

CURRICULUM VITAE

Nauder Faraday, MD MPH

May 2019

Current Appointments

Professor
Department of Anesthesiology/Critical Care Medicine (ACCM)
Joint Appointments: Medicine, Surgery, and Epidemiology/Bloomberg School of Public Health
Vice-Chair, ACCM Faculty and Staff Development
Director, ACCM Clinical Research
Sr. Associate Dean for Faculty Development
Johns Hopkins University School of Medicine

Contact Information

Department of Anesthesiology and Critical Care Medicine
Johns Hopkins Hospital, Meyer 298
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Baltimore, MD 21287
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Education

9/80 – 5/84 B.A. Columbia College, Columbia University, New York, NY
8/84 - 5/88 M.D. Mount Sinai School of Medicine, CUNY, New York, NY
6/10- 5/11 MPH Johns Hopkins Bloomberg School of Public Health, Baltimore, MD

Postdoctoral Clinical Training

6/88 - 6/89 Internship
Hospital of St. Raphael - Yale University, New Haven, CT
Residency Director: Phillip J. Noto, M.D.

7/89 - 6/92 Residency Anesthesiology
The Johns Hopkins Hospital, Baltimore, MD
Department of Anesthesiology/Critical Care Medicine
Residency Director: Robert L. Stevenson, M.D.

4/92-4/93 Chief Resident, Anesthesiology
Johns Hopkins University School of Medicine, Baltimore, MD
Department of Anesthesiology/Critical Care Medicine

7/92 - 6/93 Fellowship Critical Care Medicine
The Johns Hopkins Hospital, Baltimore, MD
Department of Anesthesiology/Critical Care Medicine
Fellowship Director: Michael J. Breslow, M.D.

9/93 – 5/94 Fellowship Cardiovascular Anesthesiology
The Johns Hopkins Hospital, Baltimore, MD
Department of Anesthesiology and Critical Care Medicine
Fellowship Director: Daniel Nyhan, M.D.

Postdoctoral Research Training

92 – 94 Research Fellowship
Johns Hopkins University School of Medicine, Baltimore, MD
Department of Anesthesiology and Critical Care Medicine

Research Director: Brian A. Rosenfeld, M.D.
Subject: Perioperative alterations in hemostasis

93 – 95 Research Fellowship
 Johns Hopkins University School of Medicine, Baltimore, MD
 Department of Medicine- Divisions of Hematology and Cardiology
 Research Directors: Paul F. Bray, M.D. and Pascal Goldschmidt-Clermont, MD
 Subject: Molecular, biochemical, and cellular biology of platelet function

Professional Experience

7/93-10/93 Instructor
 Johns Hopkins University School of Medicine, Baltimore, MD
 Department of Anesthesiology/Critical Care Medicine

11/93-10/01 Assistant Professor
 Johns Hopkins University School of Medicine, Baltimore, MD
 Department of Anesthesiology/Critical Care Medicine and Surgery

1994-2004 Co-Director, Cardiac Surgical Intensive Care Unit
 The Johns Hopkins Hospital, Baltimore, MD

1996-1999 Co-Director
 Perioperative Research Center
 Department of Anesthesiology and Critical Care Medicine
 Johns Hopkins University School of Medicine, Baltimore, MD

1999- Director, Perioperative Hemostasis and Thrombosis Research Laboratory
 Department of Anesthesiology and Critical Care Medicine
 Johns Hopkins University School of Medicine, Baltimore, MD
 Aims: Clinical and translational research to identify novel mechanisms and therapies to
 prevent and treat perioperative thrombotic and bleeding complications

2001- 2012 Associate Professor
 Johns Hopkins University School of Medicine, Baltimore, MD
 Departments of Anesthesiology/Critical Care Medicine and Surgery

2005- Director, Perioperative Genomic and Translational Research
 Department of Anesthesiology and Critical Care Medicine
 Johns Hopkins University School of Medicine, Baltimore, MD
 Aims: Identify the genetic and protein basis for development of bleeding, thrombotic, and
 infectious complications of surgery

2012- Professor
 Department of Anesthesiology/Critical Care Medicine
 Johns Hopkins University School of Medicine, Baltimore, MD

2012-2017 Vice Chair, JHU School of Medicine Associate Professor Promotions Committee

2014- Vice-Chair for Faculty and Staff Development
 Department of Anesthesiology/Critical Care Medicine
 Johns Hopkins University School of Medicine, Baltimore, MD

2015- Director, Clinical Research
 Department of Anesthesiology/Critical Care Medicine
 Johns Hopkins University School of Medicine, Baltimore, MD

- 2015- Professor
 Department of Epidemiology
 Johns Hopkins Bloomberg School of Public Health, Baltimore, MD
- 2017- Sr. Associate Dean for Faculty Development
 Johns Hopkins University School of Medicine, Baltimore, MD

RESEARCH ACTIVITIES

Publications

Peer Reviewed Original Science Publications:

1. Geary N, **Farhoody N**, Gersony A. Food deprivation dissociates pancreatic glucagon's effect on satiety and hepatic glucose production at dark onset. *Physiol Behav.* 1987;39:507-511
2. Hinton V, Esguerra M, **Farhoody N**, Gersony A, Geary N. Epinephrine inhibits feeding nonspecifically in the rat. *Physiol Behav.* 1987;40:109-115
3. Keller SE, Schleifer SJ, Liotta AS, Bond RN, **Farhoody N**, Stein M. Stress-induced alterations of immunity in hypophysectomized rats. *Proc Natl Acad Sci.* 1988; 85:9297-9301
4. Beckhardt RN, **Faraday N**, May M, Torres RA, Strauchen JA. Increased incidence of malignant lymphoma in AIDS: A comparison of risk groups and possible etiologic factors. *M. Sinai J Med.* 1988;55:383-389,
5. Rosenfeld BA, **Faraday N**, Campbell DA, Dorman T, Clarkson K, Siedler A, Breslow MJ, Bell W. Perioperative platelet reactivity and the effects of clonidine. *Anesthesiology.* 1993;79:255-261
6. **Faraday N**, Goldschmidt-Clermont P, Dise K, Bray PF. Quantitation of soluble fibrinogen binding to platelets by fluorescence activated flow cytometry. *J Lab Clin Med* 1994;123:728-740
7. Rosenfeld BA, **Faraday N**, Campbell D, Sakima N, Bell W. Effects of bedrest on circadian changes in hemostasis. *Thrombosis and Hemostasis* 1994;72:281-284
8. Rosenfeld BA, **Faraday N**, Campbell D, Dise K, Bell W, Goldschmidt-Clermont PJ. Hemostatic effects of stress hormone infusion. *Anesthesiology* 1994;81:1116-1126 .
9. Addo JB, Bray PF, Grigoryev D, **Faraday N**, Goldschmidt-Clermont PJ. Surface recruitment but not activation of integrin $\alpha_{IIb}\beta_3$ (GPIIb-IIIa) requires a functional actin cytoskeleton. *Arterioscler, Thromb, Vasc Biol* 1995;15:1446-1473
10. Rosenfeld BA, Herfel B, **Faraday N**, Fuller A, Braine H. Effects of storage time on quantitative and qualitative platelet function after transfusion. *Anesthesiology* 1995;83:1167-72
11. **Faraday N**, Goldschmidt-Clermont P, Bray PF. Gender differences in platelet GPIIb-IIIa activation. *Thrombosis and Haemostasis* 1997;77: 748-54
12. Rosenfeld BA, Nguyen N-D, Sung I, **Faraday N**. Neuroendocrine stress hormones do not recreate the postoperative hypercoagulable state. *Anesth Analg* 1998;86: 640-5
13. **Faraday N**, Rosenfeld BA. In vitro hypothermia enhances platelet GPIIb-IIIa activation and P-selectin expression. *Anesthesiology* 1998;88: 1579-85
14. **Faraday N**, Rade JJ, Johns CD, Khetawat G, Noga SJ, DiPersio JF, Jin Y, Nichol JL, Haug JS, Bray PF. Ex vivo cultured megakaryocytes express functional GPIIb-IIIa receptors and are capable of adenovirus-mediated transgene expression. *Blood* 1999;94: 4084-92
15. Khetawat G, **Faraday N**, Nealen ML, Vijayan KV, Bolton E, Noga SJ, Bray PF. Human megakaryocytes and platelets contain the estrogen receptor beta and androgen receptor (AR): testosterone regulates AR

