

# CURRICULUM VITAE

**Charles S. Eby, M.D.**

**Date:** March 31, 2020

## **Personal Information:**

**Sex:** Male  
**Place of Birth:** East St. Louis, Illinois

**Citizenship:** U.S.A.

## **Address and Telephone Numbers:**



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**Present Position:** Professor of Pathology & Immunology and Medicine, Chief Division of Laboratory and Genomic Medicine, Washington University School of Medicine, St. Louis, Missouri  
Medical Director Barnes-Jewish Hospital Clinical Laboratories.

## **Education:**

1973-1977 B.S. in Zoology, Duke University, Durham, NC

1977-1981 M.D., Vanderbilt University, Nashville, TN

1981-1984 Medical Residency, University of Rochester School of Medicine and Dentistry, Strong Memorial Hospital, Rochester, NY

- 1984-1985 Chief Residency, Instructor and Chief Resident in Medicine, University of Rochester School of Medicine and Dentistry, Strong Memorial Hospital, Rochester, NY
- 1984-1986 Instructor and Fellow in Medicine, Medical Oncology Unit, University of Rochester School of Medicine and Dentistry, Strong Memorial Hospital, Rochester, NY
- 1986-1987 Instructor and Fellow in Medicine, Hematology Unit, University of Rochester School of Medicine and Dentistry, Strong Memorial Hospital, Rochester, NY
- 1989-1991 Fellow in Transfusion Medicine, Division of Laboratory Medicine, Washington University School of Medicine, St. Louis, MO

**Academic Positions/Employment:**

- 1987-1989 Private Practice, Hematology-Oncology, Berkshire Physicians and Surgeons, Pittsfield, MA
- 1991-1993 Instructor in Medicine and Pathology, Division of Laboratory Medicine, Washington University School of Medicine, St. Louis, MO
- 1993-2000 Assistant Professor, Department of Pathology, Saint Louis University Health Sciences Center, St. Louis, MO
- 1993-1994 Acting Director, Hematology Laboratory, Saint Louis University Health Sciences Center, St. Louis, MO
- 1993-2000 Associate Director, Hemostasis Laboratory, Saint Louis University Health Sciences Center, St. Louis, MO
- 1994-2000 Associate Medical Director, Saint Louis University Coagulation Consultants
- 1993-2000 Associate Medical Director, Missouri-Illinois Regional Hemophilia Diagnostic and Treatment Center, Adult Program, Saint Louis University Hospital, St. Louis, MO
- 1994-2000 Director, Hematology Laboratory, Saint Louis University Health Sciences Center, St. Louis, MO
- 1999-2000 Director, Transfusion Medicine Service, Saint Louis University Hospital, St. Louis, MO
- 2000–2011 Associate Professor Pathology & Immunology and Medicine, Washington University School of Medicine, St. Louis, MO

- 2000-2011 Director, Hematology and Hemostasis Laboratories, Barnes-Jewish Hospital, St. Louis, MO
- 2003-2011 Associate Director of Educational Programs, Division of Laboratory and Genomic Medicine, Department of Pathology & Immunology, Washington University School of Medicine, St. Louis, Missouri
- 2010-2019 Medical Director Hemostasis Research Laboratory, (CLIA licensed and CAP accredited) Division of Laboratory and Genomic Medicine, Department of Pathology and Immunology, Washington University School of Medicine.
- 4/2/2011 – present Professor Pathology & Immunology and Medicine, Washington University School of Medicine, St. Louis, MO
- 7/1/2011 – 8/31/2015 Associate Chief Division of Laboratory and Genomic Medicine, Washington University School of Medicine, St. Louis, MO
- 7/1/2011 – present Medical Director, Barnes-Jewish Hospital Clinical Laboratories, St. Louis, MO
- 4/1/2013 – 9/30/2018 Medical Director Shriner’s Hospital Clinical laboratory, St. Louis MO
- 9/1/2015 –5/1/2016 Interim Chief Division of Laboratory and Genomic Medicine, Washington University School of Medicine, St. Louis, MO
- 5/1/2016 – 12/1/2019 Co-Chief Division of Laboratory and Genomic Medicine, Washington University School of Medicine, St. Louis, MO
- 1/1/2018 – 4/30/2019 Interim Head of Department of Pathology & Immunology
- 12/1/2019-present Chief Division of Laboratory and Genomic Medicine, Washington University School of Medicine, St. Louis, MO

**University, Hospital, and Healthcare System Appointments and Committees:**

- 1993-1997 Member, Marketing Committee, University Medical Group, Saint Louis University School of Medicine
- 1994-1997 Member, Invasive Care Committee, Saint Louis University Hospital
- 1997 Treasurer, Medical Executive Committee, Saint Louis University Hospital
- 1997-2000 Member, Credentials Committee, Saint Louis University Hospital

