

SUPPLEMENTAL MATERIAL

Appendix A. Unit Costs Used to Estimate Costs for the Exercise Training Intervention

Appendix B. HF-ACTION Investigators

Appendix A. Unit Costs Used to Estimate Costs for the Exercise Training Intervention

Resource	Unit Cost	Assumptions	Source
Exercise physiologist	\$27.83 per hour	<ul style="list-style-type: none"> • 2008 median annual salary for exercise physiologist (\$38,008), obtained by averaging across 5 median pay scales by years of experience • 43.5% for fringe benefits allocated over 1960 hours per year (40 hours per week; 49 weeks per year) 	Payscale.com ¹ US Bureau of Labor Statistics ²
Nurse	\$45.72 per hour	<ul style="list-style-type: none"> • 2008 median annual salary for registered nurse (\$62,450) • 43.5% for fringe benefits allocated over 1960 hours per year (40 hours per week; 49 weeks per year) 	US Bureau of Labor Statistics ^{2,3}
Facility cost (fixed direct)	\$1.22 per session	<ul style="list-style-type: none"> • 9×9-foot area valued at \$17 per square foot per year • Precor treadmill model 954i at \$4725 (5 years of use) • POLAR FS1 Heart Rate Monitor with Non-coded T31 Chest Transmitter at \$60 (1 year of use) • Costs allocated over 1960 hours per year (40 hours per week; 49 weeks per year) 	Loopnet.com ⁴ Duke Center for Living ⁵ Heart Rate Monitors USA ⁶
Patient	\$19.85 per hour	<ul style="list-style-type: none"> • Average US hourly wage (\$19.85), not including fringe benefits, approximating opportunity cost of time for retirees 	US Bureau of Labor Statistics ²
Home exercise equipment	\$200 for stationary bike; \$320 for treadmill; \$100 shipping/set-up; \$36 for heart rate monitor	<ul style="list-style-type: none"> • Costs based on HF-ACTION administrative records representing invoices from ICON (Logan, Utah) and Polar USA, Inc (New York, New York). • Costs may be lower than retail prices for similar models, but it is assumed that health care payers could negotiate discounted prices. 	HF-ACTION administrative records
Travel and parking	\$0.545 per mile and \$2 for parking for each supervised session	<ul style="list-style-type: none"> • Number of miles reported between patients' homes and training facilities. 	US Internal Revenue Service ⁷

Abbreviation: HF-ACTION, Heart Failure: A Controlled Trial Investigating Outcomes of Exercise Training.

¹ Payscale.com. Salary Survey Report for Job: Exercise Physiologist. Available at: http://www.payscale.com/research/US/Job=Exercise_Physiologist/Salary. Accessed December 1, 2008.

² US Bureau of Labor Statistics. Employer Costs for Employee Compensation, June 2008. Available at: http://www.bls.gov.news.release/archives/ecec_09102008.pdf. Accessed December 1, 2008.

³ US Bureau of Labor Statistics. Occupational Employment and Wages, May 2008. Available at: <http://www.bls.gov/oes/current/oes291111.htm>. Accessed December 1, 2008.

⁴ Loopnet.com. Available at: <http://www.loopnet.com>. Accessed December 2, 2008.

⁵ Duke Center for Living (personal communication, J.L. Johnson)

⁶ Heart Rate Monitors USA. Available at: <http://heartratemonitorsusa.com/monitors-low.html>. Accessed December 2, 2008.

⁷ IRS Publication 436(2008): Travel, Entertainment, Gift, and Car Expenses. Available at: <http://www.irs.gov/pub/irs-pdf/p463.pdf>. Accessed October 29, 2009.

