

UNIVERSITY OF PENNSYLVANIA PERELMAN SCHOOL OF MEDICINE  
CURRICULUM VITAE

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Education:

1972-1976	A.B. (summa)	Washington University, Department of Economics, St. Louis, Missouri
1976-1980	M.D.	Johns Hopkins Medical School, Baltimore, Maryland
1985-1990	Ph.D.	The University of Pennsylvania (Department of Health Care Systems, The Graduate Group in Managerial Science and Applied Economics), Philadelphia, PA
1997	M.A.	Honorary Masters Degree, Philosophy, The University of Pennsylvania, Philadelphia, PA

Postgraduate Training and Fellowship Appointments:

1980-1981	Intern in Pediatrics, Johns Hopkins Hospital, Baltimore, MD
1981-1982	Junior Resident in Pediatrics, Johns Hopkins Hospital, Baltimore, MD
1982-1983	Senior Resident in Pediatrics, Johns Hopkins Hospital, Baltimore, MD
1983-1985	Robert Wood Johnson Foundation Clinical Scholar, The University of Pennsylvania School of Medicine, Philadelphia, PA
1985-1988	Fellow, Pediatric Hematology-Oncology, The Children's Hospital of Philadelphia, Philadelphia, PA

Faculty Appointments:

1985-present	Senior Fellow, Leonard Davis Institute of Health Economics, The Wharton School, The University of Pennsylvania
1988-1989	Instructor, Division of Pediatric Oncology, The Department of Pediatrics, The University of Pennsylvania School of Medicine
1989-1997	Assistant Professor of Pediatrics, The University of Pennsylvania School of Medicine
1992-present	Associate Scholar, Center for Clinical Epidemiology and Biostatistics, The University of Pennsylvania
1996-1997	Assistant Professor of Anesthesiology and Critical Care, The University of Pennsylvania School of Medicine
1997-2004	Associate Professor of Anesthesiology and Critical Care, The University of Pennsylvania School of Medicine
1997-2004	Associate Professor of Pediatrics, The University of Pennsylvania School of Medicine
1997-2004	Associate Professor of Health Care Systems, The Wharton School, The University of Pennsylvania
2004-present	Professor of Pediatrics, The University of Pennsylvania School of Medicine

- 2004-present Professor of Health Care Management (formerly Health Care Systems),  
The Wharton School, The University of Pennsylvania
- 2004-present Professor of Anesthesiology and Critical Care, The University of  
Pennsylvania School of Medicine

Hospital and Administrative Appointments:

- 1989-present Attending, Pediatric Oncology Long Term Follow-Up Clinic, Division of  
Oncology, The Children's Hospital of Philadelphia
- 1993-2008 Faculty Member, Division of Biostatistics and Epidemiology, Department  
of Pediatrics, The University of Pennsylvania School of Medicine
- 1997-present Director, Center for Outcomes Research, The Children's Hospital of  
Philadelphia
- 2013-present Nancy Abramson Wolfson Professor of Health Services Research, The  
Children's Hospital of Philadelphia

Specialty Certification:

- 1985 Board Certified, American Board of Pediatrics
- 1987 Board Certified, Pediatric Hematology and Oncology (subspecialty),  
American Board of Pediatrics

Licensure: 1983 Pennsylvania: MD 028141-E

Awards, Honors and Memberships in Honorary Societies:

- 1976 A.B. summa cum laude; John M. Olin Prize in Economics; Phi Beta  
Kappa: Washington University
- 1978 Henry Strong Denison Research Award: Johns Hopkins Medical School
- 1986 & 1988 National Research Service Award
- 1988 The Health Services Improvement Fund, Inc. Doctoral Student Award
- 1989 National Institute of Health Research Career Development Award
- 1995 John Morgan Society
- 1996 National Institute of Health Insurers of America Finalist (top 3 papers)
- 1997 Ethel Brown Foerderer Fund for Excellence Award
- 2000 Samuel P. Martin Health Services Research Award
- 2003 AcademyHealth Article-of-the-Year Award
- 2003 The Hummeler Research Prize (Article-of-the-Year), Joseph Stokes, Jr.  
Research Institute
- 2007 AcademyHealth Abstract-of-the-Year Award
- 2011 AcademyHealth Article-of-the-Year Award
- 2013-present Nancy Abramson Wolfson Professor of Health Services Research, The  
Children's Hospital of Philadelphia
- 2015-present Fellow, The College of Physicians of Philadelphia