1998-1999	Chairman, Credentials Committee, Saint Louis University Hospital
1998-1999	Vice president, Medical Executive Committee, Saint Louis University Hospital
1999-2000	Member, Laboratory Utilization Committee, Saint Louis University Hospital
2000-2010	Member, Barnes-Jewish Health Information Management Committee
2003-2010	Member, Barnes-Jewish Hospital Medical Staff Credentialing Committee
2004-	Member, Barnes-Jewish Hospital Transfusion Medicine Committee
2008-	Member, Barnes-Jewish Hospital Anticoagulation Sub-committee
2013-2014	Steering Committee BJC laboratory information standardization committee
2014-2015	Making BJC Better ancillary services laboratory subcommittee
2015-	Member, BJC Anticoagulation Sub-committee to Pharmacy and Therapeutics Committee
2019-	Patient Safety Officer-Clinical Laboratories-Joint Quality and Safety Committee-Barnes-Jewish Hospital and Department of Pathology and Immunology

#### **Medical Licensure and Board Certification:**

1982-1988	New York State License Number 150408
1982	National Board of Medical Examiners No. 248282
1984	Diplomate, American Board of Internal Medicine No. 097373
1987	Medical Oncology No. 97373
1988	Hematology No. 97373
1988-1989	Massachusetts State License Number 58894
1989-present	Missouri State License Number R6J04
1995	Transfusion Medicine Subspecialty, American Board of Pathology

#### **Honors and Awards:**

1977	Magna cum laude, Duke University
1980	Alpha Omega Alpha Honorary Society
1985-1986	American Cancer Society Fellow
2014	College of American Pathologist Lifetime Achievement Award

#### **Professional Societies and Organizations:**

1981-2014	American College of Physicians, Member No. 091175
1992-present	Academy of Clinical Laboratory Physicians and Scientists
1992-present	American Society of Hematology
1994-present	International Society for Laboratory Hematology
1995-2013	American Society of Clinical Pathologists

1995-present International Society of Thrombosis and Haemostasis  
2004-present College of American Pathologists  
2007-present American Association for Clinical Chemistry

**National Organization Committee Service:**

2003-2011 Member, American Society of Hematology Laboratory Medicine and Hematopathology Scientific Committee  
2005- 2013 Member, College of American Pathologists Coagulation Resource Committee  
2008-2014 Clinical and Laboratory Standards Institute advisor to Area Committee on Hematology  
2008-2011 Secretary, International Society of Laboratory Hematology  
2009-2011 Executive committee member at large, Academy of Clinical Physicians and Scientists  
2009-2012 Chairman, College of American Pathologists Coagulation Resource Committee  
2011-2014 President, International Society for Laboratory Hematology  
2014-present Past-President, International Society for Laboratory Hematology  
2015-present Member, College of American Pathologists Instrumentation Committee  
2015-2018 Member, College of Americas Pathologists Committee on Continuous Compliance

**Journal Editorial Activities:**

Board of Editors:

2008-present Clinical Chemistry

Editorial Board

2015-present International Journal of Laboratory Hematology

Ad-hoc reviewer:

Blood, Journal of Thrombosis and Haemostasis, Thrombosis and Haemostasis, Pharmacogenomics, American Journal of Hematology, Journal of the American Medical Association.

**Invited Lectureships:**

1. Hypercoagulable State and Coumadin Necrosis. Michigan Medical Society Annual Scientific Meeting, Dearborn, MN, November 17, 1992.

2. The INR, Why and How We Should Use It. Laboratory Monitoring of Anticoagulant Therapy: Advances and Controversies. Saint Louis University, March 18, 1994.
3. Hypercoagulability and Thrombosis. The 1994 Penner Blood Coagulation Conference, Detroit, MI, May 22-25, 1994.
4. Review of Hypercoagulable States. Half-day workshop, American Association of Clinical Chemists. Chicago, IL, July 1996.
5. Laboratory Evaluation of Hemostasis Disorders. Half-day workshop, American Association of Clinical Chemists. Atlanta, GA, July 1997.
6. Heparin Induced Thrombocytopenia. The American Society for Clinical Laboratory Science, Chicago, IL, August 5, 1998.
7. Pathophysiology of Bleeding Disorders. Oncology Nursing Society, Greater St. Louis Chapter, November 10, 1998.
8. Heparin Induced Thrombocytopenia. The University of Texas Health Sciences Center at San Antonio. Hematology Teleconference Series, August 17, 1999.
9. Platelet and Coagulation Review. Osler Institute Pathology Review Course, Chicago, IL, September 29, 1999.
10. Thrombosis in Cancer Patients. Southeast Missouri Regional Cancer Center Fall Cancer Symposium, Cape Girardeau, MO, November 4, 2000.
11. Duration of Anticoagulation Therapy in Patients with Venous Thromboembolic Events. Medical Grand Rounds, St. Mary's Hospital, Richmond Heights, MO, November 8, 2000.
12. Prevention of Venous Thromboembolic Events: Alternatives to Heparin Prophylaxis. Beyond Heparin: Current and Future Trends. Washington University School of Medicine CME conference, June 2, 2001.
13. Update on Diagnosis and Treatment of Thrombotic Thrombocytopenia Purpura (TTP). Heart of America Association of Blood Banks, Kansas City, MO, June 7, 2001.
14. Detection of Functional Iron Deficiency with the ADVIA-120. Bayer Diagnostics Symposium, American Association of Clinical Chemists, Chicago, IL, August 1, 2001.
15. Thrombophilia Evaluation in Patients with Venous Thromboembolism. St. Louis University 17<sup>th</sup> Annual Spring Symposium on "Advances and Challenges in the Hemostasis and Thrombosis Laboratory," St. Louis, MO, March 22, 2002.

