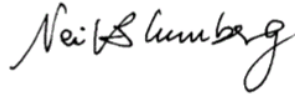


CURRICULUM VITAE



January 9, 2015

Neil Blumberg, M.D.

Professor, Department of Pathology and
Laboratory Medicine
Director, Clinical Laboratories, Transfusion Medicine Unit and
Blood Bank, Strong Memorial Hospital
University of Rochester School of
Medicine and Dentistry
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Academic Appointments

2013-present	Vice-Chair, Laboratory Medicine
1995-present	Professor of Pathology and Laboratory Medicine, University of Rochester School of Medicine, Rochester, NY
1984-1995	Associate Professor of Pathology and Laboratory Medicine, University of Rochester School of Medicine, Rochester, NY (Tenure: July, 1990)
1980-84	Assistant Professor of Pathology and Laboratory Medicine, University of Rochester School of Medicine
1978-80	Assistant Professor of Laboratory Medicine, University of Connecticut School of Medicine, Farmington, CT
1977-78	Instructor in Laboratory Medicine, Yale University, New Haven, CT

Clinical Appointments

2004-present	Director, Clinical Laboratories, Strong Memorial Hospital
1980-Present	Director, Transfusion Medicine Unit, Blood Bank and Stem Cell Processing Lab, Strong Memorial Hosp, Rochester, NY
1988	Acting Director (April-September) Clinical Laboratories, SMH

1978-80 Assistant Director, American Red Cross Blood Services,
Connecticut Region, Farmington, CT

Education

MD, 1975 Yale University School of Medicine, New
Haven, CT (1970-75)

Yale University Graduate School of Arts and
Sciences, Department of Molecular Biophysics
and Biochemistry, New Haven, CT (1971-74)

BS, 1970 Yale College, New Haven, CT (1967-70)

Cornell University College of Arts and Sciences
Ithaca, NY (1966-67)

Residency and Postdoctoral Training

1977-78 Chief Resident, Laboratory Medicine
Yale-New Haven Hospital, New Haven, CT

1976-77 Assistant Resident, Laboratory Medicine,
Yale-New Haven Hospital, New Haven, CT

1975-76 Intern, Laboratory Medicine,
Yale-New Haven Hospital, New Haven, CT

Honors and Awards

1971-74 NIH Medical Scientist Training Grant
Fellowship

1970 BS, Yale, Magna Cum Laude

1969 Phi Beta Kappa

1966-70 National Merit Scholar

Grants and Contracts

2013-2018 NIH, NHLBI ABC PICU Clinical Trial (P.I.: Phillip
Spinella MD, Washington University). Louis E. Dougherty
MD, Jill Cholette MD (Critical Care) and Neil Blumberg
MD (Transfusion Medicine) Site P.I.s. This is a multi-
center clinical trial to determine whether transfusing red
cells with shorter than standard storage duration
improves clinical outcomes in critically ill children beyond
the neonatal period.

2012-2017 NIH, NHLBI Transformative RO-1 HL 117329, (P.I.:
Sergey Shevkoplyas, PhD, Tulane University) Consultant
(Year 1; Subcontract for years 2-5)(4% effort).
"Eliminating mediators of toxicity from stored blood."

\$250,000 ADC

2014-2015 NIH, Univ. Rochester Clinical Translational Science Institute Pilot Award (PI: Sherry Spinelli PhD) Co-investigator (4% effort; no salary). "The role of microparticle-derived Thy-1 (CD90) in Type 2 Diabetes Mellitus." \$50,000 ADC.

2013-2014 British American Tobacco (P.I.: Sherry L Spinelli, PhD) Co-Investigator: 4% Salary/Effort. "Tobacco smoke modulation of microparticle composition, vascular inflammation and platelet NF-kB" \$614,668 (including indirect costs)

2013-2014 American Society of Hematology (P.I., Moritz Stolla MD) Neil Blumberg MD as Mentor for ASH Honors Award . "PPAR γ agonists and mitochondrial function during platelet storage for transfusion." \$7,000.

2009-2014 NIH, NHLBI R01 HL095467, P.I. (Co-PIs: N. Blumberg, R. Phipps) 10% salary/effort. "Identification and Significance of Biologic Mediators in Red Cell Concentrates" \$250,000 ADC. No cost extension to 2014.

2012-2013 NIH, NCATS UL1TR000042 Univ. Rochester Clinical Translational Science Institute Pilot Award. P.I. (10% effort; no salary). "Improving Platelet Storage and Transfusion Outcomes with PPAR γ Ligands." \$50,000 ADC.

2011-2012 NIH, NIAID, Univ. Rochester Center for Medical Countermeasures against Radiation, Pilot Project. (P.I.: Phipps) Co-investigator (4% effort; no salary). "Mitigation and modeling of platelet and megakaryocyte impairment following radiation injury." \$75,000 ADC.

2011-2012 NIH, Univ. Rochester Clinical Translational Science Institute Pilot Award (PI: Sherry Spinelli PhD) Co-investigator (4% effort; no salary). "Microparticle miRNAs as transcellular messengers in diabetes and vascular disease. \$50,000 ADC.

2009-2012 NIH, NHLBI RC1 HL100051 Co-investigator 5% salary/effort (PI: Phipps) "Microparticles as Messengers of Communication Between Blood and Vascular Cells" \$500,000 ADC. No cost extension through 2012.

2009-2011 NIH, NHLBI R21 HL093129. Co-investigator, 4% salary/effort. "Blood transfusions: gender differences in utilization, predictors and outcomes." \$234,000 ADC. MAM Rogers PhD, P.I. University of Michigan.