Memberships in Professional and Scientific Societies:

National Societies:

AcademyHealth  
American Economics Association  
American Federation for Medical Research  
American Medical Association  
American Society of Clinical Oncology  
International Biometric Society  
International Health Economic Association  
Society for Medical Decision Making  
Society for Clinical Trials  
Society for Pediatric Research

**Local Societies:**

John Morgan Society (President, 2014-present; Treasurer, 2012-2014)

**National Committees:**

1992	Long-Term Follow Up (Late Effects), Children's Cancer Group (CCG)
1992	CCG Third-Party Payment Committee
1993	CCG Lymphoma Committee
1994	CCG Long Term Follow-up Committee
1995-1999	Committee on Health Services Research of the American Society of Clinical Oncology (ASCO)
1996-1997	Committee on Guidelines for Use of Antiemetics (ASCO)
1998-2003	Oncology Measurement Advisory Panel of the National Committee for Quality Assurance (NCQA)
2004-2008	Children's Asthma Care Core Measure Advisory Panel of the Joint Commission on Accreditation of Healthcare Organizations (JCAHO)
2008-present	Technical Expert Panel, Measures Support Work for Centers for Medicare and Medicaid (CMS): Measuring Complications of Inpatient Care
2009-2010	Association of American Medical Colleges, Working Group for Developing Process Measures
2011-present	Chair, Pediatric Quality Measurement Program Working Group on Racial Disparities (Agency for Healthcare Research and Quality)
2014-present	Linking Cost and Quality Measures Expert Panel (National Quality Forum)

**Reviewer:**

Anesthesiology  
Annals Internal Medicine  
Health Services Research  
Journal of the American Medical Association  
Journal of Clinical Oncology  
Journal of General Internal Medicine  
Medical Care  
New England Journal of Medicine  
Pediatrics

**Editorial/Peer Review Positions:**

1993	Special Reviewer, American Academy of Pediatrics in collaboration with the Agency for Health Care Policy and Research. In: Clinical Practice and Guidelines for Management of Otitis Media with Effusion in Children
1993	Special Reviewer, AHCPR, Technology Assessment Study Section
1994	Special Reviewer, British Columbia Health Research Foundation, 3/94
1996	Panelist, National Cancer Institute/American Society of Clinical Oncology Economics Workshop "Economic Analysis in Clinical Trials," Washington, DC, 5/13-14/96 (To draft policy regarding the use of cost benefit and effectiveness analysis in cancer clinical trials.)
1996	Panelist, National Cancer Institute "Unresolved Issues in Cancer Survivorship, Economics Workgroup," Bethesda, MD, 11/4/96
1997	Agency for Health Care Policy Research: Study Section on Small Grants, Rockville, MD, 8/13/97
2002	Reviewer, Special Emphasis Panel of the National Center for Complementary and Alternative Medicine

2004	Reviewer, Behavioral and Social Science of Aging Review Committee, National Institute of Aging
2009	Reviewer, Robert Wood Johnson Foundation Interdisciplinary Nursing Quality Research Initiative Program
2011	Advisor, Medicare Payment Advisory Commission Panel, 11/18/11
2012	Advisor, The Joint Commission's Development of Risk-Adjusted Outcome Measures in the Electronic Health Record Environment Invitational Conference, 3/13-14/12

Academic Committees at The Children's Hospital of Philadelphia:

1990-1991	Fellowship Committee
1991-1993	Departmental Computer Committee
1994-1995	General Clinical Research Center Committee
1996-1998	Pediatric Fellowship Committee
2008-2010	Search Committee, Division of Epidemiology and Biostatistics

Academic Committees at the University of Pennsylvania:

