Committee on Appointments and Promotions
1989 - 91	Member, Medical Board Hospital of the University of
	Pennsylvania
1990 - 93	Member, Continuing Education Council, University of
	Pennsylvania School of Medicine
1992 -	Member, Student Standards Committee
1995 - 97	Chair - Student Standards Committee
1995	Member, Committee to review Physiology course and curriculum
1996 - 98	Member, Medical Board Hospital of the University of
	Pennsylvania
1996 - 98	Member Medical Faculty Senate Executive Committee
1996 - 98	Curriculum 2000 Planning Committee - Module 2 Coordinator
1997 - 00	Member, Medical School Committee on Appointments and
	Promotions
1997 - 04	Member, School of Medicine Teaching Awards Selection
	Committee.
1998 - 10	Module 2 Coordinator – Curriculum 2000
1998 - 11	Cardiovascular Organ System Block Leader – Curriculum 2000
2000 -	
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2013 -	
	of Medicine, University of Pennsylvania
1998 - 10 1998 - 11 2000 -	Committee. Module 2 Coordinator – Curriculum 2000 Cardiovascular Organ System Block Leader – Curriculum 2000 Member Academic Performance Review Committee – University of Pennsylvania School of Medicine Member Admissions Committee Screening Panel Perelman School

Major Teaching and Clinical Responsibilities at the University of Pennsylvania and Affiliated Hospitals (through 2018):

- 1. Attending Cardiac Catheterization Laboratory at HUP, 2 1/2 days per week. Includes responsibility for training all Cardiology Fellows in the techniques of cardiac catheterization and data interpretation and Interventional Cardiology fellows in coronary angioplasty and related techniques. At any time there are 3-5 postdoctoral fellows assigned to the laboratory.
- 2. Cardiac Catheterization Interventional Cardiology Conference Twice weekly
- 3. Course Director ME-314a (Cardiovascular Diagnostic Techniques elective)
- 4. Attending Rounds on CCU 4 weeks per year

Lectures by Invitation: (Since 1995)

	<u>511.</u> (Since 1995)
2/12/95	"Optimal use of low and high osmolality contrast agents in cardiac angiography."
	Presented at The American College of Cardiology Seventh annual Advances in
	Diagnostic and Therapeutic Cardiac Catheterization, Orlando, FL.
5/13/95	"The role of the Palmaz-Schatz Stent in interventional cardiology" Mercy
0/10/90	Hospital, Wilkes Barre, PA
6/7/95	1
0/ //95	"Restenosis in Palmaz-Schatz stents" Presented at the 4th annual sympsium of
	the Japanese Society for Interventional Cardiology, Nagoya, Japan.
10/18/95	"Applied hemodynamics in valvular disease" Presented at the 5th Cardiology
	Board Review Course. Philadelphia, PA
2/2/96	"Stenting is the preferred method for performing coronary angioplasty" Presented
	at The American College of Cardiology eighth annual Advances in Diagnostic
	and Therapeutic Cardiac Catheterization, Orlando, FL.
3/27/96	"Issues in preparing the cardiac catheterization laboratory for filmless operation"
5/2//20	Presented at the American College of Cardiology Annual Scientific Sessions,
	Orlando, FL
1/0/06	
4/8/96	"Optimal use of low and high osmolality contrast agents in cardiac angiography."
	Cardiac Catheterization Conference at University of Vermont College of
	Medicine, Burlington, VT
4/9/96	"The role of the Palmaz-Schatz Stent in interventional cardiology" Cardiology
	Grand Rounds at University of Vermont College of Medicine, Burlington, VT
12/3/97	"The Value of a Cardiologist" Presented at the Massachusetts Chapter of the
	American College of Cardiology Annual Meeting, Boston, MA.
1/8/98	"The Role of New Interventional Devices in Interventional Cardiology"
1/0/90	Presented at Chestnut Hill Hospital, Chestnut Hill, PA
2/13/98	"The Role of Catheterization Data in the Evaluation of Cardiac Valve Disease"
2/13/90	
	Presented at The American College of Cardiology tenth annual Advances in
a 14 4 10 0	Diagnostic and Therapeutic Cardiac Catheterization, Orlando, FL.
2/14/98	"Credentialing for Cardiovascular Interventions" Presented at The American
	College of Cardiology tenth annual Advances in Diagnostic and Therapeutic
	Cardiac Catheterization, Orlando, FL.
3//29/98	"Digital Imaging in Cardiac Angiography" Presented at the American College of
	Cardiology Scientific Sessions, Atlanta, GA
4/30/98	"Volume Standards for Competence in Coronary Interventional Procedures"
	Presented at the Virginia Chapter of the American College of Cardiology annual
	Meeting.
5/13/98	"How to Migrate a Cardiac Catheterization Laboratory to Filmless Operation"
5/15/98	
	Presented at the Society for Cardiac Angiography annual Meeting, Montreal,
_ / /	Canada
5/21/98	"The Choice of Contrast Agents for Cardiac Angiography" Presented at
	Cardiology Grand Rounds, Allegheny University of the Health Sciences,
	Philadelphia, PA
6/16/98	"Physics as Preparation for the Study of the Biomedical Sciences" Presented at
	the Harvard University Department of Physics, Boston, MA
12/5/98	"Coronary Angioplasty Volume-Outcome Relationships" Presented at the
	Louisiana Chapter Meeting of the American College of Cardiology, New Orleans,
	Louisiand chapter weeting of the American conege of cardiology, new offeans, LA
4/9/99	
サ/フ/ブブ	"The Role of Coronary Stents in Interventional Cardiology" Presented at the Whattan School New Ventures in Health Care Conference, Philadelphia, PA
	Wharton School New Ventures in Health Care Conference, Philadelphia, PA