expression. *Blood* 2000;95: 2289-96

16. **Faraday N**, Scharpf RB, Dodd-o JM, Martinez EA, Rosenfeld BA, Dorman T. Leukocytes can enhance platelet-mediated aggregation and thromboxane release via interaction of PSGL1 with P-selectin. *Anesthesiology* 2001;94:145-51
17. **Faraday N**, Guallar E, Sera VA, Bolton ED, Scharpf RB, Cartarius AM, Emery K, Concord J, Kickler TS. Utility of whole blood hemostatometry using the clot signature analyzer (CSA) for assessment of hemostasis in cardiac surgery. *Anesthesiology* 2002;96: 1115-22
18. 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: 2366-71
19. Dodd-o JM, Hristopoulos ML, **Faraday N**, Pearse DB. Effect of ischemia reperfusion without airway occlusion on vascular barrier function in the in vivo mouse lung. *J Appl Physiol* 2003;95: 1971-8
20. Martinez EA, Kim LJ, **Faraday N**, Rosenfeld BA, 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: 2302-8
21. **Faraday N**, Braunstein JB, Heldman AW, Bolton ED, Chiles, KA, Gerstenblith G, Schulman SP. Prospective evaluation of the relationship between platelet-leukocyte conjugate formation and recurrent myocardial ischemia in patients with acute coronary syndromes. *Platelets* 2004;15: 9-14
22. **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: 1291-7
23. Morrell C, Matsushita K, Chiles K, Scharpf R, Yamakuchi M, Simmons A, Mankowski JL, Baldwin W, **Faraday N**, Lowenstein CJ. Regulation of platelet granule exocytosis by S-nitrosylation. *Proc Natl Acad Sci USA* 2005;102:3782-7
24. Njoku, DB, Mellerson JL, Taylor MV, Kerr DR, **Faraday N**, Outschoorn I, Rose NR. Role of CYP2E1 immunoglobulin G4 subclass antibodies and complement in pathogenesis of idiosyncratic drug-induced hepatitis. *Clin Vacc Immunol* 2006;13: 258-65
25. Becker DM, Segal J, Vaidya D, Yanek LR, Herrera-Galeano JE, Bray PF, Moy TF, Becker LC, **Faraday N**. Sex differences in platelet reactivity and response to low-dose aspirin therapy. *JAMA* 295: 1420-27, 2006.
26. Ferlito M, Irani K, **Faraday N**, Lowenstein CJ. Nitric oxide inhibits exocytosis of cytolytic granules from lymphokine-activated killer cells. *Proc Natl Acad Sci USA* 2006;103:11689-94
27. **Faraday N**, Becker DM, Yanek YR, Herrera-Galeano JE, Segal JB, Moy TF, Bray PF, Becker LC. Relation between atherosclerosis risk factors and aspirin resistance in a primary prevention population. *Am J Cardiol* 2006;98: 774-9
28. **Faraday N**, Yanek LR, Mathias R, Herrera-Galeano JE, Vaidya D, Moy TF, Fallin MD, Wilson AF, Bray PF, Becker LC, Becker DM. Heritability of platelet responsiveness to aspirin in activation pathways directly and indirectly related to cyclooxygenase-1. *Circulation* 2007;May 15;115(19):2490-6
29. Bray PF, Mathias RA, **Faraday N**, Yanek LR, Fallin MD, Herrera-Galeano JE, Wilson AF, Becker LC, Becker DM. Heritability of platelet function in families with premature coronary artery disease. *J Thromb Haemost* 2007;5:1617-23
30. Bordeaux B, Yanek LR, Moy TF, White LW, Becker LC, **Faraday N**, Becker DM. Casual chocolate consumption and inhibition of platelet function. *Prev Cardiol* 2007;10(4): 175-80
31. Morrell CN, Sun H, Ikeda M, Beique JC, Swaim AM, Mason E, Martin TV, Thompson LE, Gozen O, Ampagoomian D, Sprengel R, Rothstein J, **Faraday N**, Hugarir R, Lowenstein CJ. Glutamate mediates

platelet activation through the AMPA receptor. *J Exp Med* 2008;205(3):575-84

32. Qayyum R, Becker DM, Yanek LR, Moy TF, Becker LC, **Faraday N**, Vaidya D. Platelet Inhibition by Aspirin 81 and 325 mg/day in Men Versus Women Without Clinically Apparent Cardiovascular Disease. *Am J Cardiol* 2008;101:1356-63
33. Herrera-Galeano JE, Becker DM, Wilson AF, Yanek LR, Bray P, Vaidya D, **Faraday N**, Becker LC. A Novel Variant in the Platelet Endothelial Aggregation Receptor-1 Gene Is Associated With Increased Platelet Aggregability. *Arterioscler Thromb Vasc Biol* 2008;28(8):1484-90
34. Blasco-Colmenares E, Perl TM, Guallar E, Baumgartner WA, Conte JV, Alejo D, Pastor-Barriuso R, Sharrett AR, **Faraday N**. Aspirin plus clopidogrel and risk of infection after coronary artery bypass surgery. *Arch Intern Med.* 2009;169: 788-96
35. **Faraday N**, Yanek LR, Vaidya D, Kral B, Qayyum R, Herrera-Galeano JE, Moy TF, Becker DM, Becker LC. Leukocyte Count is Associated with Increased Platelet Reactivity and Diminished Response to Aspirin in Healthy Individuals with a Family History of Coronary Artery Disease. *Thromb Res.* 2009;124: 311–317
36. Vaidya D, Yanek LR, **Faraday N**, Moy TF, Becker LC, Becker DM. Native Platelet Aggregation and Response to Aspirin in Persons with the Metabolic Syndrome and its Components. *Metab Syndr Relat Disord.* 2009;7(4):289-96
37. Sun H, Swaim A, Herrera JE, Becker D, Becker L, Srivastava K, Thompson LE, Shero MR, Perez-Tamayo A, Suktitpat B, Mathias R, Contractor A, **Faraday N**, Morrell CN. Platelet Kainate Receptor Signaling Promotes Thrombosis by Stimulating Cyclooxygenase Activation. *Circ Res.* 2009;105(6):595-603
38. Shuldiner AR, O'Connell JR, Bliden KP, Gandhi A, Ryan K, Horenstein RB, Damcott CM, Pakyz R, Tantry US, Gibson Q, Pollin TI, Post W, Parsa A, Mitchell BD, **Faraday N**, Herzog W, Gurbel PA. Association of cytochrome P450 2C19 genotype with the antiplatelet effect and clinical efficacy of clopidogrel therapy. *JAMA.* 2009;302(8):849-858
39. Bordeaux BC, Qayyum R, Yanek LR, Vaidya D, Becker LC, **Faraday N**, Becker DM. Effect of obesity on platelet reactivity and response to low-dose aspirin. *Prev Cardiol.* 2010; 13(2):56-62
40. Johnson AD, Yanek LR, Chen MH, **Faraday N**, Larson MG, Tofler G, Lin SJ, Kraja AT, Province MA, Yang Q, Becker DM, O'Donnell CJ, Becker LC. Genome-wide meta-analyses identifies seven loci associated with platelet aggregation in response to agonists. *Nat Genet* 2010;42(7):608-13
41. Mathias RA, Kim Y, Sung H, Yanek LR, Mantese VJ, Herrera-Galeano JE, Ruczinski I, Wilson AF, **Faraday N**, Becker LC, Becker DM. A combined genome-wide linkage and association approach to find susceptibility loci for platelet function phenotypes in European American and African American families with coronary artery disease. *BMC Med Genomics* 2010;3:22
42. Musunuru K, Post WS, Herzog W, Shen H, O'Connell JR, McArdle PF, Ryan KA, Gibson Q, Cheng YC, Clearfield E, Johnson AD, Tofler G, Yang Q, O'Donnell CJ, Becker DM, Yanek LR, Becker LC, **Faraday N**, Bielak LF, Peyser PA, Shuldiner AR, Mitchell BD. Association of single nucleotide polymorphisms on chromosome 9p21.3 with platelet reactivity: a potential mechanism for increased vascular disease. *Circ Cardiovasc Genet* 2010;3:445-53
43. Assimes TL, Hólm H, Kathiresan S, Reilly MP, Thorleifsson G, Voight BF, Erdmann J, Willenborg C, Vaidya D, Xie C, Patterson CC, Morgan TM, Burnett MS, Li M, Hlatky MA, Knowles JW, Thompson JR, Absher D, Iribarren C, Go A, Fortmann SP, Sidney S, Risch N, Tang H, Myers RM, Berger K, Stoll M, Shah SH, Thorgeirsson G, Andersen K, Havulinna AS, Herrera JE, **Faraday N**, Kim Y, Kral BG, Mathias RA, Ruczinski I, Suktitpat B, Wilson AF, Yanek LR, Becker LC, Linsel-Nitschke P, Lieb W, König IR, Hengstenberg C, Fischer M, Stark K, Reinhard W, Winogradow J, Grassl M, Grosshennig A, Preuss M, Schreiber S, Wichmann HE, Meisinger C, Yee J, Friedlander Y, Do R, Meigs JB, Williams G, Nathan DM, MacRae CA, Qu L, Wilensky RL, Matthai WH Jr, Qasim AN, Hakonarson H, Pichard AD, Kent KM, Satler L, Lindsay JM, Waksman R, Knouff CW, Waterworth DM, Walker MC, Mooser VE, Marrugat J, Lucas G, Subirana I, Sala J, Ramos R, Martinelli N, Olivieri O, Trabetti E, Malerba G, Pignatti PF, Guiducci C, Mirel