Appendix B. HF-ACTION Investigators

Executive Committee: Christopher M. O'Connor, MD, Kerry L. Lee, PhD, Stephen J. Ellis, PhD, David S. Rendall, BA, PA-C (Duke University, Durham, North Carolina); David J. Whellan, MD (Thomas Jefferson University, Philadelphia, Pennsylvania); Ileana L. Piña, MD (Case Western Reserve University, Cleveland, Ohio); Steven J. Keteyian, PhD (Henry Ford Hospital, Detroit, Michigan); Lawton S. Cooper, MD, MPH, Robin Boineau, MD, Lawrence J. Fine, MD, DrPH, Jerome L. Fleg, MD, Eric S. Leifer, PhD (National Heart, Lung, and Blood Institute, Bethesda, Maryland); Virginia Erickson, RN, PhD (University of California, Los Angeles); Jonathan G. Howlett, MD (Queen Elizabeth II Health Sciences Centre, Halifax, Nova Scotia, Canada); Nancy Houston Miller, RN, BSN (Stanford University, Stanford, California); Debra Isaac, MD (Foothills Hospital, Calgary, Alberta, Canada); Robert McKelvie, MD (Hamilton Health Sciences, Hamilton, Ontario, Canada); Faiez Zannad, MD, PhD (Université Henri Poincaré, Nancy, France).

Coordinating Center (Duke Clinical Research Institute, Duke University, Durham, North Carolina): Sharon Boozer, BA, Patty Connolly, Anthony Doll, BA, Stephen J. Ellis, PhD, Camille Frazier, MD, MHS, Deb Mark, Michelle McClanahan-Crowder, AA, Marcia Meyer, RN, BSN, Brenda S. Mickley, BS, David S. Rendall, BA, PA-C, Molly Rich, Hoss Rostami, BSMSE, Sharon Settles, MS, Kathy Spinella, BBA, Jessica Staib, PhD, Omar Thompson, BA.

Steering Committee (U01 Grant Sites): William Abraham, MD, Danuta Biniakiewicz, PhD, Joann Homan, RN (Ohio State University, Columbus); Vera Bittner, MD, MSPH, Meredith Fitz-Gerald, RN, BSN (University of Alabama, Birmingham); Gregory Ewald, MD, Heidi Craddock, RN, Jean Flanagan, RN, MSN (Washington University, St Louis, Missouri); Gregg Fonarow, MD, Virginia Erickson, RN, PhD (University of California, Los Angeles); Wilson

Colucci, MD, Nancy Z. Lim, RN, Elena Tokareva, PhD (Boston Medical Center, Boston, Massachusetts); Rami Alharethi, MD, Ray Hershberger, MD, Deirdre Nauman (Oregon Health and Science University, Portland); Steven J. Keteyian, PhD, Matthew Saval, MS (Henry Ford Hospital, Detroit, Michigan); Dalane W. Kitzman, MD, Brittney L. Fray, MS, Brian Moore, MS (Wake Forest University, Winston-Salem, North Carolina); Ileana L. Piña, MD, Marianne Vest, MA, BSN (Case Western Reserve University, Cleveland, Ohio); Andrew Smith, MD, Gail Snell, RN, BSN, CCRC (Emory University, Atlanta, Georgia); Eugene Wolfel, MD, Mona Cantu, RN, NP (University of Colorado Hospital, Aurora).

Steering Committee (Non-U01 Grant Sites): Kirkwood Adams, MD, Jana Glotzer, RN, MSN, ACNP, Valerie Johnson, RN, Kate Schumacher (University of North Carolina Hospitals, Chapel Hill); Gordon Blackburn, PhD, Carrie Geither, RN, Susan Moore, RN, BSN (Cleveland Clinic Foundation, Cleveland, Ohio); A. Bleakley Chandler Jr, MD, Shanda Browning Vaughn, RN, Paula J. Easler, RN, CCRC, Debbie Williams (University Hospital, Augusta, Georgia); Julius M. Gardin, MD, Kelly Dimick, RN, Sharon K. Sklar, LPN, Sherri Teller, RN, CCRP (St John Hospital and Medical Center, Detroit, Michigan); Jalal K. Ghali, MD, Karen Hale-Stenson, RN (Louisiana State University Health Sciences Center, Shreveport); Mihai Gheorghide, MD, Theresa Strzelczyk, APN, CNS (Northwestern University Medical Center, Chicago, Illinois); Maryl R. Johnson, MD, Cassondra Vander Ark, RN, MS, CCRC (University of Wisconsin, Madison); Lee R. Goldberg, MD, MPH, Andrew Kao, MD, Jennifer Dekerlegand, MPT, PhD (Hospital of the University of Pennsylvania, Philadelphia); William E. Kraus, MD, Johanna Johnson, MS, Brian D. Duscha, MS (Duke University Medical Center, Durham, North Carolina); Mandeep R. Mehra, MD, Hector Ventura, MD, Bobbett Harris, RN (Ochsner Clinic Foundation, New Orleans, Louisiana); Monica Colvin-Adams, MD, Kathy Duderstadt, BSN, Karen Meyer,