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The Importance of Physics in the Understanding of Biomedical Sciences" Presented at the Department of Physics, Boston College, Boston, MA
"How to Migrate a Cardiac Catheterization Laboratory to Filmless Operation"
Presented at the Society for Cardiac Angiography annual Meeting, Monterey CA The Potential Importance of Post-Market Surveillance for Cardiovascular
Devices" Presented at the Joint American College of Cardiology / U.S, Food and
Drug Administration Conference on post-market surveillance of cardiovascular
devices.
"New Developments in Interventional Cardiology" Presented at the American
College of Cardiology Science Writers' Symposium, Anaheim, CA "Cardiac Catheterization Laboratory Licensing and Accreditation. What is the
ACC doing?" Presented at the Annual Meeting of the Ohio Chapter of the
American College of Cardiology, Cleveland, OH
The use of Registries for Post-Market Surveillance of Cardiovascular Devices.
Presented at FDA "Town Hall Meeting" at the 10 th Annual TransCatheter
Cardiovascular Therapeutics Meeting, Washington, D.C. "Training the Next Generation of Interventional Cardiologists. The Impact of
Accreditation and Certification Standards." Presented at the 10 th Annual
TransCatheter Cardiovascular Therapeutics meeting, Washington, D.C.
"Interventional Cardiology as a Cognitive Discipline". Presented at
Cardiovascular Grand Rounds, The University of Colorado, Denver, CO.
"How to select a Database for Interventional Cardiology. Presented at the American Heart Association Annual Scientific Session, Anaheim, CA.
"Training in Interventional Cardiology – A Cognitive Discipline" Presented to
the American College of Cardiology Training Directors' Symposium during the
American College of Cardiology Annual Scientific Session, Atlanta, GA.
"Quality Issues in Coronary Intervention – Database management issues" Presented at the American College of Cardiology Annual Scientific Session,
Atlanta, GA.
"Controversies in Primary PCI: Time to Treat, Volume Requirements, Surgical
Back-Up Presented at the American College of Cardiology Annual Scientific
Session, Atlanta, GA.
"Interventional Cardiology as a Cognitive Discipline" Presented at Cardiovascular Grand Rounds, Medical College of Virginia, Richmond, VA
"How Should a Contemporary Cardiac Catheterization Laboratory be
Configured?" Presented at the Society for Cardiovascular Angiography and
Interventions Annual Scientific Session. Seattle, Washington.
"How Can A Coronary Interventionalist Acquire Cognitive Knowledge About
Peripheral Arterial Disease?" Presented at the American Heart Association Scientific Sessions, Chicago, IL.
"Quality Assurance and Improvement in the Cardiac Catheterization Laboratory"
Presented at the American College of Cardiology Annual Scientific Sessions,
Chicago, IL.
"Potential Solutions to the Impending Cardiovascular Workforce Shortage"
Presented at the American College of Cardiology Bethesda Conference #35, Bethesda, MD.
"Contrast Agent Nephropathy Can be Prevented" Presented at Symposium
"Interventional Cardiology – Bench to Bedside and Beyond" at the American
Heart Association Annual Scientific Sessions, Orlando, FL.