D, Parkin M, Hirschhorn JN, Asselta R, Duga S, Musunuru K, Daly MJ, Purcell S, Eifert S, Braund PS, Wright BJ, Balmforth AJ, Ball SG; Myocardial Infarction Genetics Consortium; Wellcome Trust Case Control Consortium; Cardiogenics, Ouwehand WH, Deloukas P, Scholz M, Cambien F, Huge A, Scheffold T, Salomaa V, Girelli D, Granger CB, Peltonen L, McKeown PP, Altshuler D, Melander O, Devaney JM, Epstein SE, Rader DJ, Elosua R, Engert JC, Anand SS, Hall AS, Ziegler A, O'Donnell CJ, Spertus JA, Siscovick D, Schwartz SM, Becker D, Thorsteinsdottir U, Stefansson K, Schunkert H, Samani NJ, Quertermous T. Lack of association between the Trp719Arg polymorphism in kinesin-like protein-6 and coronary artery disease in 19 case-control studies. *J Am Coll Cardiol* 2010;56:1552-63
Role: Co-Investigator (lead platelet biologist) on the GeneSTAR (Genetic Study of Aspirin Responsiveness) study that served as one of the cohorts included in the analysis.

44. Vaidya D, Yanek LR, Herrera-Galeano JE, Mathias RA, Moy TF, **Faraday N**, Becker LC, Becker DM. A common variant in the Von Willebrand factor gene is associated with multiple functional consequences. *Am J Hematol* 2010;85:971-3
45. **Faraday N**, Yanek LR, Yang XP, Mathias R, Herrera-Galeano JE, Suktitipat B, Qayyum R, Johnson AD, Chen M-H, Tofler GH, Ruczinski I, Friedman AD, Gylfason A, Thorsteinsdottir U, Bray PF, O'Donnell CJ, Becker DM, Becker LC. Identification of a specific intronic *PEAR1* gene variant associated with greater platelet aggregability and protein expression. *Blood* 2011; 118: 3367-3375
46. **Faraday N**, Rock P, Lin EE, Perl TM, Carroll K, Stierer T, Robarts P, McFillin A, Ross T, Shah AS, Riley LH, Tamargo RJ, Black JH, Blasco-Colmenares E, Guallar E. Past history of skin infection and risk of surgical site infection after elective surgery. *Ann Surg* 2013 Jan;257(1):150-4.
47. Lewis JP, Ryan K, O'Connell JR, Horenstein RB, Damcott CM, Gibson Q, Pollin TI, Mitchell BD, Beitelshes AL, Pakzy R, Tanner K, Parsa A, Tantry US, Bliden KP, Post WS, **Faraday N**, Herzog W, Gong Y, Pepine CJ, Johnson JA, Gurbel PA, Shuldiner AR. Genetic Variation in *PEAR1* is Associated with Platelet Aggregation and Cardiovascular Outcomes. *Circ Cardiovasc Genet*. 2013 Apr;6(2):184-92.
48. Kim Y, Suktitipat B, Yanek LR, **Faraday N**, Wilson AF, Becker DM, Becker LC, Mathias RA. Targeted Deep Resequencing Identifies Coding Variants in the *PEAR1* Gene That Play a Role in Platelet Aggregation. *PLoS One* 2013;8(5):e64179. doi
49. **Faraday N**, Jaques K, Saleem S, Fu J, Wang B, Zhang J, Morrell C, Dore S. Cathepsin G-dependent modulation of platelet thrombus formation in vivo by blood neutrophils. *PLoS One* 2013;8(8):e71447. doi: 10.1371/journal.pone.0071447.
50. Qayyum R, Becker DM, Yanek LR, **Faraday N**, Vaidya D, Mathias R, Kral BG, Becker LC. Greater Collagen-Induced Platelet Aggregation Following Cyclooxygenase 1 Inhibition Predicts Incident Acute Coronary Syndromes. *Clin Transl Sci* 2015;8(1):17-22..
51. Schunke KJ, Toung TK, Zhang J, Pathak AP, Xu J, Zhang J, Koehler RC, **Faraday N**. A novel atherothrombotic model of ischemic stroke induced by injection of collagen into the cerebral vasculature. *J Neurosci Methods* 2015;239:65-74.
52. Greulich PE, Edson E, Rutland L, Jessen ME, Key NS, Levy JH, **Faraday N**, Steiner ME. Protocol Adherence When Managing Massive Bleeding Following Complex Cardiac Surgery: A Study Design Pilot. *J Cardiothorac Vasc Anesth*. 2015;29(2):303-10.
53. Qayyum R, Becker LC, Becker DM, **Faraday N**, Yanek LR, Leal SM, Shaw C, Mathias R, Suktitipat B, Bray PF. Genome-wide association study of platelet aggregation in African Americans. *BMC Genet*. 2015 May 30;16(1):58.
54. Sajjan F, Conte JV, Tamargo RJ, Riley LH, Rock P, **Faraday N**. Association of Selective Serotonin Reuptake Inhibitors with Transfusion in Surgical Patients. *Anesth Analg*. 2016 Jul;123(1):21-8.