1992, 1993	Subcommittee on Health Care Organization, Law, and Financing Task Force on Social, Preventive, and Community Medicine
1993	Chair, Committee on Technology Adoption and Global Budgets, The Leonard Davis Institute of Health Economics
1997-1999	Greenwall Project, Center for Bioethics
1998-present	Executive Committee, Leonard Davis Institute of Health Economics, The Wharton School, The University of Pennsylvania
2001-2003	Research Committee, The University of Pennsylvania
2002-2004	Search Committee, Department of Anesthesia Chair
2005-2007	University Research Foundation Biomedical Committee
2005-present	Center for Clinical Epidemiology and Biostatistics Admissions Committee
2008-2009	Search Committee, General Internal Medicine

Major Teaching Responsibilities at the University of Pennsylvania School of Medicine:

1993	Epidemiology Course for Medical Students, ME254
1994	Proseminar in Health Services Research, HCM 900
1997-present	Center for Clinical Epidemiology and Biostatistics: Outcomes Research, EPI 580 (fall semester)
1997-present	Health Care Quality: Measurement and Management, HCMG 212 (spring semester)

Lectures by Invitation (past 5 years):

May 13, 2011	The President's Lecture: Large administrative database research: Medicare and beyond. Association of University Anesthesiologists Annual Meeting, Philadelphia, PA
June 12, 2011	Article of the Year Award Lecture: Aggressive treatment style and surgical outcomes. AcademyHealth Annual Meeting, Seattle, WA
October 17, 2011	Measuring quality of care in surgery and anesthesia. Foundation for Anesthesia Education and Research Invited Panel on Outcomes Research. American Society of Anesthesiologists Annual Meeting, Chicago, IL
November 1, 2011	Describing and understanding healthcare disparities in operative procedure length. American Public Health Association Annual Meeting, Washington, DC

- November 15, 2011 Do you get what you pay for – Quality in healthcare? Critical Care Canada Forum, Toronto, Canada
- November 18, 2011 Mistaken advice on AMI by Hospital Compare. Medicare Payment Advisory Commission Panel, Washington, DC
- December 6, 2011 Examining perioperative care using multivariate matching. Division of Clinical and Translational Research Seminar Lecture, Department of Anesthesiology, Washington University, St. Louis, MO.
- December 7, 2011 Public reporting of healthcare quality: Misleading advice from Medicare’s Hospital Compare. Grand Rounds, Department of Anesthesiology, Washington University, St. Louis, MO
- April 2, 2012 Challenges implementing a hierarchical model for use in public reporting: The case of Hospital Compare. Eastern North American Region (ENAR) of the International Biometric Society Annual Meeting, Washington, DC
- May 1, 2012 Challenges in estimating continuous enrollment in Medicaid and CHIP. Pediatric Academic Societies Annual Meeting, Boston, MA
- May 9, 2012 Using multivariate matching to identify and understand disparities. Pediatric Quality Measurement Program Working Group on Racial Disparities, AHRQ Webconference, Philadelphia, PA
- May 30, 2012 The pediatric quality measurement project. Grand Rounds, Department of Pediatrics, The Children’s Hospital of Philadelphia, Philadelphia, PA
- June 2, 2012 Racial disparities in breast cancer survival. American Society of Clinical Oncology Annual Meeting, Chicago, IL
- June 14, 2012 Using multivariate matching to study racial disparities. 2nd Annual CMS Medicaid/CHIP Quality Conference: Improving Care and Proving It!, Baltimore, MD
- June 23, 2012 Challenges in estimating continuous enrollment in Medicaid and CHIP. AcademyHealth Annual Meeting, Orlando, FL
- October 16, 2012 Studies of cancer survival using multivariate matching: Examining treatment questions in ovarian and breast cancer. Grand Rounds, Department of Medicine, Jersey Shore University Medical Center, Neptune, NJ
- January 7, 2014 Understanding racial disparities in breast and colon cancer survival using tapered multivariate matching. Center for Childhood Cancer Research Hematology/Oncology Seminar Series, The Children’s Hospital of Philadelphia, Philadelphia, PA
- January 10, 2014 Template matching for auditing hospital quality and cost. Center for Pediatric Clinical Effectiveness Research Faculty Seminar Series, The Children’s Hospital of Philadelphia, Philadelphia, PA