16. Laboratory Diagnosis & Management of Heparin-Induced Thrombocytopenia. Symposium on Current Concepts in Hemostasis. St. Luke's Hospital, Kansas City, March 7, 2003.
17. Novel Approaches to Oral Anticoagulation Therapy. Symposium on Current Concepts in Hemostasis. St. Luke's Hospital, Kansas City, MO, March 7, 2003.
18. Hemostatic Failure in Liver Disease. 30<sup>th</sup> Annual Hemostasis and Thrombosis Update. Temple University, Philadelphia PA, April 25, 2003.
19. Venous Thromboembolic Events: Evaluation for Risk Factors and Duration of Anticoagulation. Annual Meeting of the Missouri Chapter of the American College of Physicians, Lake of the Ozarks, September 19, 2003.
20. Role of Laboratory Testing for Venous Thromboembolism Risk Factors in Guiding Therapy. Prevention and Treatment of Venous Thromboembolism: An Update. Washington University School of Medicine, December 12, 2003.
21. Clinical and Laboratory Issues in the diagnosis of heparin induced thrombocytopenia. Medical Grand Rounds St. John's Hospital, Springfield MO September 1, 2004.
22. Heparin Induced Thrombocytopenia. St Louis University Coagulation Consultants 19<sup>th</sup> annual symposium: Advances and controversies in hemostasis and Thrombosis. St. Louis, MO. September 9, 2004.
23. Is prolonged air travel an important VTE risk factor? Second annual update on prevention and treatment of venous thromboembolism. Washington University School of Medicine. October 29, 2004
24. Update on dosing and monitoring of warfarin. St Louis University Coagulation Consultants 19<sup>th</sup> annual symposium: Advances and controversies in hemostasis and Thrombosis. St. Louis, MO. September 9, 2005.
25. Clinical use of recombinant factor VIIa and Venous thromboembolism and long distance air travel. Current Concepts in Thrombosis and Hemostasis. St. Lukes Hospital. Kansas City MO. October 7, 2005.
26. Risk of venous thrombosis during long distance air travel. Current Concepts in Thrombosis and Hemostasis. St. Lukes Hospital. Kansas City MO. October 7, 2005
27. Hidden epidemic of anemia: emerging biochemical markers. American Society of Clinical Pathology, Seattle WA. October 9, 2005.

28. Defining the Problem and Reducing the Risk of Venous Thromboembolic Complications in Hospitalized Patients. Medical Grand Rounds St. John's Hospital, Springfield MO September 21, 2006.
29. Thrombosis and Cancer. St Louis University Coagulation Consultants 20<sup>th</sup> annual symposium: Advances and controversies in hemostasis and Thrombosis. St. Louis, MO. November 3, 2006.
30. Anemia. Beckman Coulter Symposia 2006: Indianapolis, IN. November 16, 2006.
31. Individualized warfarin therapy: Implications for Laboratory Testing. International Society of Laboratory Hematology, Miami, FL. May 9, 2007.
32. Clinical Utility of Soluble Transferrin Receptor. International Society of Laboratory Hematology, Miami, FL. May 8, 2007.
33. Pharmacogenetics of Warfarin Dosing. American Association of Clinical Chemistry. San Diego, CA. July 18, 2007.
34. Pharmacogenetics of Warfarin Therapy. Advances in Molecular Diagnostics and Hemostasis. Kansas City, KS. November 2, 2007.
35. Update on Heparin-induced Thrombocytopenia. Advances in Molecular Diagnostics and Hemostasis. Kansas City, KS. November 2, 2007.
36. Bleeding and Thrombosis Risks in Plasma Cell Dyscrasias. American Society of Hematology Education Session. Atlanta, GA. December 8 and 9, 2007.
37. Transfusion Support for Massive Trauma Patients. Heart of America Kansas City, KS. May 2, 2008, repeated, in St. Louis, MO, September 24, 2008..
38. Pharmacogenetics of Warfarin Debate-Con position. American Association of Clinical Chemistry. Washington D.C., July 28, 2008.
39. Development and refinement of warfarin dosing algorithms at Washington University School of Medicine. Warfarin Summit II, Critical Pathways Institute. Washington D.C., November 3, 2008.
40. Warfarin Pharmacogenetics: Can more accurate initial dosing improve clinical outcomes? Pharmacogenomics NOW. Montreal Quebec, Canada. November 6, 2008
41. Management of Venous Thromboembolic Events. Medical Grand Rounds. St. Louis Veterans Administration Hospital. November 12, 2008.