11/11/03	"How to Perform Quality Assurance in the Cardiac Catheterization Laboratory" Presented at the American Heart Association Annual Scientific Sessions, Orlando, FL
3/9/04	"Strategies to Prevent Contrast Agent Nephropathy" Presented at the American College of Cardiology Annual Scientific Sessions, New Orleans, LA.
3/9/04	"Complex Coronary Interventions" Presented at the American College of
10/14/04	Cardiology Annual Scientific Sessions, New Orleans, LA. "Prevention of Contrast Agent Nephropathy". Presented at Cardiovascular Grand Rounds, The Medical College of Virginia, Richmond, VA
11/9/04	"How to Perform Percutaneous Coronary Intervention in Complex Lesion Subsets". Presented at the American Heart Association Annual Scientific Sessions, New Orleans, LA.
3/7/05	"The Role of Registries in Interventional Cardiology" Presented at the American College of Cardiology Scientific Sessions, Orlando, FL.
4/5/05	"Cardiovascular Manpower Issues – The Impending Shortage of Cardiologists" Presented at the Pennsylvania Chapter Meeting of the American College of Cardiology, Harrisburg, PA.
5/4/05	"Interventional Cardiolology Training Programs – Lessons Learned" Presented at the Society of Cardiovascular Angiography and Interventions meeting, Ponte Vedra Beach, FL
7/13/05	"Radiographic Contrast Agents – What the Interventionalist Needs to Know" Duke University Clinical Cathterization Conference Series
10/18/05	"Adjunctive Pharmacologic Therapy in PCI - Antithrombin and Antiplatelet Controversies" Presented at the Transcatheter Cardiovascular Therapeutics Scientific Sessions, Washington, DC
10/18/05	"Contrast Nephropathy Risk" Presented at the Transcatheter Cardiovascular Therapeutics Scientific Sessions, Washington, DC
10/19/05	"Radiation Principles and Safety" Presented at the Transcatheter Cardiovascular Therapeutics Scientific Sessions, Washington, DC
11/14/05	"Assessing Quality: Volume and Outcomes in Percutaneous Coronary Intervention, Where do we Stand?" Presented at the American Heart Association Annual Scientific Sessions, Dallas, TX.
5/10/06	"A Gallery of Angiograms – Movies with Morals" Presented at the Society for Cardiovascular Angiography and Interventions Scientific Sessions, Chicago, IL
5/10/06	"Measuring Hemodynamics in the Cath Lab – The Common Way and the Right Way"" Presented at the Society for Cardiovascular Angiography and Interventions Scientific Sessions, Chicago, IL
5/12/06	"Assessing and Assuring Quality in PCI – Operator Volumes, Onsite Surgery. Where do we stand in 2006?" Presented at the Society for Cardiovascular Angiography and Interventions Scientific Sessions, Chicago, IL
10/22/06	"The Hemodynamics of Hypertrophic Obstructive Cardiomyopathy" Presented at the Transcatheter Cardiovascular Therapeutics Scientific Sessions, Washington, DC
10/23/06	"Implications of Chronic Kidney Disease and Contrast Nephropathy – Preventative Approaches. Presented at the Transcatheter Cardiovascular Therapeutics Scientific Sessions, Washington, DC
10/25/06	"Radiation Principles and Safety" Presented at the Transcatheter Cardiovascular Therapeutics Scientific Sessions, Washington, DC