- February 17, 2014 Misleading advice on AMI mortality from Hospital Compare. Pediatric Cardiology Research Lecture, The Children's Hospital of Philadelphia, Philadelphia, PA
- April 29, 2014 Misleading advice on heart attack mortality: How Medicare's Hospital Compare misleads the public. The John Morgan Society, The University of Pennsylvania, Philadelphia, PA
- September 8, 2014 Template matching to compare hospital resource utilization. The Children's Hospital Association, Washington, DC
- September 23, 2014 Template matching to compare hospital resource utilization and quality of care. Department of Pediatrics, Quality and Patient Safety Champions Meeting, The Children's Hospital of Philadelphia, Philadelphia, PA
- November 11, 2014 Misleading advice on heart attack mortality from Medicare's Hospital Compare random effects model. Department of Statistics and Operations Research, Tel Aviv University, Tel Aviv, Israel
- February 13, 2015 Assessing hospital cost, quality, and comparative advantage using multivariate matching. Public Health Economics Seminar. Johns Hopkins Bloomberg School of Public Health, Baltimore, MD
- February 19, 2015 Comparing children's hospitals on resource utilization in asthma and complex chronic disease. PolicyLab, The Children's Hospital of Philadelphia, Philadelphia, PA
- February 23, 2015 Matching methods to audit hospital cost, quality, and value. Center for Medicare & Medicaid Innovation and Centers for Medicare & Medicaid Services, Baltimore, MD
- March 12, 2015 Using matching methods to compare hospital cost and quality. Pediatric Health Information System (PHIS) Spring Meeting, San Francisco, CA
- March 30, 2015 Using multivariate matching to study racial disparities and hospital quality of care. Comprehensive Cancer Center Research Seminar, University of Alabama, Birmingham, AL
- May 6, 2015 Template matching of children with complex chronic conditions hospitalized for surgical procedures. Defense Health Agency, Falls Church, VA
- May 14, 2015 Using multivariate matching to compare hospital quality of care. Association of American Medical Colleges (AAMC), Washington, DC
- May 28, 2015 Using matching methods to compare hospital cost and quality in PHIS. Pediatric Health Information System (PHIS), Webinar, Philadelphia, PA

June 13, 2015	Comparing hospitals on resource use in medical admissions of children with complex chronic conditions. AcademyHealth Annual Meeting, Minneapolis, MN
June 13, 2015	New approaches for measuring quality, cost and value: Applications for studying nursing care. Keynote Speaker, Interdisciplinary Research Group on Nursing Issues (IRGNI) Meeting, AcademyHealth Annual Meeting, Minneapolis, MN
June 13, 2015	Template matching, hospital specific template matching and indirect standardization matching. The Anesthesiology and Surgery Interest Group, AcademyHealth Annual Meeting, Minneapolis, MN
June 14, 2015	New tools for studying racial disparities and hospital quality of care: Tapered matching, template matching and indirect standardization matching. AcademyHealth Annual Meeting, Minneapolis, MN
June 15, 2015	Practice style variation in pediatric inpatient asthma care. AcademyHealth Annual Meeting, Minneapolis, MN
June 15, 2015	Template matching of children with complex chronic conditions hospitalized for surgical procedures. AcademyHealth Annual Meeting, Minneapolis, MN
September 10, 2015	New methods for comparing hospital quality, cost and value. Ophthalmology Grand Rounds, Scheie Eye Institute, Philadelphia, PA
October 4, 2015	Improving Medicare's Hospital Compare Mortality Model. AHRQ Research Conference – Producing Evidence and Engaging Partners to Improve Health Care, Arlington, VA
October 9, 2015	Enhancing the Hospital Compare mortality model using a Bayesian framework. International Conference on Health Policy Statistics, Providence, RI
November 17, 2015	Indirect standardization matching. Center for Childhood Cancer Research Seminar Series, The Children's Hospital of Philadelphia, Philadelphia, PA
January 13, 2016	Multivariate matching to assess hospital cost, quality, and value. Grand Rounds, Children's National Health System, Washington, DC
March 11, 2016	Auditing resource utilization in Medicaid and Non-Medicaid hospitalizations. Pediatric Health Information System (PHIS) Spring Meeting, New Orleans, LA

#### Bibliography:

##### Research Publications, Peer Reviewed:

1. Silber JH, Kaizer H. Loss weighting and the human cost of experimentation. J Chron Dis 1985; 38:507-516. PMID: 4008591.
2. Meadows AT, Silber JH. Delayed consequences of therapy for childhood cancer. CA Cancer J Clin 1985; 35:271-286. PMID: 3930013.

