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**EDUCATION:**

BA, Economics, Johns Hopkins University, Baltimore, MD, 1965.

MBA, Operations Research specialization, Graduate School of Business Administration,  
University of California, Berkeley, CA, 1967.

PhD, Program in Urban and Regional Planning, The University of Michigan, Ann Arbor,  
Michigan, 1975. Fellowships: 1970-1971, Program Fellowship; 1971-1972, Hospital  
Administration Traineeship in Hospital and Health Care Management; 1972-1974, U.S. Public  
Health Service Special Fellowship. Ph.D. Dissertation: Evaluation of Preventive Screening to  
Detect Early Breast Cancer.

**EMPLOYMENT:**

1977-Current: Health Care Management Program and Operations Management Department,  
School of Management, Boston University. Assistant Professor (1977-1984), Associate  
Professor (with tenure, 1984-1995), Full Professor (1995-), Chairman, Operations Management  
Department (1992-1995; 1997-2001), Chair, MBA Faculty Director (1996-1999, 2008). Taught  
courses in Probability and Statistics, Decision Analysis, Operations Management, Operations  
Management in Health Care Institutions, Introduction to Health Care Delivery Systems,  
Epidemiology, Modeling in Excel. Taught in the Health Care Management Development  
Program for mid-career managers and the Executive MBA program. Membership on Academic

Promotion and Tenure Committee (Chairman, 1988-1990), Doctoral Committee, Health Care Management Program Committee, Faculty Policy Committee, MBA Launch Team (4 person committee to operationalize and launch the new MBA curriculum), MBA Program Development Committee. 2006 appointed as the Richard D. Cohen Professor in Management.

Member, Health Care Technology Study Section, National Center for Health Services Research and Health Care Technology Assessment, 1986-1990; Editorial Board, Health Administration Press, 1990-1995; Deputy Editor, Medical Care, 2003- ; Member Veterans Administration Scientific Merit Review Board, Implementation and Management Science (2005-2009).

2004 –Current: Senior Investigator, Center for Organization, Leadership and Management Research, Veterans Administration.

1989-1992: Director, Institute for Urban Health Policy, Research and Education, Department of Health and Hospitals (DHH), City of Boston. The Institute was created in August, 1989 within the DHH in order to strengthen analytical and evaluation capabilities within the Department, and to encourage and support research programs consistent with the mission of the Department. Its creation reflects an attempt to improve collaboration among DHH program managers, with community agencies and providers, and with other researchers; and to strengthen the connection between research, evaluation, program operations and policy as a means of improving the health of Boston residents. The Institute has participated in over \$40 million dollars of successful grant applications.

1975-1977: The Michigan Cancer Foundation, Detroit, Michigan. Program manager and co-principal investigator on a contract from the National Cancer Institute to evaluate screening strategies for different cancer sites. Responsible for overall co-ordination and administration of the project, including general supervision of work performed by consultants and sub-contractors, organization of advisory committees and technical workshops, and preparation of progress reports. Performed analysis of breast cancer screening strategies. Worked on the evaluation of the Metropolitan Detroit Cancer Control Program.

1971-1975: (part-time while in the Ph.D. program): University of Michigan, Ann Arbor, Michigan. Lecturer, Department of Industrial and Operations Engineering (1975): Taught Introduction to Operations Research for advanced undergraduate and graduate students. Consultant to the Institute of Public Policy Studies (1974): Conducted workshops on quantitative methods for public policy analysis. Taught a course at Residential College on the use of quantitative techniques in urban and public policy decision-making (1974). Tutor in mathematics and operations research. Developed problems illustrating the use of operations research in urban area program-solving (1972-1973).

1970: Office of the Assistant Secretary for Monitoring and Evaluation, Office of the Secretary, DHEW. Worked on data collection and analysis techniques for the evaluation of HEW programs.

1967-1969: Commissioned Corps of the U.S. Public Health Service. 1967-1968, stationed at the Health Program Systems Center, Division of Indian Health. Worked with a multi-disciplinary research group on the development of resource allocation and evaluation techniques for Indian health programs. 1968-1969, stationed at the National Heart Institute, NIH. Staff member of a committee of NIH that was evaluating cardiac replacement, both by transplantation and with an artificial heart.

1966-1967: (part-time while in the M.B.A. program): Levi Strauss & Company, San Francisco, California. Assisted in the development and implementation of a linear programming model that was to be used as the basis for making product mix and production planning decisions.