55. Chami N, Chen MH, Slater AJ, Eicher JD, Evangelou E, Tajuddin SM, Love-Gregory L, Kacprowski T, Schick UM, Nomura A, Giri A, Lessard S, Brody JA, Schurmann C, Pankratz N, Yanek LR, Manichaikul A, Pazoki R, Mihailov E, Hill WD, Raffield LM, Burt A, Bartz TM, Becker DM, Becker LC, Boerwinkle E, Bork-Jensen J, Bottinger EP, O'Donoghue ML, Crosslin DR, de Denus S, Dubé MP, Elliott P, Engström G, Evans MK, Floyd JS, Fornage M, Gao H, Greinacher A, Gudnason V, Hansen T, Harris TB, Hayward C, Hernesniemi J, Highland HM, Hirschhorn JN, Hofman A, Irvin MR, Kähönen M, Lange E, Launer LJ, Lehtimäki T, Li J, Liewald DC, Linneberg A, Liu Y, Lu Y, Lyytikäinen LP, Mägi R, Mathias RA, Melander O, Metspalu A, Mononen N, Nalls MA, Nickerson DA, Nikus K, O'Donnell CJ, Orho-Melander M, Pedersen O, Petersmann A, Polfus L, Psaty BM, Raitakari OT, Raitoharju E, Richard M, Rice KM, Rivadeneira F, Rotter JI, Schmidt F, Smith AV, Starr JM, Taylor KD, Teumer A, Thuesen BH, Torstenson ES, Tracy RP, Tzoulaki I, Zakai NA, Vacchi-Suzzi C, van Duijn CM, van Rooij FJ, Cushman M, Deary IJ, Velez Edwards DR, Vergnaud AC, Wallentin L, Waterworth DM, White HD, Wilson JG, Zonderman AB, Kathiresan S, Grarup N, Esko T, Loos RJ, Lange LA, **Faraday N**, Abumrad NA, Edwards TL, Ganesh SK, Auer PL, Johnson AD, Reiner AP, Lettre G. Exome Genotyping Identifies Pleiotropic Variants Associated with Red Blood Cell Traits. *Am J Hum Genet.* 2016 Jul 7;99(1):8-21.
56. Eicher JD, Chami N, Kacprowski T, Nomura A, Chen MH, Yanek LR, Tajuddin SM, Schick UM, Slater AJ, Pankratz N, Polfus L, Schurmann C, Giri A, Brody JA, Lange LA, Manichaikul A, Hill WD, Pazoki R, Elliott P, Evangelou E, Tzoulaki I, Gao H, Vergnaud AC, Mathias RA, Becker DM, Becker LC, Burt A, Crosslin DR, Lyytikäinen LP, Nikus K, Hernesniemi J, Kähönen M, Raitoharju E, Mononen N, Raitakari OT, Lehtimäki T, Cushman M, Zakai NA, Nickerson DA, Raffield LM, Quarells R, Willer CJ, Peloso GM, Abecasis GR, Liu DJ; Global Lipids Genetics Consortium, Deloukas P, Samani NJ, Schunkert H, Erdmann J; CARDIoGRAM Exome Consortium; Myocardial Infarction Genetics Consortium, Fornage M, Richard M, Tardif JC, Rioux JD, Dube MP, de Denus S, Lu Y, Bottinger EP, Loos RJ, Smith AV, Harris TB, Launer LJ, Gudnason V, Velez Edwards DR, Torstenson ES, Liu Y, Tracy RP, Rotter JI, Rich SS, Highland HM, Boerwinkle E, Li J, Lange E, Wilson JG, Mihailov E, Mägi R, Hirschhorn J, Metspalu A, Esko T, Vacchi-Suzzi C, Nalls MA, Zonderman AB, Evans MK, Engström G, Orho-Melander M, Melander O, O'Donoghue ML, Waterworth DM, Wallentin L, White HD, Floyd JS, Bartz TM, Rice KM, Psaty BM, Starr JM, Liewald DC, Hayward C, Deary IJ, Greinacher A, Völker U, Thiele T, Völzke H, van Rooij FJ, Uitterlinden AG, Franco OH, Dehghan A, Edwards TL, Ganesh SK, Kathiresan S, **Faraday N**, Auer PL, Reiner AP, Lettre G, Johnson AD. Platelet-Related Variants Identified by Exomechip Meta-analysis in 157,293 Individuals. *Am J Hum Genet.* 2016 Jul 7;99(1):40-55.
57. Tajuddin SM, Schick UM, Eicher JD, Chami N, Giri A, Brody JA, Hill WD, Kacprowski T, Li J, Lyytikäinen LP, Manichaikul A, Mihailov E, O'Donoghue ML, Pankratz N, Pazoki R, Polfus LM, Smith AV, Schurmann C, Vacchi-Suzzi C, Waterworth DM, Evangelou E, Yanek LR, Burt A, Chen MH, van Rooij FJ, Floyd JS, Greinacher A, Harris TB, Highland HM, Lange LA, Liu Y, Mägi R, Nalls MA, Mathias RA, Nickerson DA, Nikus K, Starr JM, Tardif JC, Tzoulaki I, Velez Edwards DR, Wallentin L, Bartz TM, Becker LC, Denny JC, Raffield LM, Rioux JD, Friedrich N, Fornage M, Gao H, Hirschhorn JN, Liewald DC, Rich SS, Uitterlinden A, Bastarache L, Becker DM, Boerwinkle E, de Denus S, Bottinger EP, Hayward C, Hofman A, Homuth G, Lange E, Launer LJ, Lehtimäki T, Lu Y, Metspalu A, O'Donnell CJ, Quarells RC, Richard M, Torstenson ES, Taylor KD, Vergnaud AC, Zonderman AB, Crosslin DR, Deary IJ, Dörr M, Elliott P, Evans MK, Gudnason V, Kähönen M, Psaty BM, Rotter JI, Slater AJ, Dehghan A, White HD, Ganesh SK, Loos RJ, Esko T, **Faraday N**, Wilson JG, Cushman M, Johnson AD, Edwards TL, Zakai NA, Lettre G, Reiner AP, Auer PL. Large-Scale Exome-wide Association Analysis Identifies Loci for White Blood Cell Traits and Pleiotropy with Immune-Mediated Diseases. *Am J Hum Genet.* 2016 Jul 7;99(1):22-39.
58. Shah P, Yang W, Sun S, Pasay J, **Faraday N**, Zhang H. Platelet glycoproteins associated with aspirin-treatment upon platelet activation. *Proteomics.* 2017 Mar;17(6).
59. Kammers K, Taub MA, Ruczinski I, Martin J, Yanek LR, Frazee A, Gao Y, Hoyle D, **Faraday N**, Becker DM, Cheng L, Wang ZZ, Leek JT, Becker LC, Mathias RA. Integrity of Induced Pluripotent Stem Cell (iPSC) Derived Megakaryocytes as Assessed by Genetic and Transcriptomic Analysis. *PLoS One.* 2017 Jan 20;12(1):e0167794.

60. Eicher JD, Chen MH, Pitsillides AN, Lin H, Veeraraghavan N, Brody JA, Metcalf GA, Muzny DM, Gibbs RA, Becker DM, Becker LC, **Faraday N**, Mathias RA, Yanek LR, Boerwinkle E, Cupples LA, Johnson AD. Whole exome sequencing in the Framingham Heart Study identifies rare variation in *HYAL2* that influences platelet aggregation. *Thromb Haemost*. 2017 Jun 2;117(6):1083-1092.
61. Chen MH, Yanek LR, Backman JD, Eicher JD, Huffman JE, Ben-Shlomo Y, Beswick AD, Yerges-Armstrong LM, Shuldiner AR, O'Connell JR, Mathias RA, Becker DM, Becker LC, Lewis JP, Johnson AD, **Faraday N**. Exome-chip meta-analysis identifies association between variation in *ANKRD26* and platelet aggregation. *Platelets*. 2017 Nov 29:1-10.
62. Chen L, Xu X, Zeng H, Chan KWY, Yadav N, Cai S, Schunke KJ, **Faraday N**, van Zijl PCM, Xu J. Separating fast and slow exchange transfer and magnetization transfer using off-resonance variable-delay multiple-pulse (VDMP) MRI. *Magn Reson Med*. 2018 Feb 5. doi: 10.1002/mrm.27111. [Epub ahead of print]
63. Keramati AR, Yanek LR, Iyer K, Taub MA, Ruczinski I, Becker DM, Becker LC, **Faraday N**, Mathias RA. Targeted deep sequencing of the *PEAR1* locus for platelet aggregation in European and African American families. *Platelets*. 2018 Mar 19:1-7. doi: 10.1080/09537104.2018.1447659. [Epub ahead of print]
64. Al-Sofiani ME, Yanek LR, **Faraday N**, Kral BG, Mathias R, Becker LC, Becker DM, Vaidya D, Kalyani RR. [Diabetes and Platelet Response to Low-dose Aspirin](#). *J Clin Endocrinol Metab*. 2018 Sep 27. doi: 10.1210/jc.2018-01254. [Epub ahead of print]

