

**Peter J. Pronovost, M.D., Ph.D., F.C.C.M.**  
The Johns Hopkins University School of Medicine  
Curriculum Vitae

**DEMOGRAPHIC INFORMATION**

**Current Appointments**

Professor, Department of Anesthesiology and Critical Care Medicine  
The Johns Hopkins University School of Medicine, Baltimore, Maryland

Professor, Department of Surgery  
The Johns Hopkins University School of Medicine, Baltimore, Maryland

Professor, Department of Health Policy and Management  
The Johns Hopkins Bloomberg School of Public Health, Baltimore, Maryland

Professor, Department of Nursing  
The Johns Hopkins University School of Nursing, Baltimore, Maryland

Director, Quality and Safety Research Group  
The Johns Hopkins University School of Medicine, Baltimore, Maryland

Director, Division of Adult Critical Care Medicine  
The Johns Hopkins University School of Medicine, Baltimore, Maryland

Co-Director, Cardiac Surgical Intensive Care Unit  
The Johns Hopkins University School of Medicine, Baltimore, Maryland

Medical Director, Center for Innovation in Quality Patient Care  
Johns Hopkins Medicine, Baltimore, Maryland

Core Faculty  
Program for Medical Technology & Practice Assessment  
The Johns Hopkins University School of Medicine, Baltimore, Maryland

Co-Director, Graduate Seminar in Health Care Management and Leadership  
Department of Health Policy and Management  
The Johns Hopkins Bloomberg School of Public Health, Baltimore, Maryland

Faculty  
Institute for Health Care Improvement  
Boston, Massachusetts

**Personal Data**

The Johns Hopkins University School of Medicine  
Department of Anesthesiology and Critical Care Medicine  
1909 Thames Street, 2<sup>nd</sup> Floor, Baltimore, Maryland 21231  
Phone: (410) 502-3231 Fax: (410) 502-3235 e-mail: ppronovo@jhmi.edu

## Education and Training

B.S./ 1983-1987      Fairfield University      Biology/Philosophy      Fairfield, CT

M.D./ 1987-1991      Johns Hopkins University      Medicine      Baltimore, MD

Intern / 1991-1992      Johns Hopkins University      Emergency Medicine      Baltimore, MD

Resident / 1992-1995      Johns Hopkins Hospital      Anesthesiology & Critical Care Medicine

Fellow/ 1994-1996      Johns Hopkins Hospital      Critical Care Medicine      Baltimore, MD

Certificate/ 1997      Johns Hopkins University      The Business of Medicine      Baltimore, MD

Certificate/ 1997      Massachusetts Institute of Organizational      Learning Technology      Boston, MA

Ph.D./ 1997-1999      The Johns Hopkins School of Hygiene and Public Health      Clinical Investigation  
Baltimore, Maryland

## Professional Experience

1997 - 1998	Instructor Department of Surgery	Johns Hopkins University School of Medicine Baltimore, Maryland
1997 - 1998	Instructor Department of Anesthesiology and Critical Care Medicine	Johns Hopkins University School of Medicine Baltimore, Maryland
1998 - present	Core Faculty Program for Medical Technology and Practice Assessment	Johns Hopkins University School of Medicine Baltimore, Maryland
1998 - 2001	Assistant Professor Department of Anesthesiology and Critical Care Medicine	Johns Hopkins University School of Medicine Baltimore, Maryland
1998 - 2001	Assistant Professor Department of Health Policy and Management	Johns Hopkins Bloomberg School of Public Health Baltimore, Maryland
1998 - 2001	Assistant Professor Department of Surgery	Johns Hopkins University School of Medicine Baltimore, Maryland
2001 - present	Faculty Institute for Health Care Improvement	Institute for Health Care Improvement Boston, Massachusetts
2001 - 2005	Associate Professor	Johns Hopkins University

	Department of Anesthesiology and Critical Care Medicine	School of Medicine Baltimore, Maryland
2001 - 2005	Associate Professor Department of Health Policy and Management	Johns Hopkins Bloomberg School of Public Health Baltimore, Maryland
2001 - 2005	Associate Professor Department of Surgery	Johns Hopkins University School of Medicine Baltimore, Maryland
2002 - present	Medical Director Center for Innovation in Quality Patient Care	Johns Hopkins Hospital Baltimore, Maryland
2003 - present	Director Quality and Safety Research group	Johns Hopkins University School of Medicine Baltimore, Maryland
2003 - 2005	Associate Professor Department of Nursing	Johns Hopkins University School of Nursing Baltimore, Maryland
2004 - present	Co-Director Cardiac Surgical Intensive Care Unit	Johns Hopkins University School of Medicine Baltimore, Maryland
2004 - present	Director Division of Adult Critical Care Medicine	Johns Hopkins University School of Medicine Baltimore, Maryland
2005 - present	Co-Director, Graduate Seminar in Health Care Management and Leadership, Department of Health Policy and Management	Johns Hopkins Bloomberg School of Public Health Baltimore, Maryland
2005 - present	Professor Department of Anesthesiology and Critical Care Medicine	Johns Hopkins University School of Medicine Baltimore, Maryland
2005 - present	Professor Department of Health Policy	Johns Hopkins Bloomberg School of Public Health and Management Baltimore, Maryland
2005 - present	Professor Department of Surgery	Johns Hopkins University School of Medicine Baltimore, Maryland
2005 - present	Professor Department of Nursing	Johns Hopkins University School of Nursing Baltimore, Maryland

## RESEARCH ACTIVITIES

### Publications

#### Peer-reviewed original research articles

1. Swoboda S, Castro JA, Earsing KA, Lipsett PA and the SICU Study Group (Breslow MJ, Dorman T, Rosenfeld B, Campbell K, **Pronovost P**, Dodd-o J). Road trips and resources: there is a better way. *Crit Care. (Lond)* 1997; 1(3):105-10.
2. **Pronovost PJ**, Kazandijan VA. A new learning environment: combining clinical research with quality improvement. *J Eval Clin Pract.* 1999; 5(1):33-40.
3. **Pronovost PJ**, Jenckes MW, Dorman T, Garrett E, Breslow MJ, Rosenfeld BA, Lipsett PA, Bass E. Organizational characteristics of intensive care units related to outcomes of abdominal aortic surgery. *JAMA.* 1999; 281(14):1310-17.
4. **Pronovost P**, Angus DC. Using large-scale databases to measure outcomes in critical care. *Crit Care Clin.* 1999; 15(3):615-31.
5. **Pronovost P**, Dorman T, Sadovnikoff N, Garrett E, Breslow M, Rosenfeld B. The association between preoperative patient characteristics and both clinical and economic outcomes after abdominal aortic surgery. *J Cardiothorac Vasc Anesth.* 1999; 13(5):549-54.
6. **Pronovost P**, Angus DC: Determining the value of critical care. *Clin Pulm Med.* 1999; 6(5):302-8.
7. **Pronovost P**, Angus D, Miller M. Design consideration in clinical trials on acutely ill patients. *Res Pract.* 2000; 1:47-54.
8. Dorman T, Breslow MJ, **Pronovost PJ**, Rock P, Rosenfeld BA. Bundle-branch block as a risk factor in non-cardiac surgery. *Arch Intern Med.* 2000; 160(8):1149-52.
9. Lipsett P, Swoboda S, Dickerson J, Yitalo M, Gordon T, Breslow M, Campbell K, Dorman T, **Pronovost P**, Rosenfeld B. Survival and functional outcome after prolonged ICU care. *Ann Surg.* 2000; 231(2):262-68.
10. **Pronovost PJ**, Morlock L, Davis RO, Cunningham T, Paine L, Scheulen J. Using online and offline change models to improve ICU access and revenues. *Jt Comm J Qual Improv.* 2000; 26(1):5-17.
11. **Pronovost P**, Angus DC. Cost reduction and quality improvement: it takes two to tango. *Crit Care Med.* 2000; 28(2):581-83.
12. Berenholtz S, **Pronovost P**, Dorman T. Evidence-based Anesthesiology. *Curr Anesthesiology Rep.* 2000; 2:425-31.
13. Rosenfeld BA, Dorman T, Breslow MJ, **Pronovost P**, Jenckes M, Zhang N, Anderson G, Rubin H. Intensive care unit telemedicine: alternate paradigm for providing continuous intensivists care. *Crit Care Med.* 2000; 28(12):3925-31.
14. Docimo AB, **Pronovost PJ**, Davis RO, Concordia EB, Gabrish CE, Adessa MS, Bessman E. Using the online and offline change model to improve efficiency for fast-track patients in an emergency department. *Jt Comm J Qual Improv.* 2000; 26(9):503-14.
15. Amaravadi RK, Dimick JB, **Pronovost PJ**, Lipsett PA. ICU nurse-to-patient ratio is associated with complications and resource use after esophagectomy. *Intensive Care Med.* 2000; 26(12):1857-62.
16. Lipsett PA, Swoboda SM, Campbell KA, Cornwell E 3rd, Dorman T, **Pronovost PJ**. Sickness Impact Profile Score versus a Modified Short Form survey for functional outcome assessment: acceptability, reliability, and validity in critically ill patients with prolonged intensive care unit stays. *J Trauma.* 2000; 49(4):737-43.
17. Lipsett PA, Swoboda SM, Dickerson J, Ylitalo M, Gordon T, Breslow M, Campbell K, Dorman T, **Pronovost P**, Rosenfeld B. Survival and functional outcome after prolonged intensive care unit stay. *Ann Surg.* 2000; 231(2):262-68.

18. Dimick JB, **Pronovost PJ**, Heitmiller RF, Lipsett PA. Intensive care unit physician staffing and hospital volume are related to improved outcomes for esophageal resection. *Surg Forum*. 2000; 51(L1):493-95.
19. **Pronovost PJ**, Williams MA. Telemedicine and end-of-life care: what's wrong with this picture? *J Clin Ethics*. 2001; 12(1):64-8.
20. **Pronovost P**, Angus DC. Economics of end-of-life care in the intensive care unit. *Crit Care Med*. 2001; 29(2 Suppl):N46-51.
21. Dimick JB, Cattaneo S, Lipsett PA, **Pronovost PJ**, Heitmiller RJ. Hospital volume is related to clinical and economic outcomes of esophageal resection in Maryland. *Ann Thorac Surg*. 2001; 72(2):334-39.
22. **Pronovost PJ**, Berenholtz SM, Dorman T, Merritt WT, Martinez EA, Guyatt GH. Evidence-based medicine in anesthesiology. *Anesth Analg*. 2001; 92(3):787-94.
23. Dimick JD, **Pronovost PJ**, Heitmiller RF, Lipsett PA. Intensive care unit physician staffing is associated with decreased length of stay, hospital costs, and complications after esophageal resection. *Crit Care Med*. 2001; 29(4):753-58.
24. **Pronovost PJ**, Dang D, Dorman T, Lipsett PA, Garrett EA, Jenckes M, Bass EB. Intensive care unit nurse staffing and the risk for complications after abdominal aortic surgery. *Eff Clin Pract*. 2001; 4(5):199-206.
25. Akinci SB, **Pronovost P**, Dorman T. Sequential compression devices can cause erroneous cardiac output measurements. *Anesthesiology*. 2001; 95(4):1027-28.
26. Berenholtz S, **Pronovost P**, Lipsett P, Dawson P, Dorman T. Assessing the effectiveness of critical pathways on reducing resource utilization in the surgical intensive care unit. *Intensive Care Med*. 2001; 27(6):1029-36.
27. **Pronovost PJ**, Miller MR, Dorman T, Berenholtz SM, Rubin H. Developing and implementing measures of quality of care in the intensive care unit. *Curr Opin Crit Care*. 2001; 7(4):297-03.
28. **Pronovost PJ**, Waters H, Dorman T. Impact of critical care physician workforce for intensive care unit physician staffing. *Curr Opin Crit Care*. 2001; 7(6):456-59.
29. Dimick JB, **Pronovost PJ**, Upchurch GR Jr. The volume-outcome effect for abdominal aortic surgery: difference in case-mix or complications? *Surg Forum*. 2001; 52(LII):483-85.
30. **Pronovost P**, Garrett E, Dorman T, Jenckes M, Webb III TH, Breslow M, Rosenfeld B, Bass E. Variation in complication rates and opportunities for improvement in quality of care for patients having abdominal aortic surgery. *Langenbecks Arch Surg*. 2001; 386(4):249-56.
31. Dimick JB, Swoboda SM, **Pronovost PJ**, Lipsett PA. Effect of nurse-to-patient ratio in the intensive care unit on pulmonary complications and resources use after hepatectomy. *Am J Crit Care*. 2001; 10(6):376-82.
32. Rubin HR, **Pronovost P**, Diette GB. From a process of care to a measure: the development and testing of a quality indicator. *Int J Qual Health Care*. 2001; 13(6):489-96.
33. Dimick JB, **Pronovost PJ**, Lipsett PA. The effect of ICU physician staffing and hospital volume on outcomes after hepatic resection. *J Intensive Care Med*. 2002; 17:41-7.
34. Randolph AG, **Pronovost P**. Reorganizing the delivery of intensive care could improve efficiency and save lives. *J Eval Clin Pract*. 2002; 8(1):1-8.
35. Berenholtz SM, **Pronovost PJ**, Mullany D, Garrett E, Ness PM, Dorman T, Klag MJ. Predictors of transfusion for spinal surgery in Maryland 1997-2000. *Transfusion*. 2002; 42(2):183-89.
36. Dang D, Johantgen ME, **Pronovost PJ**, Jenckes, MW, Bass, EB. Post-operative complications: does intensive care unit staff nursing make a difference? *Heart Lung*. 2002; 31(3):219-28.
37. Wu CL, Berenholtz SM, **Pronovost PJ**, Fleisher LA. Systematic review and analysis of postdischarge symptoms after outpatient surgery. *Anesthesiology*. 2002; 96(4):994-1003.
38. Weller JF, Elliott RA, **Pronovost PJ**. Spinal anesthesia for a patient with familial hyperkalemic periodic paralysis. *Anesthesiology*. 2002; 97(1):259-60.
39. Berenholtz SM, Dorman T, Ngo K, **Pronovost PJ**. Qualitative review of intensive care unit quality indicators. *J Crit Care*. 2002; 17(1):1-12.

40. Dimick JB, **Pronovost PJ**, Cowan JA, Ailawadi G, Upchurch GR Jr. The volume-outcome effect for abdominal aortic surgery: differences in case-mix or complications? *Arch Surg.* 2002; 137(7):828-32.
41. Darer J, **Pronovost P**, Bass EB. Use and evaluation of critical pathways in hospitals. *Eff Clin Pract.* 2002; 5(3):114-19.
42. Wu A, **Pronovost P**, Morlock L. ICU incident reporting systems. *J Crit Care.* 2002; 17(2):86-94.
43. Kaufmann SC, Wu CL, **Pronovost PJ**, Jermyn RM, Fleisher LA. The association of intraoperative neuraxial anesthesia on anticipated admission to the intensive care unit. *J Clin Anesth.* 2002; 14(6):432-36.
44. Nilsson KR, Berenholtz SM, Dorman T, Garrett E, Lipsett P, Kaufman HS, **Pronovost PJ**. Preoperative predictors of blood transfusion in colorectal cancer surgery. *J Gastrointest Surg.* 2002; 6(5):753-62.
45. **Pronovost PJ**, Jenckes M, To M, Dorman T, Lipsett PA, Berenholtz S, Bass EB. Reducing failed extubations in the intensive care unit. *Jt Comm J Qual Improv.* 2002; 28(11):595-604.
46. Kim LJ, Martinez EA, Faraday N, Dorman T, Fleisher LA, Perler BA, Williams GM, Chan D, **Pronovost PJ**. Cardiac troponin I predicts short-term mortality in vascular surgery patients. *Circulation.* 2002; 106(18):2366-71.
47. **Pronovost PJ**, Angus DC, Dorman T, Robinson KA, Dremsizov TT, Young TL. Physician staffing patterns and clinical outcomes in critically ill patients: a systematic review. *JAMA.* 2002; 288(17):2151-62.
48. Martinez EA, **Pronovost P**. Perioperative beta-blockers in high-risk patients. *J Crit Care.* 2002; 17(2):105-13.
49. Dorman T, **Pronovost, PJ**. Intensive care unit errors: Detection and reporting to improve outcomes. *Curr Opin Anaesth.* 2002; 15(2):147-51.
50. Dimick JB, **Pronovost PJ**, Cowan JA Jr, Lipsett PA. Postoperative complication rates after hepatic resection in Maryland hospitals. *Arch Surg.* 2003; 138(1):41-6.
51. Angus DC, Carlet J, **2002 Brussels Roundtable Participants**. Surviving intensive care: a report from the 2002 Brussels Roundtable. *Intensive Care Med.* 2003; 29(3):368-77.
52. Dimick JB, **Pronovost PJ**, Cowan JA, Lipsett PA. Surgical volume and quality of care for esophageal resection: do high-volume hospitals have fewer complications? *Ann Thorac Surg.* 2003; 75(2):337-41.
53. Rockey Moore MB, Holzmüller CG, Milstein A, Dorman T, **Pronovost PJ**. Updating the Leapfrog Group Intensive Care Unit Physician Staffing Standard. *J Clin Outcomes Manag.* 2003; 10(1):31-7.
54. Dy SM, Garg PP, Nyberg D, Dawson PB, **Pronovost PJ**, Morlock L, Rubin HR, Diener-West M, Wu AW. Are Critical Pathways Effective for Reducing Postoperative Length of Stay? *Med Care.* 2003; 41(5):637-48.
55. Beckmann U, Bohringer C, Carless R, Gillies DM, Runciman WB, Wu AW, **Pronovost P**. Evaluation of two methods for quality improvement in intensive care: facilitated incident monitoring and retrospective medical chart review. *Crit Care Med.* 2003; 31(4):1006-11.
56. Dimick JB, **Pronovost PJ**, Cowan JA, Lipsett PA. Complications and costs after high-risk surgery: where should we focus quality improvement initiatives? *J Am Coll Surg.* 2003; 196(5):671-78.
57. Berenholtz S, Dorman T, **Pronovost PJ**. Improving Quality and Safety in the ICU. *Contemp Crit Care.* 2003; 1(1):1-9.
58. Martinez EA, Kim LJ, Faraday N, Rosenfeld B, Bass EB, Perler BA, Williams GM, Dorman T, **Pronovost PJ**. Sensitivity of Routine Intensive Care Unit Surveillance for Detecting Myocardial Ischemia. *Crit Care Med.* 2003; 31(9):2302-2308.
59. Berenholtz SM, **Pronovost PJ**. Barriers to translating evidence into practice. *Curr Opin Crit Care.* 2003; 9(4):321-25.
60. Kozlow JH, Berenholtz SM, Garrett E, Dorman T, **Pronovost PJ**. Epidemiology and Impact of Aspiration Pneumonia in Patients Undergoing Surgery in Maryland, 1999-2000. *Crit Care Med.* 2003; 31(7):1930-37.