3/27/07	"Who Benefits for Pre-Operative Coronary Revascularization and How Should it be Done?" Presented at the American College of Cardiology Scientific Sessions,
	New Orleans, LA.
10/7/07	"Contrast Nephropathy, Pathogenesis and Prevention" Presented at the Robert
10/00/07	Wood Johnson Cardiovascular Symposium, New Brunswick, NJ
10/20/07	"Optimizing Hemodynamic Interpretation in the Cardiac Catheterization
	Laboratory" Presented at the Transcatheter Cardiovascular Therapeutics Scientific
	Sessions, Washington, DC
10/23/07	"Perspectives on the Relative Impact of a Severe Low Frequency Event –
	Contrast Nephropathy" Presented at the Transcatheter Cardiovascular
	Therapeutics Scientific Sessions, Washington, DC
3/29/07	"Optimizing Hemodynamic Interpretation in the Cardiac Catheterization
	Laboratory" Presented at the American College of Cardiology Scientific Sessions,
	Chicago, Il.
5/29/09	"The ACC/AHA/SCAI Guidelines for Percutaneous Coronary Intervention
	How do we apply them in 2009? The Joseph R. Calder Memorial Lecture,
	Williamsport Hospital and Medical Center, Williamsport PA
3/11/11	"Interpreting Complex Hemodynamics in the Cardiac Catheterization Laboratory"
	Presented at Cardiology Grand Rounds, Geisinger Medical Center, Danville, PA
3/11/11	"Current Management of Coronary Heart Disease" Charles Laubach Visiting
	Professorship Geisinger Medical Center, Danville, PA
5/9/12	"Cardiac Shunt and Resistance Calculations" Presented at the Society for Cardiac
	Angiography and interventions Annual Scientific Sessions, Las Vegas, NV
5/9/12	"Constriction, Restriction, Tamponade and HOCM" Presented at the Society for
	Cardiac Angiography and interventions Annual Scientific Sessions, Las Vegas, NV

Organizing Roles in Scientific Meetings:

2/2-3/00 Joint American College of Cardiology / U.S. Food and Drug Administration conference on post-market surveillance of cardiovascular devices.

<u>Research Publications, peer-reviewed</u> (print or other media):

- 1. Hirshfeld JW, Fell C: Changes in regional blood content during hemorrhagic shock in dogs. American Journal of Physiology 216:380, 1969
- 2. Levitt B, Raines A, Sohn YJ, Standaert FG, Hirshfeld JW: The nervous system as a site of action for Digitalis and antiarrhythmic drugs. Mount Sinai Journal of Medicine 37:227, 1970
- 3. Hirshfeld JW, Sohn YJ, Raines, A, Levitt B: Action of Propranolol on atrioventricular conduction in the Digitalis-intoxicated heart. Archives Internationales de Pharmacodynamie 192:338, 1971
- 4. Maron BJ, Redwood DR, Hirshfeld JW, Goldstein RE, Morrow AG, Epstein SE: Post-operative assessment of patients with ventricular septal defect and pulmonary hypertension: Response to intense exercise. Circulation 48:864, 1973
- 5. Hirshfeld JW, Borer JS, Barrett MJ, Goldstein RE, Epstein SE: Reduction in severity of myocardial infarction when nitroglycerin and Methoxamine are administered during acute coronary occlusion in the dog. Circulation 49:291, 1974
- 6. Kramer RJ, Goldstein RE, Hirshfeld JW, Roberts WC, Johnson GD: Accumulation of Gallium-67 in regions of acute myocardial infarction. American Journal of Cardiology 33:861, 1974
- 7. Bailey JJ, Itscoitz SB, Hirshfeld JW, Grauer LE, Horton MR: A method for evaluating computer programs for electrocardiographic interpretation: I. Application to the experimental IBM program of 1971. Circulation 50:73, 1974
- 8. Bailey JJ, Itscoitz SB, Hirshfeld JW, Grauer LE, Horton MR: A method for evaluating computer programs for electrocardiographic interpretation: II. Application to Version D of the PHS program and the Mayo Clinic program of 1968. Circulation 50:80, 1974
- 9. Hirshfeld JW, Epstein SE, Roberts AJ, Glancy DL, Morrow AG: Indices predicting long-term survival after valve replacement in patients with aortic regurgitation and patients with aortic stenosis. Circulation 50:190, 1974
- Kastor JA, Goldreyer BN, Josephson ME, Perloff JK, Scharf DL, Manchester JH, Shelburne JC, Hirshfeld JW: Electrophysiologic characteristics of Epstein's anomaly of the tricuspid valve. Circulation 52:987, 1975
- 11. Margolis JR, Hirshfeld JW, McNeer JF, Starmer CF, Rosati RA, Peter RH, Behar VS, Kong Y: Sudden death to coronary artery disease: A clinical, hemodynamic, and angiographic profile. Circulation 52:111-180, 1975
- 12. Stark RM, Perloff JK, Glick JH, Hirshfeld JW: Clinical recognition and management of cardiac metastatic disease. Observations in a unique case of alveolar soft-part sarcoma. American Journal of Medicine 63:653, 1977
- 13. Wilson JR, Martin JL, Untereker WJ, Laskey WK, Hirshfeld JW: Sequential changes in regional coronary flow during pacing-induced angina pectoris: Coronary flow limitation precedes angina. American Heart Journal 107:269, 1977

