

**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

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

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  
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## 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 Hospital 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<br>Department of Surgery   | Johns Hopkins University<br>School of Medicine<br>Baltimore, Maryland     |
| 1997 - 1998    | Instructor<br>Department of Anesthesiology<br>and Critical Care Medicine          | Johns Hopkins University<br>School of Medicine<br>Baltimore, Maryland     |
| 1998 - present | Core Faculty<br>Program for Medical Technology<br>and Practice Assessment         | Johns Hopkins University<br>School of Medicine<br>Baltimore, Maryland     |
| 1998 - 2001    | Assistant Professor<br>Department of Anesthesiology<br>and Critical Care Medicine | Johns Hopkins University<br>School of Medicine<br>Baltimore, Maryland     |
| 1998 - 2001    | Assistant Professor<br>Department of Health Policy<br>and Management              | Johns Hopkins Bloomberg<br>School of Public Health<br>Baltimore, Maryland |

|                |   |   |
|----------------|---|---|
| 1998 - 2001    | Assistant Professor<br>Department of Surgery  | Johns Hopkins University<br>School of Medicine<br>Baltimore, Maryland     |
| 2001 - present | Faculty<br>Institute for Health<br>Care Improvement   | Institute for Health<br>Care Improvement<br>Boston, Massachusetts         |
| 2001 - 2005    | Associate Professor<br>Department of Anesthesiology<br>and Critical Care Medicine   | Johns Hopkins University<br>School of Medicine<br>Baltimore, Maryland     |
| 2001 - 2005    | Associate Professor<br>Department of Health Policy<br>and Management  | Johns Hopkins Bloomberg<br>School of Public Health<br>Baltimore, Maryland |
| 2001 - 2005    | Associate Professor<br>Department of Surgery  | Johns Hopkins University<br>School of Medicine<br>Baltimore, Maryland     |
| 2002 - present | Medical Director<br>Center for Innovation<br>in Quality Patient Care  | Johns Hopkins Hospital<br>Baltimore, Maryland                             |
| 2003 - present | Director<br>Quality and Safety<br>Research group  | Johns Hopkins University<br>School of Medicine<br>Baltimore, Maryland     |
| 2003 - 2005    | Associate Professor<br>Department of Nursing  | Johns Hopkins University<br>School of Nursing<br>Baltimore, Maryland      |
| 2004 - present | Co-Director<br>Cardiac Surgical<br>Intensive Care Unit  | Johns Hopkins University<br>School of Medicine<br>Baltimore, Maryland     |
| 2004 - present | Director<br>Division of Adult Critical<br>Care Medicine   | Johns Hopkins University<br>School of Medicine<br>Baltimore, Maryland     |
| 2005 - present | Co-Director, Graduate Seminar<br>in Health Care Management<br>and Leadership, Department of<br>Health Policy and Management | Johns Hopkins Bloomberg<br>School of Public Health<br>Baltimore, Maryland |
| 2005 - present | Professor<br>Department of Anesthesiology   | Johns Hopkins University<br>School of Medicine                            |

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|----------------|--|---|
|                | and Critical Care Medicine                                 | Baltimore, Maryland   |
| 2005 - present | Professor<br>Department of Health Policy<br>and Management | Johns Hopkins Bloomberg<br>School of Public Health<br>Baltimore, Maryland |
| 2005 - present | Professor<br>Department of Surgery                         | Johns Hopkins University<br>School of Medicine<br>Baltimore, Maryland     |
| 2005 - present | Professor<br>Department of Nursing                         | Johns Hopkins University<br>School of Nursing<br>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):105-110.
2. **Pronovost P**, Kazandijan V. 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):1310-1317.
4. **Pronovost P**, Angus DC. Using large-scale databases to measure outcomes in critical care. *Crit Care Clin.* 1999; 15(3):615-631.
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):549-554.
6. **Pronovost P**, Angus DC: Determining the value of critical care. *Clin Pulm Med.* 1999; 6(5):302-308.
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):1149-1152.
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):262-268.
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):581-583.

12. Berenholtz S, **Pronovost P**, Dorman T. Evidence-based Anesthesiology. *Curr Anesthesiology Rep.* 2000; 2:425-431.
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):3925-3931.
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):503-514.
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):1857-1862.
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):737-743.
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):262-268.
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):493-495.
19. **Pronovost PJ**, Williams MA. Telemedicine and end-of-life care: what's wrong with this picture? *J Clin Ethics.* 2001; 12(1):64-68.
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):334-339.
22. **Pronovost PJ**, Berenholtz SM, Dorman T, Merritt WT, Martinez EA, Guyatt GH. Evidence-based medicine in anesthesiology. *Anesth Analg.* 2001; 92(3):787-794.
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):753-758.
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):1027-1028.
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):1029-1036.
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):297-303.
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):456-459.
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):483-485.