Review articles

1. **Faraday N**. Pro: Should aspirin be continued post cardiac surgery in the setting of thrombocytopenia? *J Cardiothorac Vasc Anesth* 2006;20:112-3
2. **Faraday N**, Becker DM, Becker LC. Pharmacogenomics of platelet responsiveness to aspirin. *Pharmacogenomics* 2007;Oct. 8(10): 1413-25
3. Brown C, Joshi B, **Faraday N**, Shah A, Yuh D, Rade JJ, Hogue CW. Emergency Cardiac Surgery in Patients with Acute Coronary Syndromes: A Review of the Evidence and Perioperative Implications of Medical and Mechanical Therapeutics. *Anesth Analg*. 2011;112:777-99
4. Pustavoitau A, **Faraday N**. Pro: Antifibrinolytics Should Be Used in Routine Cardiac Cases Using Cardiopulmonary Bypass (Unless Contraindicated). [J Cardiothorac Vasc Anesth](#). 2016 Jan;30(1):245-7.

Editorials/Letters

1. Dorman T, **Faraday N**. Do gene variants really explain the heterogeneous outcomes in sepsis? *Crit Care Med*. 2001;29: 684-5
2. **Faraday N**. Platelets, perioperative hemostasis, and anesthesia. *Anesthesiology* 2002;96:1042-3
3. **Faraday N**. Review finds greater work is needed to define and assess the incidence of aspirin resistance. *Evidence-based Cardiovasc Med* 2004;8: 268-9
4. **Faraday N**. Perioperative platelet activation and the inhibitory effect of milrinone. *Anesthesiology* 2009;111:1185-6
5. **Faraday N**. Fibrinogen concentrate and allogeneic blood transfusion in high risk surgery. *Anesthesiology* 2013 Jan;118(1):7-9

6. **Faraday N.** Balancing Thrombotic and Bleeding Risks Related to Antiplatelet Therapy in Coronary Bypass Surgery: Comment on "Protective Effects of Tranexamic Acid on Clopidogrel Before Coronary Artery Bypass Grafting". *JAMA Surg* 2013;148(6):548.
7. Latif A, **Faraday N.** Use of hemodynamic algorithm after gastrointestinal surgery. *JAMA* 2014; 312:1470.
8. Fan JR, **Faraday N.** Vasopressin versus Norepinephrine after Cardiopulmonary Bypass. *Anesthesiology*. 2018 Jan;128(1):229-230.

Book Chapters, Monographs

1. **Faraday N.** Thrombocytopenia. In *Essence of Anesthesia Practice*. Roizen MF, Fleisher LA eds. WB Saunders Company, Philadelphia; 2002.
2. Haddadin AS and **Faraday N.** Postoperative management of the cardiac surgical patient. In *The Johns Hopkins Manual of Cardiothoracic Surgery*. Yuh DD, Vricella LA, Baumgartner WA, eds. McGraw-Hill Medical, New York; 2007
3. Haddadin AS and **Faraday N.** Management of bleeding and tamponade. In *The Johns Hopkins Manual of Cardiothoracic Surgery*. Yuh DD, Vricella LA, Baumgartner WA, eds. McGraw-Hill Medical, New York; 2007
4. Khan Y, **Faraday N**, Herzog W, Shuldiner AR. Genetic Determinants of Arterial Thrombosis. In *Cardiovascular Genetics and Genomics*. Roden DM, ed. Wiley-Blackwell Publishing, Boston; 2009.
5. **Faraday N.** Thrombocytopenia. In *Essence of Anesthesia Practice*, 3rd Edition. Roizen MF, Fleisher LA eds. WB Saunders Company, Philadelphia; 2011.
6. Ginwalla R, **Faraday N**, Whitman G. Postoperative management of the cardiac surgical patient. In *The Johns Hopkins Manual of Cardiothoracic Surgery*. In *The Johns Hopkins Manual of Cardiothoracic Surgery*. Yuh DD, Vricella LA, Baumgartner WA, eds. McGraw-Hill Medical, New York; 2014.
7. Pustavoitau A, **Faraday N.** Thrombocytopenia. In *Essence of Anesthesia Practice*, 4th Edition. Fleisher LA, Roizen MF, Roizen JR, eds. Elsevier, Philadelphia; 2017.

Extramural Research Funding

Current Grant Support:

3/01/2018-2/30/19 Characterizing key factors influencing blood pressure variation and its relation to clinical outcomes in chronic diseases using large-scale connected health and clinical datasets
Data Intensive Engineering and Science (IDIES) Seed Funding Program (SFP)
\$25,000
PI: Nauder Faraday
The goal of this project is to develop data analytics tools to visualize and interpret time-dependent vital signs data to: 1) Identify patients who experience significant variations in blood pressure for short (few minutes) and/or longer periods of time (several days). 2) Determine the relationship between variability in vital signs and clinical outcome. The overall goal of this work is to improve quality of medical care by using data analytics tools that can simplify complex data and better inform clinical decision making.

Previous Grant Support

9/96-8/01 Examination of gender differences in GPIIb-IIIa function
1 K08 HL03454-01A1

NIH/NHLBI, Clinician Scientist Investigator Award
\$481,460; Annual Direct Cost: \$86,130 (9/96-8/99), \$111,130 (adjusted 9/99-8/01)
Role: Principal Investigator- 75% Effort

- 7/01-6/03 Platelet polymorphisms and cardiovascular outcome in vascular surgical patients
0160347U
American Heart Association
\$120,000; Annual Direct Cost: \$60,000
Role: Principal Investigator- 13% Effort
- 9/01-8/04 Coronary thrombosis and risk in the Emergency Department
1R01HL69746-01
NIH/NHLBI
PI: G. Green
Role: Co-Investigator- 5% Effort; The goal of this study is to identify biomarkers of cardiovascular risk in chest pain patients who present to the emergency department.
- 8/01-8/02 Relationship between whole blood hemostatometry and clinical hemostasis in cardiac surgery
Xylum Corporation
\$50,000
Role: Principal Investigator- 10% effort
- 2/02-2/03 Platelet activation in women with acute coronary syndromes: Response to GPIIb-IIIa inhibition.
Merck Pharmaceutical
PI: S. Schulman
Role: Co-Investigator
- 9/1/02 - 8/31/07 TMH-Transfusion Medicine Hemostasis (Clinical Trials Network)
5U01HL07219102
NIH/NHLBI
Annual Direct Cost (salary only): \$269,981 (9/1/02- 8/31/07)
PI: P. Ness
Role: Co-Investigator- 5% Effort; The goal of this project is to perform multi-center clinical trials in leading academic institutions in a variety of topics related to transfusion medicine and hemostasis.
- 10/1/02-12/31/09 Genotypic determinants of aspirin response in high risk families
1U01 HL72518-01
NIH/NHLBI
\$8,172,469; Annual Direct Cost: \$1,502,935
PI: L. Becker
Role: Co-Investigator- 40% Effort; The overall goal of this project is to identify gene variants that determine platelet response to low dose aspirin treatment in Caucasian and African American families.
- 9/05-9/10 Pharmacogenomics of anti-platelet agents for CVD prevention
U01 GM074518
NIH/NIGMS
\$5,345,075; Annual Direct Cost: \$965,142
PI: A. Shuldiner
Role: Co-Investigator- 12% Effort; The goal of this project is to identify the genetic basis for variability in platelet responsiveness to clopidogrel in asymptomatic Amish families.
- 1/07- 1/08 A Multi-Centre, Randomised, Double-Blind, Placebo-Controlled, Dose Escalation Trial on

Safety and Efficacy of Activated Recombinant Factor VII (rFVIIa/NovoSeven) in the Treatment of Post-Operative Bleeding in Patients Following Cardiac Surgery Requiring Cardiopulmonary Bypass
NovoNordisk

Role: Hopkins PI for multicenter study; The goal of this study is to determine the safety and efficacy of rFVIIa for treatment of bleeding after cardiac surgery.