42. Pharmacogenetic-based warfarin dosing: what will be the tipping point for acceptance into routine practice? Symposium on Individualized Medicine. ACLPS, Los Angeles, June 6, 2009.
43. Pharmacogenetic-based dosing of warfarin: Are we there yet? Greater New Orleans Coagulation conference 6<sup>th</sup> Biannual Symposium. Metairie LA, February 4, 2010.
44. Challenging Hematology Consultations. Quest Coagulation Symposium. Fairfax, VA. March 18, 2010.
45. DVT Prophylaxis in Urology Surgery. Washington University School of Medicine Urology Grand Rounds. St. Louis, MO. May 5, 2010.
46. Warfarin Pharmacogenetics: Are We There Yet? NO. Pathology Department, Vanderbilt University, Nashville, TN. May 15, 2010.
47. Warfarin Pharmacogenetic Testing: Not ready for “Prime Time” European Joint Congress of EFCC and UEMS, Lisbon, Portugal, Oct 15, 2010.
48. Impact of New Direct Oral Anticoagulants of Hemostasis Laboratory Practices. Advances in Hematopathology and Hemostasis. University of Missouri, Kansas City, Overland KS, Nov. 4, 2011.
49. Testing for Anti-Platelet Drug Resistance: options and limitations. Advances in Hematopathology and Hemostasis. University of Missouri, Kansas City, Overland KS, Nov. 4, 2011.
50. Pharmacogenetics of Antithrombotic Therapy. ASH Satellite Symposium, San Diego CA, Dec 9, 2011.
51. Impact of new oral anticoagulants on patients, clinicians, and laboratories. Missouri Pathology Society Conference. St. Louis MO, March 31, 2012.
52. “Pathologists are coagulation consultants”. CAP’12 workshop: Direct oral anticoagulants and clopidogrel and aspirin resistance, San Diego CA, Sept 10, 2012.
53. Chronic DIC and dissecting aortic aneurysm-case presentation. AABB annual meeting. Boston MA, October 9, 2012.
54. New oral anticoagulants. Best of ISLH-Brazil. HEMO’12, Rio de Janeiro Brazil. Nov 9, 2012.
55. Warfarin Pharmacogenetics. HEMO’12 round table on anticoagulation. Rio de Janeiro Brazil. Nov 9, 2012.

56. Warfarin Pharmacogenetics and New Oral Anticoagulants. University of Missouri Pathology grand rounds. Columbia, MO Nov 27, 2012.
57. New Oral Anticoagulants: Measuring, Bridging, and Bleeding. Washington University CME course: ABCs of Hematology. St. Louis, MO April 26, 2013.
58. New oral anticoagulants and laboratory testing. International Society of Laboratory Hematology Annual meeting. Toronto CA, May 10, 2013.
59. Warfarin and New Oral Anticoagulants. KBUD annual meeting of Clinical Chemists. Antalya Turkey, September 24, 2013.
60. Challenges in Coagulation Proficiency Testing. KBUD annual meeting of Clinical Chemists. Antalya Turkey, September 26, 2013.
61. Monitoring and Related Issues of the Newer Oral Anticoagulants. Washington University CME course: Hematology for the Practicing Clinician. St. Louis, MO April 11, 2014.
62. Clinical Cases and Laboratory Testing DOACs. International Society of Laboratory Hematology Annual meeting. The Hague, Netherlands, May 15, 2014.
63. Can Pharmacogenetics Save Warfarin? Department of Pathology Special Seminar. University of Chicago. August 14, 2014.
64. Laboratory Evaluation of Bleeding Coagulation Disorders. KBUD annual meeting of Clinical Chemists Cesme, Turkey. September 17, 2014
65. Pre-Analytical Errors in Coagulation Testing. KBUD annual meeting of Clinical Chemists Cesme, Turkey. September 17, 2014
66. Selecting Coagulation Instruments and Basic Quality Assurance. KBUD annual meeting of Clinical Chemists Cesme, Turkey. September 19, 2014
67. HIT testing algorithms and patient management. IL Educational Symposium. EPNEC, St. Louis, MO. October 17, 2014.
68. Automated CBCs and incidental neutropenia, lymphopenia, and thrombocytopenia. Washington University Student Health Providers. St. Louis, MO. March 25, 2015.
69. Instrumentation Standardization in a Complex Hospital System. Instrumentation Laboratory Annual Marketing Meeting. Ft. Meyers, FL. January 26, 2016.