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):249-256.
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):376-382.
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):489-496.
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; 17:41-47.
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):183-189.
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):219-228.
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):259-260.
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):828-832.
41. Darer J, **Pronovost P**, Bass EB. Use and evaluation of critical pathways in hospitals. *Eff Clin Pract.* 2002; 5(3):114-119.
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):432-436.
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):753-762.
45. **Pronovost PJ**, Angus DC, Dorman T, Robinson KA, Dremsizov TT, Young TL. Do intensivists improve the outcome of critically ill patients? *JAMA.* 2002; 288:2151-2162.
46. **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.
47. 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):2366-2371.
48. **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):2151-2162.
49. Martinez EA, **Pronovost P**. Perioperative beta-blockers in high-risk patients. *J Crit Care.* 2002; 17(2):105-113.

50. Dorman T, **Pronovost, PJ**. Intensive care unit errors: Detection and reporting to improve outcomes. *Curr Opin Anaesth.* 2002; 15(2):147-151.
51. Dimick JB, **Pronovost PJ**, Cowan JA Jr, Lipsett PA. Postoperative complication rates after hepatic resection in Maryland hospitals. *Arch Surg.* 2003; 138(1):41-46.
52. Angus DC, Carlet J, **2002 Brussels Roundtable Participants**. Surviving intensive care: a report from the 2002 Brussels Roundtable. *Intensive Care Med.* 2003; 29(3):368-377.
53. 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):337-341.
54. Rockey Moore MB, Holzmueller CG, Milstein A, Dorman T, **Pronovost PJ**. Updating the Leapfrog Group Intensive Care Unit Physician Staffing Standard. *J Clin Outcomes Manag.* 2003; 10(1):31-37.
55. 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):637-648.
56. 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):1006-1011.
57. 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):671-678.
58. Berenholtz S, Dorman T, **Pronovost PJ**. Improving Quality and Safety in the ICU. *Contemp Crit Care.* 2003; 1(1):1-9.
59. 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.
60. Berenholtz SM, **Pronovost PJ**. Barriers to translating evidence into practice. *Curr Opin Crit Care.* 2003; 9(4):321-325.
61. 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):1930-1937.
62. **Pronovost PJ**, Berenholtz SM, Ngo K, McDowell M, Holzmueller 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):145-155.
63. 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):534-540.
64. 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):739-744.
65. **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):71-75.
66. Newhouse RP, Mills ME, Johantgen M, **Pronovost PJ**. Is there a relationship between service integration and differentiation and patient outcomes? *Int J Integrated Care.* 2003; (3) ISSN 1568-4156.
67. King S, **Pronovost PJ**. Rekindling the central fire: Stories can change your life. *J Innov Manag.* 2003; 8(4):66-80.

68. **Pronovost PJ**, Weast B, Holzmueller, 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):405-410.
69. **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):201-205.
70. 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 Jan;12(1):51-56.
71. Miller MR, **Pronovost PJ**, Burstin HR. Pediatric patient safety in the ambulatory setting. *Ambul Pediatr*. 2004 Jan-Feb;4(1):47-54.
72. **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 Feb;30(2):59-68.
73. Erdek M, **Pronovost PJ**. Improving assessment and treatment of pain in the critically ill. *Int J Qual Health Care*. 2004 Feb;16(1):59-64.
74. 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 Apr;30(4):195-204.
75. **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 Jun;32(6):1247-1253.
76. **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.
77. Chan MY, **Pronovost PJ**. Clinical utility of biomarkers in myocardial injury. *Curr Opin Anaesthesiol*. 2004; 17:49-55.
78. Lubomski LH, **Pronovost PJ**, Thompson DA, Holzmueller 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):275-280.
79. **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 Jun 15;140(12):1025-1033.
80. 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 Jul; 32(7):1504-1509.
81. 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 Aug;30(8):1579-1585.
82. **Pronovost PJ**, Thompson DA. Reducing defects in the use of interventions. *Intensive Care Med*. 2004 Aug; 30:1505-1507.
83. **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 Sep;19(3):158-164.
84. 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 Oct;30(10):543-550.

85. 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 Oct;32(10):2014-2020.
86. 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; Nov;32:2227-2233.
87. 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 Dec;101(6):1291-1297.
88. 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; Mar;33(3):497-503.
89. 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; Mar;33(3):574-579.
90. Newhouse RP, Johantgen M, **Pronovost PJ**, Johnson E. Perioperative nurses and patient outcomes—mortality, complications, and length of stay. *AORN J*. 2005; Mar;31(5):508-509,513-522,525-528.
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 Mar-Apr; 12(2):130-139.
92. **Pronovost P**, Goeschel C. Improving ICU care: It takes a team. *Healthc Exec*. 2005; Mar-Apr; 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; Apr; 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; May;241(5):803-807; discussion 807-809.
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; Sep;31(9):1153-1160.
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; May 21; [Epub ahead of print].
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; May;31(5):611-620.
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):243-248.
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; 20:12-19.

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; 24:50-58.
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 Sep-Oct;20(5):239-252.
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*. 2005 Dec 16;10(1).
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### Peer-reviewed not original research articles

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10. **Pronovost PJ**. An interview with Peter Pronovost. *Jt Comm J Qual Saf*. 2004 Dec; 30(12):659-64.
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22. **Pronovost PJ**, Miller MR, Wachter RM. Tracking Progress in Patient Safety. *JAMA.* 2006 Aug; 296(6): 696-699.