RN, BSN, Melissa Steger, RN, CCRC (University of Minnesota Medical Center, Fairview); Barry Cabuay, MD, Ron M. Oren, MD, Page Scovel, RN, BSN, CCRC (University of Iowa Hospitals and Clinic, Iowa City); Andrew Kao, MD, Tracey Stevens, MD, Karen Haffey, RN, BSN, CCRC, Christy Mandacina, Ann Stewart, RN, BSN (Mid America Heart Institute, Kansas City, Missouri); Ann M. Swank, PhD, CSCS, John Manire, MS (University of Louisville, Kentucky); Paul D. Thompson, MD, Ludmila Cosio-Lima, PhD, Marie Lagasse, MS (Hartford Hospital, Hartford, Connecticut); Tehmina Naz, MD, Lynne Wagoner, MD, Susan K. Roll, RN, BSN (University of Cincinnati, Cincinnati, Ohio); Frank G. Yanowitz, MD, Johnny Walker, Adam Mueller (LDS Hospital, Salt Lake City, Utah); Peter McCullough, MD, Cathy Coleman, RN, BSN, CCRC, Kimberly A. Dorrell, Tamika Washington (William Beaumont Hospital, Royal Oak, Michigan); Eileen Handberg, PhD, James A. Hill, MD, Jacqueline Bakos, RN, Alice Boyette, Pamela Smith, Cynthia Williams, RN, BSN, MS (University of Florida, Gainesville); Dalynn Badenhop, PhD, Susan Schroeder; Kelly Walter (Medical University of Ohio, Toledo); Peter Kokkinos, PhD, Elisse Collins, Lauren Korsak, MS (VA Medical Center, Washington, DC); Eric Eichhorn, MD, Allison Leonard, RN, BSN, Tina Worley, RN, BSN (Medical City Dallas Hospital, Dallas, Texas); Gerald Fletcher, MD, Phil Peasley, RN, Pam Oldano, RN (Mayo Clinic, Jacksonville, Florida); John Kostis, MD, Nora M. Cosgrove, RN, BS (University of Medicine and Dentistry of New Jersey, New Brunswick); Udho Thadani, MD, Lisa Rogan, RN, BSN, Michelle Thresher, RN, BSN, John Turner, RN (University of Oklahoma Health Sciences Center, Oklahoma City); Denise Barnard, MD, Denise Herman, MD, Annette Contasti, RN, Marcy Sagerian, RN (University of California, San Diego Medical Center); Elizabeth Ofili, MD, Anekwe Onwuanyi, MD, Sunday Nkemdiche, MD (Morehouse School of Medicine, Atlanta, Georgia); Howard Eisen, MD, James Fitzpatrick, MD, Joyce Wald, DO, Jennie Wong, RN,