3. Peyster RG, Ginsberg F, Silber JH, Adler LP. Exophthalmos caused by excessive fat. CT volumetric analysis and differential diagnosis. *Am J Radiol* 1986; 146:459-464. PMID: 3484861.
4. Silber JH. Forecasting asthmatic wheezing using temperature velocity. *Pediatr Emerg Care* 1987; 3:13-17. PMID: 3562305.
5. Silber JH, Kaizer H. Marginal analysis applied to the dose-response curve. *Med Pediatr Oncol* 1988; 16:344-348. PMID: 3185363.
6. Silber JH, Littman PS, Meadows AT. Stature loss following skeletal irradiation for childhood cancer. *J Clin Oncol* 1990; 8:304-312. PMID: 2299373.
7. Silber JH, Evans AE, Fridman M. Models to predict outcome from childhood neuroblastoma: The role of serum ferritin and tumor histology. *Cancer Res* 1991; 51:1426-1433. PMID: 1997181.
8. Cohen AR, Martin MB, Silber JH, Kim HC, Ohene-Frempong K, Schwartz E. A modified transfusion program for prevention of stroke in sickle cell disease. *Blood* 1992; 79:1657-1661. PMID: 1558963.
9. Silber JH, Williams SV, Krakauer H, Schwartz JS: Hospital and patient characteristics associated with death after surgery. A study of adverse occurrence and failure to rescue. *Med Care* 1992; 30:615-629. PMID: 1614231.
10. Larsen R, Jakacki R, Vetter V, Silber JH, Barber G. Electrocardiographic changes and arrhythmias after cancer therapy in children and young adults. *Am J Cardiol* 1992; 70:73-77. PMID: 1615874.
11. Silber JH, Radcliffe J, Peckham V, Perilongo G, Kishnani P, Fridman M, Goldwein JW, Meadows AT. Whole brain irradiation and decline in intelligence: The influence of dose and age on IQ-score. *J Clin Oncol* 1992; 10:1390-1396. PMID: 1517781.
12. Wasserman R, Galili N, Ito Y, Silber JH, Reichard BA, Shane S, Womer RB, Lange B, Rovera G. Residual disease at the end of induction therapy as a predictor of relapse during therapy in childhood B-lineage acute lymphoblastic leukemia. *J Clin Oncol* 1992; 10:1879-1888. PMID: 1453203.
13. Jakacki RI, Goldwein JW, Larsen RL, Barber G, Silber JH. Cardiac dysfunction following spinal irradiation during childhood. *J Clin Oncol* 1993; 11:1033-1038. PMID: 8501489.
14. Rackoff WR, Kunkel N, Silber JH, Asakura T, Ohene-Frempong K. Pulse oximetry and factors associated with hemoglobin oxygen desaturation in children with sickle cell disease. *Blood* 1993; 81:3422-3427. PMID: 7685205.
15. Silber JH, Jakacki RI, Larsen RL, Goldwein JW, Barber G. Increased risk of cardiac dysfunction after anthracyclines in girls. *Med Pediatr Oncol* 1993; 21:477-479. PMID: 8341214.
16. Legorreta AP, Silber JH, Constantino GN, Kobylinski RW, Zatz SL. Increased cholecystectomy rate after the introduction of laparoscopic cholecystectomy. *JAMA* 1993; 270:1429-1432. PMID: 8371441.
17. Jakacki RI, Larsen RL, Barber G, Heyman S, Fridman M, Silber JH. Comparison of cardiac function tests after anthracycline therapy in childhood: Implications for screening. *Cancer* 1993; 72:2739-2745. PMID: 8402498.