## **ARTICLES AND BOOK CHAPTERS:**

Shwartz M. "An Analysis of the Benefits of Serial Screening for Breast Cancer Based Upon Mathematical Model of the Disease." Cancer 41: 1550-1564, 1978.

Shwartz M. "A Mathematical Model Used to Analyze Breast Cancer Screening Strategies." Operations Research 26: 937-955, 1978.

Shwartz M. and Fuchs M. "The Weapon Was Ready But the Target May Have Moved or a Resource Allocation Index: A California Case Study." Interfaces 9: 87-93, 1979.

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Martin S.G., Shwartz M., Whalen B.J., et al. "Impact of a Mandatory Second Opinion Program on Medicaid Surgery Rates." Medical Care 20: 21-435, 1982.

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Shwartz M. and Plough A.L. "Models to Aid in Planning Cancer Screening Programs." Statistical Methods for Cancer Studies, Richard Cornell (ed.), Marcel Dekker, 1984.

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Shwartz M., Merrill J., and Blake K. "DRG-Based Case Mix and the Public Hospitals." Medical Care 22: 283-299, 1984.

Plough A.L., Salem S.R., Shwartz M., et al. "Case Mix in End-Stage Renal Disease: Differences Between Patients in Hospital-Based and Free-Standing Treatment Facilities." New England Journal of Medicine 310: 1432-1436, 1984.

Plough A.L., Shwartz M., and Salem S.R. "Greater Efficiency or Case-Mix Differences? Fact vs. Fantasy in ESRD Reimbursement Policy." Dialysis and Transplantation 13: 645-655 (Part I) and 735-740 (Part II), 1984.

Pliskin J.S., Shwartz M., Grondahl H.G., and Boffa J. "Reliability of Coding the Depth of Approximal Carious Lesions from the Non-Independent Interpretation of Serial Bitewing Radiographs." Community Dent Oral Epidemiol 12: 366-370, 1984.

Martin S.G., Frick A.P., Shwartz M., and Hartman L.R. "An Analysis of Hospital Casemix, Cost, and Payment Differences for Medicare, Medicaid, and Blue Cross Plan Patients Using DRGs." Inquiry 21: 369-379, 1984.

Frick A.P., Martin S.G., and Shwartz M. "Casemix and Cost Differences Between Teaching and Non-Teaching Hospitals." Medical Care 23: 283-295, 1985.

Plough A.L., Salem S.R., Shwartz M., et al. "Severity Analysis in ESRD: A Risk Group Approach." J Amer Soc for Artificial Internal Organs 8: 33-40, 1985.

Pliskin J.S., Grondahl H.G., and Boffa J. "Incorporating Individual Patient Preferences in Scheduling Bitewing Radiographs." Methods of Information in Medicine 24: 213- 217, 1985.

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Boffa J., Shwartz M., Ash A.S., Pliskin J.S., and Grondahl H.G. "Bilateral Dental Caries from the Individual Perspective: A Definition and Statistical Test for its Existence." Caries Research 20: 91-95, 1986.

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Shwartz, M., Review of "Integration of Clinical and Financial Information." Brown, B.J. and Ross, A., eds., Aspen, 1987. Inquiry 24: 416-417, 1987.

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Iezzoni L.I., Shwartz M., Ash A.S., and Mackiernan Y.D. "Predicting in-Hospital Death for Stroke Patients: Results Differ Across Severity Measurement Methods." Medical Decision Making 16: 348-356, 1996.

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Iezzoni L.I., Ash A.S., Shwartz M., and Mackiernan Y.D. "Differences in Procedure Use, In-Hospital Mortality, and Illness Severity by Gender for Acute Myocardial Infarction Patients: Are Answers Affected by Data Source and Severity Adjustment Method?" Medical Care 35: 158-171, 1997.

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Shwartz M., Baker G., Mulvey K.P., and Plough A. "Improving Publicly Funded Substance Abuse Treatment: The Value of Case Management." American Journal of Public Health 87: 1659-1664, 1997.

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McCarthy E.P., Burns R.B., Coughlin S.S., Freund K.M., Rice J., Marwill S.L., Ash A.S., Shwartz M., and Moskowitz M.A. "Mammography Use Helps to Explain Differences in Breast Cancer Stage at Diagnosis Between Older Black and White Women." Annals of Internal Medicine 128: 729-736, 1998.