70. Laboratory Tests for DOACs and DOAC Interference in Other Laboratory Tests. Thrombosis Hemostasis Society of North America (THSNA) meeting. Chicago, IL. April 14, 2016.
71. Calibration and Analytical Measurement Range Verification collide with Coagulation Testing. American Association of Clinical Chemistry (AACC) meeting. San Diego, CA. July 31, 2017
72. Practical role of lab hematology in precision medicine and targeted therapies: Focus warfarin pharmacogenetics and thromboelastography guided transfusions in severe trauma. Korean Society of Laboratory Medicine 58<sup>th</sup> Annual Meeting. Seoul, South Korea. October 19, 2017.
73. Anticoagulation Monitoring Challenges: selected cases. Thrombosis Hemostasis Society of North America (THSNA) workshop. San Diego, CA. March 7, 2018
74. Testing for bleeding and prothrombotic states with a focus on common issues. International Society for Laboratory Hematology (ISLH). Brussels, Belgium. May 9, 2018
75. Surviving the Regulatory and Accreditation Landscape: The "Must-Know" Secrets for Success. Talk title: What every new laboratory leader needs to know about laboratory accreditation and regulation AACC. Chicago, IL. July 31, 2018.
76. Calibration and Analytical measurement Range (AMR) verification collides with Coagulation Testing. College of American Pathology annual meeting. Chicago, IL. October 23, 2018.
77. Surviving the Regulatory and Accreditation Landscape: The "Must-Know" Secrets for Success. Talk title: What every new laboratory leader needs to know about laboratory accreditation and regulation. American Association of Clinical Chemistry (AACC). Anaheim, CA. August 7, 2019.
78. Calibration and Analytical measurement Range (AMR) verification collides with Coagulation Testing. College of American Pathology annual meeting. Orlando, FL. September 23, 2019.

## **Bibliography:**

### Peer Reviewed Manuscripts:

1. Ramos RR, Curtis BR, Sadler JE, **Eby C**, Chaplin H: Refractory immune hemolytic anemia with a high thermal amplitude, low affinity IgG anti-Pr<sub>a</sub> cold antibody. *Autoimmunity* 1992;12:149-154

2. da Silva MA, Edmondson JW, **Eby C**, Loehrer PI Sr: Humoral hypercalcemia in Seminoma. *Medical and Pediatric Oncology* 1992;70:38-41
3. **Eby C**: Warfarin-induced skin necrosis. *Hematol Oncol Clin NA* 1993;7:1291-1301
4. **Eby C**: A review of the hypercoagulable state. *Hematol Oncol Clin NA* 1993;7:1121-1142
5. Ramos RR, Curtis BR, **Eby C**, Ratkin GA, Chaplin H: Fatal autoimmune hemolytic anemia associated with IgM bi-thermic anti-P and cold I<sup>T</sup> antibodies. *Transfusion* 1994;34:427-431
6. Polski JM, Dunphy CH, Pincus SM, **Eby C**: Eosinophil count discrepancy among Sysmex NE-8000 automated hematology analyzer, manual method, and other analyzers in a case of chronic eosinophilic leukemia. *Lab Hematol* 1997;3:305-310
7. **Eby C**: Standardization of APTT reagents for heparin therapy monitoring: urgent or fading priority? Editorial. *Clin Chem* 1997;43:1-3
8. **Eby C**: Accurate monitoring of heparin therapy: A team approach. *Advance/Laboratory* 1999;8:100-106
9. **Eby C**: Heparin induced thrombocytopenia. *Clin Lab Sci J* 1999;12:365-369
10. Fuhrman MP, Herrmann V, Masidonski P, **Eby C**: Pancytopenia following removal of copper from TPN. *J Parenteral Enteral Nutrition* 2000;24:361-366
11. **Eby C**, McBride LR: Post-partum coronary artery dissection complicated by heparin-induced thrombocytopenia. *Ann Thorac Surg* 2001;71:1025-8
12. Hurley D, **Eby C**, Boyd J: Laryngeal epidermolysis bullosa acquisita requiring tracheostomy presenting with an acquired factor VIII coagulopathy. *Otolaryngology Head & Neck Surgery* 2001;125: 270-1.
13. **Eby C**, Caracioni AA, Badar S, Joist JH: Retroperitoneal pseudotumor in a patient with type 3 von Willebrand disease. *Haemophilia* 2002;8:136-141.
14. **Eby C**: Prothrombotic States in Ischemic Stroke. *Seminars in Cerebrovascular Diseases and Stroke*. 2002;2: 90-101.
15. Barnes PW, **Eby C**, Lukoszyk M. Residual Platelet Counts in Plasma Prepared for Routine Coagulation Testing with the Beckman Coulter Power Processor. *Laboratory Hematology*. 2002;8:205-209.