2006-08	NIH, NHLBI 1 R21HL086367. Co-investigator, 5% salary/effort. "Normal and Type-2 Diabetic Platelet Proteomics and Storage for Transfusion." \$150,000 ADC. RP Phipps PhD, P.I.
2004-08	NIH, NHLBI. 1 R01HL078603. Co-Investigator, 5% salary / effort. "Platelet Activation and Inflammatory Mediators" \$200,000 ADC. RP Phipps PhD, P.I.
2002-04	James P. Wilmot Cancer Center Discovery Fund Seed Grant, University of Rochester, co-P.I. "The clinical consequences of transfusing platelet CD40 ligand (CD154) in adult acute myeloid leukemia (AML)." \$25,000
2001-04	Gambro BCT, Inc., P.I., Lakewood, CO. CD40 Ligand and platelet transfusion immunology. \$10,000 unrestricted grant.
1992-97	Pall Biomedical Corp., Glen Cove, NY. P.I., 10% effort. "The Use of Leukocyte-Depleted Blood Components in Adult Lymphoma Patients Receiving Autologous Bone Marrow Transplantation (BMT) or Newly Diagnosed Adults with Acute Leukemia," \$20,000.
1992-95	American Red Cross, Bethesda, MD. Co-investigator, 5% effort. "Immune complexes and the pathogenesis of platelet transfusion refractoriness and autoimmune thrombocytopenia," \$175, 520. JM Heal, MRCP, P.I.
1992-94	Ortho Biotech, Raritan, NJ. P.I., 5% effort. "Immunologic and clinical effects and cost effectiveness of autologous versus homologous transfusions in hip replacement surgery," \$17,190.
1990-92	American Red Cross, Bethesda, MD. Co-investigator, 5% effort. "Immune complexes and antibodies to plasma proteins in the pathogenesis of platelet transfusion refractoriness," \$153,358. JM Heal, MRCP, P.I.
1988-93	NIH, National Institute of Aging. RO 1AG08178. Co-Investigator, 10% salary / effort. "Pathogenetic aspects of erythrocyte autoantibody formation in man." \$97,172 ADC for 88-89. J Leddy, MD, P.I.
1989-91	AABB Research Foundation, P.I., 5% effort. "A comparison of the clinical and immunologic effects of autologous or homologous transfusions in patients undergoing spinal fusion surgery." \$26,925.
1987-89	American Red Cross, Bethesda, MD,

Co-investigator, 5% effort. "Multicenter Trial of Cross-matching versus HLA Matching for Patients Refractory to Platelet Transfusion," \$53,000. JM Heal, MRCP, P.I.

1985-87

American Red Cross, Bethesda, MD,
Co-investigator, 5% effort. "Use of Chloroquine as an Eluting Agent for the Evaluation of Patients Refractory to Platelet Transfusion", \$134,336. JM Heal, MRCP, P.I.

1984-85

New York State AIDS Institute AO107, P. I., 20% salary/effort. "Antibody to Peripheral Blood Cells in AIDS", \$85,000 ADC.

PATENTS

Peroxisome Proliferator-Activated Receptor (PPAR) Expression in Human Body Fluids, Platelets and Secretions

Use of Peroxisome Proliferator-Activated Receptor Gamma (ppar) and /or Retinoic Acid Receptor (RXR) Agonists to Inhibit Platelet Functions
PCT/US2004/35065

Use of Peroxisome Proliferator-Activated receptor (PPAR) Gamma Agonists to Inhibit Platelet Release of CD40 Ligand and Treat CD40 Ligand-Mediated Conditions
2004285486

Licensure and Board Certification

Diplomate, National Board of Medical Examiners (USA), July 1976

New York State Medical License, 1980

American Board of Pathology (Clinical Pathology), 1978; Fellow, College of American Pathologists

Laboratory Director Certificate of Qualification, NY State, 1984

Special Training

Hartford Graduate Center, Management Development Program, June 1979

Professional and Peer Review Activities

Ad hoc reviewer for various journals including NEJM, British Journal of Haematology, etc. Abstract reviewer for ASH and AABB annual meetings (co-ordinating Transfusion Medicine reviewer for ASH, 2003 and 2009). Consultant to Haemonetics, Fenwal, Bayer, Pall, Terumo BCT(Caridian/Gambro).

2014-2017

Chair, Data Safety Monitoring Board, IND 15910 Pre-Hospital Use of Plasma for Traumatic Hemorrhage (PUPTH), United States Army Combat Casualty Research Command, Virginia Commonwealth University

2011-2015	Standing Member, NHLBI T32 (Institutional Training Mechanism) Study Section
2011-2017	Co-Chair, Study Monitoring Board, NHLBI REDS III
2008-2012	Member, Editorial Board, BLOOD
2008-present	Member, Editorial Board, Advances in Hematology
1990-present	Member, Editorial Board, TRANSFUSION
2011-2015	Elected Member, Board of Directors, Society for the Advancement of Blood Management
2011	Member, NHLBI K12 Study Section—Training in Benign Hematology and Transfusion Medicine
2011	Member, NHLBI Special Emphasis Panel (RO1, R21) Study Section in Transfusion Medicine
2005-2011	Chair, Study Monitoring Board, NHLBI REDS II
2010-present	Medical Consultant, Medical Laboratory Evaluation Program American College of Physicians
2010	Chair, NHBLI REDS III Special Emphasis Grant Review Panel
2010	NHLBI Erythrocyte and Leukocyte Biology Study Section Ad Hoc Member
2009	NHLBI State of the Science Symposium on Clinical Trials in Transfusion Medicine, Hemostasis & Thrombosis, Invited Participant
2009	NHLBI Ad Hoc Study Section—Phase II Clinical Trials ARRA Grand Opportunities Program
2007	Discussion Leader/Chair--NHLBI Working Group on Clinical Outcomes in Transfusion Medicine
2007	NHLBI Working Group on the Immune Consequences of Allogeneic Exposure, Invited Speaker
2007	NHLBI Ad Hoc Study Section—Transfusion Medicine Hemostasis Clinical Research Network
2006-2011	AABB Biovigilance Working Group
2006-2007	NHLBI Working Group on Blood Safety/Availability Strategic Plan

2005; 2007	NHLBI T32 Training Grant Study Section Ad Hoc Member
2004	NHLBI REDS II Study Section Member
1999-2010	Dean's Research Advisory Committee-Univ. Rochester
1997-2007	Member, Clinical Council, Strong Memorial Hospital
1995-1999	Chair, Regional Medical Advisory Committee (NY-Penn Red Cross) and Member, Blood Services Board
1992-1997	Member, Utilization Management Committee Strong Memorial Hospital
1986-1995	Member, Executive Council (to 1989) and Editor, Newsletter, Academy of Clinical Laboratory Physicians & Scientists
1982-1990	Member, District Advisory Group, Northeast Region, American Association of Blood Banks
1982-1986	Member, Committee on Component Therapy, American Association of Blood Banks
1981-85	Member, Quality Assurance Committee and its Steering Committee, Strong Memorial Hospital
1980-85	Chairman, Blood Utilization Committee, Strong Memorial Hospital
1978-80	Abstractor, <u>Transfusion</u>
1976-78	Member, Executive Board, Connecticut Area II PSRO
1976-78	Member, Patient Care Studies Committee, Yale-New Haven Hospital
1971-78	Editorial Board and Book Review Editor, <u>Yale Journal of Biology and Medicine</u>
1976-78	Member and Secretary, Housestaff Council Yale-New Haven Hospital