Ash A.S. and Shwartz M. " $R^2$ : A Useful Measure of Model Performance for Predicting a Dichotomous Outcome." Statistics in Medicine 18: 375-384, 1999.

Shwartz M., Saitz R., Mulvey K. and Brannigan P. "The Value of Acupuncture Detoxification Programs in a Substance Abuse Treatment System." Journal of Substance Abuse Treatment 17: 305-312, 1999. Translated and reprinted in Punkte der Wandlung: Suchtakupunktur nach dem NADA-Protokoll, Rainer Baudis (editor), Verlag fur Psychologie, Sozialarbeit und Sucht, Karlsruhe, 1999.

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Merrill J.C., Kleber H.D., Shwartz M., Liu H., and Lewis S.R. "Cigarettes, Alcohol, Marijuana, Other Risk Behaviors, and American Youth." Drug and Alcohol Dependence 56: 205-212, 1999

Leonard C., Mulvey K., Gastfriend D.R., and Shwartz M. "The Addiction Severity Index: A Field Study of Internal Consistency and Validity." Journal of Substance Abuse Treatment 18: 129-135, 2000.

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Rosen A.K., Loveland S., Shin M., Shwartz M., Hanchante A., Chen Q., Kaafarani H.M.A., and Borzecki, A. "Examining the Impact of the AHRQ Patient Safety Indicators (PSIs) in the Veterans Health Administration: The Case of Readmissions." Medical Care 51(1): 37-44, 2013.

Setodji C.M. and Shwartz M. "Fixed or Random Effects Models: What Are the Key Inference Issues?" (Commentary). Medical Care 51(1): 25-27, 2013

Shwartz M. and Ash A.S. "Empirically Evaluating Risk Adjustment Models"; Shwartz M. and Ash A.S. "Estimating the Effect of an Intervention from Observational Data"; and Ash A.S., Shwartz M., Peköz E.A. and Hanchate A.D. "Comparing Outcomes Across Providers." Revised chapters in Risk Adjustment for Measuring Health Care Outcomes, 4<sup>th</sup> Edition, L.I. Iezzoni, editor, Health Administration Press, Chicago, 2013.

Shwartz M., Pekoz E.A., Christiansen C.L., Burgess J.F. Jr. and Berlowitz D. "Shrinkage Estimators for a Composite Measure of Quality Conceptualized as a Formative Construct." Health Services Research 48(1): 271-289, 2013.

Sullivan J.L., Shwartz M., Burgess J.F. Jr., Pekoz E.A., Christiansen C.L., Gerena-Melia M., and Berlowitz, D. "Person Centered Care Practices and Quality in Department of Veterans Affairs Nursing Homes: Is There a Relationship?" Medical Care 51(2): 165-171, 2013.

Chen Q., Borzecki A.M., Cevasco M., Shin M., Shwartz M., Itani K.M., and Rosen A.K.. "Examining the Relationship Between Processes of Care and Selected AHRQ Patient Safety Indicators Postoperative Wound Dehiscence and Accidental Puncture or Laceration Using the VA Electronic Medical Record." Forthcoming American Journal of Medical Quality (published September 2012).

Mull H.J, Chen Q., O'Brien W.J, Shwartz M., Borzecki A.M., Hanchate A., and Rosen A.K. "Comparing two methods of assessing 30-day readmissions: What is the impact on hospital profiling in the Veterans Health Administration?" Forthcoming Medical Care.

## **REPORTS**

"Analysis of the Clinic Bus System on the Papago Indian Reservation." Published by HEW as a Division of Indian Health Report, 1968.

"Cardiac Replacement: Medical, Ethical, Psychological and Economic Implications." A Report by the Ad Hoc Task Force on Cardiac Replacement, The National Heart Institute, published by

the U.S. Government Printing Office, 1969.

"Pilot Test of a Management Information System in Midland DART. "Michigan DART: Summary Technical Report No. 6, September 1975, The Huron River Group (with M. Dewey).

"On the Use of Models in Decision-Making About Cancer Screening Programs." Edited Transcriptions, Conference at The Michigan Cancer Foundation, 1977 (editor).