## Editorials

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5. **Pronovost PJ**, Sexton B. Assessing safety culture: guidelines and recommendations. *Qual Saf Health Care,* 2005; 14:231-233.
6. **Pronovost PJ**, Martinez EA, Rodriguez-Paz JM. Removing “orange wires”: surfacing and hopefully learning from mistakes. *Intensive Care Med,* 2006 July.

## Book Chapters and Monographs

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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.
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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  
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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.  
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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.
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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. Kleinpell R, Thompson D, Kelso L, **Pronovost P**. Targeting Errors in the ICU: of a National Database. *Quality Indicators in Acute and Critical Care*. Volume 18, Number 4, Dec. 2006, pg.509

## 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: 12/01/03 – 11/30/08  
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: 20%

Period: 9/23/04 – 7/31/09 \$2,000  
Title: Multidisciplinary Clinical Research Career Development

Identification number: 1 K12 HD049104 (Powe)  
Sponsor: NIH/NICHD  
Annual Direct Costs: \$2,083,420  
Principal Investigator: Neil R. Powe, MD, MPH, MBA  
Role: Mentor  
Percent effort:

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: 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, Ph.D.  
Role: Co-Investigator  
Percent effort: 02%

Period: 01/01/06 - 05/31/09  
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: \$364,129  
Principal Investigator: Gail L. Daumit, MD, MHS  
Role: Co-Investigator  
Percent effort: 05%

Period: 09/30/02-9/29/05  
Title: Rural Hospitals: Environment, Strategy, and Viability  
Identification number: 1-R01-HS-011444-01 A2  
Sponsor: AHRQ Health Services Research  
Total direct cost: \$688,963  
Current year direct cost: \$166,657  
Principal Investigator: Laura Morlock, Ph.D.  
Role: Co-Investigator  
Percent effort: 5%

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

Period: 03/01/06 - 02/28/10  
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, Ph.D.  
Role: Co-Investigator  
Percent effort: 02%

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: 02%

Identify the structural and process measures that show causal effects of a structured, nursing driven intervention on patient outcomes in critical care.  
Role: Co-Investigator

### **Pending Grants**

### **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, M.D., Ph.D.  
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, M.D.  
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, Ph.D.  
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, M.D., Ph.D.  
Role: Principal Investigator  
Percent effort: 75%

Period: 08/01/02-1/31/04  
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, M.D., Ph.D.  
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, M.D., Ph.D.  
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, M.D., Ph.D.  
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, M.D., Ph.D.  
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, M.D., Ph.D.  
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, M.D., Ph.D.  
Role: Principal Investigator  
Percent effort: 10%

## **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 Realty,” 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. Jul 2005 “Developing Measures of Quality of Care,” Methods in Clinical Research, Welch Center, The Johns Hopkins University School of Medicine, Course Instructor

**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

### **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.

## **Mentoring**

### **Advisees**

1. 1999 - present Sean M. Berenholtz, MD, Assistant Professor, Department of Anesthesia and Critical Care Medicine. Recipient of Clinical Scientist Award and K23 from NIH
2. 2000 - 2001 Justin Dimick, MD, Surgical Resident, University of Michigan.
3. 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
4. 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
5. 2002 - present Michael Chan, MD, Fellow, Department of Internal Medicine, Cardiology
6. 2002 - present Lewis Rubinstein, MD, Fellow, Pulmonary and Critical Care Medicine
7. 2002 - present Pedro Mendez-Tellez, MD, Assistant Professor, Department of Anesthesiology and Critical Care Medicine, NIH K08 submitted
8. 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
9. 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

10. 2003 - present Thomas Stelfox, MD, Fellow, Department of Health Policy at Harvard University
11. 2003 - present Jonathan Sevransky, MD, Assistant Professor, Department of Pulmonary and Critical Care Medicine, The Johns Hopkins University, Recipient of NIH K23 Award
12. 2003 - present Julius Cuong Pham, MD, Assistant Professor, Department of Anesthesiology and Critical Care Medicine, The Johns Hopkins University, NIH K12 submitted
13. 2004 - present Jamie Schwartz, MD, Fellow, Pediatric Anesthesia and Critical Care Medicine, The Johns Hopkins University, NIH K12 submitted
14. 2004 - present Robert Stevens, MD, Assistant Professor, Department of Anesthesiology and Critical Care Medicine, The Johns Hopkins University, NIH K12 submitted
15. 2004 - present Cheryl Dennison, MD, Assistant Professor, Department of Nursing, The Johns Hopkins University School of Nursing, NIH K12 submitted
16. 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"
17. 2005 – present Robin Newhouse, PhD, RN, Assistant 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"

### **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. 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”

## **Editorial Activities**

### **Editorial Board**

Journal of Clinical Outcomes Management  
Journal of Critical Care, Section Editor, Quality and Safety  
Agency for Healthcare Research & Quality (AHRQ) WebM&M  
Critical Care  
Joint Commission Journal on Quality and Patient Safety

### **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

## 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, Missouri
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

### **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 Jul-Aug; 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)