3/5/07- 2/28/10

Genome-Wide Association of Platelet Phenotypes

R01 HL097698

NIH/NHLBI

\$2,814,832

PI: L. Becker

Role: Co-Investigator- 2% Effort; The overall goal of this proposal is to identify genes that modify the function of platelets, both under “normal native” conditions, and following low dose aspirin.

9/30/09-8/31/12

Role of Neutrophil-Platelet Interactions in Vascular Occlusive Disorders

RC1 HL099677-01

NIH/NHLBI-

\$500,285; Annual Direct Cost: \$250,041

Role: PI, 17% Effort; The purpose of the proposed studies is to identify a key point in the communication between leukocytes and platelets that can serve as a target for novel pharmaceuticals that will prevent vascular occlusion despite vessel injury.

9/1/10- 1/30/13

Pharmacogenomics of Anti-platelet Intervention-2 (PAPI-2) Study

9U01 HL105198

NIH/NHLBI

\$993,185/\$9,668,175; Annual Direct Cost: \$198,637 (Hopkins)/\$1,933,635 (all sites)

PI: A. Shuldiner

Role: Co-Investigator/ Site PI- 7% Effort; The PAPI-2 Study is a multi-center (5) randomized clinical trial comparing genotype-directed anti-platelet therapy versus standard of care anti-platelet therapy in patients undergoing percutaneous coronary intervention. The genotype-directed arm will receive clopidogrel 75 mg/day for those with the CYP2C19*1/*1 genotype or prasugrel 10 mg/day for those with the CYP2C19-/*2 genotype. The standard of care arm will consist of clopidogrel 75 mg/day regardless of genotype. Patients will be followed up at 3 month intervals for up to 1 year for adverse cardiovascular and bleeding events. The clinical and cost effectiveness of genotype directed anti-platelet therapy will be determined. DNA from all subjects will be used for genome-wide studies to identify rare variants that determine response to anti-platelet therapy.

6/1/13-5/30/16

Bacterial community composition and functional profiling of the nasal microbiota in relation to surgical site infection

NIAID *Genomic Sequencing Centers for Infectious Diseases*- accepted white paper proposal
\$

Role: Co-PI (with Emmanuel Mongodin). The goal of these studies is to examine the composition of microorganisms inhabiting the anterior nares, using 16S rRNA profiling, of patients scheduled to undergo high risk surgical procedures, and to determine the association between these microorganisms and development of surgical site infection in a prospective cohort study.

7/1/11-6/30/16

Functional Genomics of Platelet Aggregation Using iPS and Derived Megakaryocytes

RFA-HL-11-006

NIH/NHLBI

\$507,929

PI: L Becker

Role: Co-Investigator (2% effort years 1 and 2, 10% effort years 3 and 4, 40% effort year 5); In our GWAS study of platelet aggregation phenotypes before and after low dose aspirin in 2200 subjects (GeneSTAR), 64 and 57 loci were associated at genome-wide significance before and after aspirin, respectively. Mechanistic interpretation is limited by uncertainty as to which gene(s) are up- or downregulated based on SNP modifications. In 3 phases, we will (1) create pluripotent stem cells (iPS) from peripheral blood mononuclear cells, and then differentiate these stem cells into megakaryocytes, (2) efficiently produce iPS and megakaryocytes using a novel pooling method, and (3) produce iPS and megakaryocytes from 400 subjects in GeneSTAR (200 whites, 200 African Americans), selected based on specific hypotheses derived from GWAS signals in native and post aspirin platelet function; characterize genetic mRNA transcripts using a comprehensive Affymetrix exon array; measure protein expression for transcripts of interest using mass spectrometry; examine mRNA and protein expression patterns for each GWAS signal to determine the functional pathway(s) involved in native platelet phenotypes; and examine the functional genomics of variations in responsiveness to aspirin using a prior genotyped and phenotyped population. (Phase I and II, PI: Linzhao Cheng; Phase III PI: Lewis C. Becker, overall contact PI.)

7/1/11-6/30/18

Glycoconjugates and cardiovascular disease

P01HL107153

NIH/NHLBI

\$1,512,097

PI: GW Hart

Role: Co-Investigator, project 4 (10% effort); The main focus of this research is to apply emerging glycoproteomic and glycomic technologies in human platelets in order to identify the specific alterations in platelet glycoproteins and glycans that contribute to heightened platelet reactivity and to use this information to design novel anti-thrombotic agents that target glycoproteins and complex sugars to treat cardiovascular disease.

4/01/14-03/31/18

Gene Transcripts and Proteomics in Families with Platelet Hyperaggregation

HL-2-118356

NIH/NHLBI

\$495,998

PI: L Becker

Role: Co-Investigator (2% effort)

This study is focused on platelet aggregation in subjects from high risk families. The aims are to: (1) use a family-based design to discover genes differentially expressed in subjects with platelet hyperaggregation compared to controls, (2) leverage prior GWAS signals to identify eQTLs associated with transcript expression to help prioritize transcripts/genes, and (3) to determine whether changes in gene expression in hyperaggregating platelets are reflected in changes in expressed proteins. This study will produce a complete quantitative inventory of all mRNA transcripts present in platelets, as well as a complete eQTL map of genetic loci responsible for transcript expression in platelets in both European and African Americans

8/1/2016-10/30/2017

Leukocyte Telomere Length and Risk of Infection after Surgery

JHU/ACCM StAAR Transformative Award

PI: N. Faraday

\$25,000

Role: PI. The proposed experiments will evaluate leukocyte telomere length (LTL) as a biomarker of susceptibility to development of postoperative infection in a cohort of 800 surgical patients in whom we have already collected blood specimens and characterized clinical outcomes

CLINICAL ACTIVITIES

Clinical Focus

I have two main areas of clinical focus- critical care medicine and cardiac anesthesiology. The majority of my clinical time has been spent in critical care areas, including the cardiac surgical ICU, adult surgical ICU, and Weinberg ICU. In my previous role as Co-Director of the Cardiac Surgical ICU, I led development of a clinical and teaching service at Johns Hopkins, which was one of the first of its kind and served as a model for cardiac surgical ICUs at Duke, University of Pennsylvania, and Vanderbilt.

Certification

Licensure

- Maryland State Medical License (since 1992)
- US Controlled Substance Registration Certificate
- MD State Registration for Controlled Substances
- ACLS Provider (5/2007, 5/2009)

Specialty Boards

- Diplomate, American Board of Anesthesiology (1993)
- Diplomate, Subspecialty in Critical Care Medicine (1993)

Clinical Service Responsibilities

Cardiac Surgical ICU- 1994-2010

- ICU Co-Director, 1994-2004
- 17-18 service weeks/year (1994-1997)
- 10-14 service weeks/year (1997-2000)
- 8-10 service weeks/year (2000-2010)
- 12-14 hour average/clinical day
- 7 contiguous days of service at a time, including 7 contiguous night calls

Surgical Intensive Care Unit Attending- 2011-present

- 6-8 weeks/year- 2011- present
- 12-14 hour average/clinical day
- 7 contiguous days of service at a time, including 7 contiguous night calls

Cardiac OR Anesthesia Attending- 1994-2018

- 1 month/year
- 12 hour average/clinical day
- 12-18 night calls/year

Clinical Program Building/Leadership

Cardiac Surgical ICU as above

EDUCATIONAL ACTIVITIES

Educational focus

My teaching focuses on issues related to perioperative hemostasis and thrombosis, including mechanisms and management of perioperative bleeding, transfusion management, postoperative thrombotic complications (MI, stroke, VTE), and management of antithrombotic agents. I have participated in and then led one of the largest national meetings on the topic of perioperative medicine- the Johns Hopkins Perioperative Management Course- which draws 400-500 participants annually from across the US, Canada, and Puerto Rico. In addition, I have mentored a number of post baccalaureates, post-doctoral fellows and residents in laboratory, translational and clinical research projects related to platelet biology and thrombosis. More recently, I have served as a mentor in career

development processes for faculty in the department of Anesthesiology and School of Medicine, providing guidance for promotions.