"The Effect of a Mandatory Second Opinion Program on Medicaid Surgery Rates - An Analysis of the Massachusetts Consultation Program for Elective Surgery." Published by the Health Care Financing Administration, DHHS, 1980, 204p. (with S.G. Martin, D.D. Cooper, et al.).

"Payor Differences in Hospital Case Mix, Costs and Payment: Medicare, Medicaid and Blue Cross." Research Report Series, New York State Case Mix Study, 1982, 267p. (with S.G. Martin, A. Frick, et al.).

"Case Mix and Resource Consumption Differences Between Teaching and Non-Teaching Hospitals." Research Report Series, New York State Case Mix Study, 1983, 184p. (with S.G. Martin, A. Frick).

"Long Term Care Excepted Hospitals, Part I: Description" and "Part II: Simulation of the Impact of PPS Payment." Report submitted to the Health Care Financing Administration, 1986 (with P. Barry and S. Tannenbaum).

"Incentives in Nursing Home Reimbursement Systems." Report submitted to the Health Care Financing Administration, 1986 (with P. Barry and J. Dopkeen).

"Extending the AEP to Cover Psychiatric Care and Premature Discharge." Report submitted to the Massachusetts Fund for Cooperative Innovation, 1988 (with J.D. Restuccia, S.M.C. Payne, A.S. Ash, B. Kreger, T. Quigley, D. Schaumberg, and L. Tarr).

"Diagnostic Mix, Illness Severity and Costs at Teaching and Nonteaching Hospitals," Vol. 1 (171p.), Vol. 2 (appendices A-H, 149p.), Vol. 3 (appendices I-P, 268p). Report submitted to the Health Care Financing Administration, 1989 (with L. Iezzoni, S. Burnside, A.S. Ash, E. Sawitz, and M. A. Moscovitz).

"Models of Service Delivery Across Health Care Settings Based on Patient Needs." Report submitted to the Robert Wood Johnson Foundation, 1990 (with M. Charns, S. Crane, L.I. Iezzoni, R. Klimborg, S. Goldberger, and P. Meservey).

"Inappropriateness and Variations in Hospital Use: Phase I." Final report submitted to the Agency for Health Care Policy and Research, 1991 (with A.S. Ash, J. Anderson, J.D. Restuccia, S.M.C. Payne, G.S. Coffman and L.I. Iezzoni).

"CSAT Target Cities Demonstration Final Evaluation Report." Final report submitted to the Center for Substance Abuse Treatment, 1996 (with A. Plough, L. Shirley, N. Zaremba, G. Baker, K.P. Mulvey, et al.).

"Final Report: Inappropriateness and Variations in Hospital Use." Final report submitted to the Agency for Health Care Policy and Research, 1996 (with J. Restuccia, PI, S.M.C. Payne, A. Ash, J. Heineke, B. Kreger).

"Pursuing Perfection Evaluation: Site Profile Report." Prepared for the Robert Wood Johnson Foundation, December 2003 (with M.P. Charns, I.E. Cramer, A.B. Cohen, S. Holmes, J.D. Restuccia and C. VanDeusen Lukas).

"Pursuing Perfection Evaluation: Cross Site Report." Prepared for the Robert Wood Johnson Foundation, December 2003 (with M.P. Charns, I.E. Cramer, A.B. Cohen, S. Holmes, J.D. Restuccia and C. VanDeusen Lukas).

## **PRESENTATIONS:**

"A Planning and Routing Model for Public Health Nurses." PHS Commissioned Officers Association Annual Meeting, 1968.

"An Analysis of the Benefits of Serial Screening for Breast Cancer Based Upon a Mathematical Model of the Disease." Special Session, American Public Health Association Annual Meeting, October, 1976.

"Use of a Mathematical Model to Identify and Analyze Important Assumptions Affecting the Benefits from Screening for Breast Cancer." American Society for Preventive Oncology Annual Meeting, March, 1978.

"Estimates of Lead Time and Length Bias in a Breast Cancer Screening Program." Epidemiology section, American Public Health Association Annual Meeting, October, 1978.

"Does a Mandatory Second Opinion on Surgery Program Reduce the Rate of Surgery in a Medicaid Population?" Epidemiology section, American Public Health Association Annual Meeting, November, 1979 (with S.G. Martin [presenter], D.D. Cooper, et al.).

"Disease Process Models for Medical Technology Assessment." ORSA/TIMS Joint National Meeting, May, 1980 (with A.L. Plough).