- 14. Goldberg S, Lam W, Mudge G, Green LH, Kushner F, Hirshfeld JW, Kastor JA: Coronary hemodynamic and myocardial metabolic alterations accompanying coronary spasm. American Journal of Cardiology 43:481, 1979
- 15. Goldberg S, Reichek N, Wilson JR, Hirshfeld JW, Muller J, Kastor JA: Nifedipine in the treatment of Prinzmetal's (variant) angina. American Journal of Cardiology 44:804, 1979
- 16. Redwood DR, Goldstein RE, Hirshfeld JW, Borer JS, Morganroth J, Morrow AG, Epstein SE: Exercise performance after septal myotomy and myectomy in patients with obstructive hypertrophic cardiomyopathy. American Journal of Cardiology 44:215, 1979
- 17. Cogen FC, Norman ME, Dunsky E, Hirshfeld JW, Zweiman B: Histamine release and complement changes following injection of contrast media in humans. The Journal of Allergy and Clinical Immunology 64:299, 1979
- Buxton AE, Goldberg S, Hirshfeld JW, Wilson J, Mann T, Williams DO, Oliva P: Refractory Ergonovine induced coronary vasospasm: Importance of intracoronary nitroglycerin. American College of Cardiology 46:329, 1980
- 19. Wilson JR, Reichek N, Hirshfeld JW: Noninvasive assessment of load reduction in patients with asymptomatic aortic regurgitation. American Journal of Medicine 68:664, 1980
- 20. Buxton AE, Goldberg S, Harken A, Hirshfeld JW, Kastor JA: Coronary-artery spasm immediately after myocardial revascularization: Recognition and management. New England Journal of Medicine 304:1249, 1981
- 21. Hirshfeld JW, Untereker WJ, Goldberg S, Dienel NH, Drew T, Lozner E: A new lack of twist for the Judkins left coronary catheter. Catheterization and Cardiovascular Diagnosis 7:331, 1981
- 22. Wilson JR, Goldberg S, Hirshfeld JW, Harken AH: Effects of respiratory alkalosis on coronary vascular dynamics and myocardial energetics in patients with coronary artery disease. American Heart Journal 102:202, 1981
- 23. Wilson JR, Untereker W, Hirshfeld JW, Ferraro N: Effects of Isosorbide Dinitrate and Hydralazine on regional metabolic responses to arm exercise in patients with heart failure. The American Journal of Cardiology 48:934, 1981
- 24. London RL, Ouyang A, Snape WJ Jr., Goldberg S, Hirshfeld JW Jr., Cohen S: Provocation of esophageal pain by ergonovine or edrophonium. Gastroenterology 81:10, 1981
- 25. Reichek N, Wilson J, St. John Sutton M, Plappert T, Goldberg S, Hirshfeld JW: Noninvasive determination of left ventricular end-systolic stress: Validation of the method and initial application. Circulation 65:99, 1982
- 26. Laskey WK, Hirshfeld JW, Untereker WJ, Kusiak V, Martin JL, Groh WC: A safe and rapid technique for retrograde catheterization of the left ventricle in aortic stenosis. Catheterization and Cardiovascular Diagnosis 8:429, 1982
- 27. Laskey WK, Kusiak V, Untereker WJ, Hirshfeld JW: Transseptal left heart catheterization: Utility of a sheath technique. Catheterization and Cardiovascular Diagnosis 8:535, 1982