16. Ridker PM, Golhaber SZ, Danielson MIA, Rosenberg Y, **Eby C**, et al. Long-term, Low-intensity Warfarin Therapy for the Prevention of Recurrent Venous Thromboembolism. *NEJM* 2003;348:1425-34.
17. Szallasi A, Gronowski AM, **Eby C**. Lamellar Body Count in Amniotic Fluid: A Comparative Study of Four Different Hematology Analyzers. *Clin Chem* 2003;49:994-7.
18. **Eby C**, Blinder M. Hemostatic Complications Associated with Paraproteinemias. *Current Hematology Reports* 2003;2:388-94.
19. Gage BF, **Eby C**. Pharmacogenetics and Anticoagulant Therapy. *J Thromb Thrombolysis* 2003;16:73-8.
20. Gage BF, **Eby C**, Banet GA, Milligan PE, McLeod HL. Use of Pharmacogenetics and Clinical Factors to Predict the Maintenance Dose of Warfarin. *Thrombosis and Haemostasis* 2004;91:87-94.
21. Voora D, McLeod HL, **Eby C**, Gage BF. Use of Pharmacogenetics to Guide Warfarin Therapy. *Drugs of Today* 2004;40:247-57.
22. Gage BF, **Eby C**. The Genetics of Vitamin K Antagonists (News and Commentary). *Pharmacogenomics Journal* 2004;4(4):224-5.
23. Goodnough LT, Lublin DM, Zhang L, Despotis G, **Eby C**. Transfusion Medicine Service Policies for Recombinant Factor VIIa Administration. *Transfusion* 2004;44:1325-31.
24. Barnes PW, **Eby C**, Shimer G. An evaluation of the utility of performing body fluid counts on the coulter LH 750. *Laboratory Hematology* 2004;10(3): 127-131.
25. Uhlmann EJ, **Eby C**. Recombinant activated factor VII for non-hemophiliac bleeding patients. *Current Opinion in Hematology* 2004;11(3):198-204.
26. Voora D, McLeod HL, **Eby C**, Gage BF. The pharmacogenetics of coumarin therapy. *Pharmacogenomics*. 2005;6:503-13.
27. Voora D, **Eby C**, Linder MW, Milligan PE, Bukaveckas BL, McLeod HL, Maloney W, Clohisy J, Burnett RS, Grosso L, Gatchel SK, Gage BF. Prospective dosing of warfarin based on cytochrome P-450 2C9 genotype. *Thromb Haemost*. 2005;4:700-5.
28. Haymond S, Cariappa R, **Eby C**, Scott MG. Laboratory Assessment of Oxygenation in Methemoglobinemia. *Clinical Chemistry*. 2005;51:434-44.

29. Rieder MJ, Reiner AP, Gage BF, Nickerson DA, **Eby C**, McLeod HL, Blough DK, Thummel KE, Veenstra DL, Rettie, AE. Effect of VKORC1 Haplotypes on Transcriptional Regulation and Warfarin Dose. *NEJM* 2005;352:2285-2293.
30. Halldorsdottir AM, Stoker J, Porche-Sorbet R, **Eby C**. Soluble CD40 Ligand Measurement Inaccuracies Attributable to Specimen Type, Processing Time, and ELISA Method. *Clinical Chemistry*. 2005;51:1054-7.
31. Razaai MA, Lukoszyk M, Hughes J, Van Cott EM, **Eby C**. Cold-Dependent loss of Factor VIII and von Willebrand factor activity in citrated whole blood is reversed by rewarming. *Am. J Clin Pathol* 2005;124:972-3.
32. Razaai MA, Wright RW, Parvin CA, Gronowski AM, Scott MG, **Eby C**. Ischemia-modified albumin increase after skeletal muscle ischemia during arthroscopic knee surgery. *Clinica Chimica Acta*. 2006;336:264-268.
33. Marsh S, King C, Porche-Sorbet RM, Scott-Horton TJ, **Eby C**. Population variation in VKORC1 haplotype structure. *J Thromb Haemost*. 2006;2:473-4.
31. Travis EK, **Eby C**. Clotting profiles and selected hematology of captive Speke's gazelles (*Gazella Spekei*). *Journal of Zoo and Wildlife Medicine*. 2006;37:64-67.
32. Razaai M, Van Cott EM, Kukoszyk M, Hughes J, **Eby C**. Loss of factor VIII and von Willebrand factor activities during cold storage of whole blood is reversed by rewarming. *Laboratory Hematology*. 2006;12:99-102.
33. Hayes TE, Brandt JT, Chandler WL, **Eby C**, Kottke-Marchant K, et al. External peer review quality assurance testing in von Willebrand disease: the recent experience of the United States College of American Pathologists proficiency testing program. *Semin Thromb Hemost*. 2006;32:499-504.
34. Gopalan P, Clohisy J, Cashen A, **Eby C**. Use of recombinant FVIIa for hip surgery in a patient with congenital factor VII deficiency. *J. of Bone and Joint Surgery*. 2007;89-A:389-391.
35. Millican E, Jacobsen, PA, Milligan PE, Grosso L, **Eby C**, Deych E, Grice G, Clohisy JC, Barrack RL, Burnett SJ, Vorra D, Gatchel S, Tiemeier A, Gage BF. Genetic-based dosing in orthopedic patients beginning warfarin therapy. *Blood*.2007;110:1511-15.
36. Grice GR, Milligan PE, **Eby C**, Gage BF. Pharmacogenetic-based dose refinement prevented warfarin overdose in a patient who is highly warfarin sensitive. *J Thromb Haemost*. 2008;6:207-9.