"An Epidemiological Model of Co-Morbidity and Survival in End Stage Renal Disease." Epidemiology section, American Public Health Association Annual Meeting, October, 1980

(with A.L. Plough [presenter], M. Perkins).

"Design and Evaluation of Screening Programs." Fourth International Symposium on the Prevention and Detection of Cancer, July, 1980 (with M. Brennan).

"Use of a Mathematical Model to Estimate the Benefits of Screening Younger Women for Breast Cancer." Fourth International Symposium on the Prevention and Detection of Cancer, July, 1980.

"Effect of the Massachusetts Second Opinion on Surgery Program on Medicaid Surgery Rates." Association of University Programs in Health Administration Annual Meeting, April, 1981.

"The Magnitude of the Sentinel Effect in a Mandatory Second Opinion on Surgery Program." Medical Care section, American Public Health Association Annual Meeting, November, 1981 (with S.G. Martin, D.D. Cooper, et al.).

"A Mathematical Model of Proximal Caries." International Association for Dental Research Annual Meeting, March, 1982 (with J.S. Pliskin, H.G. Grondahl, J. Boffa).

"Issue in the Collection and Analysis of Longitudinal Data on Disease Progression: The Case of Dental Caries." Society for Medical Decision Making Annual Meeting, October, 1982 (with J. Pliskin, H.G. Grondahl, J. Boffa).

"Using Research in Basic Management Disciplines as a Base for Classroom Teaching." Association of University Programs in Health Administration Annual Meeting, April, 1983.

"Case-Mix in End State Renal Disease: Differences Between Hospital-Based and Free-Standing Treatment Facilities." Medical Care section, American Public Health Association Annual Meeting, November, 1983 (with A.L. Plough [presenter], S.R. Salem, J.M. Weller, C.W. Ferguson).

"DRG-Based Case Mix and The Public Hospitals." Medical Care section, American Public Health Association Annual Meeting, November, 1983 (with J. Merrill, L. Blake).

Session Coordinator and Moderator, Health Services Research Session, Association of University Programs in Health Administration Annual Meeting, April, 1984.

"Case-Mix and Cost Differences Between Teaching and Non-Teaching Hospitals." Medical Care section, American Public Health Association Annual Meeting, November, 1984 (with A.P. Frick, S.G. Martin).

"Value of Alternative Frequencies of Bitewing Radiographs." Society for Medical Decision Making Annual Meeting, November, 1984 (with J. Pliskin, H.G. Grondahl, J. Boffa).



Co-chairman, Health Applications Cluster (8 sessions), ORSA/TIMS National Meeting, 1985.

"Pricing DRGs to Improve Patient Access." Medical Care section, American Public Health Association Annual Meeting, September, 1986 (with M. Lenard, J. Restuccia).

"Pricing DRGs to Improve Patient Access." Society for Medical Decision Making Annual Meeting, September 1987 (with M. Lenard, J. Restuccia).

Chairman, Health Applications Cluster (5 sessions), ORSA/TIMS National Meeting, 1989.

"Marginal Cost Pricing of DRGs to Improve Access and Efficiency." ORSA/TIMS National Meeting, May, 1989 (with M. Lenard, J. Restuccia).

"Improved Incentives in a Per Case Pricing System by the Use of Marginal-Cost Pricing." Association for Health Services Research Annual Meeting, June, 1989 (with M. Lenard, J. Restuccia).

"A Comorbidity Index." Society for Medical Decision Making Annual Meeting, November, 1990 (with L.I. Iezzoni, A.S. Ash, M.A. Moskowitz, and E. Sawitz.)

"The Institute for Urban Health Policy, Research and Education: Research and Analysis within an Urban Health Department." Association for Health Services Research Annual Meeting, June, 1991.

"Small Area Variations: What You See Depends on How You Look. American Medical Review Research Center Annual Research Symposium, August, 1991 (with J. Restuccia [presenter], A.S.Ash, J. Anderson, S.M.C. Payne, and L.I. Iezzoni).

"Our Hemorrhaging Health Care System: Diagnosis and Prognosis." Presented at the Boston University School of Management Lecture Series "Management Challenges for the 90s: Obstacles or Opportunities", 1992 (with J. Restuccia).

"The Institute for Urban Health Policy, Research and Education: Defining New Approaches to Monitor Community Health." Health of the Public Workshop, PEW Foundation, 1992.