Professional Societies

American Society of Hematology
American Association of Blood Banks
Society for the Advancement of Blood Management
Academy of Clinical Laboratory Physicians and Scientists
American Association for the Advancement of Science

Mentoring

My track record of mentoring physicians includes former residents and fellows who now hold full professorships and clinical leadership positions in transfusion medicine/blood banking and laboratory medicine at Columbia University (Steven Spitalnik), University of Pittsburgh (Darrell Triulzi), Northwestern University (Glenn Ramsey) and University of Connecticut (Patricia Pisciotto). Several additional former trainees are involved in academic laboratory hematology/transfusion medicine (Jorge Rios at Harvard/American Red Cross and Paul Murphy at University of Kentucky). In addition, two former residents who I mentored are now department chairs with areas of clinical specialty outside transfusion medicine (Greg Freund at the University of Illinois and Mukesh Agarwal at United Arab Emirates). During their residency and fellowship these outstanding young physicians co-authored a total of several dozen published peer-reviewed manuscripts, comprising a substantial portion of my own publications during my career.

I have been extensively involved in resident training in pathology and laboratory medicine and fellowship training in adult and pediatric hematology-oncology. During 1980-1990 I was the only attending physician at the University of Rochester Medical Center with a special interest in transfusion medicine and thus trained residents full-time, and from 1990-2007 was the attending 50% of the time. In 2004, when I became Director of Clinical Laboratories I reduced my attending time to approximately 25-30% effort, and remain active in teaching/mentoring residents in pathology and laboratory medicine and fellows in hematology-oncology.

In addition, I am regularly involved in clinical and research mentoring of junior faculty in our department. In particular, I have been the primary mentor for our two associate medical directors of transfusion medicine/blood, Associate Professor Scott Kirkley MD (1990 to present; 12 joint publications), Associate Professor Majed Refaai MD (2008-present; 10 joint publications) and our research group's Research Associate Professor, Sherry Spinelli PhD (2005-present; 24 joint publications). I also mentor faculty outside our department, including Dr. Jill Cholette MD, Associate Professor of Pediatrics (2008-present; 5 joint publications).

Administrative and Leadership Roles

As Director of Blood Bank/Transfusion Medicine since 1980 I supervise an urgent care clinical service that operates 24/7, mostly for critically ill patients, involving approximately 35 technical staff FTEs and a budget of about \$10 million annually. I have consistently been integrally involved in human resources issues, capital and operating budget decisions, relationships with other clinical services, hospital administration and extramural organizations such as our primary provider of blood components, the American Red Cross Blood Services. My role involves training and mentoring medical technologists and supervisory staff as they develop new skills and take on new responsibilities. Unlike most faculty in pathology and laboratory medicine, my activities have routinely included direct patient care, including primary responsibility for patients while they undergo autologous blood donations or therapeutic plasma exchange or cytapheresis. As a consultant transfusion medicine physician, I routinely employ laboratory services for diagnosis and treatment recommendations, and thus, like primary and specialty clinicians, am a consumer of laboratory services, as well as a provider.

Since 2004 I have also been Director of Clinical Laboratories, in which role I am responsible for the activities of several hundred technical staff in providing the broad array of diagnostic laboratory services, encompassing thousands of different types of tests and a clinical budget of \$72 million per year. Reporting to the academic chair and SMH pathologist in chief, I am the responsible clinical chief of service for pathology and laboratory medicine at UPMC Medical Center for purposes of regulatory agencies (FDA, CLIA, New York State) who provide us with legal permission to operate, and for accrediting organizations that ascertain that we meet required standards of quality and performance (College of American Pathologists, AABB, FACT, Joint Commission).

In my role as director of transfusion services, our blood bank has been an innovator in cost effectiveness analysis and introduction of technologies and policies that improve clinical outcomes, and are life saving and conserving of financial resources. We were the first or one of the first hospitals in the USA to introduce leukoreduction of transfusions in cardiac surgery (1998), universal leukoreduction for all transfusions (2000) and perhaps the only hospital in the world to implement universal use of ABO identical blood components (2005). All of these pioneering efforts were data driven, based upon randomized trials and other published research by our own group and colleagues elsewhere. Our group published some of the first clinical outcomes studies ever in transfusion medicine in the 1980s, and also the first publications on the economic consequences of these innovations in transfusion medicine. In the field of transfusion medicine, our Rochester group has led the transfusion medicine community worldwide in identifying and ameliorating the immunomodulatory effects of blood transfusion, which have been a major driving force for modifying transfusion practices and standards nationally and internationally.

Abstracts (Since 1991)

1. Cox MT, Roberts M, Lajoie J, Enfonde M, Kress D, **Blumberg N.** A clinically significant primary response at ten days in a previously untransfused child. Transfusion 31 (Supplement): 28S (1991). Presented to the AABB, November, 1991, Baltimore MD.
2. Cox MT, Sheils L, Masel D, **Blumberg N.** Fetal hydrops due to anti-B. Transfusion 31 (Supplement): 29S (1991). Presented to the AABB, November, 1991, Baltimore MD.
3. Heal JM, Masel D, **Blumberg N.** Circulating immune complexes involving the ABO system in patients refractory to platelet transfusions. Transfusion 31 (Supplement): 103S (1991). Presented to the AABB, November, 1991, Baltimore MD.
4. Heal J, Cowles J, Masel D, Rowe J, **Blumberg N.** Evidence for indirect mechanisms of post-transfusion platelet destruction--platelet count decrements after incompatible transfusions. Blood 78 (Supplement): 348a (1991). Presented to the Amer. Soc. of Hematology, December, 1991, Denver CO.