61. **Pronovost PJ**, Berenholtz SM, Ngo K, McDowell M, Holzmuller CG, Haraden C, Resar R, Rainey T, Nolan T, Dorman T. Developing and Pilot Testing Quality Indicators in the Intensive Care Unit. *J Crit Care*. 2003; 18(3):145-55.
62. Dimick JB, **Pronovost PJ**, Cowan JA Jr, Lipsett PA, Stanley JC, Upchurch GR Jr. Variation in postoperative complication rates after high-risk surgery in the United States. *Surgery*. 2003; 134(4):534-40.
63. Dimick JB, Cowan JA Jr, Stanley JC, Henke PK, **Pronovost PJ**, Upchurch GR Jr. Surgeon specialty and provider volumes are related to outcome of intact abdominal aortic aneurysm repair in the United States. *J Vas Surg*. 2003; 38(4):739-44.
64. **Pronovost P**, Berenholtz S, Dorman T, Lipsett PA, Simmonds T, Haraden C. Improving communication in the ICU using daily goals. *J Crit Care*. 2003; 18(2):71-5.
65. Newhouse RP, Mills ME, Johantgen M, **Pronovost PJ**. Is there a relationship between service integration and differentiation and patient outcomes? *Int J Integr Care*. 2003; 3:e15. King S, **Pronovost PJ**. Rekindling the central fire: Stories can change your life. *J Innov Manag*. 2003; 8(4):66-80.
66. **Pronovost PJ**, Weast B, Holzmuller, CG, Rosenstein BJ, Kidwell RP, Haller KB, Feroli ER, Sexton JB, Rubin HR. Evaluation of the culture of safety: survey of clinicians and managers in an academic medical center. *Qual Saf Health Care* 2003; 12(6):405-10.
67. **Pronovost PJ**, Weast B, Schwarz M, Wyskiel RM, Prow D, Milanovich SN, Berenholtz S, Dorman T, Lipsett P. Medication Reconciliation: A practical tool to reduce the risk of medication errors. *J Crit Care*. 2003; 18(4):201-05.
68. Dimick JB, **Pronovost PJ**, Cowan JA Jr, Wainess RM, Upchurch GR Jr. Should older patients be selectively referred to high-volume center for abdominal aortic surgery? *Vascular*. 2004;12(1):51-6.
69. Miller MR, **Pronovost PJ**, Burstin HR. Pediatric patient safety in the ambulatory setting. *Ambul Pediatr*. 2004; 4(1):47-54.
70. **Pronovost PJ**, Weast B, Bishop K, Paine L, Griffith R, Rosenstein BJ, Kidwell RP, Haller KB, Davis R. Patient Safety, - Senior Executive Adopt-a-Work Unit: A Model for Safety Improvement. *Jt Comm J Qual Saf*. 2004; 30(2):59-68.
71. Erdek M, **Pronovost PJ**. Improving assessment and treatment of pain in the critically ill. *Int J Qual Health Care*. 2004; 16(1):59-64.
72. Berenholtz SM, Milanovich S, Faircloth A, Prow DT, Earsing K, Lipsett P, Dorman T, **Pronovost PJ**. Improving Care for the Ventilated Patient. *Jt Comm J Qual Saf*. 2004; 30(4):195-204.
73. **Pronovost PJ**, Needham DM, Waters H, Birkmeyer CM, Calinawan JR, Birkmeyer JD, Dorman T. Intensive Care Unit Physician Staffing: Financial modeling of the Leapfrog Standard. *Crit Care Med*. 2004; 32(6):1247-53.
74. **Pronovost P**, Hobson DB, Earsing K, Lins ES, Rinke ML, Emery K, Berenholtz SM, Lipsett PA, Dorman T. A Practical Tool to Reduce Medications Errors During patient Transfer from an Intensive Care Unit. *J Clin Outcomes Manag*. 2004; 11(1):26, 29-33.
75. Chan MY, **Pronovost PJ**. Clinical utility of biomarkers in myocardial injury. *Curr Opin Anaesthesiol*. 2004; 17(1):49-55.
76. Lubomski LH, **Pronovost PJ**, Thompson DA, Holzmuller CG, Dorman T, Morlock LL, Dickman F, Fahey M, Wu, AWW. Building a better incident reporting system: Perspectives from a multi-site project. *J Clin Outcomes Manag*. 2004; 11(5):275-80.
77. **Pronovost PJ**, Wu AW, Sexton JB. Acute decompensation after removing a central line: practical approaches to increasing safety in the intensive care unit. *Ann Intern Med*. 2004; 140(12):1025-33.
78. Needham DM, Bronskill SE, Sibbald WJ, **Pronovost PJ**, Laupacis A. Mechanical ventilation in Ontario, 1992-2000: incidence, survival, and hospital bed utilization of noncardiac surgery adult patients. *Crit Care Med*. 2004; 32(7):1504-09.
79. Beckman U, Gillies DM, Berenholtz SM, Wu AW, **Pronovost P**. Incidents relating to the intra-hospital transfer of critically ill patients. An analysis of the reports submitted to the Australian Incident Monitoring Study in Intensive Care. *Intensive Care Med*. 2004; 30(8):1579-85.

80. **Pronovost PJ**, Thompson DA. Reducing defects in the use of interventions. *Intensive Care Med.* 2004; 30(8):1505-7.
81. **Pronovost PJ**, Rinke ML, Emery K, Dennison C, Blackledge C, Berenholtz SM. Interventions to reduce mortality among patients treated in Intensive Care Units. *J Crit Care.* 2004;19(3):158-64.
82. Paine LA, Baker DR, Rosenstein B, **Pronovost PJ**. The Johns Hopkins Hospital: Identifying and addressing risks and safety issues. *Jt Comm J Qual Saf.* 2004; 30(10):543-50.
83. Berenholtz SM, **Pronovost PJ**, Lipsett PA, Hobson D, Earsing K, Farley JE, Milanovich S, Garrett-Mayer E, Winters BD, Rubin HR, Dorman T, Perl TM. Eliminating catheter-related bloodstream infections in the intensive care unit. *Crit Care Med.* 2004; 32(10):2014-20.
84. Needham DM, Thompson DA, Holzmueller CG, Dorman T, Lubomski LH, Wu AW, Morlock LL, **Pronovost PJ**. A system factors analysis of airway events from the Intensive Care Unit Safety Reporting System (ICUSRS). *Crit Care Med.* 2004; 32(11):2227-33.
85. Faraday N, Martinez EA, Scharpf RB, Kasch-Semenza L, Dorman T, **Pronovost PJ**, Perler B, Gerstenblith G, Bray PF, Fleisher LA. Platelet gene polymorphisms and cardiac risk assessment in vascular surgical patients. *Anesthesiology.* 2004; 101(6):1291-97.
86. Shermock KM, Horn E, Lipsett PA, **Pronovost PJ**, Dorman T. Number needed-to-treat and cost of recombinant human erythropoietin to avoid one transfusion-related adverse event in critically ill patients. *Crit Care Med.* 2005; 33(3):497-503.
87. Needham DM, Bronskill SE, Calinawan JR, Sibbald WJ, **Pronovost PJ**, Laupacis A. Projected incidence of mechanical ventilation in Ontario to 2026: Preparing for the aging baby boomers. *Crit Care Med.* 2005; 33(3):574-79.
88. Wu AW, Holzmueller CG, Lubomski LH, Thompson DA, Fahey M, Dorman T, Morlock LL, Engineer L, Dickman F, Steinwachs DM, **Pronovost PJ**. Development of the ICU Safety Reporting System. *Journal of Patient Safety.* 2005; 1(1):23-32.
89. **Pronovost P**, Weast B, Rosenstein B, Sexton JB, Holzmueller CG, Paine L, Davis R, Rubin HR. Implementing and Validating a Comprehensive Unit-Based Safety Program. *Journal of Patient Safety.* 2005; 1(1):33-40.
90. Newhouse RP, Johantgen M, **Pronovost PJ**, Johnson E. Perioperative nurses and patient outcomes—mortality, complications, and length of stay. *AORN J.* 2005; 31(5):508-509, 513-522, 525-28.
91. Holzmueller CG, **Pronovost PJ**, Dickman F, Thompson DA, Wu AW, Lubomski LH, Fahey M, Steinwachs DM, Engineer L, Jaffrey A, Morlock LL, Dorman T. Creating the Web-based Intensive Care Unit Safety Reporting System (ICUSRS). *J Am Med Inform Assoc.* 2005; 12(2):130-39.
92. **Pronovost P**, Goeschel C. Improving ICU care: It takes a team. *Healthc Exec.* 2005; 20(2):15-22.
93. Dy SM, Garg P, Nyberg D, Dawson PB, **Pronovost PJ**, Morlock L, Rubin H, Wu AW. Critical pathway effectiveness: Assessing the impact of patient, hospital care, and pathway characteristics using qualitative comparative analysis. *Health Serv Res.* 2005; 40(2):499-516.
94. Weiss ES, Makary MA, Wang T, Syin D, **Pronovost PJ**, Chang D, Cornwell EE 3rd. Prevalence of Blood-Borne Pathogens in an Urban, University-Based General Surgical Practice. *Ann Surg.* 2005; 241(5):803-807; discussion 807-09.
95. Needham DM, Dowdy DW, Mendez-Tellez PA, Herridge MS, **Pronovost PJ**. Studying outcomes of intensive care unit survivors: measuring exposures and outcomes. *Intensive Care Med.* 2005; 31(9):1153-60.
96. Dowdy DW, Needham DM, Mendez-Tellez PA, Herridge MS, **Pronovost PJ**. Studying outcomes of intensive care unit survivors: the role of the cohort study. *Intensive Care Med.* 2005; 31(7):914-921.
97. Dowdy DW, Eid MP, Sedrakyan A, Mendez-Tellez PA, **Pronovost PJ**, Herridge MS, Needham DM. Quality of life in adult survivors of critical illness: A systematic review of the literature. *Intensive Care Med.* 2005; 31(5):611-20.
98. Resar R, **Pronovost P**, Simmonds T, Rainey T, Nolan T. Using a Bundle Approach to Improve ventilator care processes and observations on ventilator-associated pneumonia. *Jt Comm J Qual Patient Saf.* 2005; 31(5):243-48.

99. Needham DM, Scales DC, Laupacis A, **Pronovost PJ**. A systematic review of the Charlson Comorbidity Index using Canadian administrative databases: A perspective on risk adjustment in critical care research. *J Crit Care*. 2005; 20(1):12-9.
100. **Pronovost PJ**, Thompson DA, Holzmueller CG, Dorman T, Rudolph BA. Evaluating the impact of the Leapfrog Group's standard for intensive care unit physician staffing. *Semin Anesth Perioper Med Pain*. 2005; 24:50-8.
101. Miller MR, **Pronovost P**, Donithan M, Zeger S, Zhan C, Morlock L, Meyer G. Relationship between performance measurement and accreditation: implications for quality of care and patient safety. *Am J Med Qual*. 2005; 20(5):239-52.
102. Needham DM, Dennison CR, Dowdy DW, Mendez-Tellez PA, Ciesla N, Desai SV, Sevranski J, Shanholtz C, Sharfstein D, Herridge MS, **Pronovost PJ**. Study protocol: The Improving Care of Acute Lung Injury Patients (ICAP) study. *Crit Care*. 2006; 10(1):R9.
103. Burda S, Hobson D, **Pronovost PJ**. What is the patient really taking? Discrepancies between surgery and anesthesiology preoperative medical histories. *Qual Saf Health Care*. 2005; 14(6):414-6.
104. **Pronovost PJ**, Needham DM, Waters H, Birkmeyer CM, Calinawan JR, Birkmeyer JD, Dorman T. Intensive care unit physician staffing: Financial modeling of the Leapfrog standard. *Crit Care Med*. 2006; 34(3 Suppl):S18-S24.
105. Kennedy P, **Pronovost P**. Shepherding change: How the market, healthcare providers, and public policy can deliver quality care for the 21st century. *Crit Care Med*. 2006; 34(3 Suppl):S1-6.
106. **Pronovost PJ**, Needham DM, Waters H, Birkmeyer CM, Calinawan JR, Birkmeyer JD, Dorman T. Intensive care unit physician staffing: Financial modeling of the Leapfrog standard. *Crit Care Med*. 2006; 34(3 Suppl):S18-S24.
107. Makary MA, **Pronovost PJ**, Weiss ES, Millman EA, Chang D, Baker SP, Cornwell, Syin D, Freischlag JA. Sharpless Surgery: A Prospective Study of the Feasibility of Performing Operations Using Non-sharp Techniques in an Urban, University-based Surgical Practice. *World J Surg* 2006;30(7):1-7.
108. **Pronovost PJ**, King J, Holzmueller CG, Sawyer M, Bivens S, Michael M, Haig K, Paine L, Moore D, Miller M. A web-based tool for the Comprehensive Unit-based Safety Program (CUSP). *Jt Comm J Qual Patient Saf*. 2006; 32(3):119-29.
109. Dowdy DW, Eid MP, Dennison CR, Mendez-Tellez PA, Herridge MS, Guallar E, **Pronovost PJ**, Needham DM. Quality of life after acute respiratory distress syndrome: a meta-analysis. *Intensive Care Med*. 2006; 32(8):1115-24.
110. Daumit GL, **Pronovost PJ**, Anthony CB, Guallar E, Steinwachs DM, Ford DE. Adverse events during medical and surgical hospitalizations for persons with schizophrenia. *Arch Gen Psychiatry*. 2006; 63(3):267-72.
111. Needham DM, Bronskill SE, Rothwell DM, Sibbald WJ, **Pronovost PJ**, Laupacis A, Stukel TA. Hospital volume and mortality for mechanical ventilation of medical and surgical Patients: A population-based analysis using administrative data. *Crit Care Med*. 2006; 34(9):2349-54.
112. **Pronovost PJ**, Holzmueller CG, Martinez E, Cafeo CL, Hunt D, Dickson C, Awad M, Makary MA. A practical tool to learn from defects in patient care. *Jt Comm J Qual Patient Saf*. 2006;32(2):102-8.
113. Thompson DA, Makary MA, Dorman T, **Pronovost PJ**. Clinical and economic outcomes of Hospital acquired pneumonia in intra-abdominal surgery patients. *Ann Surg*. 2006; 243(4): 547-52.
114. Makary MA, Sexton JB, Freischlag JA, Holzmueller CG, Millman EA, Rowen L, **Pronovost PJ**. Operating room teamwork among physicians and nurses: teamwork in the eye of the beholder. *J Am Coll Surg*. 2006; 202(5):746-52.
115. Sexton JB, Holzmueller CG, **Pronovost PJ**, Thomas EJ, McFerran S, Nunes J, Thompson DA, Knight AP, Penning DH, Fox HE. Variation in caregiver perceptions of teamwork climate in labor and delivery units. *J Perinatol*. 2006; 26(8):463-70.
116. Makary MA, Holzmueller CG, Thompson D, Rowen L, Heitmiller ES, Maley WR, Black JH, Stegner K, Freischlag JA, Ulatowski JA, **Pronovost PJ**. Operating room briefings: working on the same page. *Jt Comm J Qual Patient Saf*. 2006; 32(6):351-55.

117. Makary MA, Holzmueller CG, Sexton JB, Thompson DA, Martinez EA, Freischlag JA, Ulatowski JA, Heitmiller ES, Rowen L, **Pronovost PJ**. Operating room debriefings. *Jt Comm J Qual Patient Saf*. 2006; 32(7):407-10, 357.
118. Nelson JE, Mulkerin CM, Adams LL, **Pronovost PJ**. Improving comfort and communications in the ICU: a practical new tool for palliative care performance measurement and feedback. *Qual Saf Health Care*. 2006; 15 (4):264-71.
119. **Pronovost PJ**, Berenholtz SM, Goeschel CA, Needham DM, Sexton JB, Thompson DA, Lubomski LH, Marsteller JA, Makary MA, Hunt E. Creating high reliability in health care organizations. *Health Serv Res*. 2006; 41(4 Part II):1599-1617.
120. Stokes SL, Wu AW, **Pronovost PJ**. Ethical and Practical Aspects of Disclosing Adverse Events in the Emergency Department. *Emerg Med Clin N Am*. 2006; 24(3):703-14.
121. Wu AW, Sexton JB, **Pronovost PJ**. Partnership with Patients: A Prescription for ICU Safety. *Chest* 2006; 130(5):1291-3.
122. Sexton JB, Makary MA, Tersigni AR, Pryor D, Hendrich A, Thomas EJ, Holzmueller CG, Knight AP, Wu Y, **Pronovost, PJ**. Teamwork in the operating room: frontline perspectives among hospitals and operating room personnel. *Anesthesiology*. 2006; 105(5):877-84.
123. Thompson DA, Needham DM, **Pronovost PJ**. Clinical and Economic Outcomes of Postoperative hospital-acquired Pneumonia patients who receive invasive diagnostic testing or ventilation. *J Clin Outcomes Manage* 2006; 13(12):685-91.
124. **Pronovost PJ**, Holzmueller CG, Clattenburg L, Berenholtz S, Martinez EA, Paz JR, Needham DM. Team care: beyond open and closed intensive care units. *Curr Opin Crit Care*. 2006; 12(6):604-8.
125. **Pronovost PJ**, Thompson DA, Holzmueller CG, Lubomski LH, Dorman T, Dickman F, Fahey M, Steinwachs DM, Engineer L, Sexton JB, Wu AW, Morlock LL. Toward learning from patient safety reporting systems. *J Crit Care*. 2006; 21(4):305-15.
126. **Pronovost P**, Needham D, Berenholtz S, Sinopoli D, Chu H, Cosgrove S, Sexton B, Hyzy R, Welsh R, Roth G, Bander J, Kepros J, Goeschel C. An intervention to decrease catheter-related bloodstream infections in the ICU. *N Eng J Med*. 2006; 355(26):2725-2732.
127. Winters BD, Pham J, **Pronovost PJ**. Rapid response teams--walk, don't run. *JAMA*. 2007; 296(13):1645-7.
128. Nilsson KR, Berenholtz SM, Garrett-Mayer E, Dorman T, Klag MJ, **Pronovost PJ**. Association between venous thromboembolism and perioperative allogeneic transfusion. *Arch Surg*. 2007; 142(2):126-32; discussion 133.
129. Makary MA, Mukherjee A, Sexton JB, Syin D, Goodrich E, Hartman E, Rowen L, Behrens DC, Marohn M, **Pronovost PJ**. Operating Room Briefings and Wrong-Site Surgery. *J Am Coll Surg*. 2007; 204(2):236-243.
130. **Pronovost P**, Holzmueller CG, Young J, Whitney P, Wu AW, Thompson DA, Lubomski LH, Morlock LL. Using Incident Reporting to Improve Patient Safety: A Conceptual Model. *Journal of Patient Safety*. 2007; 3(1):27-33.
131. Diaz-Navarraz T, **Pronovost P**, Beortegui E, Segui-Gomez M. Benefits of Direct Observation in Medication Administration to Detect Errors. *Journal of Patient Safety*. 2007; 3(4):200-207.
132. Martinez EA, Williams KA, **Pronovost PJ**. Thinking like a pancreas; perioperative glycemic control. *Anesth Analg*. 2007; 104(1):4-6.
133. Weis ES, Cornwell EE 3<sup>rd</sup>, Wang T, Syin D, Millman EA, **Pronovost PJ**, Chang D, Makary MA. Human immunodeficiency virus and hepatitis testing and prevalence among surgical patients in an urban university hospital. *Am J Surg*. 2007; 193(1):55-60.
134. Michaels RK, Makary MA, Dahab Y, Frassica FJ, Heitmiller E, Rowen LC, Crotreau R, Brem H, **Pronovost PJ**. Achieving the National Quality Forum's "Never Events": Prevention of Wrong Site, Wrong Procedure, and Wrong Patient Operations. *Ann Surg*. 2007; 245(4):526-32.
135. Makary MA, Epstein J, **Pronovost PJ**, Millman EA, Hartman EC, Freischlag JA. Surgical specimen identification errors: a new measure of quality in surgical care. *Surgery*. 2007; 141(4):450-5.