18. Kim HC, Dugan NP, Silber JH, Martin MB, Schwartz E, Ohene-Frempong K, Cohen AR. Erythrocytapheresis therapy to reduce iron overload in chronically transfused patients with sickle cell disease. *Blood* 1994; 83:1136-1142. PMID: 8111053.
19. Torres C, Rebsamen S, Silber JH, Sutton L, Bilaniuk LT, Zimmerman RA, Goldwein J, Phillips P, Lange B. Surveillance scanning of children with medulloblastoma. *N Eng J Med* 1994; 330:892-895. PMID: 8114859.
20. Silber JH, Rosenbaum PR, Ross RN. Comparing the contributions of groups of predictors: Which outcomes vary with hospital rather than patient characteristics? *J Am Stat Assoc* 1995; 90:7-18.
21. Silber JH, Rosenbaum PR, Schwartz JS, Ross RN, Williams SV. Evaluation of the complication rate as a measure of quality of care in coronary artery bypass graft surgery. *JAMA* 1995; 274:317-323. PMID: 7609261.
22. Williams S, Pauly MV, Rosenbaum PR, Ross R, Schwartz JS, Shpilsky A, Silber JH. Ranking hospitals by the quality of care for medical conditions: The role of complications. *Trans Am Clin Climatol Assoc* 1995; 107:263-274. PMID: 8725576; PMC2376554.
23. Evans AE, Silber JH, Shpilsky A, D'Angio GJ. Successful management of low-stage neuroblastoma without adjuvant therapies: A comparison of two decades in a single institution 1972-1981, 1982-1992. *J Clin Oncol* 1996; 14:2504-2510. PMID: 8823329.
24. Janss AJ, Yachnis AT, Silber JH, Trojanowski JQ, Lee VM-Y, Sutton LN, Perilongo G, Rorke LB, Phillips PC. Glial differentiation predicts poor clinical outcome in primitive neuroectodermal tumors of the central nervous system. *Ann Neurol* 1996; 39:481-489. PMID: 8619526.
25. Mahboubi S and Silber JH. Radiation-induced esophageal strictures in children with cancer. *Eur Radiol* 1997; 7:119-122. PMID: 9000412.
26. Silber JH, Rosenbaum PR, Williams SV, Ross RN, Schwartz JS. The relationship between choice of outcome measure and hospital rank in general surgical procedures: Implications for quality assessment. *Int J Qual Health Care* 1997; 9:193-200. PMID: 9209916.
27. Durbin DR, Giardio AP, Shaw KN, Harris MC, Silber JH. The effect of insurance status on likelihood of neonatal interhospital transfer. *Pediatrics (Electronic Journal)* 1997; 100:e1-e5. PMID: 9271623.
28. Silber JH and Rosenbaum PR. A spurious correlation between hospital mortality and complication rates: The importance of severity adjustment. *Med Care* 1997; 35:OS77-OS92. PMID: 9339779.
29. Silber JH, Fridman M, DiPaola RS, Erder MH, Pauly MV, Fox KR. First cycle blood counts and subsequent neutropenia, dose reduction or delay in early stage breast cancer therapy. *J Clin Oncol* 1998; 16:2392-2400. PMID: 9667256.
30. Silber JH, Fridman M, Shpilsky A, Even-Shoshan O, Smink DS, Jayaraman J, Fox KR, Pauly MV. Modeling the cost effectiveness of granulocyte colony-stimulating factor use in early-stage breast cancer. *J Clin Oncol* 1998; 16:2435-2444. PMID: 9667261.
31. Silber JH, Gleeson S, Zhao H. The influence of chronic disease on resource utilization in common acute pediatric conditions: Financial concerns for Children's Hospitals. *Arch Pediatr Adolesc Med* 1999; 153:169-179. PMID: 9988247.