5. Heal J, Rowe J, **Blumberg N**. The importance of ABO identical platelet transfusions. Blood 78 (Supplement): 348a (1991). Presented to the Amer. Soc. of Hematology, December, 1991, Denver CO.
6. Heal J, Kenmotsu N, Rowe J, **Blumberg N**. A survival advantage in leukemics receiving ABO identical platelets. Blood 78 (Supplement): 349a (1991). Presented to the Amer. Soc. of Hematology, December, 1991, Denver CO.
7. Heal J, Cowles J, Masel D, Rowe J, **Blumberg N**. Antibodies to plasma proteins--a possible contributing cause of platelet transfusion refractoriness. Blood 78 (Supplement): 349a (1991). Presented to the Amer. Soc. of Hematology, December, 1991, Denver CO.
8. Cox MT, Marciano K, McMican A, **Blumberg N**. A training program for new technologists using a one on one approach. Transfusion 32(Supplement): 90S (1992). Presented to the Amer. Assn. of Blood Banks, November, 1992, San Francisco, CA.
9. **Blumberg N**, Heal J, Rapoport A, DiPersio J, Rowe J, Panzer R. Effect of ABO-identical platelets and leukodepletion on blood utilization and costs of autologous bone marrow transplantation. Transfusion 33(Supplement): 83S (1993). Presented to the Amer. Assn. of Blood Banks, October, 1993, Miami, FL.
10. **Blumberg N**, Heal J, Kirkley S, Panzer R, Rowe J. Cost effectiveness of leukodepleted transfusions during induction therapy for acute leukemia. Transfusion 33(Supplement): 83S (1993). Presented to the Amer. Assn. of Blood Banks, October, 1993, Miami, FL.
11. Heal JM, Masel D, **Blumberg N**. Platelets coated with ABO immune complexes from refractory patients are associated with increased adhesion to monocytes. Transfusion 33(Supplement): 16S (1993). Presented to the Amer. Assn. of Blood Banks, October, 1993, Miami, FL.
12. **Blumberg N**, Kirkley S, Panzer R, Heal J. A cost analysis of autologous compared to autologous plus allogeneic blood transfusions in hip replacement surgery. Brit J Haematol 87(Supplement): 72 (1994). Presented to the European Hematology Association, Brussels, Belgium, June, 1994.
13. Kirkley S, Cowles J, Pellegrini V, Harris C, Boyd A, **Blumberg N**. T helper 2 (Th2) type cytokine secretion found in surgical patients receiving allogeneic blood. Transfusion 35(Supplement): 44S (1995). Presented to the Amer. Assn. of Blood Banks, November, 1995, New Orleans, LA.
14. Heal JM, Masel D, **Blumberg N**. Inhibition of immune complex binding to platelets by monoclonal antibodies to the Fc and C1q receptors. Transfusion 35(Supplement): 19S (1995). Presented to the Amer. Assn. of Blood Banks, November, 1995, New Orleans, LA.

15. **Blumberg N**, Kirkley S, Heal J. The potential public health impact of allogeneic transfusion immunomodulation. *Blood* 86(Supplement): 854a (1995).
16. **Blumberg N**, Cowles J. Hypotension and allogeneic transfusion as predictors of morbidity after coronary artery surgery. *Transfusion* 36(Supplement): 35S (1996). Presented to the Amer. Assn. of Blood Banks, October, 1996, Orlando, FL.
17. **Blumberg N**, Heal JM. A new theory of transfusion immunology. *Blood* 88(Supplement 1-Part 2): 89b (1996)
18. **Blumberg N**, Heal JM, Rowe JM, Kirkley SA. Reduced morbidity and mortality in adult acute leukemia associated with leukodepleted blood transfusions. *Blood* 90 [Supp. 1]: 155a (1997). Presented to the Amer. Soc. Hematology, December, 1997, San Diego, CA.
19. Rios J, Korones DN, Heal JM, **Blumberg N**. Reduced morbidity in pediatric acute lymphocytic leukemia with leukodepleted blood transfusions. *Transfusion* 38 [Supplement]: 25S (1998). Presented to the Amer. Assn. of Blood Banks, October, 1998, Philadelphia, PA.
20. Vo, TD, Cowles JW, Heal JM, **Blumberg N**. Efficacy of washed platelets in prevention of transfusion reactions. *Blood* 94[Supp. 1]: 462a (1999). Presented to the Amer. Soc, Hematology, December, 1999, New Orleans, LA.
21. **Blumberg N**, Heal JM, Hicks GL, Jr, Risher WH. Morbidity and mortality in cardiac surgery associated with transfusion of ABO mismatched platelets. *Transfusion* 40[Supplement]: 130S (2000). Presented to the AABB, November 2000, Washington, DC.
22. **Blumberg N**, Heal JM, Cowles JW, Hicks GL, Jr, Risher WH, Samuel PK, Kirkley, SA. Leukoreduced transfusions in cardiac surgery: results of an implementation trial. *Transfusion* 40[Supplement]: 40S (2000). Presented to the AABB, November 2000, Washington, DC.
23. Kaufman J, **Blumberg N**, Phipps RP. A role for platelet derived CD40 ligand (CD154) in acute inflammation. *FASEB J* 15(4) Part I: A337 (2001). Presented to the FASEB, AAI, April, 2001, Orlando, FL.
24. Vanderlinde E, Kaufman J, Phipps R, **Blumberg N**. CD40 ligand accumulation during storage of human platelet concentrates: implications for transfusion complications. *Am. J. Clin Path.* 118: 292-293 (2002). Presented to the ACLPS, May, 2002, NY, NY.
25. **Blumberg N**, Heal JM, Gettings KF. Leukoreduction of red cell transfusions is associated with a decreased incidence of red cell alloimmunization. *Transfusion* 42[Supplement]: 26S (2002). Presented to the AABB, October, 2002, Orlando, FL.