"The Use of a Wide Area Network to Evaluate Substance Abuse Treatment Interventions." ORSA/TIMS Joint National Meeting, November, 1992.

"Risk Adjustment Methods for Examining In-Hospital Mortality." Association for Health Services Research annual meeting, June, 1994 (with L. Iezzoni [presenter], A.S. Ash, and Y. Mackiernan).

"An Empirical Analysis of the Relationship Between Small Area Variations in Hospital Admission Rates and Appropriateness of Admissions." Association for Health Services Research annual meeting, June, 1994 (with J. Restuccia [presenter], A. Ash, and S. Payne).

"Central Intake Units and Case Management: Community-Based Substance Abuse Treatment Enhancement That Work." American Public Health Association annual meeting, November, 1995 (with D. Woods, G. Baker, K.P. Mulvey, N. Zaremba, and A. Plough).

"Small Geographic Areas Formed Using Ward's Clustering Algorithm: An Empirical Evaluation and an Application for Identifying Potential Patient Access Problems." 1995 International Conference on Health Policy Research: Methodologic Issues in Health Services and Outcome Research, December, 1995 (with A.S. Ash ).

"The Value of R-Squared for 0/1 Models." 1995 International Conference on Health Policy Research: Methodologic Issues in Health Services and Outcome Research, December, 1995 (with A.S. Ash [presenter]).

"Dual Diagnosis: An Obstacle to Successful Substance Abuse Treatment?" Society of General Internal Medicine annual meeting, 1996 (with J. Stern [presenter], R. Saitz, and K.P. Mulvey).

"Prior Mammography Use: Does it Explain Black-White Differences in Stage at Diagnosis?" Society of General Internal Medicine annual meeting, 1996 (with E.P. McCarthy [presenter], R.B. Burns, K.M. Freund, A.S. Ash, S.L. Marwill, and M.A. Moskowitz).

"The Relationship Between Small Area Variations in Hospital Admission Rates and the Appropriateness of Admission for Coronary Artery Disease." Quality in Health Care: 13<sup>th</sup> International ISQua Conference, May, 1996 (with J.R. Restuccia [presenter], T. Gomes, B. Kreger, J. Heineke, H. Selker, A.S. Ash, S.M.C. Payne, and J. Butterly).

"Adjusting for Selection Bias in a Study of the Effectiveness of Acupuncture Versus Residential Detoxification." International Conference on Health Policy Research: Methodologic Issues in Health Services and Outcomes Research, December, 1997 (with A. Ash and K. Mulvey).

Tutorial: Risk Adjustment for Measuring Healthcare Outcomes. Sponsored by the Association for Health Services Research. Delivered at annual meeting, June, 1997 and June, 1998 (1 day tutorial) and in Boston, October, 1999 (2 day tutorial) (with LI Iezzoni and A Ash).

One half day workshop: Methodological Issues: Risk Adjustment for Measuring Healthcare Outcomes. Given at the American Pharmaceutical Association annual meeting, March, 2000, Washington D.C.

One half day workshop: Approaches for Improved Risk Adjustment in Observational Studies. Given at the Society for General Internal Medicine annual meeting, May, 2000, Boston (with LI

Iezzoni and A Ash).

One day workshop: Risk Adjustment for Measuring Healthcare Outcomes. Given at the Academy for Health Services Research and Health Policy, June, 2001, Atlanta (with A. Ash).

Cyber Seminar: Risk Adjustment for Measuring Healthcare Outcomes. February 28, 2002. Sponsored by the Academy for Health Services Research and Health Policy.

“Do Variations in Disease Prevalence Limit the Usefulness of Small Area Population-based Hospitalization Rates as Indicators of Practice Style?” International Conference on Health Policy Research, October, 2003 (with E. Pekoz, A. Ash, M. Posner, J. Restuccia, and L. Iezzoni).

One day workshop: Risk Adjustment for Measuring Healthcare Outcomes. Given at the AcademyHealth, June, 2004, San Diego (with A. Ash). Also given at AcademyHealth, June, 2005, Boston (with A. Ash).

Workshop: Issues When Using Hierarchical Models to Estimate Provider Performance. Given at the 6<sup>th</sup> International Conference on Health Policy Research, October, 2005, Boston (with A. Ash).