32. Silber JH, Rosenbaum PR, Koziol LF, Sutaria N, Marsh RR, Even-Shoshan O. Conditional Length of Stay. *Health Serv Res* 1999; 34:349-363. PMID: 10199680; PMC1089006.
33. Gralla RJ, Osoba D, Kris MG, Kirkbride P, Hesketh PJ, Chinnery LW, Clark-Snow R, Gill DP, Groshen S, Grunberg S, Koeller JM, Morrow GR, Perez EA, Silber JH, Pfister DG. Recommendations for the use of antiemetics: Evidence-based, clinical practice guidelines. *J Clin Oncol* 1999; 17:2971-2994. PMID: 10561376.
34. Silber JH, Kennedy SK, Even-Shoshan O, Chen W, Koziol LF, Showan AM, Longnecker DE. Anesthesiologist direction and patient outcomes. *Anesthesiology* 2000; 93:152-163. PMID: 10861159.
35. Rosenbaum PR and Silber JH. Matching and thick description in an observational study of mortality after surgery. *Biostatistics* 2001; 2:217-232. PMID: 12933551.
36. Silber JH, Cnaan A, Clark BJ, Paridon SM, Chin AJ, Rychik J, Hogarty AN, Cohen MI, Barber G, Rutkowsky M, Kimball TR, DeLaat C, Steinherz LJ, Zhao H, Tartaglione MR. Design and baseline characteristics for the ACE-inhibitor after anthracycline (AAA) study of cardiac dysfunction in pediatric oncology long-term survivors. *Am Heart J* 2001; 142:577-585. PMID: 11579345.
37. Silber JH, Rosenbaum PR, Trudeau ME, Even-Shoshan O, Chen W, Zhang X, Mosher RE. Multivariate matching and bias reduction in the surgical outcomes study. *Med Care* 2001; 39:1048-1064. PMID: 11567168.
38. Silber JH, Kennedy SK, Even-Shoshan O, Chen W, Mosher RE, Showan AM, Longnecker DE. Anesthesiologist board certification and patient outcomes. *Anesthesiology*, 2002; 96:1044-1052. PMID: 11981141.
39. Aiken LH, Clarke SP, Sloane DM, Sochalski J, Silber JH. Hospital nurse staffing and patient mortality, nurse burnout, and job dissatisfaction. *JAMA* 2002; 288:1987-1993. PMID: 12387650.
40. Volpp KGM, Waldfogel J, Williams SV, Silber JH, Schwartz JS, Pauly MV. Market reform in New Jersey and the effect on mortality from acute myocardial infarction. *Health Serv Res* 2003; 38:515-533. PMID: 12785559; PMC1360901.
41. Silber JH, Rosenbaum PR, Even-Shoshan O, Shabbout M, Zhang X, Bradlow ET, Marsh, RR. Length of stay, conditional length of stay, and prolonged stay in pediatric asthma. *Health Serv Res* 2003; 38:867-886. PMID: 12822916; PMC1360920.
42. Aiken LH, Clarke SP, Cheung RB, Sloane DM, Silber JH. Educational levels of hospital nurses and surgical patient mortality. *JAMA* 2003; 290:1617-1623. PMID: 14506121. PMC3077115.
43. Howard DL, Silber JH, Jobs DR. Do regulations limiting residents' work hours affect patient mortality? *J Gen Intern Med* 2004; 19:1-7. PMID: 14748854; PMC1494680.
44. Silber JH, Cnaan A, Clark BJ, Paridon SM, Chin AJ, Rychik J, Hogarty AN, Cohen MI, Barber G, Rutkowski M, Kimball, TR, DeLaat C, Steinherz LJ, Zhao H. Enalapril to prevent cardiac function decline in long-term survivors of pediatric cancer exposed to anthracyclines. *J Clin Oncol* 2004; 22:820-828. PMID: 14990637.
45. Greevy R, Lu B. Silber JH, Rosenbaum P. Optimal multivariate matching before randomization: An algorithm and case-study. *Biostatistics* 2004; 5:263-275. PMID: 15054030.