Teaching

Clinical Instruction

- 1992-2009 Johns Hopkins University, Department of Anesthesiology
Title: Anesthesia Resident Lecture Series
Role- Lecturer- 3-5/year
- 1993-2000 Johns Hopkins University School of Medicine, Department of Anesthesiology
Medical Student Anesthesiology Clinical Clerkship
Role- Lecturer- 3/year on ICU Management
- 1994-present Johns Hopkins University, Department of Anesthesiology
Cardiac Anesthesia Lecture Series
Role- Lecturer- 2-4/year
- 1994-2010 Johns Hopkins University, Department of Surgery
Cardiac Surgical Intensive Care Resident Education Program
Role- Lecturer- 8-10/year
- 2009-2011 Johns Hopkins University, Department of Anesthesiology
Anesthesiology Resident Lecture Series
Role- Lecturer- 6-8 lectures/year
- 2012-present Johns Hopkins University, Department of Anesthesiology, monthly resident journal club
Role- Program leader/lecturer- 10 sessions/year

CME Instruction

- 1997 Johns Hopkins University Perioperative Management Course
Location: Marco Island, FL and Aspen, CO
Role- Lecturer
“Perioperative management of the patient on aspirin and coumadin”
“Postoperative DVT and PE: Prophylaxis and Treatment”
“Perioperative renal dysfunction”
- 1998 Johns Hopkins University Perioperative Management Course
Location: Marco Island, FL and Aspen, CO
Role- Lecturer
“Perioperative management of the patient on aspirin and coumadin”
“Postoperative DVT and PE: Prophylaxis and Treatment”
“Perioperative renal dysfunction”
“Complications of Cardiac Surgery”
- 1999 Johns Hopkins University Perioperative Management Course
Location: Marco Island, FL and Aspen, CO
Role- Lecturer
“Perioperative management of the patient on aspirin and coumadin”
“Postoperative DVT and PE: Prophylaxis and Treatment”
“Perioperative renal dysfunction”
“Complications of Cardiac Surgery”
- 2000-2005 Johns Hopkins University Perioperative Management Course
Location: Marco Island, FL
Role- Course Co-Director and lecturer

“Perioperative management of the patient on aspirin and coumadin”
“Postoperative DVT and PE: Prophylaxis and Treatment”
“Perioperative renal dysfunction”
“Complications of Cardiac Surgery”
“The preoperative patient with a pacemaker or AICD”
“Mechanisms, monitoring and management of patients with CAD”

2006- Johns Hopkins University Perioperative Management Course
Location: Marco Island, FL
Role- Course Director and lecturer
“Perioperative management of antiplatelet agents”
“Postoperative DVT and PE”
“Mechanisms and management of perioperative myocardial ischemia”
“Management of perioperative anemia, transfusion, and bleeding”
“Perioperative management of direct oral anticoagulant agents (DOACS)”
Under my direction the course has grown from ~400 participants each year to >500year. It is the largest course of its kind, second in attendance only to major meetings of national anesthesia and critical care societies.

Other Educational Media

Audio-Digest
2013 Perioperative DVT and Pulmonary Embolism

Mentoring

Research Trainees

Elizabeth Martinez, MD, MHS (2000-2001)
Valerie Sera, MD (2001-2002)
Ala Haddadin, MD (2002-2003)
Robert Scharpf, MS (2002-2005)
Kelly Chiles, MS (2003-2005)
Michelle Kerns, BA (2005-2006)
Elaina Lin, MD (2008-2009)
Kate (Jacques) Schunke, PhD (2010-2015)
Joshua Lewis, PhD (2011-2013)
Rehan Qayyum, MD (2012-2014)
Kelly Pate, DVM (2013-2014)
Farrah Sajan, MD (2014-2015)
Ali Sobhi Afshar, PhD (2018-2019)
Youn-Hoa Jung, MD (2018-2019)

Doctoral Thesis Committee Member

Craig Morrell, DVM, PhD (1/2005)
Adam Fisch, MD, PhD (2014)

Doctoral Thesis Advisor

Elena Blasco-Colmenares, MD, PhD (6/2008)

MPH Advisor/Capstone supervisor

Poorva Tomar, MD.MPH (5/2016)
Shinya Miura, MD, MPH (5/2017)
Rialda Kovacevic, MD MPH (5/2018)
Shikha Ghandi MD, MPH (5/2018)

Educational Program Building

- 1995-2000 Cardiac Surgical Intensive Care Unit Rotation
Role: Development and maintenance of didactic program for surgical residents and critical care fellows in Cardiac Surgical ICU
- 2014-present Career development/mentorship
Role- mentor/advisor/resource for faculty in the Dept of Anesthesiology and throughout the SOM regarding the promotions process at Johns Hopkins
3-5 lectures/year for individual departments and/or SOM general sessions

RESEARCH ACTIVITIES

Research Focus

I have conducted laboratory and clinical cardiovascular research for >20 years, having received continuous funding as a PI or Co-I from the NIH and AHA during that time. My research has focused on identifying the molecular and genetic basis for inter-individual variability in platelet function and response to anti-platelet therapy and identifying the molecular mechanisms through which neutrophil-platelet interactions promote vascular thrombosis and resistance to aspirin treatment. My clinical research has focused on identification of novel markers and mechanisms for bleeding, thrombotic, and infectious complications after surgery. The overarching goal of all these projects is to identify novel determinants of disease that allow a precision guided approach to prevention and treatment of thrombosis and infection in high risk individuals.

Research Program Building/Leadership

- 2005-present Director, Perioperative Genetic/Precision Medicine, Dept of Anesthesiology. The program involves an ongoing prospective cohort study of surgical patients at high risk for bleeding, thrombosis, and infection. The goal of the program is to identify molecular markers, which include genetic, microbiome, and proteins, that allow risk stratification and precision guided therapeutics for prevention of common high morbidity events after surgery. The program is a multi-center collaboration with the U of MD and involves collaboration among the departments of Anesthesiology, Surgery, Orthopedics, Neurosurgery, Hospital Epidemiology and Infection Control, and Pathology.
- 2015-present Director, Clinical Research, Dept of Anesthesiology. My role is to assemble and direct a team of individuals who design, execute, and analyze clinical research and QI projects for the department of Anesthesiology, with the goals of accelerating research productivity and career development of our faculty and improving patient care and efficiency. The team now consists of a biostatistician, a database manager, 4 research coordinators, and 5 research assistants and supports >70 research projects.

Inventions, Patents, Copyrights

- 12/23/04 US patent 2004/0260058-A1: Novel endothelially expressed DNAs and proteins, and their use
- 1/13/11 US patent 12/665,859: Novel antithrombotic agents and their methods of use

SYSTEM INNOVATION and QUALITY IMPROVEMENT ACTIVITIES

System innovation/QI focus

The focus of my systems and QI work is to harness the power of IT infrastructure to develop resources that facilitate faculty development and clinical research and Q/I activities.