“Composite Measures of Quality in VA Community Living Centers.” VA HSR&D Long-Term Care Field-Based Meeting, Rochester NY, June 9, 2010 (with J.F. Burgess, D. Berlowitz, J. Sullivan, M. Gerena-Melia, E. Pekoz, C. Christiansen, B. Kader, and K. Stolzmann).

“Benefit-of-the-Doubt Approaches for Calculating a Composite Measure of Quality.” Poster Session, Academy Health 2010 Annual Research Meeting, Boston (with J.F. Burgess and D. Berlowitz) .

“How Well Can We Identify the High Performing Hospital?” Poster Session, Academy Health 2010 Annual Research Meeting, Boston (with A.B. Cohen, J.D. Restuccia, Z.J. Ren, A. Labonte, C. Theokary, R. Kang, and J. Horwitt).

“The Impact of the AHRQ Patient Safety Indicators in The Veterans Health Administration (VA): The Case of Readmissions.” Academy Health 2011 Annual Research Meeting, Seattle (A Rosen, presenter, S. Loveland, M. Shin, M. Shwartz, A. Hanchate and A. Borzecki).

“Shrinkage Estimators for a Composite Measure of Quality Conceptualized as a Formative Construct.” Decision Science Institute Annual Meeting, November 2011, Boston MA. (with E. Pekoz, C Christiansen, J. Burgess, and D. Berlowitz).

## **FUNDED RESEARCH:**

Determination of Optimal Frequency of Screening Strategies. Contract NO1CB53907 awarded by the National Cancer Institute to the Michigan Cancer Foundation. Co-principal Investigator

and Project Manager, 1975-1977.

Evaluation of the Cost-Effectiveness Under Medicaid Project. Contract awarded by the Massachusetts Department of Public Welfare, Medicaid Program, to Boston University. Project Manager, 1978.

Analysis of Cancer Screening. Grant R18CA17807 awarded by the National Cancer Institute to Boston University, 1979-1980.

Case-Mix and Organizational Auspices: Are These Important Considerations for ESRD Reimbursement Policies? Grant awarded by Health Care Financing Administration to the Health Policy Consortium, 1981.

Cost-Effectiveness Analysis of Dental X-Rays. Grant 5R01H504858 awarded by the National Center for Health Services Research to Boston University. Principal Investigator, 1981-1984.

Diagnostic Mix, Illness Severity and Costs in Teaching and Nonteaching Hospitals. Grant 15-C-0988351 awarded by the Health Care Financing Administration to Boston University, 1985-1988.

Pricing DRGs to Improve Patient Access. Grant awarded by The Robert Wood Johnson Foundation to Boston University. Principal Investigator, 1986-1987.

Self-Adapting Utilization Management System. Grant awarded by The Robert Wood Johnson Foundation to Boston University. Co-principal Investigator, 1986-1988.

The Role of Severity of Illness Methodologies in Assessing Quality of Care. Grant awarded by The Robert Wood Johnson Foundation to Boston University, 1988-1990.

Validity of Cost to Charge Ratios for Estimating Costs. Grant awarded by The Robert Wood Johnson Foundation to Boston University. Principal Investigator, 1988-1990.

Inappropriateness and Variations in Hospital Use: Phase I. Grant 1R01HS06048-01 awarded by the National Center for Health Services Research and Health Care Technology Assessment, DHHS, to Boston University. Principal Investigator, 1988-1990.

Inappropriateness and Variations in Hospital Use: Phase II. Grant 2R01HS06048-02 awarded by the Agency for Healthcare Research and Policy to Boston University. Co-Principal Investigator, 1991-1994.

Evaluating Severity Adjustment Approaches. Grant 1R01HS06742-01 awarded by the Agency for Healthcare Research and Policy to Beth Israel Hospital. Principal Investigator on subcontract to Boston University, 1991-1994.

Treatment Works: Boston Office of Treatment Improvement Project. Grant IU88-T100022-01 awarded by the Office of Treatment Improvement to the Boston Department of Health and Hospitals. Director of Evaluation, 1990-1995.

More Disease: How Major a Factor in Higher Utilization? Grant R03 HS09832-01 awarded by the Agency for Healthcare Research and Policy to Boston University. Principal Investigator, 1998 – 2001.

Does Patient Severity Affect Variation in Hospital Use? Grant R01 HS13305-01 awarded by the Agency for Healthcare Research and Policy to Boston University. Co-Investigator, 2002-2004.