26. **Blumberg N**, Heal JM, Rowe JM. Platelet transfusion and clinical outcome in acute leukemia in adults. *Transfusion* 42[Supplement]: 5S (2002). Presented to the AABB, October, 2002, Orlando, FL.
27. Coppage M, **Blumberg N**, Chen L, Massey T, Heuther J, Zand M., Leong N. Shanahan T. Allosensitization and LVAD: it's in the blood-abrogation of HLA allosensitization by transfusion with leukoreduced, ABO identical blood products. *Human Immunology*. 64(10 Suppl):S44, (2003); *Blood* 102: 562a (2003). Presented to the ASHI, October, 2003 and Amer. Soc. Hematology, December, 2003, San Diego, CA.
28. **Blumberg N**, Zhao H, Messing S, Heal JM, Lyman GH. Misapplication of the intention to treat principle in clinical trials and meta-analyses of leukoreduced blood transfusions in surgical patients. *Blood* 102: 562a (2003). Presented to the Amer. Soc. Hem., December 2003, San Diego, CA.
29. **Blumberg N**, Fine L, Gettings KF, Heal JM. Decreased line related infections coincident with implementation of universal leukoreduction of blood transfusions. *Transfusion* 44[Supplement]: 4A (2004). Presented to the AABB, October 2004, Baltimore, MD.
30. **Blumberg N**, Gettings KF, Turner C, Heal JM, Phipps RP. The role of platelet derived soluble CD40 L(sCD40L; CD154) in adverse reactions to platelet transfusions. *Transfusion* 44[Supplement]: 18A (2004). Presented to the AABB, October 2004, Baltimore, MD.
31. **Blumberg N**, Boshkov L, Silliman CC, Kelher M, Gettings KF, Heal JM, Phipps RP. CD40L as a cofactor in the development of transfusion related acute lung injury (TRALI). *Blood* 104: 237a (2004). Presented to the Amer. Soc. Hem., December 2004, San Diego, CA.
32. **Blumberg N**, Gettings KF, Heal JM. ABO mismatched platelet, plasma and cryoprecipitate transfusions and bleeding in transfused surgical patients. *Blood* 106: 122b (2005).
33. Phipps RP, Ray DM, Akbiyik F, Francis CW, Taubman M, **Blumberg N**. Human platelets and megakaryocytes express the transcription factor PPAR gamma and respond to prostaglandin PPAR gamma ligands: implications for inflammation, diabetes and cardiovascular disease. *Prostaglandins and Other Lipid Mediators* 79: 166 (2006).
34. Fialkow LB, Coppage M, Mbaker ML, Chen L, Gettings K, Meehan D, Massey DT, **Blumberg N**. Abrogation of HLA allosensitization in ventricular assist device recipients transfused with leukoreduced, ABO identical blood products. *Transfusion* 47 [Supplement]: 135A-36A (2007). Presented to the AABB, Anaheim, CA, October, 2007.
35. Fialkow LB, Zucchiatti A, Cheng J, Piotrowski ES, Lentz C, King R, Stassen N, Gestring M, **Blumberg N**, Bankey P. ABO non-identical transfusions and red blood cell usage in blunt trauma patients. *Transfusion* 47 [Supplement]: 192A-93A (2007). Presented to the AABB, Anaheim, CA, October, 2007.

36. **Blumberg N**, Fialkow LB, Gettings K, Zucchiatti A, Heal JM, Bankey PE. Blood group O and ABO non-identical platelet transfusions are associated with increased red cell utilization in non-trauma surgical patients. *Blood* 110: 71B (2007).
37. Kanda J, Ichinohe T, Matsuo K, Benjamin RJ, Klumpp TR, Rozman P, **Blumberg N**, Mehta J, Sohn SK, Uchiyama T. Individual patient data-based meta-analysis of cohort studies comparing clinical outcomes of ABO mismatched or matched stem cell transplantation in patients with haematological malignancies. *Bone Marrow Transplantation* 41(Supplement): S22 (2008).
38. Refaai M, Masel E, Gettings K, Phipps R, Spinelli S, Corsetti J, Fialkow L, Francis C **Blumberg N**. The effects of anti-A and anti-B on platelet function: an in vitro model of ABO non-identical transfusion. *Transfusion* 48[Supplement]: 210A (2008). Presented to the AABB, Montreal, Canada, October, 2008.
39. Gettings K, Howk N, Masel D, Refaai M, Kirkley S, Heal J, **Blumberg N**. Providing ABO identical platelets to all patients-methods and clinical outcomes. *Transfusion* 48[Supplement]: 82A (2008). Presented to the AABB, Montreal, Canada, October, 2008.
40. Refaai M, Khorana A, Francis C, **Blumberg N**, Culakova E, Lyman G. Blood transfusions, thrombosis and mortality in hospitalized cancer patients. *Transfusion* 48[Supplement]: 202A (2008). Presented to the AABB, Montreal, Canada, October, 2008.
41. **Blumberg N**, Heal J, Masel D, Gettings K, Refaai M, Kirkley S, Fialkow L. Decreased TACO, TRALI and febrile but not allergic reactions after implementation of universal leukoreduction. *Transfusion* 48[Supplement]: 202A-203A (2008). Presented to the AABB, Montreal, Canada, October, 2008.
42. Refaai M, Chuang C, Menegus M, **Blumberg N**, Francis C. Outcomes after platelet transfusion in patients with heparin-induced thrombocytopenia. *Transfusion* 48[Supplement]: 35A (2008). Presented to the AABB, Montreal, Canada, October, 2008.
43. Sahler J, Bernard J, Spinelli S, Casey A, **Blumberg N**, Phipps R. Parthenolide, an anti-inflammatory NFkB inhibitor, stimulates platelet production and blunts platelet activation. *J. Immunol.* 184: 87:17 (2010). Presented to the Amer. Assn Immunologists Baltimore, MD, May 2010.
44. Rogers MAM, **Blumberg N**, Heal JM, Langa KM. Venous thromboembolism in women after transfusion. 3rd North American Congress of Epidemiology, Jun 21-24, 2011. Montreal, Canada. *American Journal of Epidemiology*. 2011 Jun; 173(Suppl 11):S1-S331.
45. Cholette JM, Alfieris GM, Phipps RP, Spinelli SI, Gensini FJ, **Blumberg N**. Washed red cells reduce the inflammatory response to transfusion in pediatric cardiac surgery: results of a randomized clinical trial. *Transfusion* 51 [Supplement]: 18A (2011). Presented to the AABB, San Diego, CA. October, 2011.

46. Refaai MA, Carter J, Henrichs KF, Spinelli SL, Phipps RP, Francis CW, **Blumberg N**. The effect of anti-A antibodies on platelet function and clot formation; an in-vitro model of ABO non-identical transfusion. Thrombosis and Hemostasis Summit of North America. Chicago, IL. May, 2012. Amer. J Hematology.
47. Lannan K, Spinelli S, Casey A, **Blumberg N**, Phipps R. Resveratrol blunts unwanted platelet activation that occurs during platelet storage and as a consequence of red blood cell transfusion (P3171). *J. Immunol.* 2013; 190:43.47. Presented to the American Assoc. of Immunologists, Honolulu, HI, May 2013.
48. Rogers MAM, Micic D, **Blumberg N**, Young VB, Aronoff DM. Storage Duration of red blood cell transfusion and Clostridium difficile infection: a within-person comparison. European Society of Clinical Microbiology and Infectious Diseases. Barcelona, Spain. May 2014.
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50. Refaai MA, Conley G, **Blumberg N**. The in vitro effect of anti-A antibody on von Willebrand factor antigen levels and activity. Thrombosis and Hemostasis Summit of North America 2014. Chicago, IL, April 2014.