46. Greevy R, [Silber JH](#), Cnaan A, Rosenbaum PR. Randomization inference with imperfect compliance in the ACE-inhibitor after anthracycline randomized trial. *J Am Stat Assoc* 2004; 99:7-15.
47. Ginsberg JP, Cnaan A, Zhao H, Clark BJ, Paridon SM, Chin AJ, Rychik J, Hogarty AN, Barbar G, Rutkowski M, Kimball TR, DeLaat C, Steinherz L, [Silber JH](#). Using health related quality of life measures to predict cardiac function in survivors exposed to anthracyclines. *J Clin Oncol* 2004; 22:3149-3159. PMID: 15284267.
48. Li Y, Womer RB, [Silber JH](#). Predicting cisplatin ototoxicity in children. The influence of age and the cumulative dose. *Eur J Cancer* 2004; 40:2445-2451. PMID: 15519518.
49. McGuire KJ, Bernstein J, Polsky D, [Silber JH](#). The 2004 Marshall Urist award. Delays until surgery after hip fracture increases mortality. *Clin Orthop Relat Res* 2004; 428:294-301. PMID: 15534555.
50. Lorch SA, Zhang X, Rosenbaum PR, Even-Shoshan O, [Silber JH](#). Equivalent length of stay of pediatric patients hospitalized in rural and non-rural hospitals. *Pediatrics* 2004; 114:e400-e408. PMID: 15466064.
51. [Silber JH](#), Rosenbaum PR, Trudeau ME, Chen W, Zhang X, Rapaport RK, Mosher RE, Even-Shoshan O. Changes in prognosis after the first postoperative complication. *Med Care* 2005; 43:122-131. PMID: 15655425.
52. [Silber JH](#), Rosenbaum PR, Trudeau ME, Chen W, Zhang X, Lorch SA, Kelz RR, Mosher RE, Even-Shoshan O. Preoperative antibiotics and mortality in the elderly. *Ann Surg* 2005; 242:107-114. PMID: 15973108; PMC1357711.
53. Tabak YP, Johannes RS, [Silber JH](#), Kurtz SG, Gibber EM. Should do-not resuscitate status be included as a mortality risk adjustor? The impact of DNR variations on performance reporting. *Med Care* 2005; 43:658-666. PMID: 15970780.
54. [Silber JH](#). Challenges in conducting a pediatric longitudinal prevention study. Lessons from the ACE-inhibitor after anthracycline trial. *Progress in Pediatric Cardiology* 2005; 20:65-70.
55. Polsky D, Armstrong KA, Randall TC, Ross RN, Even-Shoshan O, Rosenbaum PR, [Silber JH](#). Variation in chemotherapy utilization in ovarian cancer: The relative contribution of geography. *Health Serv Res* 2006; 41:2201-2218. PMID: 17116116; PMC1955308.
56. Fiks AG, Alessandrini EA, Luberti AA, Ostapenko S, Zhang X, [Silber JH](#). Identifying factors predicting immunization delay for children followed in an urban primary care network using an electronic health record. *Pediatrics* 2006; 118:e1680-e1686. PMID: 17088398.
57. [Silber JH](#), Rosenbaum PR, Zhang X, Even-Shoshan O. Estimating anesthesia and surgical procedure times from Medicare anesthesia claims. *Anesthesiology* 2007; 106:346-355. PMID: 17264730.
58. [Silber JH](#), Rosenbaum PR, Zhang X, Even-Shoshan O. Influence of patient and hospital characteristics on anesthesia time in Medicare patients undergoing general and orthopedics surgery. *Anesthesiology* 2007; 106:356-364. PMID: 17264731.
59. Rosenbaum PR, Ross RN, [Silber JH](#). Minimum distance matched sampling with fine balance in an observational study of treatment for ovarian cancer. *J Am Stat Assoc* 2007; 102:75-83.

60. Seifert HA, Howard DL, Silber JH, Jobes DR. Female gender increases the risk of death during hospitalization for pediatric cardiac surgery. *J Thorac Cardiovasc Surg* 2007; 133:668-675. PMID: 17320563.
61. Weiner MG, Ross SJ, Mathew JI, Millman AM, Even-Shoshan O, Fox KR, Silber JH. Estimating the costs of chemotherapy-associated adverse event clusters. *Hlth Serv Outcomes Res Methodol* 2007; 7:1-21.
62. Silber JH, Rosenbaum PR, Polsky D, Ross RN, Even-Shoshan O, Schwartz JS, Armstrong KA, Randall TC. Does ovarian cancer treatment and survival differ by the specialty providing chemotherapy? *J Clin Oncol* 2007; 25:1169-1175. PMID: 17401005.
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Abstracts (selected):

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