- 2014-present Role- Team leader for development of a web-based tool to facilitate annual faculty reviews by Anesthesiology Dept Chair/Division Directors. The Professional Development Review (PDR) tool was created by Anesthesiology IT staff and was successfully deployed to review all dept faculty/staff beginning FY16. Feedback from department leaders and faculty has been very positive. ACCM has shared the tool with other departments in the SOM and with the Dept of Anesthesiology at Beth Israel in Boston.
- 2014- present As Vice-Chair for Faculty Development, I developed and publically posted our Dept process to evaluate faculty for promotional readiness, which includes a feedback and mentorship component for each faculty member
- 2015-present Role- Team leader for development of an electronic clinical research project submission and tracking tool for the Department of Anesthesiology
- 2015-present Role- Team leader for development, maintenance, and analysis of an Anesthesiology Dept clinical database that permits tracking of nationally recognized metrics of care quality. In partnership with Johns Hopkins Hospital QI leaders, we have developed a process to extract key data from the electronic health record and are creating the software algorithms that electronically identify our defined quality metrics in real-time

ORGANIZATIONAL ACTIVITIES

Institutional Administrative Appointments

- 1994-2004 JHH Medical Director Cardiac Surgical ICU
- 1997-2005 JHH Critical Care Committee
- 1998-2009 Chairperson, JHH CPR Advisory Committee
- 1998-2009 Member, JHH Medical Care Evaluation Committee
- 1999- 2006 Anesthesia Department Clinical Research Review Committee
- 1999- Present JHH Risk Management committees (varied ad hoc committees: e.g. root cause analysis committees; patient transport protocol committee, chairperson)
- 2007-Present Member, JHU Continuing Medical Education Committee
- 2008-Present Member, JHU Dept of Anesthesiology, Associate Professor Promotions Committee
- 2009-Present Member, JHU Dept of Anesthesiology, Research Committee
- 2009- Present Member, JHU School of Medicine Associate Professor Promotions Committee
- 2011-2012 Member JHH taskforce for guideline development on management of antithrombotic therapies in the perioperative period
- 2012-Present Vice Chair, JHU School of Medicine Associate Professor Promotions Committee
- 2013-2016 Member, Office of Faculty Development, Senior Advisory Council
- 2014-Present Chair, Mentoring and Promotions Committee for Instructor/Assistant Professor/Associate Professor, JHU Dept of Anesthesiology
- 2014-Present Vice-Chair for Faculty and Staff Development, JHU Dept of Anesthesiology
- 2015-Present Director, Clinical Research, JHU Dept of Anesthesiology

Editorial Activities

Editorial board appointments

- 2005-2009 Associate Editor: *Anesthesiology*
- 2009-2012 Associate Editor, 2nd term: *Anesthesiology*
- 2017- Thrombosis & Haemostasis: Research

Peer review journal activities

- 1995-present Ad hoc reviewer for:

American Journal of Cardiology
American Journal of Physiology
Anesthesia and Analgesia
Anesthesiology
Blood
BMC Anesthesiology
British Journal of Clinical Pharmacology
Circulation
Diabetes/Metabolism Research Reviews
European Journal of Clinical Investigation
European Journal of Neurology
JAMA
Journal of Cellular and Molecular Medicine
Journal of Thrombosis and Thrombolysis
Platelets
PLoS One
Stroke
Thrombosis and Haemostasis
Thrombosis Research

Professional Societies

1988-Present Member, American Medical Association
 1988-Present Member, Alpha Omega Alpha Honor Society
 1989-Present Member, American Society of Anesthesiologists
 1989-Present Member, International Anesthesia Research Society
 1992-Present Member, Society of Critical Care Medicine
 1993-Present Member, Society of Cardiovascular Anesthesiologists

RECOGNITION

Awards, Honors

1988 Alpha Omega Alpha Medical Honor Society
 1988 Upjohn Achievement Award for Clinical Excellence
 2002 Association of Cardiac Anesthesiologists- invited membership
 2003 Association of University Anesthetists- invited membership
 2005 Johns Hopkins Leadership Development Program Nominee
 2011 Marquis Who's Who in Medicine and Healthcare
 2014 Johns Hopkins Dept of Anesthesiology- Resident Teaching Award
 2014 *Anesthesiology*- Top 10% of journal reviewers

Advisory Committees, Review Groups/Study Sections

2005 NIH/NHLBI Special Emphasis Panel: SCCOR in Hemostatic and Thrombotic Diseases
 2012 AHA/Brain-Experimental Models in Vascular Stroke Review Study Section
 2013 AHA/Stroke- Basic Science Study Section

Consultant

2014-2017 CSL Behring

Invited Talks

3/97 *University of Pennsylvania*, Department of Anesthesiology Grand Rounds - "Hematologic Complications of Cardiopulmonary Bypass"
 5/98 *Society of Cardiovascular Anesthesiologists Annual Meeting* - Update on CPB- "New Antithrombotic Agents: Pharmacology and Implications for the Management of Cardiac Surgical Patients"

- 6/01 *Johns Hopkins University, Department of Anesthesiology Grand Rounds - "Platelet genes and cardiovascular outcome in vascular surgery"*
- 8/01 *Johns Hopkins University, Department of Medicine/Hematology Grand Rounds - "Platelet genes and cardiovascular outcome in vascular surgery"*
- 10/01 *Association of Cardiac Anesthesiologists Annual Meeting- "Platelet genes and cardiovascular outcome"*
- 5/02 *Johns Hopkins University, Department of Anesthesiology Research Conference - "Influence of leukocytes on platelet function"*
- 10/02 *Association of Cardiac Anesthesiologists Annual Meeting - "Genetic determinants of perioperative myocardial ischemia"*
- 11/02 *Duke University, Dept of Anesthesiology Research Conference - "Platelet polymorphisms as risk factors for perioperative myocardial ischemia"*
- 5/03 *Society of Cardiovascular Anesthesiologists Annual Meeting - "Platelet polymorphisms and cardiovascular risk in vascular surgery"*
- 4/05 *Johns Hopkins University, Neurosciences Critical Care Grand Rounds - "Prevalence and Risk Factors for Aspirin Resistance"*
- 5/06 *Johns Hopkins University, Hematology Grand Rounds - "Variability in Platelet Aspirin Responsiveness"*
- 6/06 *Johns Hopkins University, Pathology Grand Rounds - "Variability in Platelet Aspirin Responsiveness"*
- 4/07 *Johns Hopkins University, Comparative Medicine Research Seminar - "Variability in Platelet Aspirin Responsiveness"*
- 6/08 *Society of Cardiovascular Anesthesiologists Annual Meeting (Vancouver, BC) - "Variability in platelet response to aspirin: Implications for perioperative management"*
- 5/09 *Washington Hospital Center (Washington, DC)- Cardiology/Cardiac Catheterization Conference "Aspirin Plus Clopidogrel and Risk of Infection after Coronary Artery Bypass Surgery"*
- 9/11 *Suburban Hospital (Bethesda, MD)- Grand Rounds; "Perioperative Management of Anti-Platelet Therapy"*
- 1/12 *Mercy Medical Center (Baltimore, MD)- Surgery/Anesthesiology Combined Grand Rounds, "Perioperative Management of Anti-Platelet Therapy"*
- 1/12 *University of Florida (Gainesville, FL)- Anesthesia Department Research Conference, "Neutrophil Cathepsin G, Platelet Activation, and Thrombus Formation In Vivo"*
- 4/13 *Washington Hospital Center (Washington, DC)- Anesthesia Department Grand Rounds, "Management of Perioperative Bleeding and Transfusion"*
- 12/13 *Johns Hopkins University (Baltimore, MD), Dept of Cardiology, "Perioperative Management of Anti-Platelet Therapy"*
- 4/14 *Reading Hospital (Reading, PA), Dept of Medicine Grand Rounds, "Perioperative Management of Anti-Platelet Therapy"*
- 8/14 *Johns Hopkins University (Baltimore, MD), Dept of Anesthesiology Grand Rounds, "Perioperative Management of Anti-Platelet Therapy"*
- 9/14 *Doctors Hospital at Renaissance (South Padre Island, TX), Annual Medical Conference, "Perioperative Management of Anti-Platelet Therapy"*
- 5/18 *Johns Hopkins Topics in Clinical Medicine (Baltimore, MD). "Peri-procedural management of anti-thrombotic therapy"*