136. Heitmiller E, Martinez E, **Pronovost PJ**. Identifying and learning from mistakes. *Anesthesiology*. 2007; 106(4):654-6.
137. Winters BD, Berenholtz SM, **Pronovost P**. Improving patient safety reporting systems. *Crit Care Med*. 2007; 35(4):1206-7.
138. Miller MR, Robinson KA, Lubomski LH, Rinke ML, **Pronovost PJ**. Medication errors in paediatric care: a systematic review of epidemiology and an evaluation of evidence supporting reduction strategy recommendations. *Qual Saf Health Care*. 2007; 16(2):116-26.
139. Amarasingham R, **Pronovost PJ**, Diener-West M, Goeschel C, Dorman T, Thiemann DR, Powe NR. Measuring Clinical Information Technology in the ICU Setting: Application in a Quality Improvement Collaborative. *J Am Med Inform Assoc*. 2007; 14(3):288-94.
140. Ritsema TS, Kelen GD, **Pronovost PJ**, Pham JC. The national trend in quality of emergency department pain management for long bone fractures. *Acad Emerg Med*. 2007; 14(2):163-9.
141. **Pronovost P**, Thompson DA, Holzmueller CG, Dorman T, Morlock LL. Impact of the Leapfrog Group's intensive care unit physician staffing standard. *J Crit Care* 2007; 22(2):89-96.
142. Makary MA, Al-Attar A, Holzmueller CG, Sexton JB, Syin D, Gilson MM, Sulkowski MS, **Pronovost PJ**. Needle stick injuries among surgeons in training. *N Engl J Med*. 2007; 56(26):2693- 9.
143. Winters BD, Pham JC, Hunt EA, Guallar E, Berenholtz S, **Pronovost PJ**. Rapid response systems: a systematic review. *Crit Care Med*. 2007; 35(5):1238-43.
144. Winters BD, **Pronovost PJ**. Rapid response system: Let's not get carried away! *Crit Care Med*. 2007; 35(9):2235.
145. Aboumatar HJ, Blackledge CG Jr, Dickson C, Heitmiller E, Freischlag J, **Pronovost PJ**. A descriptive study of morbidity and mortality conferences and their conformity to medical incident analysis models: results of the morbidity and mortality conference improvement study phase 1. *Am J Med Qual*. 2007; 22(4):232-8.
146. Stonemetz J, Pham JC, Marino RJ, Ulatowski JA, **Pronovost PJ**. Effect of Concurrent Computerized Documentation of Comorbid Conditions on the Risk of Mortality Index. *JCOM*. 2007; 14(9):499-503.
147. Berenholtz SM, **Pronovost PJ**, Ngo K, Barie PS, Hitt J, Kuti JL, Septimus E, Lawler N, Schilling L, Dorman T; for the Core Sepsis Measurement Team. Developing Quality Measures for Sepsis Care in the ICU. *The Joint Commission Journal on Quality and Patient Safety*. 2007; 33(9):559-68.
148. **Pronovost PJ**, Thompson DA, Holzmueller CG, Dorman T, Morlock LL. The organization of intensive care unit physician services. *Crit Care Med*. 2007; 35(10):2256-61.
149. **Pronovost PJ**, Miller M, Wachter RM. The GAAP in Quality Measurement and Reporting. *JAMA*. 2007; 298(15):1800-02.
150. Sinopoli DJ, Needham DM, Thompson DA, Holzmueller CG, Dorman T, Lubomski LH, Wu AW, Morlock LL, Makary MA, **Pronovost PJ**. Intensive care unit safety incidents for medical versus surgical patients: A prospective multicenter study. *J Crit Care*. 2007; 22(3):177-83.
151. Fan E, Shahid S, Kondreddi VP, Bienvenu OJ, Mendez-Tellez PA, **Pronovost PJ**, Needham DM. Informed consent in the critically ill: A 2-step approach incorporating delirium screening. *Crit Care Med* 2007; 35(12):1-6.
152. Syin D, Woreta T, Chang DC, Cameron JL, **Pronovost PJ**, Makary MA. Publication bias in surgery: implications for informed consent. *J Surg Res*. 2007; 143(1):88-93.
153. Berenholtz SM, **Pronovost PJ**. Monitoring patient safety. *Crit Care Clin*. 2007; 23(3):659-73.
154. Berenholtz SM, Pustavoitau A, Schwartz SJ, **Pronovost PJ**. How safe is my intensive care unit? Methods for monitoring and measurement. *Curr Opin Crit Care*. 2007;13(6):703-8.
155. Dennison CR, Mendez-Tellez PA, Wang W, **Pronovost PJ**, Needham DM. Barriers to Low Tidal Volume Ventilation in Acute Respiratory Distress Syndrome: Survey Development, Validation, and Results. *Critical Care Medicine*. 2007; 35(12):2747-54.
156. **Pronovost PJ**, Berenholtz SM, Needham DM. A Framework for Health Care Organizations to Develop and Evaluate a Safety Scorecard. *JAMA*. 2007; 298(17):2063-65.

157. Needham DM, Wang W, Desai SV, Mendez-Tellez PA, Dennison CR, Sevransky J, Shanholtz C, Ciesla N, Spillman K, **Pronovost PJ**. Intensive care unit exposures for long-term outcomes research: Development and description of exposures for 150 patients with acute lung injury. *J Crit Care*. 2007; 22(4):275-84.
158. Robinson KA, Dennison CR, Wayman DM, **Pronovost PJ**, Needham DM. Systematic review identifies number of strategies important for retaining study participants. *J Clin Epidemiol*. 2007; 60(8):757-65.
159. Sevransky J, Nour S, Needham DM, Hollenberg S, **Pronovost P**, Salsa GM. Hemodynamic goals in randomized clinical trials in sepsis: A systematic review of the literature. *Crit Care*. 2007; 11(3):R76.
160. Pham JC, Kelen GD, **Pronovost PJ**. National study on the quality of emergency department care in the treatment of acute myocardial infarction and pneumonia. *Acad Emerg Med*. 2007; 14(10):856-63.
161. Stevens RD, Dowdy DW, Michaels RK, Mendez-Tellez PA, **Pronovost PJ**, Needham DM. Neuromuscular dysfunction acquired in critical illness: a systematic review. *Intensive Care Med*. 2007; 33(11):1876-91.
162. Sexton JB, Paine LA, Manfuso J, Holzmueller CG, Martinez EA, Moore D, Hunt DG, **Pronovost PJ**. A check-up for safety culture in "my patient care area". *Jt Comm J Qual Patient Saf*. 2007; 33(11):699-703, 645.
163. Haut ER, Noll K, Efron DT, Berenholtz SM, Haider A, Cornwell EE 3<sup>rd</sup>, **Pronovost PJ**. An Increased Incidence of Deep Vein Thrombosis (DVT) be Used as a Marker of Quality Care in the Absence of Standardized Screening? The Potential Effect of Surveillance Bias on Reported DVT Rates after Trauma. *J Trauma*. 2007; 63(5):1132-5; discussion 1135-7.
164. Diaz-Navarraz T, **Pronovost P**, Beortegui E, Segui-Gomez M. Benefits of direct observation in medication administration to detect errors. *J Patient Saf*. 2007; 3(4):200-207.
165. Lipshutz AKM, Morlock LL, Shore AD, Hicks RW, Dy SM, **Pronovost PJ**, Winters BD. Medication Errors Associated with Code Situations in U.S. Hospitals: Direct and Collateral Damage. *Jt Comm J Qual Patient Saf*. 2008; 34(1):46-56.
166. Shahid FE, Kondreddi VP, Bienvenu OJ, Mendez-Tellez PA, **Pronovost PJ**, Needham DM. Informed consent in the critically ill: a two-step approach incorporating delirium screening. *Crit Care Med*. 2008; 36(1):94-9.
167. Sapirstein A, Needham DM, **Pronovost PJ**. 24-hour intensivist staffing: balancing benefits and costs. *Crit Care Med*. 2008; 36(1):367-8.
168. Chang DC, Handly N, Abdullah F, Efron D, Haut ER, Haider AH, **Pronovost PJ**, Cornwell EE. The Occurrence of Potential Patient Safety Events Among Trauma Patients: Are They Random? *Ann Surg*. 2008; 247(2):327-334.
169. Kardooni S, Haut ER, Chang DC, Pierce CA, Efron DT, Haider AH, **Pronovost PJ**, Cornwell EE 3<sup>rd</sup>. Hazards of Benchmarking Complications With the National Trauma Data Bank: Numerators in Search of Denominators. *J Trauma*. 2008; 64(2):273-79.
170. Wu AW, Lipshutz AK, **Pronovost PJ**. Effectiveness and efficiency of root cause analysis in medicine. *JAMA*. 2008; 299(6):685-7.
171. Pham JC, Kelen GD, **Pronovost PJ**. In Reply. *Acad Emerg Med*. 2008; 15(3):302-303.
172. Umoh NJ, Fan E, Mendez-Tellez PA, Sevransky JE, Dennison CR, Shanholtz C, **Pronovost PJ**, Needham DM. Patient and ICU Organizational Factors Associated with Low Tidal Volume Ventilation in Acute Lung Injury. *Critical Care Medicine*. In press. 2008
173. Hunt EA, Patel S, Vera K, Shaffner DH, **Pronovost PJ**. Survey of Pediatric Resident Experience with Resuscitation Training and Attendance at Actual Cardiopulmonary Arrest. *Pediatric Critical Care Medicine*. In press. 2008
174. Pierce CA, Hunt ER, Kardooni S, Chang DC, Efron DT, Haider A, **Pronovost PJ**, Cornwell EE 3<sup>rd</sup>. Surveillance bias and deep vein thrombosis in the national trauma data bank: the more we look, the more we find. *J Trauma*. 2008; 64(4):932-6.

1. Hanson CW 3<sup>rd</sup>, Durbin CG Jr, Maccioli GA, Deutschman CS, Sladen RN, **Pronovost PJ**, Gattinoni L. The anesthesiologist in critical care medicine: past, present, and future. *Anesthesiology*. 2001; 95(3):781-8.
2. **Pronovost PJ**, Angus DC: Cost reduction and quality improvement. It takes two to tango. *Crit Care Med*. 2000; 28(2):581-3.
3. **Pronovost PJ**. Reductions in postoperative mortality with regional anesthesia. *ACP J Club*. 2001; 135(1):1.
4. Rubin HR, **Pronovost P**, Diette GB. The advantages and disadvantages of process-based measures of health care quality. *Int J Qual Health Care*. 2001; 13(6):469-74.
5. **Pronovost PJ**, Wu AW, Dorman T, Morlock L. Building safety into ICU care. *J Crit Care*. 2002; 17(2):78-85.
6. Dennison CR, **Pronovost P**. The Johns Hopkins Hospital Comprehensive Patient Safety Program: An Overview. *Int Nurs Rev*, Japanese edition. 2003; 26(4):42-6.
7. **Pronovost PJ**, Nolan T, Zeger S, Miller M, Rubin H. How can clinicians measure safety and quality in acute care? *Lancet*. 2004; 363(9414):1061-67.
8. **Pronovost PJ**, Holzmueller CG. Partnering for quality. *J Crit Care*. 2004 Sep;19(3):121-9.
9. Levy MM, **Pronovost PJ**, Dellinger RP, Townsend S, Resar RK, Clemmer TP, Ramsay G. Sepsis change bundles: Converting guidelines into meaningful change in behavior and clinical outcome. *Crit Care Med*. 2004; 32(11):S595-7.
10. **Pronovost PJ**. An interview with Peter Pronovost. *Jt Comm J Qual Saf*. 2004; 30(12):659-64.
11. Needham DM, **Pronovost PJ**. Affordable health care. *Crit Care Med*. 2004; 32(12):2564.
12. **Pronovost PJ**, Thompson DA, Holzmueller CG, Lubomski LH, Morlock LL. Defining and measuring patient safety. *Crit Care Clin*. 2005; 21(1):1-19.
13. Thompson D, Holzmueller C, Hunt D, Cafeo C, Sexton B, **Pronovost P**. A morning briefing: setting the stage for a clinically and operationally good day. *Jt Comm J Qual Patient Saf*. 2005; 31(8):476-9.
14. Needham DM, Sinopoli DJ, Thompson DA, Holzmueller CG, Dorman T, Lubomski LH, Wu AW, Morlock LL, Makary MA, **Pronovost PJ**. A system factors analysis of "line, tube, and drain" incidents in the intensive care unit. *Crit Care Med*. 2005; 33(8):1701-7.
15. Thompson DA, Lubomski L, Holzmueller C, Wu A, Morlock L, Fahey M, Dickman F, Dorman T, **Pronovost P**. Integrating the intensive care unit safety reporting system with existing incident reporting systems. *Jt Comm J Qual Patient Saf*. 2005; 31(10):585-93.
16. Curtis JR, Cook DJ, Wall R, Angus D, Bion J, Kacmerack R, Kane-Gill S, Kirchhoff K, Levy M, Mitchell P, Moreno R, **Pronovost P**, Puntillo K. ICU Quality Improvement: A "How-To" Guide for the Interdisciplinary Team. *Crit Care Med*. 2006; 34(1):211-8.
17. **Pronovost P**, Wachter R. Proposed standards for quality improvement research and publication: one step forward and two steps back. *Qual Saf Health Care*. 2006; 15:152-3.
18. Makary MA, **Pronovost PJ**, Weiss ES, Chang D, Baker SP, Cornwell EE, Syin D, Millman EA, Freischlag JA. Sharpless surgery: a prospective study of the feasibility of performing operations using non-sharp techniques in an urban, university-based surgical practice. *World J Surg*. 2006; 30:1-7.
19. Makary MA, **Pronovost PJ**, Sexton JB, Millman EA, Freischlag JA. Patient safety in surgery. *Ann Surg*. 2006; 243(5): 628-635.
20. Stevens RD, **Pronovost PJ**. The spectrum of encephalopathy in critical illness. *Semin Neurol*. 2006; 26(4): 440-451. Review
21. **Pronovost PJ**, Miller MR, Wachter RM. Tracking Progress in Patient Safety. *JAMA*. 2006; 296(6): 696-9.
22. Hales BM, **Pronovost PJ**. The checklist--a tool for error management and performance improvement. *J Crit Care*. 2006 Sep; 21(3):231-5. Review.
23. Kleinpell R, Thompson D, Kelso L, **Pronovost P**. Targeting errors in the ICU: use of a national database. *Crit Care Nurs Clin North Am*. 2006; 18(4):509-14. Review.
24. Wachter RM, **Pronovost PJ**. The 100,000 Lives Campaign: A scientific and policy review. *Jt Comm J Qual Patient Saf*. 2006; 32(11):621-7. Review.

25. Stevens RD, Dowdy DW, Michaels RK, Mendez-Tellez PA, **Pronovost PJ**, Needham DM. Neuromuscular dysfunction acquired in critical illness: a systematic review. *Intensive Care Med.* 2007; 33:1876-91.
26. **Pronovost PJ**, Berenholtz SM, Goeschel CA. Quality of Measurement and Evaluation in Quality Improvement Efforts. *Am J Med Qual.* 2008; 23(2):143-6.

## Editorials

1. **Pronovost P.** Quality corner: A section in the Journal of Critical Care devoted to improve quality and safety. *J Crit Care.* 2003; 18(1):1-2.
2. Wu A, **Pronovost P.** Telling Patients the Truth. *Health Affairs.* (Millwood). 2003; 22(3):249; author reply 249.
3. **Pronovost P.** Readers dispute hepatitis facts. *Radiol Technol.* 2003; 75(2):166; author reply 166.
4. Needham DM, **Pronovost PJ.** The importance of understanding the costs of critical care and mechanical ventilation. *Crit Care Med.* 2005; 33(6):1434-35.
5. **Pronovost PJ**, Sexton B. Assessing safety culture: guidelines and recommendations. *Qual Saf Health Care,* 2005; 14:231-3.
6. **Pronovost PJ**, Martinez EA, Rodriguez-Paz JM. Removing “orange wires”: surfacing and hopefully learning from mistakes. *Intensive Care Med,* 2006 July.
7. **Pronovost PJ**, Heifetz RA. Leveraging Technical and Managerial Changes to Improve Safety. Hospitals and Health Networks. 2007 March.
8. **Pronovost PJ**, Rodriguez-Paz J, Mohammad Z. Creating competent and caring physicians: ensuring patients are our North Star. *Intensive Care Med.* 2007; 33(11):1873-5.
9. Fan E, Shahid S, Kondreddi VP, Bienvenu OJ, Mendez-Tellez PA, **Pronovost PJ**, Needham DM. Informed consent in the critically ill: a 2-step approach incorporating delirium screening. *Critical Care Medicine.* 2008; 36:94-99.