36. Lenzini PA, Grice G, Milligan PE, Gatchel SK, Deych E, **Eby C**, Burnett RS, Clohisy JC, Barrack RL, Gage BF. Optimal initial dose adjustment of warfarin in orthopedic patients. *Ann Pharmacother*. 2007;41:1798-804.
37. Cunningham MT, Brandt JT, Chandler WL, **Eby C**, Hayes, et al. Quality assurance in hemostasis: the perspective from the College of American Pathologists proficiency testing program. *Semin Thromb Hemost*. 2007;33(3):250-8.
38. **Eby C**. Bleeding and Thrombosis Risks in Plasma Cell Dyscrasias. *Hematology Am Soc Hematol Educ Program*. 2007:158-163.
38. King CR, Porche-Sorbet RM, Gage BF, Ridker PM, Renaud Y, Phillips MS, **Eby C**. Performance of Commercial Platforms for Rapid Genotyping of Polymorphisms Affecting Warfarin Dose. *Am J Clin Path*. 2008;129:876-83.
39. Gage BF, **Eby C**, Johnson JA, Deych E, Rieder MJ, Ridker PM, Milligan PE, Grice G, Lenzini P, Rettie AE, Aquilante CL, Grosso L, Marsh S, Langae T, Farnett LE, Voora D1, Veenstra DL, Glynn R, Barrett A, McLeod HL. Use of Pharmacogenetics and Clinical Factors to Predict the Therapeutic Dose of Warfarin. *Clin Pharmacol Ther*. 2008;84:326-31.
40. Caldwell MD, Awad T, Johnson JA, Gage BF, Falkowski M, Gardina P, Hubbard J, Turpaz Y, Langae TY, **Eby C**, King C, et al. CYP4F2 genetic variant alters required warfarin dose. *Blood*. 2008;111:4106-12.
41. Hood JL, **Eby C** Evaluation of a prolonged prothrombin time. *Clin Chem*. 2008;54:765-9.
42. Li J, Gronowski AM, **Eby C**. Lamellar Body Counts Performed on Automated Hematology Analyzers to Assess Fetal Lung Maturity. *Lab Medicine*. 2008;39:419-424.
43. Cattano D, Vannucci A, Nicolini A, Nania C, Buzzigoli S, **Eby C**. Varicella fulminant hepatitis in an adult patient with Factor V Leiden mutation and trisomy 8 related myelodysplastic syndrome. *J Clin Virol*. 2008;43:134-5.
44. Despotis G, **Eby C**, Lublin DM. A review of transfusion risks and optimal management of perioperative bleeding with cardiac surgery. *Transfusion* 2008;48(1 Suppl):2S-30S.
45. Lenzini PA, Grice GR, Milligan PE, Dowd ME, Subherwal S, Deych E, **Eby C**, King CR, Porche-Sorbet PM, Murphy CV, Marchand R, Millican EA, Barrack RL, Clohisy JC, Kronquist K, Gatchel SK, Gage BF. Laboratory and clinical outcomes