Do More Hospital Beds Induce Excess Demand? Grant R03 HS013730-01 awarded by the Agency for Healthcare Research and Policy to Boston University. Co-investigator, 2002-2004.

Evaluation of the Pursuing Perfection Program. Grant awarded by the Robert Wood Johnson Foundation to Boston University. Co-investigator, 2002-2006.

Strengthening Organization to Facilitate Evidence-Based Clinical Practice. Grant awarded by the Veterans Health Administration to the Center for Organization, Leadership and Management Research, VA Boston Healthcare System. Co-investigator, 2005-2008.

Study of the State of Quality Improvement in American Hospitals. Grant awarded by the Commonwealth Fund to Boston University. Co-investigator, 2005-2007.

Quality, Efficiency, and Consumer Assessment of Care in U.S. Hospitals. Grant awarded by the Commonwealth Fund to Boston University. Co-investigator, 2007-2009.

Validating the Patient Safety Indicators in the VA: A Multi-faceted Approach Grant awarded by the Veterans Health Administration. Co-investigator, 2007-2012.

Identifying and Characterizing High Performing VHA Nursing Homes. Funded by the Veterans Administration. Principal Investigator, 2008-2011.

Enhanced Risk Adjustment Using Laboratory Test and Pharmacy Data. Funded by the Veterans Health Administration. Co-investigator, 2010 -2013.

Evaluation of Methods for Summarizing and Reporting Hospital Outcome Performance. Funded by the Veterans Health Administration. Co-investigator, 2011 – 2012.

How to Interpret and Use Patient Safety Indicator Reports. Funded by the Veterans Health Administration, Co-investigator, 2011-2012.

Statistical Evaluation of Measures for Reporting Hospital Outcome Performance. Grant awarded

by the Agency for Healthcare Research and Policy to Boston University, Co-investigator, 2011-2012.

Organizational Fit and Quality Improvement in Readmission Rates. Funded by the Veterans Health Administration, Co-investigator, 2011-2013.

Validating and Classifying VA Readmissions for Quality Assessment. Grant awarded by the Veterans Health Administration, Co-investigator, 2011-2014

Examining the Relationship of Culture Change, Adverse Events and Costs in CLCs. Funded by the Veterans Health Administration, Co-investigator, 2012-2015.

Patient Safety Center of Inquiry on Measurement to Advance Patient Safety. Funded by the Veterans Health Administration, Co-investigator, 2012-2014.

### **CONSULTING:**

Huron River Group, Ann Arbor, Michigan (a transportation consulting firm). 1974-1975. Developed a computer based management information system for a Dial-a-Ride program, implemented system on a pilot basis, demonstrated how data from the system could be used in program management and evaluation. Assisted in development of a demand estimation model for public transportation, in analysis of ridership trends in Dial-a-Ride programs, and in analysis for a national study of forms of prepayment of fares in public transportation.

Indian Health Services, DHEW, 1976. Developed resource allocation model for the California Rural Indian Health Board.

Massachusetts Department of Public Welfare, 1978-1979. Formulated and implemented an interrupted time series design to evaluate the effect of a second opinion on surgery program on surgery rates in a Medicaid population.

New York State Office of Health Systems Management - Case Mix Study. 1981-1982. Analyzed hospital cost and case mix data based on Diagnosis Related Groups (DRGs).

Health and Hospital Corporation, New York City, 1982. Analyzed impact of DRG-based case mix measures on reimbursement of public hospitals.

Harvard Community Health Plan, 1983. Case development and teaching in their Management Development Program. Development of a market penetration and site selection model.

Health and Hospital Corporation, New York City, 1985-1987. Analysis of mortality rates in public hospitals in New York City.

Rate Setting Commission, Massachusetts, 1993. Specification of data and approaches for monitoring access under Chapter 495.

Hospital Payment System Advisory Commission, 1995. Analysis of the impact of Chapter 495 on Medicaid access.

**MEMBERSHIP:**

Medical Care Section, American Public Health Association; Operations Research Society of America (elected to Health Applications Section Council, 1984-1986; Co-Chairman, 1987-1989); Institute of Management Sciences; American Association for the Advancement of Science; Society for Medical Decision Making; Association for Health Services Research; Technical Review Committee, Massachusetts Health Data Consortium; Board of Directors, Project Place (runs programs for the homeless), 1990-2004.