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119. Cholette JM, Pietropaoli AP, Henrichs, KF, Alfieri GM, Powers KS, Phipps R, Spinelli S, Gensini F, Swartz M, Sweeney D, Daugherty LE, Nazarian E, Rubenstein JS, Eaton M, **Blumberg N**. Longer red blood cell storage duration is associated with increased post-operative infections in pediatric cardiac surgery. *Pediatric Critical Care Medicine* (in press, 2014).

Invited Lectures/Visiting Professorships (Since 1991)

March 28-29, 1991--Rita and Taft Schreiber Memorial Lectureship in Transfusion Medicine/ Visiting Professor, Cedars-Sinai Medical Center/UCLA, Los Angeles, CA. "Risks Associated with Blood Transfusion Therapy--a 1991 Perspective" and "Transfusion Associated Immunomodulation and Its Clinical Consequences."

April 3, 1991 --Surgical Grand Rounds, Hamot Medical Center, Erie, PA. "Transfusion, cancer recurrence and postoperative bacterial infection."

May 1, 1991 --Surgical Grand Rounds, Infectious Disease Grand Rounds and Citywide Hematology Conference--Visiting Professor at Sunnybrook Medical Center (University of Toronto, Canada).

May 17-18, 1991--Rochester, MN--Mayo Clinic--Hematology and Transfusion Medicine Grand Rounds--Visiting Professor.

May 28, 1991--Medical Grand Rounds, St. Mary's Hospital, Rochester, NY "Transfusion Induced Immunosuppression."

September 24-28, 1991--Invited Speaker, Joint Meeting of the Australasian Society of Blood Transfusion and The Haematology Society of Australia; Joint Session with the Australian Society of Anesthetists. "Transfusion induced immunomodulation; Platelet transfusion refractoriness; Erythropoietin and surgery." Melbourne, Australia.

October 26, 1991--Invited Speaker, Canadian Society of Blood Transfusion Fall Seminar, "Transfusion and its relation to cancer recurrence and postoperative infection." London, Ontario, Canada. University of Western Ontario, London, Canada--Visiting Professor in Transfusion Medicine.

October 17, 1991-- Orthopaedic Grand Rounds, Strong Memorial Hospital.

November 9-10, 1991--Baltimore, MD--Amer. Assn. of Blood Banks--Invited Speaker--Workshop on "Transfusion Medicine 1991 and Beyond"

November 21, 1991--Galveston, TX--University of Texas Medical Branch--Surgical Grand Rounds--Visiting Professor.

June 17, 1992--New Haven, CT--Yale University Dept. of Laboratory Medicine--Invited Speaker--Retirement Symposium for Joseph R. Bove

September 26, 1992--Grand Rounds, Dept. of Surgery, University of Colorado, Denver, CO.

October 30-31, 1992--Dept. of Medicine, University of Wisconsin, Madison, WI, Visiting Professor.

December 9-10, 1992-- Invited Speaker, Los Angeles Red Cross Blood Services 50th Anniversary Symposium, Long Beach, CA.

March 2, 1993--Community General Hospital, Syracuse, NY. Medical Grand Rounds.

May 6, 1993--Invited Speaker. California State Assn. of Blood Banks Annual Meeting, Newport Beach, CA.

May 13, 1993--Invited Speaker. Norfolk Red Cross/East Virginia Medical School Symposium on Transfusion Practices, Norfolk, VA

August 26, 1993--Invited Speaker. College of American Pathologists Conference on Transfusion Medicine--Practices and Issues. Aspen, CO.

October 24-25, 1993--Invited Speaker. Pall Biomedical, American Red Cross, AABB and CCBC Symposium on Cost-Effectiveness of Leukocyte Depletion. Miami Beach, FL.

November 3, 1993--Invited Speaker. Case Western University School of Medicine Symposium on the Management of Anemia in Cancer Patients, Cleveland, OH.

November 16, 1993--Hematology Research Conf., Dept. of Medicine, University of Rochester.

November 23, 1993--Dept. of Surgery, University of Michigan/St. Joseph's Mercy Hospital. Grand Rounds. Ann Arbor, MI.

January 27-28, 1994--Invited Speaker/Co-Chair. Conference on Blood Transfusion in Cancer. Sponsored by the Erasmus University/Leiden University/Netherlands Red Cross. Leiden, The Netherlands.

April 15, 1994--Invited Participant. Canadian National Red Cross Advisory Committee on Leukocyte Depletion Policy. Toronto, Canada.

September 23, 1994--Invited Speaker. Vascular Surgery Symposium sponsored by New York Medical College. Poughkeepsie, NY.

October 13, 1994--Invited Speaker. Danish Society of Clinical Immunology Consensus Conference on Leukodepletion. Copenhagen, Denmark.

October 22, 1994--Visiting Professor, Departments of Anesthesia, Medicine and Pathology, University of Nebraska. Symposium on Blood Transfusion in Surgery. Omaha, NE.

November 12-17, 1994--Invited Speaker, AABB Workshop Transfusion Medicine 1994 and Beyond (Platelet Transfusion Refractoriness) and Research in Progress Session (Transfusion Immunomodulation). San Diego, CA.

February 2, 1995--Invited Speaker, New York Blood Center Symposium "Leukocyte Reduction in Transfusion Practice," NY, NY.

April 29, 1995--Medical/Surgical Grand Rounds, Sarasota General Hospital, "Risks of Blood Transfusions," Sarasota, FL.

September 13, 1995--Wahle Lecturer- City-Wide Medical Grand Rounds, Roswell Park Memorial Institute & SUNY Buffalo, "Transfusion Immunomodulation," Buffalo, NY.

September 13, 1995--Hematology/Oncology Grand Rounds-- "Current Perspectives in Platelet Transfusion Refractoriness," VA Hospital, Buffalo, NY.

September 14, 1995--Invited Speaker, Cambridge Healthtech Institute & American Red Cross, Symposium on "Leukodepletion of Blood Components: Implications for Transfusion Medicine," Boston, MA.

October 12, 1995--Surgical Grand Rounds, St. Elizabeth's Hospital, "Risks of Blood Transfusion and Alternative Strategies for Managing Anemia," Boston, MA.

October 26, 1995--Invited Speaker, Symposium on Leukodepletion of Blood Components, University of Minnesota and St. Paul American Red Cross, St. Paul, MN.

February 28, 1996--Medical Grand Rounds, Cabrini Medical Ctr., NY, NY. "Recent Advances in Transfusion Support of Patients with Malignancies."

April 26, 1996-- Hematology-Oncology Conference, St. Vincent's Hospital, NY, NY. "Recent Advances in Transfusion Support of Patients with Malignancies."