## Book Chapters and Monographs

1. **Pronovost P**, Breslow M. Perioperative monitoring. In: *Current Surgical Therapy*, Sixth Edition, Cameron JL (ed). Philadelphia: Mosby-Year Book, Inc., 1998; 1075-1078.
2. Hamlin M, **Pronovost P.** Pathophysiology and interpretation of gas exchange and gas transport. In: *Study Guide 2000. Emergency Medicine, A comprehensive study guide.* 5<sup>th</sup> ed., (Tintinalli JE, Kelen GD, Stapczynski JS, eds). New York: McGraw Hill, 1998.
3. Martinez E, **Pronovost PJ.** Evidence-based anesthesiology. In: *Evidence-Based Surgery.* Gordon TA, Cameron JL (eds) C Decker Inc. Hamilton Ontario, Canada, 1999.
4. **Pronovost P**, Angus DC. Evidence-based critical care. In: *Evidence-Based Medicine: How to practice and teach EBM* (2<sup>nd</sup> Ed). Sackett DL, Richardson WS, Rosenberg W, Haynes RB (eds). Edinburgh: Churchill Livingstone, 1999.
5. **Pronovost P**, Angus DC. The economics of death in the ICU. In: *Managing Death in the Intensive Care Unit: the Transition from Cure to Comfort.* Curtis JR, Rubenfeld GD (eds). Oxford University Press: New York, 2000.
6. Angus DC, **Pronovost P.** Hypothesis generation: Asking the right question, getting the correct answer. In: *Update in Intensive Care and Emergency Medicine.* Sibbald WJ, Bion JE (eds), Vincent J-L (series ed), Springer-Verlag: Berlin, 2000; 167-184.
7. **Pronovost P**, Berenholtz S, Fleisher L. Evidence based anesthesiology. In: *Conducting research in anaesthesia and intensive care medicine.* Zbinden AM, Thomson D (eds) Butterworth-Heinemann, Boston, MA, 2001.
8. **Pronovost PJ**, Morlock L, Dorman T. Creating safe systems of ICU care. In *Year Book of Intensive Care and Emergency Medicine*, Vincent JL (ed), Springer Verlag: Berlin, 695-708, 2001.

9. **Pronovost PJ**, Morlock LL, Cassirier C, Malitz FE. Creating and maintaining safe systems of medical care: The role of risk management. In: *Clinical Risk Management*, (2<sup>nd</sup> edition). Charles Vincent (ed). British Medical Journal, 2001.
10. Hartsell TL, **Pronovost P**. Cardiovascular Pharmacology. In: *Current Surgical Therapy*, 7<sup>th</sup> edition, John Cameron (ed), Mosby: St. Louis, 2001; 1302-1306.
11. **Pronovost PJ**, Berenholtz SM. A Practical Guide to Measuring Performance in the Intensive Care Unit. *VHA, Inc. 2002 Research Series, Volume 2*, Irving, Texas, 2002  
[https://www.vha.com/research/public/research\\_icu.pdf](https://www.vha.com/research/public/research_icu.pdf)
12. Berenholtz S, **Pronovost P**. Measuring Performance in the Intensive Care Unit. In: *Society of Critical Care Medicine 7<sup>th</sup> Critical Care Refresher Course 2003*. Zimmerman J (Editor), Society of Critical Care Medicine, Des Plaines, IL, 2003.
13. **Pronovost PJ**, Berenholtz SM. Improving Sepsis Care in the Intensive Care Unit: An Evidence-Based Approach. *VHA, Inc. 2004 Research Series*, Irving, Texas, 2004.  
[https://www.vha.com/research/public/sepsis\\_icu.pdf](https://www.vha.com/research/public/sepsis_icu.pdf)
14. Grogan K, **Pronovost P**. Blood Gases: Pathophysiology and Interpretation. In: *Emergency Medicine: A comprehensive study guide*, 6<sup>th</sup> edition, Tintinalli JE, Kelen GD, Stapczynski JS, McGraw Hill: New York, 2004; 159-166.
15. Syin D, **Pronovost PJ**. Statistics. In: *General Surgery Review*, Martin A. Makary (ed), Ladner-Drysdale: Washington, DC, 2004; 373-385.
16. **Pronovost PJ**, Berenholtz S. Quality improvement. Chapter 81. In: Anesthesia, 6th ed., *In Miller RD* (ed), Elsevier, Inc., Philadelphia, PA, 2004.
17. Dimick JB, Efron DT, **Pronovost PJ**. Endocrine Changes with Critical Illness. In: *Current Surgical Therapy*. 8<sup>th</sup> edition, John Cameron (ed), Elsevier, Inc., Philadelphia, PA, 2004; 1174-1179.
18. **Pronovost PJ**, Miller M, Winters B, Hunt E. Measuring and improving safety. In: *Medical emergency teams: A guide to implementation and outcome measurement*, Devita M, Hillman KM, Bellomo R (eds), New York, Springer-Verlag, 2005.
19. **Pronovost PJ**, Rozovsky FA. Benchmarking: Evidence-Based outcome Information and Standards of Care. Chapter 6, pg 96. In: *The Handbook of Patient Safety Compliance: A Practical Guide for Health Care Organizations*, 1<sup>st</sup> ed., published by Jossey-Bass, A Wiley Imprint, San Francisco, California, 2005.
20. Dimick JB, Efron DT, **Pronovost, PJ**. Endocrine Changes with Critical Illness. *J Am Coll Surg*. 2006
21. Cameron JL, **Pronovost PJ**. "Prevention of Catheter-Related Bloodstream Infections" In: *Advances in Surgery*. Volume 42. 2008.

### **Books**

Moen RD, **Pronovost PJ**. Quality Measurement – A Practical Guide for the ICU by HCPro, Inc., Copyright 2003 HCPro, Inc., Marblehead, MA.

### **Other Media**

Video: "Intensive Care Unit Safety Reporting System (ICUSRS)"

Video: "From Rhetoric to Reality: Improving Patient Safety"

### **Inventions, patents, copyrights:**

Copyright: 6/21/04 Short Term Goals Form to Manage Daily Work of Patient Care (Daily Goals©)

**Extramural Sponsorship****Current Grants**

**Period:** 07/01/03 – 06/30/08  
**Title:** Long-Term Outcomes of Specific Ventilator Strategies (SCCOR: Ventilator Associated Lung Injury: Molecular Approaches)  
**Identification number:** P50HL0739994  
**Sponsor:** NIH NHLBI  
**Total direct cost:** \$1,437,831  
**Current year direct cost:** \$269,733  
**Principal Investigator:** Peter J. Pronovost, M.D., Ph.D.  
**Role:** Principal Investigator  
**Percent effort:** 15%

**Period:** 12/2004 – 12/2009  
**Title:** Long-Term Outcomes of Specific Ventilator Strategies  
**Identification number:** M01-RR00052  
**Sponsor:** Johns Hopkins University School of Medicine General Clinical Research Center Grant, National Center for Research Resources/National Institutes of Health  
**Annual Direct Costs:** \$  
**Principal Investigator:** Peter J. Pronovost, MD, PhD  
**Role:** PI  
**Percent effort:** None \*

\*This funding supports the out-patient follow-up of subjects enrolled in the above NIH-funded project. There is no effort paid, required or reported for this project. This funding provides for the testing-related expenses of the SCCOR project in the GCRC. This is not a separate project from SCCOR, but has separate resources for our expenses.

**Period:** 01/01/06 – 6/30/09  
**Title:** Preventable Mortality in Maryland Medicaid SMI  
**Identification number:** 1 R01-MH074070-01A1  
**Sponsor:** National Institute of Mental Health  
**Total direct cost:** \$1,345,698  
**Current year direct cost:** \$254,650  
**Principal Investigator:** Gail L. Daumit, MD, MHS  
**Role:** Co-Investigator  
**Percent effort:** 3%

**Period:** 07/01/06 – 06/30/11  
**Title:** Training Grant  
**Identification number:** 1 T32 GM075774  
**Sponsor:** NIGMS  
**Total Direct cost:** N/A  
**Current year direct cost:** N/A  
**Principal Investigator:** Gottschalk  
**Role:** Mentor  
**Percent effort:** providing 10% effort but no salary

**Period:** 09/01/06-08/31/08  
**Title:** Linking Blood Stream Infection Rates to Intensive Care Nursing Context of Care and Process  
**Identification number:** 58292  
**Sponsor:** Robert Wood Johnson Foundation (Interdisciplinary Nursing Quality Research Initiative)  
**Total direct cost:** \$308,165  
**Current year direct cost:** \$153,436  
**Principal Investigator:** David Thompson, DNSc, MS, RN  
**Role:** Co-Investigator  
**Percent effort:** 2%

**Period:** 04/01/07 – 03/31/09  
**Title:** Exploring Measurement of Palliative Care Quality in ICUs  
**Identification number:** R21 AG029955  
**Sponsor:** National Institute of Health (NIH)  
**Total direct cost:** \$245,718  
**Current year direct cost:** \$133,109  
**Principal Investigator:** Judith Nelson, MD, JD  
**Role:** PI on Sub Contract  
**Percent effort:** 2%

**Period:** 06/01/07 – 05/31/09  
**Title:** Michigan Surgery Project  
**Identification number:** N/A  
**Sponsor:** Michigan Health & Hospital Association –Keystone Center for Patient Safety & Quality  
**Total direct cost:** \$850,000  
**Current Year direct cost:** \$400,000  
**Principal Investigator:** Peter Pronovost, MD, PhD  
**Role:** PI  
**Percent effort:** 10%

**Period:** 5/01/07 – 04/30/09  
**Title:** A Proposal to Develop Comprehensive Measures for the Safety of Hospital Care  
**Identification number:** 20070334  
**Sponsor:** The Commonwealth Fund  
**Total direct cost:** \$311,932  
**Current year direct cost:** \$141,788  
**Principal Investigator:** David Blumenthal, MD, MPP  
**Role:** Core Consultant  
**Percent effort:** 1% (\$10,000 per year)

**Period:** 09/17/2007 – 05/31/2012  
**Title:** Institute for Clinical and Translational Research  
**Identification number:** 1U54RR023561-01A1  
**Sponsor:** Department of Health & Human Services (NIH)  
**Total direct cost:** \$ 64,897,696

Current year direct cost: \$ 10,707,230  
 Principal Investigator: Daniel E. Ford, MD, MPH  
 Role: PI on Module “Transplanting Evidence into Practice”  
 Percent effort 10%

### **Pending Grants**

**Period:** 04/01/07 – 03/31/12  
**Title:** Five Year outcomes from Acute Lung Injury  
**Identification number:** 1 K24 HL088551-01  
**Sponsor:** National Institute of Health (NIH)  
**Total direct cost:**  
**Principal Investigator:** Peter J. Pronovost, MD, PhD  
**Role:** Principal Investigator  
**Percent effort:** 6 calendar months

**Period:** 07/01/08 – 06/30/09  
**Title:** Locating Errors through Networked Surveillance (LENS)  
**Identification number:** N/A  
**Sponsor:** Society of Cardiovascular Anesthesiologists  
**Total direct cost:** 295,129  
**Principal Investigator:** Peter J. Pronovost, MD, PhD  
**Role:** PI  
**Percent effort** 10%

### **Previous Grants**

**Period:** 07/01/98 – 06/30/99  
**Title:** Reducing the rate of failed extubation in the ICU  
**Identification number:** No number  
**Sponsor:** MCIC Vermont, Inc.  
**Total direct cost:** \$50,000  
**Principal Investigator:** Peter J. Pronovost, MD, PhD  
**Role:** Principal Investigator  
**Percent effort:** 25%

**Period:** 07/01/99 – 06/30/00  
**Title:** Evidence-based Review of Chronic Regional Pain Syndromes  
**Identification number:** No number  
**Sponsor:** Reflex Dystrophy Syndrome Research Fellowship  
**Total direct cost:** n/a  
**Principal Investigator:** Prabhav Tella, MD  
**Role:** Mentor  
**Percent effort:** n/a

**Period:** 9/01/99 – 8/31/00  
**Title:** Impact of Critical Pathways on Reportable Adverse Events and Liability Claims Experience  
**Identification number:** No number  
**Sponsor:** MCIC Vermont, Inc.  
**Total direct cost:** \$50,000  
**Principal Investigator:** Laura Morlock, PhD  
**Role:** Co-Investigator  
**Percent effort:** 10%

**Period:** 07/01/00 – 06/30/02  
**Title:** Reducing Bacteremias by Improving the Use of Central Venous Catheters  
**Identification number:** No number  
**Sponsor:** Johns Hopkins University Clinician Scientist Award  
**Total direct cost:** \$130,000  
**Principal Investigator:** Peter J. Pronovost, MD, PhD  
**Role:** Principal Investigator  
**Percent effort:** 75%

**Period:** 08/01/02 – 01/31/04  
**Title:** Evaluating the Impact of the Leapfrog Group's Standard for Intensive Care Unit Physician Staffing  
**Identification number:** 20020637  
**Sponsor:** The Commonwealth Fund  
**Total direct cost:** \$205,304  
**Principal Investigator:** Peter J. Pronovost, MD, PhD  
**Role:** Principal Investigator  
**Percent effort:** 15%

**Period:** 06/16/03 – 12/31/04  
**Title:** Develop Measures of the Quality of Sepsis Care  
**Identification number:** 6152344  
**Sponsor:** VHA Foundation, Inc.  
**Total direct cost:** \$136,298  
**Principal Investigator:** Peter J. Pronovost, MD, PhD  
**Role:** Principal Investigator  
**Percent effort:** 10%

**Period:** 05/01/04 – 05/31/05  
**Title:** New Jersey Hospital Association Collaborative to Improve Quality and Patient Safety in the ICU  
**Identification number:** No number  
**Sponsor:** New Jersey Hospital Association  
**Total direct cost:** \$165,837  
**Current year direct cost:** \$165,837  
**Principal Investigator:** Peter J. Pronovost, MD, PhD  
**Role:** Principal Investigator

Percent effort: 10%

**Period:** 09/30/01 – 08/31/05  
**Title:** ICU Safety Reporting System (ICUSRS)  
**Identification number:** 1 U18 HS11902-01  
**Sponsor:** Agency for Health Care Research and Quality  
**Total direct cost:** \$5,197,750  
**Current year direct cost:** \$1,078,429  
**Principal Investigator:** Peter J. Pronovost, MD, PhD  
**Role:** Principal Investigator  
**Percent effort:** 25%

**Period:** 09/30/03 – 09/29/05  
**Title:** Statewide Efforts to Improve Care in Intensive Care Units  
**Identification number:** 1UC1HS014246  
**Sponsor:** Agency for Health Care Research and Quality  
**Total direct cost:** \$720,872  
**Current year direct cost:** \$370,257  
**Principal Investigator:** Peter J. Pronovost, MD, PhD  
**Role:** Principal Investigator  
**Percent effort:** 20%

**Period:** 09/15/04 – 10/31/05  
**Title:** Maryland Patient Safety Collaborative  
**Identification number:** No number  
**Sponsor:** State of Maryland  
**Total direct cost:** \$129,600  
**Current year direct cost:** \$129,600  
**Principal Investigator:** Peter J. Pronovost, MD, PhD  
**Role:** Principal Investigator  
**Percent effort:** 10%

**Period:** 06/25/04 – 06/24/06  
**Title:** Assessing Climate Across Ascension System  
**Identification number:** No Number  
**Sponsor:** Ascension Health System  
**Total direct cost:** \$727,831  
**Current year direct cost:** \$377,778  
**Principal Investigator:** J. Bryan Sexton, PhD  
**Role:** Co-Investigator  
**Percent effort:** 02%

**Period:** 03/01/06 – 02/28/10 (Investigator returned funding after 1 year.)  
**Title:** Improving ICU Care and Safety through Evidence-Based Tools  
**Identification number:** 1 R13 HS016216-01  
**Sponsor:** Agency for Health Care Research & Quality  
**Total direct cost:** \$198,197  
**Current year direct cost:** \$48,179  
**Principal Investigator:** Lisa H. Lubomski, PhD  
**Role:** Co-Investigator

Percent effort: 02%

**Period:** 04/14/05 – 06/30/07  
**Title:** Research and Publication Agreement  
**Identification number:** No number  
**Sponsor:** U.S. Pharmacopeia (MEDMARX Project)  
**Total Direct cost:** \$  
**Current year direct cost:** \$160,000  
**Principal Investigator:** Laura Morlock  
**Role:** Co-Investigator  
**Percent effort:** 8%

**Period:** 9/23/04 – 9/17/07  
**Title:** Multidisciplinary Clinical Research Career Development  
**Identification number:** 1 K12 HD049104 (Powe)  
**Sponsor:** NIH/NICHD  
**Total direct cost:** \$  
**Annual Direct Costs:** \$2,083,420  
**Principal Investigator:** Neil R. Powe, MD, MPH, MBA  
**Role:** Mentor  
**Percent effort:** <1% (\$2,000/yr)

## EDUCATIONAL ACTIVITIES

### Teaching

#### Classroom Instruction

1. Feb 1998 “Leadership,” Expert Panel, The Johns Hopkins Business of Medicine, Course Instructor
2. May 1998 “Managed Care,” Expert Panel, The Johns Hopkins Business of Medicine, Course Instructor
3. June 1998 “Managing Health Services Organization: Improving Outcomes and Costs,” The Summer Institute in Health Policy and Management, The Johns Hopkins School of Hygiene & Public Health, Course Instructor
4. Sept 1998 “Managing Health Services Organization,” Department of Health Policy and Management, The Johns Hopkins School of Hygiene & Public Health, Course Instructor
5. Sept 1998 “Managed Care,” Expert Panel, The Johns Hopkins Business of Medicine, Course Instructor
6. Feb 1999 “Leadership and Organizational Behavior,” Expert Panel, The Johns Hopkins Business of Medicine, Course Instructor
7. April 1999 “Trends in Health Care, Managing Medicine in the 21<sup>st</sup> Century: Benchmarking and Other Quality Improvement Tools,” The Johns Hopkins Medical Institutions, Course Instructor