CCRP (Temple University Hospital, Philadelphia, Pennsylvania); Myrvin Ellestad, MD, Leslie Kern, RN, PhD (Long Beach Memorial Medical Center, Long Beach, California); Ezra A. Amsterdam, MD, Mary J. Burns, RN (University of California-Davis Medical Center, Sacramento); Savitri Fedson, MD, Ravi K. Garg, MD, Peggy Bennett, RN, Linda Bond, RN, MSN (University of Chicago Hospitals, Chicago, Illinois); Leway Chen, MD, MPH, Janice Schrack, RN, BSN (Strong Memorial Hospital, Rochester, New York); Douglas Pearce, MD, Linda Bond, MSN, RN, Greg Palevo, Margaret Serfass, RN (Saint Thomas Hospital, Nashville, Tennessee); Daniel Forman, MD, Maria M. Lopez, Yemi Talabi-Oates, April Williams (Brigham and Women's Hospital and Boston VA Medical Center, Boston, Massachusetts); David Truitte, MD, Cindy Baumann, RN, CCRN (Lynchburg General Hospital, Lynchburg, Virginia); Jenny Adams, PhD, Anne Lawrence, RN (Baylor Hamilton Heart and Vascular Hospital, Dallas, Texas); Dennis McNamara, MD, Emily Gruendler, RN, BSN, Virginia Schneider (University of Pittsburgh Medical Center, Pittsburgh, Pennsylvania); Steven Hutchins, MD, Alyce Hartwick, RN (Heart Clinic Arkansas, Little Rock); Paul Campbell, MD, Michele Esposito (Northeast Medical Center, Concord, North Carolina); Carol Buchter, MD, Rebecca A. Letterer, RN, BSN (University of Washington Medical Center, Seattle); Robert Taylor, MD, Cheri Wells, RN, MSN (University of New Mexico Health Sciences Center, Albuquerque); Bruce Johnson, PhD, Beth Kaping, RN, Susan Leathes, RN (Mayo Clinic, Rochester, Minnesota); Joseph O'Bryan, MD, Lynn Langley, RN (Southwest Florida Heart Group, Fort Myers); Edward T. Hastings, MD, Cassandra Clancy, RN, CCRC (St Luke's Medical Center, Milwaukee, Wisconsin); Neil Agruss, MD, Christine Lawless, MD, Robin Fortman, MS, APN/CNP, CCRC (Central DuPage Hospital, Winfield, Illinois); Timothy R. McConnell, PhD, Deb Wantz, MSN, RN, CCNS, CCRC (Geisinger Medical Center, Danville, Pennsylvania); Mary N. Walsh, MD, Regina Margiotti,

CMS, CCRC (The Care Group, Indianapolis, Indiana); Stuart Russell, MD, Elizabeth Heck, RN, BSN (Johns Hopkins Hospital, Baltimore, Maryland); Justine Lachmann, MD, Diane Lippman, RN, Jeannette McLaughlin, RN (St Francis Hospital, Roslyn, New York); Joel Landzberg, MD, Susan Mathus, RN, BSN (Hackensack University Medical Center, Hackensack, New Jersey); David W. Cullinane, MD, Wyatt Voyles, MD, Dione Lenz, RN, Scott Kaczkowski, BS, CCRC (Medical Center of the Rockies Foundation, Loveland, Colorado); Jack L. David, MD, Eve Gillespie, MD, PhD, Pat Keane-Richmond, RN, CCRC (Glacier View Cardiology, Kalispell, Montana); Steven K. Krueger, MD, Lori Heiss, RN, BS (Bryan LGH Heart Institute, Lincoln, Nebraska); Stephen Gottlieb, MD, Nancy Greenberg, RN, BSN, MS (University of Maryland School of Medicine, Baltimore); Neil Gordon, MD, Emily Parks, BS, Melanie Willoughby, RN, BSN, CCRN (St Joseph's/Candler Hospital, Savannah, Georgia); Marvin W. Kronenberg, MD, Jennie Glenn, RN, Carol Madison, RN (Vanderbilt University Medical Center, Nashville, Tennessee); Malcolm Arnold, MD, Julie K. Smith, RN (London Health Sciences Centre, London, Ontario, Canada); Eduardo Azevedo, MD, Glen Drobot, MD, Estrellita Estrella-Holder, RN, BN, MSA, CCNC (St Boniface General Hospital, Winnipeg, Manitoba, Canada); Jonathan Howlett, MD, Darlene Cooley-Warnell, Sheila Yarn, RN (Queen Elizabeth II Health Sciences Centre, Halifax, Nova Scotia, Canada); Debra Isaac, MD, Jane Grant, RN, Kim Lyzun (Foothills Hospital, Calgary, Alberta, Canada); Marie-Helene LeBlanc, MD, Rachel Vienneau, RN, BSc (Hôpital Laval, Sainte-Foy, Quebec, Canada); Robert S. McKelvie, MD, Linda Beare, Jill Hancock, LRN (Hamilton Health Sciences, Hamilton, Ontario, Canada); Gordon Moe, MD, Delores Golob, RN, BA (St Michael's Hospital, Toronto, Ontario, Canada); Kenneth Melvin, MD, Anne Cymet, RN, Judith Renton, RN (Toronto General Hospital, Toronto, Ontario, Canada); Anil Nigam, MD, Julie LaLonge (Montreal Heart Institute, Montreal, Quebec,

Canada); Karim Djaballah, MD (Hôpital Brabois, Vandoeuvre-lès-Nancy, France); Patrick Aebehard, MD (Centre Cardiologique du Nord, Saint-Denis, France); Marie Christine Iliou, MD (Hôpital Broussais, Paris, France); Remi Sabatier, MD, Annette Belin, MD (Centre Hospitalier Universitaire de Caen, France); Alain Cohen-Solal, MD (Hôpital Beaujon, Clichy, France); Luc Hittinger, MD (Hôpital Henri Mondor, Créteil, France).