September 10, 1996--Surgical Grand Rounds, VA Medical Center, Albany, NY. "Alternative Strategies for Treatment of Anemia and Bleeding in Surgical Patients."

September 30, 1996--Grand Rounds, FF Thompson Health System, Inc. "Blood Components for Immunocompromised Patients." Canandaigua, NY

October 14, 1996--Invited Speaker, Research in Progress Session--AABB, Orlando, FL. "Platelet Refractoriness."

October 31, 1996--Grand Rounds, Pathology, SUNY Upstate, Syracuse, NY. "Blood Components Support for Hematologic Malignancies-The Role of Leukodepletion."

December 2-4, 1996--Invited Speaker, Mt. Sinai School of Medicine, Surgical Critical Care Conference, "Transfusion, Leukodepletion and the Surgical Patient," St. Thomas, USVI.

December 6, 1996--Invited Speaker, American Society of Hematology "Super Friday" Satellite Symposium on "Anemia: Time for a Fresh Look at Attitudes, Transfusion Risks and Alternatives." Orlando, FL.

September 6, 1997--Invited Speaker, Institute for Transfusion Medicine/University of Pittsburgh Symposium -- "A New Theory of Transfusion Immunology" Pittsburgh, PA.

December 18-19, 1997--Visiting Professor, Dept. of Pathology, University of South Florida--Moffitt Cancer Center, Tampa, FL. Grand Rounds and informal meetings with residents/faculty.

February 24, 1998--Plenary Lecture, America's Blood Centers Annual Meeting--"Blood Transfusion Immunomodulation, the Silent 'Epidemic'." San Diego, CA.

May 7, 1998--Invited Lecture, Canadian Society for Transfusion Medicine. "ABO Matching and Leukocyte Depletion of Platelet Transfusions for Patients with Hematologic Malignancies." Ottawa, ON, Canada.

June 17, 1998--Invited Lecture, Community Blood Center of Dayton, "Blood Transfusion Immunomodulation, the Silent 'Epidemic'." Dayton, OH.

August 20-22, 1998--Invited Lecture, CAP Conference XXXIII: Transfusion Medicine Performance Improvement. "The Costs of Management Fads and Politically Driven Regulatory Oversight--The Case of Blood Transfusion." San Francisco, CA.

September 11-12, 1998--Third Annual Bloodless Medicine & Surgery Conference, Good Samaritan Hospital. "Transfusion Immunomodulation--The Silent 'Epidemic.'" Los Angeles, CA.

November 3, 1998--Pall Biomedical Symposium at the AABB National Meeting. "Universal Leukocyte Depletion of Transfusions--If Not Now, When?" Phila., PA.

June 17, 1999--Invited Testimony, Proposed Demonstration Projects in Bloodless Medicine & Surgery, State of New Jersey, Dept. of Health & Senior Services, Health Care Administration Board, Jamesburg, NJ.

June 23, 1999--Visiting Professor, Cleveland Clinic, American Red Cross & Case Western Reserve. "Universal Leukoreduction and Transfusion Immunomodulation. Cleveland, OH.

August 9-10, 1999--Expert Panel on Erythropoietin, Johnson & Johnson research advisory program. Princeton, NJ.

December 4, 1999--American Society of Hematology Annual Meeting. Meet-the-Expert Session: "Immunologic Effects of Transfusion," New Orleans, LA.

March 30, 2000--Invited Speaker, "Transfusion Immunomodulation: An Historical Primer," in the Clinical and Molecular Basis of Transfusion-Induced Immunomodulation Symposium, Washington, DC.

April 9, 2000--Invited Speaker, "Transfusion Immunomodulation" in the symposium "In Search of the Zero Risk Blood Supply," American Society of Clinical Pathologists annual meeting. Boston, MA.

May 22, 2000--Visiting Professor and Holbrook Lecturer, "Transfusion Immunomodulation," Medical University of South Carolina, Charleston, SC.

October 19, 2000--Anesthesiology Grand Rounds, "Transfusion Immunomodulation," University of Rochester Medical Center, Rochester, NY.

January 25, 2001--Invited Speaker, "Universal Leukoreduction." HHS Advisory Committee on Blood Safety and Availability. Office of the Surgeon General. Washington, DC.

April 18, 2001--Urology Grand Rounds, "Alternatives to Allogeneic Blood Transfusions." University of Rochester Medical Center, Rochester, NY.

June 29, 2001--Grand Rounds, "Autologous Transfusions." Cayuga Medical Center, Ithaca, NY.

March 15, 2002--Invited Speaker on the occasion of the retirement of Alfred J. Katz MD, "A New Theory of Transfusion Immunology," Holland Laboratory, American Red Cross, Rockville, MD.

March 21, 2003--Pathology and Laboratory Medicine Grand Rounds. "Clinical and immunologic aspects of transfusion immunomodulation." Virginia Commonwealth University (Medical College of Virginia), Richmond VA.

September 13, 2003--Society for the Advancement of Blood Management Annual Meeting. "Transfusion, immunomodulation and inflammation." San Diego, CA

September 19, 2003--American Society of Clinical Pathology Annual Meeting. "Best of the American Journal of Clinical Pathology." One of the five best papers from the 2002 AJCP, selected for presentation and discussion at the annual meeting of the ASCP. "Leukoreduction of transfusions in cardiac surgery." New Orleans, LA.

September 23, 2004 – Indiana Blood Center. "Leukoreduction of Blood Transfusions and Clinical Outcomes." Indianapolis, IN.

October 25, 2004 – American Association of Blood Banks Annual Meeting. "The platelet as an inflammatory cell." Baltimore, MD.

December 14, 2004 – Medical Grand Rounds, University of Rochester Medical Center – "Blood transfusions, helpful or harmful?"

April 25, 2005 – California Blood Bank Society Annual Meeting. "The platelet as an inflammatory cell." Anaheim, CA

May 18, 2005 – Blood Bank Association of New York State Annual Meeting. "The platelet as an inflammatory cell – implications for vascular and transfusion medicine." Verona, NY.

March 31, 2006 – AABB Perioperative Conference – "Deleterious clinical effects of transfusion immunomodulation – proven beyond a reasonable doubt." Dallas, TX.

April 12, 2006 – Rochester General Hospital-Hematology-Oncology Conference – "How I approach the prevention and treatment of platelet transfusion refractoriness."

April 26, 2006 – Visiting Professor, University of Pittsburgh, Hematology-Oncology

May 11, 2006 – Visiting Professor, University of North Carolina, Pathology and Laboratory Medicine, Chapel Hill, NC

September 9, 2006 – Visiting Professor, Medical College of Virginia, Richmond, VA.