8. June 1999 “Managing Health Services Organization: Improving outcomes and cost,” The Summer Institute in Health Policy and Management, The Johns Hopkins School of Hygiene & Public Health, Course Instructor
9. July 1999 “Methods in Clinical Research,” Welch Center, The Johns Hopkins University School of Medicine, Course Instructor
10. Aug 1999 “Trends in Health Care, Managing Medicine in the 21<sup>st</sup> Century: “Benchmarking and Other Quality Improvement Tools,” The Johns Hopkins Medical Institutions, Course Instructor
11. Sept 1999 “Managing Health Services Organization,” Department of Health Policy and Management, The Johns Hopkins School of Hygiene & Public Health, Course Instructor
12. June 2000 “Managing Health Services Organization: Improving outcomes and cost,” The Summer Institute in Health Policy and Management, The Johns Hopkins School of Hygiene & Public Health, Course Instructor
13. July 2000 “Methods in Clinical Research,” Welch Center, The Johns Hopkins School of Medicine, Course Instructor
14. Sept 2000 “Managing Health Services Organization,” Department of Health Policy and Management, The Johns Hopkins School of Hygiene & Public Health, Course Instructor
15. Jan 2001 “Resuscitation Fluids: An Evidence-based Review,” Fourth Year Medical Student Course: Rational Therapeutics, The Johns Hopkins University, Course Instructor
16. March 2001 “Patient Safety Nets in the ICU,” The United States Health Care System: Undergraduate Course in Health Policy, The Johns Hopkins University, Course Instructor
17. April 2001 “Clinical Epidemiology,” Medical Student Course, The Johns Hopkins University School of Medicine, Course Instructor
18. May 2001 “Quality of ICU Care,” Using Patient Outcomes to Improve Quality of Care. Department of Health Policy and Management, The Johns Hopkins Bloomberg School of Public Health, Course Instructor
19. May 2001 “Quality of Care in ICUs,” 4<sup>th</sup> quarter Course Lecture: Using Patient Outcomes to Improve the Quality of Health Care, The Johns Hopkins University School of Medicine, Course Instructor
20. June 2001 “Managing Health Services Organizations,” Fifth Annual Summer Institute in Health Policy and Management, The Johns Hopkins University, Course Co-Instructor
21. Aug 2001 “Pragmatic Sciences in Quality Improvement,” Quality Improvement in Health Care Update. Summer Course, Harvard School of Public Health, Course Instructor
22. Spring 2002 “Science of Clinical Investigation,” Graduate Course in the Department of Epidemiology, The Johns Hopkins Bloomberg School of Public Health, Course Co-Instructor

23. March 2002 “Development and Impact of Critical Care Medicine (ICUs),” Undergraduate Course Lecture: Introduction to Health Policy and Management, The Johns Hopkins Bloomberg School of Public Health, Course Instructor
24. Feb 2004 “Patient Safety: From Rhetoric to Realty,” Department of Pediatric Emergency Medicine, The Johns Hopkins University School of Medicine, Course Instructor
25. April 2004 “Evaluating Adverse Events,” Resident Lecture, Department of Anesthesiology and Critical Care Medicine, The Johns Hopkins University School of Medicine, Course Instructor
26. Aug 2004 “Developing Measures of Quality of Care,” Methods in Clinical Research, Welch Center, The Johns Hopkins University School of Medicine, Course Instructor
27. Jan 2005 “Patient Safety and Medical Errors,” Winter Institute, Department of Health Policy and Management, The Johns Hopkins Bloomberg School of Public Health, Course Instructor
28. Feb 2005 “Patient Safety: From Rhetoric to Reality,” Hurd Hall, The Johns Hopkins University School of Medicine, Course Instructor
29. Feb 2005 “Patient Safety: From Rhetoric to Realty,” Department of Pediatric Emergency Medicine, The Johns Hopkins University School of Medicine, Course Instructor
30. Spring 2005 “Improving Clinical and Economic Performance in Organizations,” Graduate Seminar in Health Care Management and Leadership, Department of Health Policy and Management, Johns Hopkins Bloomberg School of Public Health, Co-Director and Course Instructor
31. May 2005 “Finding Harmony Between Academic Research and Entrepreneurship,” Johns Hopkins School of Nursing, Baltimore, MD, Course Instructor
32. July 2005 “Developing Measures of Quality of Care,” Methods in Clinical Research, Welch Center, The Johns Hopkins University School of Medicine, Course Instructor
33. Nov 2007 “Investigating a Defect,” The Johns Hopkins Bayview Anesthesiology Conference, Johns Hopkins Medicine, Baltimore, MD
34. Feb 2008 “Development and Impact of Critical Care Medicine,” Introductions to Health Policy and Management, Homewood Campus. (Spring 2008), Johns Hopkins Bloomberg School of Public Health, Course Instructor
35. Mar 2008 “Preventing Blood Stream Infection in the Intensive Care Units,” Lecture to 2<sup>nd</sup> / 3<sup>rd</sup> Year Medical Students, Johns Hopkins University Bloomberg School of Public Health, Center for Innovation in Quality Patient Care

**Clinical Instruction**

1. 7/97 – 6/98 Surgical Intensive Care Unit (SICU): Attending physician in SICU, provided teaching to medical students, anesthesia and surgery residents, and critical care fellows
2. 7/97 – 6/98 Operative Anesthesia: Attending physician in operating room, provided teaching to medical students, anesthesia residents, and anesthesia fellows
3. 7/98 – 6/99 Surgical Intensive Care Unit (SICU): Attending physician in SICU provided teaching to medical students, anesthesia and surgery residents, and critical care fellows
4. 7/98 – 6/99 Operative Anesthesia: Attending physician in operating room, provided teaching to medical students, anesthesia residents, and anesthesia fellows
5. 7/99 – 6/00 Surgical Intensive Care Unit (SICU): Attending physician in SICU provided teaching to medical students, anesthesia and surgery residents, and critical care fellows
6. 7/99 – 6/00 Operative Anesthesia: Attending physician in operating room, provided teaching to medical students, anesthesia residents, and anesthesia fellows
7. 7/00 – 6/01 Surgical Intensive Care Unit (SICU): Attending physician in SICU provided teaching to medical students, anesthesia and surgery residents, and critical care fellows
8. 7/00 – 6/01 Operative Anesthesia: Attending physician in operating room, provided teaching to medical students, anesthesia residents, and anesthesia fellows
9. 7/01 – 6/02 Surgical Intensive Care Unit (SICU): Attending physician in SICU provided teaching to medical students, anesthesia and surgery residents, and critical care fellows
10. 7/01 – 6/02 Operative Anesthesia: Attending physician in operating room, provided teaching to medical students, anesthesia residents, and anesthesia fellows
11. 7/02 – 6/03 Surgical Intensive Care Unit (SICU): Attending physician in SICU provided teaching to medical students, anesthesia and surgery residents, and critical care fellows
12. 7/02 – 6/03 Operative Anesthesia: Attending physician in operating room, provided teaching to medical students, anesthesia residents, and anesthesia fellows
13. 7/03 – 6/04 Surgical Intensive Care Unit (SICU): Attending physician in SICU provided teaching to medical students, anesthesia and surgery residents, and critical care fellows
14. 7/03 – 6/04 Operative Anesthesia: Attending physician in operating room, provided teaching to medical students, anesthesia residents, and anesthesia fellows
15. 7/04 – 6/05 Surgical Intensive Care Unit (SICU): Attending physician in SICU provided teaching to medical students, anesthesia and surgery residents, and critical care fellows
16. 7/04 – 6/05 Operative Anesthesia: Attending physician in operating room, provided teaching to medical students, anesthesia residents, and anesthesia fellows

17. 7/05 – 6/06 Surgical Intensive Care Unit (SICU): Attending physician in SICU provided teaching to medical students, anesthesia and surgery residents, and critical care fellows
18. 7/05 – 6/06 Operative Anesthesia: Attending physician in operating room, provided teaching to medical students, anesthesia residents, and anesthesia fellows
19. 7/06 – 6/07 Surgical Intensive Care Unit (SICU): Attending physician in SICU provided teaching to medical students, anesthesia and surgery residents, and critical care fellows
20. 7/06 – 6/07 Operative Anesthesia: Attending physician in operating room, provided teaching to medical students, anesthesia residents, and anesthesia fellows

### **Continuing Medical Education Instruction**

1. Oct 1999 “Fundamentals of Critical Care Provider Course,” The Johns Hopkins University School of Medicine, Baltimore, Maryland, Course Instructor
2. March 2000 “Evidence-Based Preoperative Testing,” *Perioperative Management*, Department of Anesthesiology & Critical Care Medicine, The Johns Hopkins University School of Medicine, Marco Island, FL: Course Co-Director
3. Aug 2000 “Evidence-Based Preoperative Testing,” *Perioperative Management*, Department of Anesthesiology & Critical Care Medicine, The Johns Hopkins University School of Medicine, Aspen CO, Course Co-Director
4. March 2002 “Evidence-Based Preoperative Testing,” *Perioperative Management*, Department of Anesthesiology & Critical Care Medicine, The Johns Hopkins University School of Medicine, Marco Island, FL, Course Co-Director
5. March 2000 “Are you Providing Safe Care?” *Perioperative Management*, Department of Anesthesiology & Critical Care Medicine, The Johns Hopkins University School of Medicine, Marco Island, FL, Course Co-Director
6. Oct 2002 Johnson & Johnson/Wharton Advanced Management Education Conference, University of Pennsylvania, Philadelphia, PA, Workshop Leader
7. March 2003 “Managing Critical Care Medicine Systems,” The Annual New York Metropolitan Symposium, New York, NY. Co-Chair
8. May 2003 “Improving Patient Safety: From Rhetoric to Reality,” The Johns Hopkins University School of Medicine and The Health Research & Educational Trust, Baltimore, MD, Course Director
9. Fall 2003 “Evidence Based Medicine to Improve Quality of Care,” The Science of Clinical Investigation, through the Graduate Training Program in Clinical Investigation, The Johns Hopkins Bloomberg School of Public Health, Course Instructor
10. July 2004 “A Practical Approach to Improving Patient Safety,” the Mayo Clinic, Rochester, MN, Course Instructor

11. Nov 2004 “Practical Tools for Improving Patient Safety,” Department of Pharmacy Grand Rounds, The Johns Hopkins University School of Medicine, Course Instructor
12. Spring 2005 “Evidence-Based Medicine,” The Science of Clinical Investigation, through the Graduate Training Program in Clinical Investigation, The Johns Hopkins Bloomberg School of Public Health, Course Instructor
13. Nov 2005 “New Teams – How Will You Know You Are Safer? – Focus on climate and clinical interventions/BSI and VAP. NJHA Quality Institute with Saint Barnabas Health Care System, North Brunswick, NJ
14. July 2006 “Improving Patient Safety Through Teamwork & Communication” - Investigating a Defect. Department of Anesthesiology & Critical Care Medicine, Johns Hopkins Quality & Safety Research Group, Course Director
15. July 2007 “Improving Patient Safety Through Teamwork & Communication” - Investigating a Defect. Department of Anesthesiology & Critical Care Medicine, Johns Hopkins Quality & Safety Research Group, Course Director
16. Nov 2008 “Quality Improvement and Patient Safety” - Patient, Physician & Society Course, The Johns Hopkins University School of Medicine, Course Director

### **Mentoring** **Advisees**

1. 1997 – 2007 Robin Newhouse, PhD, RN, CNA, CNOR, Associate Professor, The Johns Hopkins University School of Nursing, Recipient of Agency for Health Care Research and Quality K-08 Award, "Rural Hospital Nursing: Environment, Effects, and Evidence"
2. 1998 - 2002 Charles Reuland, BA, Administration, Department of Medicine
3. 1999 - 2002 Betty Chang, MD, Fellow, Division of Pulmonary & Critical Care Medicine
4. 1999 - 2000 Elizabeth Garrett, BA, Assistant Professor, Johns Hopkins University
5. 1999 - 2002 Bryanna Vega, MPH, PhD Candidate, Johns Hopkins University
6. 1999 – 2002 Deborah Dang, MSN, Director, Nurse Professional Programs, Johns Hopkins University
7. 1999 - present Sean M. Berenholtz, MD, Assistant Professor, Department of Anesthesia and Critical Care Medicine. Recipient of Clinical Scientist Award and K23 from NIH
8. 2000 - 2001 Justin Dimick, MD, Surgical Resident, University of Michigan.
9. 2000 - 2002 Somchai Laowaltana, MD, PhD, The Johns Hopkins University
10. 2001 - 2002 Nicole Huang, MPH, PhD Candidate, Johns Hopkins University

11. 2001 - present Elizabeth Hunt, MD, MPH, Assistant Professor, Department of Pediatrics and Critical Care Medicine, PhD Candidate. Recipient of Clinical Scientist Award and K23 submitted to AHRQ
12. 2002 - present Elizabeth A. Martinez, MD, Assistant Professor, Department of Anesthesia and Critical Care Medicine, Recipient of Clinical Scientist Award and SCCM Patient Safety Award
13. 2002 - present Lilly Engineer, MD, MHA, Program Manager, Medication Monitoring for Vulnerable Populations via IT – AHRQ funded Ambulatory Safety and Quality grant
14. 2002 - present Michael Chan, MD, Fellow, Department of Internal Medicine, Cardiology
15. 2002 - present Lewis Rubinson, MD, Fellow, Pulmonary and Critical Care Medicine
16. 2002 - present Pedro Mendez-Tellez, MD, Assistant Professor, Department of Anesthesiology and Critical Care Medicine, NIH K08 submitted
17. 2003 - present David Baker, MBA, DrPH Candidate, Johns Hopkins Bloomberg School of Public Health
18. 2003 - present Cyrus Engineer, MHA, MHS, Technical Officer, World Health Organization (WHO), Faculty, Carey Business School, DrPH Candidate, Johns Hopkins University
19. 2003 - present David Thompson, RN, MS, PhD, Assistant Professor, Department of Anesthesiology and Critical Care Medicine, The Johns Hopkins University, NIH K02 and K08 submitted
20. 2003 - present Dale M. Needham, BA, MAcc, CA, MD, PhD, FRCPC, Staff Intensivist, Pulmonary & Critical Care Medicine, Recipient of the Canadian Institutes of Health Research (CIHR) Award
21. 2003 - present Thomas Stelfox, MD, Fellow, Department of Health Policy at Harvard University
22. 2003 - present Jonathan Sevransky, MD, Assistant Professor, Department of Pulmonary and Critical Care Medicine, The Johns Hopkins University, Recipient of NIH K23 Award
23. 2003 - present Julius Cuong Pham, MD, Assistant Professor, Department of Anesthesiology and Critical Care Medicine, The Johns Hopkins University, NIH K12 submitted
24. 2004 - present Jamie Schwartz, MD, Fellow, Pediatric Anesthesia and Critical Care Medicine, The Johns Hopkins University, NIH K12 submitted
25. 2004 - present Robert Stevens, MD, Assistant Professor, Department of Anesthesiology and Critical Care Medicine, The Johns Hopkins University, NIH K12 submitted
26. 2004 - present Cheryl Dennison, CRNP, PhD, Assistant Professor, Department of Nursing, The Johns Hopkins University School of Nursing, NIH NINR 5K23 NR009193
27. 2004 - present Gail L. Daumit, MD, Assistant Professor, Department of Epidemiology and Health Policy and Management, The Johns Hopkins Medical Institutions, Recipient of Young Investigator Award, National Alliance for Research on Schizophrenia and Depression,

“Patient safety for persons with severe mental illness: Medical injuries during hospitalization”. Recipient of NIMH RO1 (2006)

28. 2004 - 2006 Dickson Cheung, MD, Chair, Section of Quality Improvement and Patient Safety, American College of Emergency Physicians
29. 2005 - 2006 Yasser Dahab, MD, Anesthesia Resident, Johns Hopkins Hospital
30. 2005 - 2007 Sanjay Desai, MD, Director, Medical ICU, Washington Hospital Center, Assistant Professor Johns Hopkins University
31. 2005 - present Allison Lipitz, BS, PhD student, Johns Hopkins School of Public Health
32. 2006 - present Benjamin Brooke, MD, Surgical Resident, Johns Hopkins Hospital, PhD Candidate, GTPCI with K12 support
33. 2006 - present David Murphy, MD, Fellow, Pulmonary and Critical Care Medicine, Johns Hopkins University, GTPCI student
34. 2006 - present Kuan-Fu Chen, MD, Research Fellow, Department of Emergency Medicine, Johns Hopkins University, GTPCI student
35. 2006 - present Eddy Fan, MD, Instructor, Pulmonary and Critical Care Medicine, Johns Hopkins University, Canadian Institutes of Health Research Award
36. 2006 - present Kurt Herzer, Undergrad, Woodrow Wilson Fellow, Johns Hopkins University
37. 2006 - present Lia Clattenburg, BA, Medical Student, Johns Hopkins University
38. 2006 - present Dorry Segev, MD, Assistant Professor Surgery, Johns Hopkins Hospital, K12 use of High Risk Donor Kidneys: A Markov Decision Process Model
39. 2007 - present Angela Lashoher, MD, Surgical Resident, Johns Hopkins Hospital, NRSA
40. 2007 - present Kristen Nelson, MD, Assistant Professor, Pediatric Critical Care, Department Anesthesiology, AHA, SEED, and NIH LRP submitted
41. 2007 - present Rebecca Aslakson, MD, Surgical Critical Care Fellow, Johns Hopkins Hospital
42. 2007 - present Jennifer L. Dodson, MD, Instructor, James Buchanan Brady Urological Institute Marburg 1, Johns Hopkins Hospital
43. 2007 - present Amber Mock, MD, School of Medicine, Johns Hopkins University, MPH student
44. 2008 - present Tracy King, MD, PhD, Assistant Professor, Pediatric Division of General Pediatrics and Adolescent Medicine, Johns Hopkins University

#### **Thesis Committees**

1. 1998 - 2000 Elizabeth Garrett, PhD, Department of Biostatistics, The Johns Hopkins University School of Hygiene and Public Health, Doctoral Thesis: “Graphical Diagnostic Tools for

Standard Latent Class and Latent Class Regression Model Assessment with an Application in Describing Depression and Validating Diagnostic Criteria for Depression”