- 28. Buxton AE, Hirshfeld JW, Untereker WJ, Goldberg S, Harken AH, Stephenson LW, Edie RN: Perioperative coronary artery spasm long-term follow up. American Journal of Cardiology 50:444, 1982
- 29. Wilson JR, Martin JL, Untereker WJ, Hirshfeld JW: Regional coronary anatomy in rest angina. Comparison of patients with rest and exertional angina using quantitative coronary angiography. Chest 82:416, 1982
- 30. Hirshfeld JW, Laskey WK, Martin JL, Groh WC, Untereker W, Wolf GL: Hemodynamic changes induced by cardiac angiography with Ioxaglute: A comparison with Diatrizoate. Journal of the American College of Cardiology 2:954, 1983
- 31. Martin JL, Wilson JR, Burch JW, Untereker WJ, Laskey W, Ferraro N, Hirshfeld JW: Effect of atrial pacing on intracoronary thromboxane production in coronary artery disease. Journal of the American College of Cardiology 1:1194, 1983
- 32. Laskey WK, Reichek N, St. John Sutton M, Untereker W, Hirshfeld JW: Myocardial oxygen consumption in left ventricular hypertrophy and its relation to left ventricular mechanics. American Journal of Cardiology 52:852, 1983
- 33. Laskey WK, St. John Sutton M, Untereker WJ, Martin JL, Hirshfeld JW, Reichek N: Mechanics of pulsus alternans in aortic valve stenosis. American Journal of Cardiology 52:809, 1983
- 34. Wolf GL, Hirshfeld JW Jr.: Changes in QTc interval induced with Renografin-76 and Hypaque 76 during coronary arteriography. J Am Coll Cardiol 1:1489, 1983
- 35. Martin JL, Likoff MJ, Janicki JS, Laskey WK, Hirshfeld JW, Weber KT: Myocardial energetics and clinical response to the cardiotonic agent MDL 17,043 in advanced heart failure. J Am Coll Cardiol 4:875, 1984
- 36. Martin JL, Wilson JR, Ferraro N, Laskey WK, Kleaveland JP, Hirshfeld JW: Acute coronary vasoconstrictive effects of cigarette smoking in coronary heart disease. American Journal of Cardiology 54:56, 1984
- 37. Laskey WK, Reichek N, St. John Sutton M, Untereker WJ, Hirshfeld JW: Matching of myocardial oxygen consumption to mechanical load in human left ventricular hypertrophy and dysfunction. Journal of the American College of Cardiology 3:291, 1984
- 38. St. John Sutton MG, Plappert TA, Hirshfeld JW, Reichek N: Assessment of left ventricular mechanics in patients with asymptomatic aortic regurgitation: A two-dimensional echocardiographic study. Circulation 69:259, 1984
- 39. Laskey WK, St. John Sutton M, Zeevi G, Hirshfeld JW, Reichek N: Left ventricular mechanics in dilated cardiomyopathy. American Journal of Cardiology 54:620, 1984
- 40. Laskey WK, Schroff SG, Kussmaul W, Martin JL, Kleaveland JP, Hirshfeld JW: Arterial pressure/flow relationships in heart failure due to congestive cardiomyopathy. Cardiovascular Systems Dynamics Society. Sixth International Conference Workshop. pp. 324-327, 1984, Philadelphia, PA, University of Pennsylvania

- 41. Martin JL, Fisher CA, Untereker WJ, Laskey WK, Hirshfeld JW, Harken AH, Addonizio VP: Effect of high dose aspirin on coronary hemodynamics during pacing-induced myocardial ischemia. J Am Coll Cardiol 5:210, 1985
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None