- of pharmacogenetic vs. clinical protocols for warfarin initiation in orthopedic patients. *J Thromb Haemost* 2008;6:1655-62.
46. Ford BA, Coyne DW, **Eby C**, Scott MG. Variability of ferritin measurements in chronic kidney disease: implications for iron management. *Kidney Int.* 2009;75:104-10.
  47. **Eby C**. Pathogenesis and management of bleeding and thrombosis in plasma cell disorders. *Br. J Haematology.* 2009;145:151-63.
  48. **Eby C**. Counterpoint: Pharmacogenetic-based initial dosing of warfarin: not ready for prime time. *Clinical Chemistry* 2009;55:712-4.
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**Research Support:**

**Ongoing**

**Effort**

Siemens Diagnostics Coagulation instruments CS-2001, CS 2500, and CS-5100 Reproducibility, Reference Range, Comparison studies for FDA submission	1/1/14-Present	5%
Instrumentation Laboratory Multiple coagulation instrument and reagent validations for FDA submission	1/1/26-present	5%

**Completed**

1R01 HL097036-01 (PI: Brian Gage, MD) 9/10/09 – 6/30/2016 10%  
*Genetics Informatics Trial (GIFT) of Warfarin Therapy for DVT Prevention*  
 This multi-centered, randomized, controlled trial of 1600 adult orthopedic patients will test the hypothesis pharmacogenetic dosing of warfarin therapy decreases the rate of adverse events.  
 Role: Director of genotyping for two clinical sites and core laboratory

Instrument Laboratory 1/1/15-3/6/15 2%  
 TOPS 550 fresh frozen plasma comparison study for FDA submission

HR0011-12-0005 Defense Advanced Research Projects Agency 1/1/13-12/31/13 5%  
 Sub-contract (PI Michael Hogan, PhD IntegenX, San Diego CA)  
*Worldwide sample collection and transportation*  
 The goal of this study is to evaluate the effect on coagulation factors of a novel technique to dehydrate plasma. Potential applications of the technology include proficiency testing and unrefrigerated preservation of plasma for military use.

COAG Trial Central Laboratory 3/1/09-7/31/13 5- 15%  
 NHLBI (NCT 00839657)  
 (subcontract)  
 The goal of this prospective multicenter randomized trial is to determine if determining initial wafarin dose with a pharmacogenetic algorithm improves INR time within therapeutic range compared to initial dosing using a clinical algorithm. 1238 subjects will be enrolled over 2.5 years.

U.S. Arkray Inc. 1/1/12-12/31/12 5%  
 Evaluation of multiple urinalysis instruments for FDA submission

Pharmacogenetic Expert Dosing Strategies (PEDS) for Warfarin 01/01/10 – 9/30/10 4%  
 CTSA in Cincinnati  
 This pilot study will determine the feasibility of pharmacogenetic dosing of warfarin in children.

Role: Core laboratory director STAGO USA Diagnostics Evaluation of Satellite <sup>®</sup> coagulation instrument for FDA submission	1/01/08-9/30/08	5%
Beckman-Coulter Inc. Evaluation of an automated hematology analyzer prototype for peripheral blood and body fluid cell counting and white cell differential determination.	11/1/05-12/31/08	5%
Osmetech Molecular Diagnostics Evaluation of precision and accuracy of eSensor XT-8 instrument for CYP2C9*2/*3 and VKORC1-1639 SNP	8/18/08-11/01/08	3%
Dade-Behring Inc. Evaluation, for FDA submission, of a new D-dimer reagent f on four coagulation instruments to determine negative predictive value to rule out DVT and PE in 200 emergency room patients suspected of acute venous thromboembolic events.	7/1/07-12/31/07	5%
1 RO1 HL074724-01 Gage (PI) NIH/NHLBI Pharmacogenetics, Biomarkers, and Antithrombotic Therapy Role: Co-investigator The goals of this study are to continue our investigations the relationships between warfarin dose, genetic markers, and clinical factors in several different patient populations.	9/30/03-8/31/08	16%
1 RO1 HL71083-01 Gage (PI) NIH/NHLBI Pharmacogenetics and Antithrombotic Therapy Role: Co-investigator, Director of genotyping laboratory The goals of this study were to validate our previously developed algorithm for prediction of steady state warfarin dose based on demographic, clinical, and polymorphisms in the cytochrome P450 2C9 gene that affect warfarin metabolism, and to conduct a prospective pilot study initiating warfarin therapy in patients undergoing hip and knee replacement surgery at a dose based on the algorithm.	5/01/02-02/28/04	10%
5 R01 HL57951-03 Ridker (PI) NIH/NHLBI (subcontract) Secondary Prevention Trial of Venous Thrombosis Role: Co-investigator, Director of Laboratory Coordinating Center The major goal of this prospective, double-blinded study was to determine if low-dose warfarin (INR 1.5-2.0) can prevent recurrent venous thromboembolic events (VTE) in patients who have experienced a spontaneous VTE and have completed a standard course of oral anticoagulation.	9/1/98 – 7/31/03	15%