2. 1998 - 2000 Robin Newhouse, RN, PhD, Department of Nursing, University of Maryland, Doctoral Thesis: “The Relationship of Organizational Service Integration and Differentiation to Readmission, Length of Stay, Mortality and Costs for Patients with a Diagnosis of Congestive Heart Failure”
3. 1998 - 2002 Bryanna Vega, RN, MSN, PhD, Department of Nursing, The Johns Hopkins University, Doctoral Thesis: “Critical Pathways and Claims Complications”
4. 1999 - 2002 Deborah Dang, MSN, PhD, School of Nursing, The Johns Hopkins University, Doctoral Thesis: “Nursing Unit Characteristics in the ICU and Patient Outcomes”
5. 1999 - 2002 Charles Reuland, ScD, Department of Health Policy and Management, The Johns Hopkins Bloomberg School of Public Health, Doctoral Thesis: “Effect of a Handheld Decision Support Tool on Selected Outcomes”
6. 1999 - 2002 Betty Chang, MD, PhD, Department of Health Policy and Management, The Johns Hopkins Bloomberg School of Public Health, Doctoral Thesis: “Pulmonary Disease in Scleroderma”
7. 2000 - 2002 Somchai Laowaltana, MD, PhD, The Johns Hopkins University, Doctoral Thesis: “Predictions of Adverse Cardiac Outcomes After Stroke Based on Stroke Location and Diabetic Autonomic Neuropathy”
8. 2001 - 2002 Nicole Huang, MPH, PhD, Department of Health Policy and Management, The Johns Hopkins Bloomberg School of Public Health, Doctoral Thesis: “Non-Price Competitions in Patient Outcomes”
9. 2002 - 2004 David Thompson, RN, MS, PhD, Department of Anesthesiology and Critical Care Medicine, The Johns Hopkins University School of Medicine, Doctoral Thesis: “Predictors of Clinical & Economic Outcomes in Intra-abdominal Surgery Patients with Hospital-Acquired Pneumonia”
10. 2002 - 2004 Dale M. Needham, MD, PhD, Department of Pulmonary and Critical Care Medicine, The Johns Hopkins University, Doctoral Thesis: “Mechanical Ventilation in Ontario: Incidence, Survival, Hospital Bed Utilization and Projected Incidence of Non-Cardiac Surgery Adult Patients”
11. 2003 - present Lilly Engineer, MD, MHA, The Johns Hopkins Bloomberg School of Public Health, Doctoral Thesis: “Determining the Influence of Hospital Characteristics, Market Conditions, and Financial Performance on Clinical Quality in a Sample of U.S. Rural Hospitals”
12. 2004 - present Jeanette R.M. White, MD, Assistant Professor, Johns Hopkins University School of Medicine and The Johns Hopkins Bloomberg School of Public Health, Doctoral Thesis: “Preventing Adverse Events in the Pediatric Intensive Care Unit: Prospectively Targeting Factors that Led to Intravenous Potassium Chloride Order Errors”

13. 2005 - present Elizabeth Hunt, MD, Assistant Professor, Anesthesiology Critical Care Medicine, Johns Hopkins University, Doctoral Thesis: “An Evaluation of the Quality Resuscitation Delivered During Simulated Pediatric In-Hospital Cardiopulmonary Arrests”
14. 2005 - present Julius C. Pham, MD, Assistant Professor, Departments of Emergency Medicine and Anesthesia Critical Care Medicine, Johns Hopkins University School of Medicine, Doctoral Thesis: “The State of Healthcare Quality in Emergency Medicine”
15. 2006 - present Kuan-Fu Chen, MD, Department of Emergency Medicine, Johns Hopkins University School of Medicine, Doctoral Thesis: “Evaluation of Potential Novel Biomarker and Derivation of a Clinical Prediction Rule for Influenza Infections in ED Patients”
16. 2007 - present Hari Nathan, MD, House Staff, Department of Surgery, Fellow, Clinical Research Scholars Program, Johns Hopkins School of Medicine, Doctoral Thesis: “Provider and Institutional Determinants for Hepatocellular Carcinoma”
17. 2007 - present Xiaoyan Song, MD, MS, Assistant Professor, Departments of Medicine-Division of Infectious Disease and Hospital Epidemiology and Infection Control, The Johns Hopkins Medical Institution, Doctoral Thesis: “Serum Ferritin Level and Patient Outcomes in Incident Hemodialysis Patients”
18. 2007 - present Allison N. Lipitz, BS, PhD student, Johns Hopkins School of Public Health, Doctoral Thesis: “Evaluating the Keystone ICU Quality Improvement Initiative: Impact on Hospital Length of Stay, Medicare Payments, and Mortality”
19. 2007 - present Jennifer L. Dodson, MD, Instructor, James Buchanan Brady Urological Institute Marburg 1, Johns Hopkins Hospital, Doctoral Thesis: “Health related quality of life in adolescents with congenital urological disease”
20. 2007 - present Benjamin S. Brooke, MD, Postdoctoral Research Fellow, Department of Surgery, Johns Hopkins Hospital, Doctoral Thesis: “Utilizing patient and population level models to evaluate interventions for aneurysm disease: overcoming barriers in translational research”
21. 2007 - present Fabian A. Jaimes B., MD, MSc, Department of Epidemiology, Johns Hopkins School of Public Health, Associate Professor, University of Antioquia Medellin, Columbia, Doctoral Thesis: “Unfractionated Heparin for Treatment of Sepsis: A Randomized Clinical Trial”
22. 2007 - present Susanna M. Nazarian, MD, Surgical Resident, Johns Hopkins Hospital, Doctoral Thesis: “Role of Erythropoietin in Coronary Artery Bypass Graft Surgery”
23. 2008 - present Tracy King, MD, MPH, Assistant Professor, Pediatrics – Division of General Pediatrics and Adolescent Medicine, Johns Hopkins School of Medicine, Doctoral Thesis: “Improving the Quality of Developmental Screening in Pediatric Primary Care”
24. 2008 - present David R. Baker, MBA, Manager of Operations, Center for Innovation in Quality Patient Care, Johns Hopkins Medicine, Doctoral Thesis: “Uncovering the Unexpected: A Systems View into the Dynamics of Patient Flow”

25. 2008 - present Elena Blasco-Colmenares, MD, MPH, Anesthesiology & Critical Care Medicine  
 Perioperative Research Center, Doctoral Thesis: "Preoperative use of dual antiplatelet therapy and statins in coronary artery bypass surgery and risk of postoperative surgical site infections and blood infections at Johns Hopkins Hospital"

### **Editorial Activities**

#### **Editorial Board**

Journal of Clinical Outcomes Management  
 Journal of Critical Care, Section Editor, Quality and Safety  
 Agency for Healthcare Research & Quality (AHRQ) Web M&M  
 Critical Care  
 Joint Commission Journal on Quality and Patient Safety  
 The Patient – Patient Centered Outcomes Research (International Journal), New Zealand  
 Journal of Hospital Medicine – Society of Hospital Medicine

#### **Journal Peer Review**

Journal of the American Medical Association (JAMA)  
 Anesthesiology  
 Critical Care Medicine  
 Journal of General Internal Medicine  
 Medical Care  
 Journal of Investigative Medicine  
 American Review of Respiratory Diseases and Critical Care Medicine  
 Journal of Evidence-based Healthcare  
 American College of Physicians Journal Club  
 Journal of Health Policy, Politics, Law Review  
 Annals of Internal Medicine  
 Health Services Research  
 International Journal for Quality in Healthcare  
 Journal of Clinical Epidemiology

### **CLINICAL ACTIVITIES**

#### **Certification**

Medical Licensure, State of Maryland, D0046479  
 Board Examination, Diplomat of the American Board of Anesthesiology, 1995  
 Board Examination, Special Certificate of Competency in Critical Care Medicine, 1997  
 Specialty Certifications:     ACLS  
                                       ATLS  
                                       FCCS  
                                       CCERF

### **Service Responsibilities**

Critical Care:            Attending Physician in the Surgical Intensive Care Unit, Weinberg Surgical Intensive Care Unit and Cardiac Surgical Intensive Care Unit, 20% effort

Operative Anesthesia: Attending physician in the Division of Adult Critical Care Medicine, 10% effort

## **ORGANIZATIONAL ACTIVITIES**

### **Institutional Administrative Appointments**

- 1996-present Quality Management Network: A Consortium of Hospitals and Health Systems
- 1997-1998 Co-Chair, Alert Status Re-engineering Committee, The Johns Hopkins Hospital, Baltimore, MD, Results: Alert hours reduced by 90%
- 1997-1998 Metrics Group of the Service Excellence Committee, The Johns Hopkins Hospital, Baltimore, MD
- 1997-1998 Referring Physician Group of the Service Excellence Committee, The Johns Hopkins Hospital, Baltimore, MD
- 1997-1999 Clinical Practice Association Board of Governors Operations Committee, The Johns Hopkins University School of Medicine, Baltimore, MD. Developed practice standards, evaluated customer satisfaction with telephone access
- 1997-2003 Director, ICU Quality Management, The Johns Hopkins Hospital, Baltimore, MD
- 1997-present JCAHO Root Cause Analysis Team, The Johns Hopkins Hospital, Baltimore, MD
- 1997-present Performance Measurement Team, The Johns Hopkins Hospital, Baltimore, MD
- 1998-present Performance Improvement Council, The Johns Hopkins Hospital, Baltimore, MD
- 1999-2002 Bioterrorism Task Force, The Johns Hopkins Hospital, Baltimore, MD
- 2000-present Operation SWAT Team, The Johns Hopkins Hospital, Baltimore, MD
- 2000-present Performance Improvement Task Force, The Johns Hopkins Hospital, Baltimore, MD
- 2000-2002 Supply Chain Management Executive Oversight Committee, The Johns Hopkins Hospital, Baltimore, MD
- 2001-present Co-chair, Patient Safety Committee, The Johns Hopkins Hospital, Baltimore, MD
- 2001-present Chair, Organizational Assessment of Subcommittee of Patient Safety Committee, Baltimore, MD
- 2002-present Committee Member, Johns Hopkins Leadership Program, Johns Hopkins Medicine, Baltimore, MD
- 2003- present Johns Hopkins Hospital Clinical Oversight Committee, Johns Hopkins Medicine, Baltimore, MD
- 2004-present Johns Hopkins University Multidisciplinary Advisory Committee, Johns Hopkins University School of Medicine, Baltimore, MD

### **Professional Societies**

- 1992-present Member, International Anesthesia Research Society
- 1992-present Member, American Society of Anesthesiologists
- 1992-present Member, Society of Critical Care Medicine
- 1994-present Member, American Society of Critical Care Anesthesiologists
- 1996-present Member, American Medical Association
- 1997-present Member, Association for Health Services Research
- 2002-present Member, Association of University Anesthesiologists

### **Advisory Committees, Review Groups**

- 1999-2004 Joint Committee on Clinical Investigation, The Institutional Review Board for Johns Hopkins University School of Medicine. Anesthesia Representative, The Johns Hopkins University School of Medicine, Baltimore, Maryland
- 1999-present Advisory Board Training to the Graduate Program in Clinical Investigation, The Johns Hopkins Bloomberg School of Public Health, Baltimore, MD
- 2001-present Society of Critical Care Medicine Patient Safety Foundation. Founding Member and Board of Trustees
- 2001-present Quality Care Search Committee, Department of Health Policy & Management, The Johns Hopkins Bloomberg School of Public Health
- 2002-present Committee on Critical Care Practice, American Society of Critical Care Anesthesiologists, Park Ridge, IL
- 2002-present Claims and Risk Management Committee, MCIC Vermont, Inc.
- 2002-present Advisory Panel, Web M&M
- 2002-present ICU Core Measure Advisory Panel, Joint Commission on Accreditation of Healthcare Organizations (JCAHO), Chairman, Oakbrook Terrace, IL
- 2003-present Safety Committee, MCIC Vermont, Inc., Atlanta, GA
- 2003-present Advisory Board of National Quality Forum, Committee on Data Integrity and Availability, Washington, DC
- 2004-present Review Board, HCPro, Inc., Marblehead, MA
- 2004-present Advisory Board, Biomedical Research & Education Foundation, Stamford, CT
- 2005-present National Quality Forum, National Voluntary Consensus Standards Maintenance Committee, Washington, DC

- 2005-present National Board of Advisors, Center for Healthcare Governance, Chicago, IL
- 2005-present Patient Safety Research Coordinating Center Steering Committee, Agency for Healthcare Research & Quality Patient Safety Grantee Member, Rockville, MD
- 2005-present Clinical Quality Improvement Committee, Johns Hopkins Hospital, Baltimore, MD
- 2005-present Expert Reviewer, Contract Proposals, Agency for Healthcare Research & Quality, Rockville, MD
- 2005-present Advisory Panel, Central Line Associated Bloodstream Infections Quality Improvement Collaborative, Greater New York Hospital Association and United Hospital Fund, New York, NY
- 2006-present Committee Member, NQF Executive Institute Patient Safety Task Force, National Quality Forum, Washington, DC
- 2006-present Grant Reviewer, Patient Safety Programme from the Netherlands Organization for Health Research and Development (ZonMw), The Netherlands Organization for Health Research and Development
- 2006-present Grant Reviewer, The Israel Science Foundation (ISF), Founded by the Israel Academy of Sciences and Humanities
- 2007-present Sim Advisory Board, The Simulation Center, The Johns Hopkins University School of Medicine, Baltimore, Maryland
- 2008-present Non-Executive Director, Medical Advisory Board of ItHurts.com LLC, Monroe, CT

## RECOGNITION

### Awards, Honors

- 1984 NCAA Division 1 Swimming - Qualified for Nationals
- 1985 Alpha Sigma Nu (The Jesuit National Honor Society)
- 1985 Alpha Epsilon Delta (The Premedical National Honor Society)
- 1987 Magna Cum Laude
- 1987 Research Scholarship in Preventive Cardiology
- 1991 MAP-Reader's Digest International Fellowship for work in Nigeria
- 1991 Center for AIDA Research (CFAR) Scholarship to present at the International AIDS Conference
- 1999 Delta Omega (Public Health National Honor Society)
- 1999 American Medical Association AAMC Clinical Research Focus Group
- 2000 Clinician Scientist Award
- 2001 Clinician Scientist Award
- 2001 Society for Critical Care Medicine Research Review Award
- 2001 Leapfrog Group Health Care Purchasing Standard based on my research
- 2002 Presidential Citation, Contributions to SCCM in 2001
- 2002 Fellow, American College of Critical Care Medicine
- 2003 Presidential Citation, Contributions to SCCM in 2002

- 2003 William F. Rienhoff Scholars Award
- 2003 American Society of Anesthesiologists Presidential Scholar Award
- 2004 Presidential Citation, Contributions to SCCM in 2003
- 2004 Physician Hero, Health Care Heroes Award
- 2004 The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) and the National Quality Forum (NQF) John M. Eisenberg Patient Safety Award for Research

### **Invited Talks, Panels**

1. May 1994 "Pathophysiology of Shock," The Johns Hopkins Hospital Trauma Conference, Baltimore, MD
2. May 1995 "Pathophysiology of Shock," The Johns Hopkins Hospital Trauma Conference, Baltimore, MD
3. Feb 1996 "Appropriate use of Pulmonary Artery Catheters," Perioperative Monitoring Conference, The Johns Hopkins Hospital, Baltimore, MD
4. May 1996 "Pathophysiology of Shock," The Johns Hopkins Hospital Trauma Conference, Baltimore, MD
5. Jan 1997 "Hemodynamic Support in the Intensive Care Unit," St. Agnes Hospital, Baltimore, MD
6. Jan 1997 "Organization Learning," Managing Health Services Organization, Department of Health Policy & Management, The Johns Hopkins University School of Public Health, Baltimore, MD
7. Mar 1997 "Alert Status - A Model for Re-engineering," Managing Health Services Organization, Department of Health Policy & Management, The Johns Hopkins University School of Public, Baltimore, MD
8. May 1997 "Pathophysiology of Shock," The Johns Hopkins Hospital Trauma Conference, Baltimore, MD
9. Oct 1997 "Being a Charge Agent," The Johns Hopkins University Continuing Studies: Business of Medicine, The Johns Hopkins University, Baltimore, MD
10. Nov 1997 "Applying Systems Thinking in a Hospital," The Johns Hopkins University Continuing studies, The Johns Hopkins University, Baltimore, MD
11. Jan 1998 "Alert Status - Managing Health Services Organization," Summer Institute in Health Policy and Management, The Johns Hopkins University, Baltimore, MD
12. Feb 1998 "Outcomes Research: Do Intensivists Improve Outcome?" University of Pittsburgh, Critical Care Medicine Grand Rounds, Pittsburgh, PA

13. Feb 1998 “Organizational Characteristics of ICU’s Related to Outcomes in Abdominal Aortic Surgery Patients,” University of Pittsburgh, Health Services Research Group, Pittsburgh, PA
14. May 1998 “Pathophysiology of Shock,” The Johns Hopkins Hospital Trauma Conference, Baltimore, MD
15. Oct 1998 “Organization of Physician Services. Managing Health Service Organization,” Department of Health Policy and Management, Johns Hopkins University School of Hygiene and Public Health, Baltimore, MD
16. Mar 1999 “Errors in Medicine, a Systems Approach. Managing Health Services Organizations,” Department of Health Policy and Management, Johns Hopkins University School of Hygiene and Public Health, Baltimore, MD
17. Apr 1999 “Improving Relationships and processes: A New Change Model. Managing Health Services Organizations,” Department of Health Policy and Management, Johns Hopkins University School of Hygiene and Public Health, Baltimore, MD
18. May 1999 “Pathophysiology of Shock,” The Johns Hopkins Hospital Trauma Conference, Baltimore, MD
19. June 1999 “Research issues in the Acutely Ill Patient: Research in 2000 and Beyond,” The Johns Hopkins University School of Medicine, Baltimore, MD
20. June 1999 “Management of Myocardial Ischemia and Infarction. Fundamentals of Critical Care Provider Course,” The Johns Hopkins University School of Medicine, Baltimore, MD
21. Aug 1999 “Evidence-based Medicine,” Anesthesiology and Critical Care Medicine Research Conference, The Johns Hopkins University, Baltimore, MD
22. Sept 1999 “Outcomes Research: Do Intensivists Improve Outcome?” University of Utah, Anesthesiology Research Conference, the University of Utah Medical Center, Salt Lake City, UT
23. Oct 1999 “Improving Quality of Health Care,” The Caldwell Memorial Lecture, Suburban Hospital, Bethesda, MD
24. Oct 1999 “Outcome, Research,” Cardiovascular Division, Critical Care Medicine Grand Rounds, King Faisal Hospital, Saudi Arabia
25. Nov 1999 “Post-operative Myocardial Ischemia,” ASA expert panel discussion, Dallas, TX
26. Dec 1999 “Evidence-based Anesthesiology,” Anesthesiology and Critical Care Medicine Grand Rounds, The Johns Hopkins University, Baltimore, MD
27. Dec 1999 “Research in the Acutely Ill Patient,” Third Annual Johns Hopkins Clinical Research Conference Clinical Trials and Tribulations in the year 2000 and Beyond, The Johns Hopkins University, Baltimore, MD