February 21, 2007 – “Immunomodulation by transfusion,” Navigant Corp., Lakewood, CO.

May 9, 2007 – “Immunomodulation by transfusion,” Transfusion Medicine and Cellular Therapeutics Branch, Division of Blood Diseases and Resources, National Heart, Lung, and Blood Institute, NIH, Bethesda, MD.

October 31, 2007 – “ABO and clinical outcomes in transfusion medicine,” Transfusion Medicine and Cellular Therapeutics Branch, Division of Blood Diseases and Resources, National Heart, Lung, and Blood Institute, NIH, Bethesda, MD.

June 5, 2008 – Blood Bank Association of New York State Annual Meeting. “Hemovigilance – What is it? Why should you care?” Verona, NY

June 16, 2008 – “Platelets and Inflammation.” Thrombosis and Hemostasis Branch, DBDR, NHLBI, NIH, Bethesda, MD.

November 20, 2008 – “Transfusion Immunomodulation: Evolving Concepts in Patient Outcomes.” American Red Cross Seminar, Worcester, MA.

January 13, 2009 – “To Transfusion or Not Transfuse.” Medical Grand Rounds, Univ. Rochester Medical Center, Rochester, NY.

May 4, 2009 – “Transfusion Medicine’s Second Century: A Paradigm Shift in Progress.” Peter Jatlow Symposium, Dept. of Laboratory Medicine, Yale University School of Medicine, New Haven, CT.

May 30, 2009 – “Transfusion reactions, platelet refractoriness and supportive care of oncology patients.” American Society of Clinical Oncology (ASCO) Annual Meeting, Clinical Education Session, Orlando, FL.

July 29, 2009 – “TRALI – how to prevent it.” Pall Biomedical Corp. Working Group, Roslyn, NY.

September 14-15, 2009 – NHLBI State of the Science Working Group on Transfusion Medicine, Hemostasis & Thrombosis. Invited participant. Bethesda, MD.

October 25, 27, 2009 – AABB Annual Meeting Symposia on “Transfusion Associated Thrombosis/Inflammation/Immunomodulation” (Chair/Speaker) and “Platelet Transfusion Refractoriness” (Speaker). New Orleans, LA.

October 10, 2010 – AABB Annual Meeting Seminar “Platelet Transfusion” (Speaker). Baltimore, MD.

February 17, 2011--Strategic Blood Management Webinar – “Transfusion Immunomodulation”

March 26, 2011--New York City Blood Transfusion Society Spring Seminar – “Transfusion Immunomodulation – the case for leukoreduced, washed blood transfusions.”

April 13, 2011--Univ. Pittsburgh Cancer Center Grand Rounds--“The ABO blood group and transfusion: 110 years after Landsteiner, do we still have a problem with clinical outcomes?”

April 22, 2011--Illinois Blood Bank Society Annual Meeting-- – “Transfusion Immunomodulation – the case for leukoreduced and (perhaps) washed blood transfusions. Chicago IL.

May 6, 2011--Blood Bank Assn. of New York Annual Meeting-- – “Transfusion Immunomodulation – the case for leukoreduced and (perhaps) washed blood transfusions.” Verona NY.

August 31, 2011 – NHLBI, Transfusion Medicine and Cellular Therapeutics Branch, Working Group on Strategies to Optimize Blood Products. Moderator and presenter, “Soluble mediators: washing and/or other manipulations.”

October 22, 25, 2011 AABB Symposium on “Immune Regulation and Transfusion-Associated Complications” and “Platelet Transfusions – What are the Costs, Who Pays and How Can We Do Better” (Speaker).

November 4, 2011 Englewood Hospital Institute for Patient Blood Management and Bloodless Medicine and Surgery, Englewood, NJ. Third Annual Medical Education Day. “Is blood safe: the case for leukoreduced and (possibly) washed transfusions.”

December 5, 2011 French National Transfusion Service (EFS) International Symposium, Paris, France. Invited Speaker: “Inflammatory Reactions to Platelet Transfusions.”

December 15, 2011 American Red Cross National Medical Advisory Committee, Washington, DC. Invited Speaker: “Duration of Red Cell Storage and Clinical Outcomes.”

May 2, 2012 American Red Cross Regional Seminar, Perinton, NY. Invited Speaker: “Newer aspects of the ABO blood group system in clinical practice.”

September 22, 2012 Society for the Advancement of Blood Management Annual Meeting, Pittsburgh, PA. Invited Speaker: “Transfusion Immunomodulation.”

October, 2012 AABB Symposium on “Storage Duration of Transfused Red Cells and Clinical Outcomes. Invited Speaker: “Does red cell storage for transfusion alter host immune function and can we alter these effects by leukoreduction and/or washing?”

January 17, 2013--Strategic Blood Management University Webinar – “Transfusion Immunomodulation”

January 31, 2013 – Terumo BCT, Lakewood, CO---“Reducing immunomodulation and mortality with washed, leukoreduced blood transfusions”

June 13-14, 2013 – Blood Bank Association of New York State Annual Meeting, Albany, NY
– “Is it time to abandon the concept of universal donor red cells, platelets and FFP?”
and “Reinventing Blood Transfusion – What are the benefits and risks of red cells and platelet transfusions?”

September 20, 2013-- Society for the Advancement of Blood Management Annual Meeting, Los Angeles, CA. Invited Speaker: “Transfusion associated thrombosis and hemostasis defects.”

October 23, 2013 – 3rd Awareness Week on the Rational Use of Blood in Medicine & Surgery, “Moving toward the Future.” Teknon Medical Centre, Barcelona, Spain. Invited speaker: “Perils and Pitfalls: Transfusion Associated Bleeding and Thrombosis.” Web presentation.

February 3, 2014 – Pathology and Laboratory Medicine Grand Rounds, University of Rochester Medical Center. “Reinventing Blood Transfusion – What are the benefits and risks of red cells and platelet transfusions?”

June 5, 2014 – Blood Bank Association of New York State Annual Meeting, Rochester, NY
– “Transfusion immunomodulation – a clinical update.”

August 8, 2014 – “The Role of the Stem Cell Processing Laboratory, Apheresis and the Transfusion Service in Improving Clinical Outcomes in Patients Undergoing Blood or Marrow Stem Cell Transplantation.” 25th Anniversary Symposium – University of Rochester Medical Center BMT Program. Rochester, NY.