Data and Safety Monitoring Board: Bertram Pitt, MD (chair), (University of Michigan, Ann Arbor); Philip A. Ades, MD (University of Vermont, South Burlington); Lotfy L. Basta, MD (San Francisco, California); Victor Froelicher, MD (Stanford University and Palo Alto VA Medical Center, Palo Alto, California); Mary Elizabeth Hamel, MD (Beth Israel Deaconess Medical Center, Boston, Massachusetts); Barry M. Massie, MD (San Francisco VA Hospital, San Francisco, California); Lemuel Moyé, MD, PhD (University of Texas Health Science Center, Houston); Lynda H. Powell, PhD (Rush University, Chicago, Illinois).

Cardiopulmonary Exercise Core Lab: William E. Kraus, MD (director); Johanna Johnson, MS, Lucy Piner, MS (Duke University, Durham, North Carolina); Daniel Bensimhon, MD (codirector) (LeBauer Cardiovascular Research Foundation, Greensboro, North Carolina); Stuart Russell, MD (Johns Hopkins University, Baltimore, Maryland).

Echo Core Lab: Julius M. Gardin, MD (director); Renee L. Bess, BS, RDCS, RVT, Gerald I. Cohen, MD (St John Hospital and Medical Center, Detroit, Michigan).

Heart Rate Training Core Lab: Steven J. Keteyian, PhD (director); Jonathan K. Ehrman, PhD (associate director); Clinton A. Brawner, MS (coordinator) (Henry Ford Hospital, Detroit, Michigan).

Adherence Core Lab: Nancy Houston Miller, RN, BSN (codirector) (Stanford University, Stanford, California); James A. Blumenthal, PhD (codirector); Krista Barbour, PhD (Duke

University, Durham, North Carolina); Tanya M. Spruill, PhD (Columbia University, New York, New York); Bess Marcus, PhD (Brown Medical School and Miriam Hospital, Providence, Rhode Island); Jim Raczynski, MD (University of Arkansas for Medical Sciences, Little Rock).

Biomarker and DNA Core Lab: Kirkwood Adams, MD (University of North Carolina, Chapel Hill); Mark Donahue, MD, Mike Felker, MD (Duke University, Durham, North Carolina).

Economics and Quality of Life Group: Kevin A. Schulman, MD, Kevin P. Weinfurt, PhD, Kathryn E. Flynn, PhD, Shelby Reed, PhD, Ann Burnette, BS, Linda Davidson-Ray, MA, Joëlle Y. Friedman, MPA, Yanhong Li, MS, Li Lin, MS, Betsy O'Neal, BA (Duke University, Durham, North Carolina).

Clinical End Point Committee: Michael Zile, MD (chair), Ralph H. Johnson (VA Medical Center and Medical University of South Carolina, Charleston); Daniel R. Bensimhon, MD (LeBauer Cardiovascular Research Foundation, Greensboro, North Carolina); Vera Bittner, MD, MSPH (University of Alabama, Birmingham); Robin Boineau, MD (National Heart, Lung, and Blood Institute, Bethesda, Maryland); Mark E. Dunlap, MD (Case Western Reserve University, Cleveland, Ohio); William E. Kraus, MD, Christopher M. O'Connor, MD (Duke University, Durham, North Carolina); Gordon Moe, MSC, MD, FRCP(C) (St Michael's Hospital, Toronto, Ontario, Canada); John Wertheimer, MD (Thomas Jefferson University and Drexel University Medical Residents at Abington Memorial Hospital, Philadelphia, Pennsylvania); David J. Whellan, MD (Jefferson Medical College, Philadelphia, Pennsylvania).