28. March 2000 “Evidence-based Preoperative Testing,” Johns Hopkins University School of Medicine Continuing Education Course: *Perioperative Management*, Marco Island, FL
29. March 2000 “Establishing and Managing a Preoperative Evaluation Center,” Johns Hopkins University School of Medicine Continuing Education Course: *Perioperative Management*, Marco Island, FL
30. April 2000 “Measuring Up: Working toward Evidence-Based Risk Management,” AIG Healthcare 2000: Challenges Impacting Healthcare Risk Management in the 21<sup>st</sup> Century, New York, NY
31. May 2000 “Measuring Up: Working toward Evidence-Based Risk Management,” AIG Healthcare 2000: Challenges Impacting Healthcare Risk Management in the 21<sup>st</sup> Century, Boston, MA
32. May 2000 “Measuring Up: Working toward Evidence-Based Risk Management,” AIG Healthcare 2000: Challenges Impacting Healthcare Risk Management in the 21<sup>st</sup> Century, Dallas, TX
33. June 2000 “The Impact of ICU Physician Staffing on Outcomes: Can We Afford Not To Act?” General Motors Corporation Top 11 HMO’s Partnership Meeting on Patient Safety, Detroit, MI
34. July 2000 “Evidence-based Preoperative Testing”, Johns Hopkins University School of Medicine Continuing Education Course: *Perioperative Management*, Aspen, CO
35. July 2000 “Establishing and Managing a Preoperative Evaluation Center,” Johns Hopkins University School of Medicine Continuing Education Course: *Perioperative Management*, Aspen, CO
36. Aug 2000 “Errors in Medicine, a Systems approach. Managing Health Services Organizations,” Summer Institute, Department of Health Policy and Management, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD
37. Aug 2000 “Improving Relationships and processes in the ICU. Managing Health Services Organizations,” Summer Institute Department of Health Policy and Management, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD
38. Aug 2000 “The Journey From Research Question to Published Manuscript,” Graduate Training Program in Clinical Investigation, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD
39. Sept 2000 “Measuring Up: Working toward Evidence-Based Risk Management,” AIG Healthcare 2000: Challenges Impacting Healthcare Risk Management in the 21<sup>st</sup> Century, Chicago, IL
40. Sept 2000 “Evidence Supporting Leapfrog Purchasing Specification for ICU Physician Staffing,” National Safety Conference, Washington DC
41. Oct 2000 “Association between ICU Physician Staffing and Outcomes,” Grand Rounds, Dartmouth Mary Hitchcock Medical Center, Hanover, NH

42. Oct 2000 Visiting Professor Rounds: Case Conference. Surgical Intensive Care Unit, Dartmouth Mary Hitchcock Medical Center, Hanover, NH
43. Oct 2000 “Randomized Trial of a Quality Improvement Initiative: a New Model,” Center for Evaluative Clinical Sciences, Dartmouth Mary Hitchcock Medical Center, Hanover, NH
44. Oct 2000 “The Impact of ICU Physician Staffing on Outcomes: a Systematic Review,” American Society of Anesthesiology, San Francisco, CA
45. Oct 2000 “Why Complex Systems Fail,” University for Dentistry and Medicine of New Jersey Risk Management Strategies for the 21<sup>st</sup> Century: Keeping Pace with Change, Newark, NJ
46. Nov 2000 “Organizing ICU Care to Improve Patient Safety,” Improving Quality of Care for the 21<sup>st</sup> Century, Johns Hopkins Medicine International Conference, Baltimore, MD
47. Nov 2000 “The Association Between Critical Pathways and Hospital Length of Stay, Complications, and Liability Claims Experience,” Improving Quality of Care for the 21<sup>st</sup> Century, Johns Hopkins Medicine International Conference, Baltimore, MD
48. Nov 2000 “Creating Safe Systems of Medical Care,” Plenary Session Association for Healthcare Risk Managers National Meeting, New Orleans, LA
49. Nov 2000 “The Links between Healthcare Organizational Characteristics and Patient Safety,” Interdisciplinary Risk Management Seminar, The Johns Hopkins Medical Institutions, Baltimore, MD
50. Jan 2001 “Critical Care Response to the Institute of Medicine’s Report on Patient Safety,” Board of Trustees, The Johns Hopkins Medical Institutions, Baltimore, MD
51. Jan 2001 “Future Trends in ICU Research,” Society of Critical Care Medicine Education and Research Foundation Workshop, Chicago, IL
52. Feb 2001 “ICU Patient Safety: The Role of Teams,” Society for Critical Care Medicine Congress 2001, San Francisco, CA
53. Feb 2001 “Patient Safety Nets: The Role of Systems of Care,” Volunteer Hospitals of America Risk Management Conference and Captiva, Philadelphia, PA
54. Feb 2001 “How Systems of Care Impact Patient Safety,” Medical Staff and Leadership Conference, Wellcare Hospital, Dubai, United Arab Emirates
55. Feb 2001 Visiting Professor Rounds: Case Conference. Intensive Care Unit. Wellcare Hospital, Dubai, United Arab Emirates,
56. March 2001 “Methodological Issues in Clinical Trials,” The 21<sup>st</sup> International Congress on Intensive Care and Emergency Medicine, Brussels, Belgium

57. March 2001 “Improving Quality of ICU Care,” The 21<sup>st</sup> International Congress on Intensive Care and Emergency Medicine, Brussels Belgium
58. March 2001 “Quality of ICU Care,” Session Moderator; The 21<sup>st</sup> International Congress on Intensive Care and Emergency Medicine, Brussels Belgium
59. April 2001 “A Systems Approach to Improving Safety in the ICU,” Grand Rounds Preventive and Societal Medicine Health Services Research, University of Nebraska, Lincoln, NE
60. April 2001 Visiting Professor; Outcomes Research Conference, Combined Anesthesiology and Societal Medicine Health Services Research Conference, University of Nebraska, Lincoln, NE
61. June 2001 “Making Safety a Reality,” University of Maryland National Patient Safety Symposium, Baltimore, MD
62. June 2001 “Creating Safe Systems of Care,” Grand Rounds Department of Anesthesiology and Critical Care Medicine, Johns Hopkins University, Baltimore, MD
63. June 2001 “Patient Safety: from Rhetoric to Reality,” VHA Board Retreat, Lake Placid, NY
64. Oct 2001 “Improving Patient Safety: A System’s Approach,” Kennedy Krieger Institute, Baltimore, MD
65. Nov 2001 “Improving Patient Safety: A System’s Approach,” Johns Hopkins University Dean’s Retreat, St. Michaels, MD
66. Feb 2002 “Improving Patient Safety: A System’s Approach,” Grand Rounds Department of Medicine, The Johns Hopkins University, Baltimore, MD
67. Feb 2002 “Improving Patient Safety: A System’s Approach,” Grand Rounds Department of Emergency Medicine, The Johns Hopkins University, Baltimore, MD
68. Feb 2002 “Improving Patient Safety: A System’s Approach,” Grand Rounds Department of Surgery, The Johns Hopkins University, Baltimore, MD
69. March 2002 “From Rhetoric to Reality: Improving ICU Care,” McLeod Regional Medical Center Retreat, Florence, SC
70. March 2002 “Developing a Screening Tool for Adverse Sequelae After Critical Illness,” Round Table Conference: Surviving Intensive Care, Brussels, Belgium
71. March 2002 “Developing Indicators of ICU Quality,” 22<sup>nd</sup> International Symposium on Intensive Care and Emergency Medicine, Brussels, Belgium
72. April 2002 “The Science of Patient Safety,” Society of Healthcare Epidemiology of America (SHEA) 2002 Annual Meeting, Salt Lake City, UT
73. April 2002 “Improving Patient Safety: A Systems Approach,” Association of University Anesthesiologists 49<sup>th</sup> Annual Meeting, Nashville, TN

74. April 2002 “Improving ICU Patient Safety Through On-Going Intensivist Care,” 14<sup>th</sup> Annual National Managed Health Care Congress (NMHCC), Baltimore, MD
75. April 2002 “Idealized Design of the Intensive Care Unit,” VHA Leadership Conference, Chicago, IL
76. April 2002 “Patient Safety: How to Develop and Measure an ICU Improvement Process”. Seventeenth Annual Comprehensive Update and Board Review, Critical Care Medicine 2003, Washington, DC
77. May 2002 “Improving Patient Safety: A Systems Approach,” Board of Visitors, Johns Hopkins Medicine, Baltimore, MD
78. June 2002 “Evidence-Based Medicine: How to Use an Article About Therapy,” Research Seminar, Department of Anesthesiology, Washington University School of Medicine, St. Louis, MO
79. June 2002 “Improving Patient Safety: From Rhetoric to Reality,” Grand Rounds, Department of Anesthesiology, Washington University School of Medicine, St. Louis, MO
80. July 2002 “Improving Patient Safety: From Rhetoric to Reality,” National Institute of Health, NIDA, Baltimore, MD
81. Aug 2002 “Enhancing Coordination of Care Through Improved Provider-to-Provider Communications,” MHA Insurance Company’s Annual Risk Management Seminar, Crystal Mountain Resort, Thompsonville, MI
82. Sept 2002 “Safe Systems of ICU Care,” Pediatric Grand Rounds, The Johns Hopkins Hospital, Baltimore, MD
83. Oct 2002 “Critical Care Settings,” Fall Learning Session, Institute for Healthcare Improvement, Boston, MA
84. Oct 2002 “The Backgrounds of Safety,” Measuring Safety Outcomes, The Johns Hopkins Hospital, Baltimore, MD
85. Nov 2002 SAAC/AAPD Annual Meeting, San Francisco, CA
86. Jan 2003 “Improving Patient Safety: From Rhetoric to Reality,” Pathology Grand Rounds, The Johns Hopkins Medical Institutions, Baltimore, MD
87. Jan 2003 “Physician Staffing Patterns and Clinical Outcomes among Critically Ill Patients”, Welch Center Grand Rounds, The Johns Hopkins University, Baltimore, MD
88. March 2003 "Case Presentation: Critical Care Medicine" ICU Lecture, Homewood Campus, The Johns Hopkins University, Baltimore, MD
89. March 2003 "Research Responsibility and Mentoring, Data Management & Retention”, The Johns Hopkins University, Baltimore, MD

90. April 2003 “Measuring ICU Quality”, Institute for Healthcare Improvement, Orlando, FL
91. April 2003 “Patient Safety: How to Develop and Measure an ICU Improvement Process”, Critical Care Medicine 17<sup>th</sup> Annual Comprehensive Update & Board Review, Washington, DC
92. April 2003 “The Impact of Patient Safety on Clinical and Financial Outcomes,” Michigan Health & Safety Coalition’s Patient Safety Conference, Dearborn, MI
93. May 2003 “Patient Safety: What we are doing to foster a safer environment,” Healthcare Associated Infections Course, Department of Hospital Epidemiology & Infection Control, The Johns Hopkins Hospital, Baltimore, MD
94. June 2003 “Patient Safety and Quality,” Board of Trustees, The Johns Hopkins University, Homewood Campus, Baltimore, MD
95. June 2003 Keynote Speaker at the Leaders Round Table on Health Care (Video Taped), Toronto, Canada
95. July 2003 ”Improving Quality and Safety in the ICU,” Exempla HealthCare, Lutheran Medical Center, Wheat Ridge, CO
97. Aug 2003 Expert presentation on Adult ICU Phase III Benchmarking Knowledge Transfer Meeting, University HealthSystem Consortium, Dallas-Forth Worth, TX
98. Aug 2003 “Clinical Measures for the ICU,” VHA Trends & Tactics in Critical Care Management, Westborough, MA
99. Aug 2003 “From Rhetoric to Reality: Improving ICU Care,” Yale University School of Medicine, New Haven, CT
100. Aug 2003 “Executive Leadership Role in Patient Safety,” Atlantic City Medical Center, Atlantic City, NJ
101. Aug 2003 “On the Edge: Patient Safety,” 8<sup>th</sup> Annual Challenges in Critical Care Conference, Penn State College of Medicine, Hershey, PA
102. Sept 2003 “Executive Leadership Role in Patient Safety,” Hospital Board Retreat, Ellis Hospital, Upper State, NY
103. Sept 2003 “Comprehensive Models for Improving Patient Safety,” Panelist, Academy Health-AHRQ International Patient Safety Conference, Washington, DC
104. Oct 2003 “Improving Patient Safety: From Rhetoric to Reality,” University of California Conference: Management of the Hospitalized Patient, San Francisco, CA
105. Oct 2003 Visiting Professor/Guest Lecturer, SICU Multidisciplinary Conference, Yale University School of Medicine, New Haven, CT
106. Oct 2003 JCAHO ICU Core Measure Sets Session, CERNER Health Conference 2003, Kansas City, MO

107. Oct 2003 “Ethical and Practical Issues,” American Society of Anesthesiologists (ASA) Annual Meeting, San Francisco, CA
108. Oct 2003 “Improving Patient Safety: Putting Words into Action,” Maryland Healthcare Education Institute’s (MHEI) 28<sup>th</sup> Annual Medical Staff and Governance Leadership Conference, Hot Springs, VA
109. Oct 2003 “The Perfect Storm,” Keynote Speaker, St. Barnabas Health Care System Clinical Retreat, Toms River, NJ
110. Nov 2003 “Focusing on Harm to Set the Medication Safety Agenda,” Video Presentation for The ALARIS Center for Medication Safety and Clinical Improvement, A Third Invited Conference, San Diego, CA
111. Nov 2003 “An Association of Hospitals and Health Systems,” Patient Safety Summit, Georgia Hospital Association, Atlanta, GA
112. Dec 2003 “Partnering to Solve Clinical Issues: Stakeholders for Medication Safety,” “Removing Barriers to Improve ICU Care: Collaboration Among Stakeholders,” Presenter and Co-Chair, 15<sup>th</sup> Annual National Forum on Quality Improvement in Health Care, New Orleans, LA
113. Jan 2004 “Demonstrating the Cost of Poor Quality and Medication Errors: Proving the Business Case for Quality and Safety Programs,” New Jersey Hospital Association Leadership Summit on Quality and Patient Safety, Princeton, NJ
114. Jan 2004 “Making Safety a Reality,” Pediatric Ground Rounds, DuPont Hospital for Children, Wilmington, DE
115. Jan 2004 “Quality and Safety in Health Care,” Live Broadcast: *One on One with Steve Adabuto*, Union, NJ
116. Feb 2004 “Communication Failures at the Heart of Bad Outcomes,” Risk Management and Patient Safety Institute Audio Conference, Baltimore, MD
117. Feb 2004 “CUSP Overview,” “General Measurement Strategies,” “Detailed Measurement Strategies,” MHA Workshop, Detroit, MI
118. Feb 2004 “JCAHO Core Measures,” “Measuring Quality: Use of the Daily Goals Form to Improve Communication and Outcomes,” Society of Critical Care Medicine Annual Meeting, Orlando, FL
119. March 2004 “Case Studies: How Do We Provide Round the Clock Care?,” “Establishing a Culture of Safety in the ICU: The CUSP Program, 3<sup>rd</sup> Annual International Summit on Improving Critical Care Delivery, Miami, FL
120. April 2004 “Organizational Leadership at the Johns Hopkins Medical Institutions,” Joint Session, Harvard Medical School, Cambridge, MA

121. April 2004 "Transforming the ICU," Volunteer Hospital Association (VHA) Satellite Broadcast, Irving, TX
122. April 2004 "Patient Safety: How to Develop and Measure an ICU Improvement Process," 18<sup>th</sup> Annual Comprehensive Update and Board Review, Center for Biomedical Communication, Inc., Ritz Carlton, Washington, DC
123. April 2004 "Patient Safety - A New Agenda for Hospital Epidemiology," Department of Hospital Epidemiology and Infection Control, Johns Hopkins Hospital, Baltimore, MD
124. May 2004 "Practical Tools to Build Teams that Improve Patient Safety," Conference on Group Interaction in High Risk Environments, Swiss Re Centre for Global Dialogue, Ruschlikon, Switzerland
125. May 2004 "The Perfect Storm," Keynote Speaker, St. Barnabas Health Care System Clinical Retreat, Toms River, NJ
126. May 2004 "Improving Patient Safety: From Rhetoric to Reality," 100<sup>th</sup> International Conference, American Thoracic Society, Orlando, FL
127. June 2004 "Overview: Focus on the Need for Change," New Jersey Hospital Association, Princeton, NJ
128. June 2004 "The Hospital Leader's Role in Patient Safety," MHA Annual Corporate Membership Meeting, Mackinac Island, MI
129. July 2004 "A Culture of Safety: Assessment, Interventions, and Change Concepts," Delmarva Foundation – Improving Health Care Quality, Baltimore, MD
130. July 2004 "Improving Patient Safety: From Rhetoric to Reality," Anthem Blue Cross and Blue Shield Hospital Quality Program, 10<sup>th</sup> Annual Meeting, Columbus, OH
131. July 2004 "Reducing Defects in Health Care," Department of Neurosurgery Grand Rounds, The Johns Hopkins University School of Medicine, Baltimore, MD
132. July 2004 "Practical Tools to Build Teams that Improve Patient Safety," Grand Rounds, Henry Ford Health System, Detroit, MI
133. July 2004 "Quality and Safety in Health Care," Patient Safety Leadership Fellows Conference, San Diego, CA
134. July 2004 "Practical Tools to Build Teams that Improve Patient Safety," Health Forum Leadership Summit, San Diego, CA
135. Aug 2004 "Improving Patient Safety: From Rhetoric to Reality," Anthem Blue Cross and Blue Shield, Lexington, KY
136. Sept 2004 "Improving Patient Safety: From Rhetoric to Reality," Anthem Blue Cross and Blue Shield, Indianapolis, IN

137. Sept 2004 “Making the Health Care System Safer,” AHRQ 3<sup>rd</sup> Annual Patient Safety Research Conference, Arlington, VA
138. Oct 2004 “Practical Tools to Build Teams that Improve Patient Safety,” Update on Pulmonary and Critical Care Medicine, University of Michigan, Ann Arbor, MI
139. Oct 2004 “ICU Quality as the Imperative,” “BSI Reduction,” “VAP Reduction,” “Palliative Care,” “Redoubling our efforts: Improving reliability in critical care,” VHA Transformation of the Intensive Care Unit (TICU), Philadelphia, PA
140. Oct 2004 “Improving Healthcare Quality for all Americans,” 5<sup>th</sup> Annual Meeting of the National Quality Forum: Innovation and Implementation - Fulfilling the Healthcare Quality Imperative, Washington, DC
141. Oct 2004 “Background on State Collaborative ICU Improvement Efforts,” Making Rhode Island’s ICUs the Best in the Nation Conference, Providence, RI
142. Oct 2004 “Microsystem Changes within Hospitals and Health Systems,” Agency for Healthcare Research and Quality, Transforming Health Systems Through Leadership, Design and Incentives, Rockville, MD
143. Oct 2004 “Team Exercise: Keystone ICU Premortem,” “Sepsis: A Rapid Fire Look Ahead,” MHA-Keystone ICU Workshop II, Traverse City, MI
144. Nov 2004 “Too Err is Human,” Commonwealth Fund Quality Improvement Colloquium, Washington, DC
145. Nov 2004 “Practical Tools to Build Teams that Improve Patient Safety,” Delmarva Foundation – Courage to Improve Conference II: Best Practices in Quality Improvement, Baltimore, MD
146. Nov 2004 “Improving Care Throughout Maryland: Introducing CUSP,” “Daily Goals: Let’s Get to Work,” Maryland Patient Safety Center, Patient Safety Culture ICU Collaborative: Workshop I, Baltimore, MD
147. Nov 2004 “Leadership and its Role in Improving Quality and Patient Safety,” New Jersey Hospital Association Learning Session II Plenary: Recommitment to Quality and Reliability, Project Management: Obstacles and Barriers – Role of Senior Leadership, Princeton, NJ
148. Dec 2004 “Achieving Transformational Change,” Institute of Medicine, Potential Roles for the Quality Improvement Organizations in the Future, Washington, DC
149. Dec 2004 “Victims and Healing: Three Reactions to Medical Errors,” with Linda Kenney, Frederick A. van Pelt, MD, MBA, Mark Rosenberg, MD, MPP and Sorrel King. Institute of Healthcare Improvement, 16<sup>th</sup> National Forum on Quality Improvement in Healthcare, Orlando, FL
150. Jan 2005 “Practical Applications to Improve Patient Safety,” Jefferson Medical College, Philadelphia, PA

151. Jan 2005 “Re-engineering the ICU to Provide a Safer Environment,” Society of Critical Care Medicine 34<sup>th</sup> Critical Care Congress, Plenary Session, Phoenix, AZ
152. Feb 2005 “Best Practices and Practical Tools for Improving Care in the High Stress Setting of the ICU,” North Carolina Hospital Association, Cary, NC
153. Feb 2005 “Improving Quality and Patient Safety”, 9<sup>th</sup> Annual Maryland Infection Control Network Conference, Department of Epidemiology and Infection Control, The Johns Hopkins Bloomberg School of Public Health, Baltimore, MD
154. Mar 2005 “The Challenge of Patient Safety: Responding to a Tragedy” with Sorrel King, 2005 Connecticut Hospital Association, Wallingford, CT
155. Mar 2005 “Leading Change”, “Making the Business Case: Global and Local Healthcare and the New Opportunity Calculator”, “Achieving Attributes of Ideal Physician Staffing”, “Creating a Healing Environment: Healing after Harm”, Keystone ICU Workshop #1, Troy, MI
156. Mar 2005 “Leaders in our Midst”, “The Art of Disclosure and Healing”, Panel Discussion: Johns Hopkins and Representatives of Michigan Surviving Sepsis Campaign”, “In the Shadow of a Leader”, Keystone ICU Workshop #3, Troy MI
157. Mar 2005 “Practical Tools to Improve Patient Safety”, Intensive Care Unit Quality Improvement Collaborative Learning Session II, Minneapolis, MN
158. Apr 2005 “Practical Tools to Improve Patient Safety”, Joint Grand Rounds, Greater Baltimore Medical Center, Baltimore, MD
159. Apr 2005 “Practical Tools to Improve Patient Safety”, Grand Rounds, University of Massachusetts Memorial Medical Center, Boston, MA
160. Apr 2005 “Safety Considerations in the OR”, CEO Work Group for Clinical Excellence, Transformation of the Operating Room Task Force, Philadelphia, PA
161. Apr 2005 “Practical Tools to Improve Patient Safety”, Grand Rounds, Department of Anesthesiology, University of Pennsylvania, Philadelphia, PA
162. Apr 2005 “Patient Safety”, Panel Member, Management Forum’s Panel on Patient Safety, Johns Hopkins Hospital, Baltimore, MD
163. May 2005 “Of the Places You Go”, Breakout Session on Roles of Leadership: Executive Leadership, New Jersey Hospital Association, Princeton, NJ
164. May 2005 “Applying Science to the Delivery of Care to Improve Patient Safety”, AHA Quality/Outcomes Forum, Washington, DC
165. May 2005 “Patient Safety and Quality Improvement”, with Representative Patrick Kennedy, Critical Care Summit Meeting, Washington, DC

166. May 2005 “Of the Places You Go”, New Jersey Hospital Association, Quality Institute, Learning Session III, Princeton, NJ
167. June 2005 “What do Medical Errors Cost and are System Changes Worth it?”, AHRQ Patient Safety and Health Information Technology Conference, Washington, DC
168. July 2005 “Leading Change: Improving Patient Safety by Applying Science to Care Delivery”, 2005 Healthcare Forum Leadership Summit, San Diego, CA
169. Sept 2005 “Safety as Strategy”, Arizona Hospital and Healthcare Association, Scottsdale, AZ
170. Oct 2005 “Improving Patient Safety”. Toronto Critical Care Medicine Symposium, Toronto, CA
171. Nov 2005 “Where We are Going and How We Will Get There”. Rhode Island ICU Collaborative, Providence, RI
172. Nov 2005 “Where No State Has Gone Before”. MHA Keystone Workshop, Dearborn, MI
173. Jan 2006 “How Do We Know We are Safer?” 3<sup>rd</sup> Annual Leadership Summit, A focus on Quality and patient Safety, Princeton, NJ
174. Jan 2006 “Where We are Going and How We Will Get There”. MCIC Vermont, Inc. New York, NY
175. Jan 2006 “How Do We Know We Are Safer: Realizing Improvements in Patient Safety.” Tenet Healthcare Corporation, Dallas, TX
176. Feb. 2006 “Rebuilding Patient Safety”. SSM Health Care, St. Louis, MI
177. Feb 2006 “Improving Healthcare Quality and Patient Safety”, Board of Trustee, The University of Chicago Hospitals and Health System, Chicago, IL
178. Mar 2006 “A Systems Approach to Surgical Safety: Error Prevention in Surgery”, Johns Hopkins University School of Medicine, Surgical Grand Rounds, Baltimore, MD
179. April 2006 “A Practical Researchers’ View of Patient Safety Research.”, WHO World Alliance Patient Safety, UK London
180. April 2006 “MI Keystone OR Kickoff”. William Beaumont Hospital, MI
181. April 2006 “ MI Keystone: ICU The Learning Continues...”. Grand Rapids, MI
182. April 2006 “State of the Evidence in Critical Care: What We Know Makes a Difference” HCA Critical Care Services Design Session, Nashville, TN
183. May 2006 “On the Journey: Conquering CR-BSI’s RI Teams: Performance and Progress” RI ICU Collaborative, Providence, RI
184. May 2006 “MI Project: Collaboration between Employers, Insurers, and Providers” Johns Hopkins / Stifel Nicolaus Health Care Symposium, Baltimore, MD

185. June 2006 “Organizational Sharing and Collaboration – How Can We Develop a Meaningful Network Amongst Us?” Department of Defense: Health Care Team Coordination Program. Washington, DC
186. June 2006 “Patient Safety in England & Whales”. The Health Foundation’s Safer Patients Initiative Learning Session, London UK, Geneva Switzerland
187. June 2006 “Our Journey in New Jersey”. New Jersey ICU Collaborative Learning Session New Jersey Hospital Association Quality Institute, Princeton, NJ
188. June 2006 “Patient Safety Task Force Charge”. The National Quality Forum Executive Institute Meeting, Washington, DC
189. Sep. 2006 “Strategies for changing clinical behavior.” WHO – IPACS Technical Workshop Barcelona, Spain
190. Sep. 2006 “Health Care for the 21<sup>st</sup> Century.” Champions of Change: A National Symposium on Improving Health Care. Remaking American Medicine, Washington, DC
191. Sep. 2006 “Team Building in the OR.” Grand Rounds: University of Rochester, Department of Anesthesiology, Rochester NY
192. Oct. 2006 “Realizing Improvement in Patient Safety.” Joshua Sasaki Patient Safety Symposium. Methodist Children’s Hospital of South Texas, San Antonio, TX
193. Oct. 2006 “Setting the Stage – Clinical Sustainability.” MHA Keystone ICU Workshop # 6, Detroit, MI
194. Oct. 2006 “The Future of Critical Care Medicine.” Maryland Patient Safety Center ICU Reunion; Delmarva Foundation, Clarksville MD
195. Oct. 2006 “How Do We Know We Are Safer?” Quality in Motion: From Innovation to Collaboration. Care Science 2006 National Conference, Orlando FL
196. Oct 2006 “Patient Safety/ Peer Review of Miller School of Medicine Replacement Hospital”, University of Miami, Perkin + Will, Miami FL
197. Dec. 2006 “Leading Change through Adaptive Work; Leading Change through Technical Work; Reflecting Success; Leadership Tools to Support Teams.” Rhode Island ICU Collaborative: Learning Session # 3, Warwick RI
198. Jan 2007 “Metrics for Measurement: How Do We Approach Measurement?” Safe Surgery Saves Lives: First Consultation. World Health Organization - Geneva, Switzerland
199. Jan 2007 “How Do You Know You Are Safer?” 3<sup>rd</sup> Annual NJHA Leadership Summit: A Focus on Quality Patient Safety. Princeton, NJ
200. Jan 2007 “Where are we going and how will we get there?” MCIC Peri-Operative Collaborative Workshop # 1 - New York, NY

201. Jan 2007 “How Do We Know We Are Safer: Realizing Improvements in Patient Safety”. Promoting Patient Safety in Tenet Hospitals - Dallas, TX
202. Feb 2007 “Clinical Information Systems and Their Impact on Patient Quality and Safety.” University of Chicago – Board of Trustees - Chicago - IL
203. Feb 2007 “Rebuilding Patient Safety.” SSM Health Care Clinical Collaboratives: Achieving Exceptional Safety in Healthcare and Improving Critical Care ICU Learning. St. Louis, MO
204. Mar 2007 “How do we demonstrate lives saved, risks reduced and harm prevented through the work of the Alliance?” World Alliance for Patient Safety / WHO, Institute for Healthcare Improvement, Cambridge, MA
205. Apr 2007 “Creating a Culture of Safety.” Crozer Keystone Health System, Annual Quality Retreat. Philadelphia, PA
206. Apr 2007 “Making Infection Control Happen: Impact of the Keystone Project in Michigan.” The Society for Healthcare Epidemiology of America - Baltimore, MD
207. Apr 2007 “Improving Patient Safety in Cardiac Surgery.” Society of Cardiovascular Anesthesiologists – 29<sup>th</sup> Annual Meeting. Montreal, Quebec, Canada
208. Apr 2007 “Interdisciplinary Nursing Quality Research Initiative.”  
“Safety Leadership: Beyond the Status Quo”  
“Central Line Associated Blood Stream Infections.” Adventist Health System: Patient Safety/Evidence-Based Practice Summit. Orlando, FL
209. Apr 2007 “How do you know your patients are safe and quality is high?” Excellent Together: Keeping the Quality Promise. Covenant Health Board Conference. Asheville, NC
210. Apr 2007 “Improving Patient Safety through Technical and Adaptive Leadership” Health Research & Educational Trust / HRET: Learning from the Past Creating the Future. Washington, DC
211. May 2007 World Alliance for Patient Safety, Governing Council of Research on Patient Safety / WHO. Rockville, MD
212. May 2007 “Measurement for Safety”. Annual National Patient Safety Foundation and the Congress Planning Committee. Washington, DC
213. May 2007 “Palliative Care University”, “Patient Safety Leadership & Surgical Safety.”  
Keystone: ICU Workshop # 7, Grand Rapids, MI
214. June 2007 “Meeting with the expert; Eliminating CRB.” World Health Organization (WHO);  
The Scientific Committee of National Congress - Barcelona, Spain
215. June 2007 “Quality Patient Care & Safety.” Johns Hopkins Medicine International; Dutch Health Care Delegation - Johns Hopkins University School of Medicine, Baltimore, MD

216. July 2007 “Global Health; What’s next in Health Care Delivery?” Aspen Ideas Festival, The Aspen Institute - Aspen, CO
217. July 2007 “Perioperative Patient Safety”, “Leading Patient Safety”, “Learning From Defects”, “Moving Forward: What do I do now?” CA-1 Improving Patient Safety Through Teamwork and Communication. Johns Hopkins Quality & Safety Research Group; Johns Hopkins Medicine - Baltimore, MD
218. Sept 2007 “Data Dive/Blood Stream Infection (BSI), Ventilator Associated Pneumonia (VAP), Sepsis”, “Richard Kilburg Debrief”, “Palliative Care.” Keystone: ICU Workshop # 8 - Dearborn, MI
219. Sept 2007 “Patient Safety in Critical Care.” Critical Care Safety Web Conference: Essential for ICU Patient Safety and Technology. ECRI Institute.
220. Sept 2007 Agenda Expert; Advisory Committee Meeting. Commonwealth Fund Safety Project, Partners Healthcare. Boston, MA
221. Sept 2007 “Holding the Gains in BSI and VAP”, “Improving Culture Amongst Chaos in the ICU” - Rhode Island ICU Collaborative; ICU Collaborative Outcomes Congress Providence, RI
222. Sept 2007 UK Ministry of Health, Washington, DC
223. Oct 2007 “Building Capacity for Improving Quality.” Fall 2007 Allina Quality Summit: Allina Hospitals and Clinics- Minneapolis, MN
224. Oct 2007 “Keystone ICU Project.” Cardinal Health Live Interview / Web cast.
225. Oct 2007 “Physician Engagement Nurse Empowerment”, “Preventing Central Line Associated Blood Stream Infections” - Patient Safety/Evidence-Based Practice Summit Agenda; Adventist Health System - Orlando, FL
226. Nov 2007 “How Do We Know We Are Safer?” Achieving Improved Patient Care Through Cultural Change: FOJP 23<sup>rd</sup> Annual Conference. FOJP and Mount Sinai School of Medicine. New York, NY
227. Nov 2007 “Using Data as an Instrument of Change: Planning, Implementing, and Monitoring Performance.” Health in the Balance AAMC Annual Meeting. Washington, DC
228. Jan 2008 “Safe Surgery Saves Lives” World Health Organization (WHO). Geneva, Switzerland
229. Jan 2008 Keynote speaker: Partnership for Patient Care Leadership Conference, The Health Care Improvement Foundation. Plymouth Mtg., PA

230. Jan 2008 “Reducing Hospital Readmissions” An Invitational Working Meeting, Commonwealth Fund / Academy Health Meeting. Washington, DC
231. Jan 2008 “The Science of Safety”, “Leadership for Safety Effort”, “Model for Creating Reliability in Healthcare” Tennessee Center for Patient Safety Infections Collaborative, Tennessee Hospital Association
232. Feb 2008 “Making Progress in Patient Safety;” Grand Rounds Anesthesia & Critical Care, Massachusetts General Hospital, Boston, MA
233. Mar 2008 Keynote speaker: Cleveland Clinic Health System Annual Patient Safety Event, Cleveland, Ohio
234. Mar 2008 “Keeping Score: Selecting, Measuring and Reporting What Really Matters,” Association of American Medical Colleges (AAMC), Chief Medical Officers Forum Leading the Quality Initiative. New Orleans, Louisiana
235. Mar 2008 “Teaching the public what to expect in a good doctor,” Health Journalism Conference; Improving public understanding of health and health care, Association of Health Care Journalists. Washington, DC
236. April 2008 “Creating safe hospital practice: a powerful yet practical approach,” Making the Difference: A conference about safety, quality and effectiveness in hospitals. Amsterdam, Netherlands

### Invited Reviews, Editorials:

1. **Pronovost PJ**, Berenholtz S. Invited commentary on: A multicenter, randomized, controlled clinical of transfusion requirements in critical care. *J Club Crit Care Assem Amer Thorac Soc*. June 1999; [www.thoracic.org/assemblies/cc/club30501.html](http://www.thoracic.org/assemblies/cc/club30501.html).
2. **Pronovost PJ**. Invited commentary on: A qualitative study of increasing beta-blocker use after myocardial infarction: Why do some hospitals succeed? *J Club Crit Care Assem Amer Thorac Soc*, May 2001; [www.thoracic.org/assemblies/cc/club30501.html](http://www.thoracic.org/assemblies/cc/club30501.html)
3. **Pronovost PJ**. Invited commentary on: Review: epidural or spinal anesthesia reduces post-operative mortality and morbidity. *ACP J Club*. 2001; 135:1.
4. **Pronovost PJ**. Invited commentary on: Teaching critical appraisal skills has attitudinal and skill benefits but evidence about effects on health outcomes is unclear. *Evid Based Healthc*. 2001; 5:107.
5. Berenholtz SM, **Pronovost PJ**. Invited commentary on: Effect of treatment with low doses of hydrocortisone and fludrocortisone on mortality in patients with septic shock. *J Club Crit Care Assem Am Thorac Soc*. 2002 Aug; [www.thoracic.org/assemblies/cc/ccjcframe.html](http://www.thoracic.org/assemblies/cc/ccjcframe.html)