

University of California, San Francisco

CURRICULUM VITAE

NAME **Brian S. Custer**

Position: Associate Investigator
Epidemiology and Health Policy Research
Blood Systems Research Institute

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EDUCATION:

1986-1990	University of Oregon	B.S. Cum Laude, Biology
1997-1999	University of Washington (Advisor: Thomas D. Koepsell)	M.P.H Epidemiology
1999-2003	University of Washington (Advisor: Eric S. Johnson)	Ph.D. Health Outcomes Research

PRINCIPAL POSITIONS HELD:

2008-now	Blood Systems Research Institute	Associate Investigator
2005-2008	Blood Systems Research Institute	Assistant Investigator
2004-2005	Blood Systems Research Institute	Staff Scientist
2003-2004	Blood Centers of the Pacific	Post-Doctoral Researcher

OTHER POSITIONS HELD CONCURRENTLY:

2005-now	University of Washington, Pharmaceutical Outcomes Research and Policy Program Affiliate Assistant Professor
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HONORS AND AWARDS:

1986	Bausch and Lomb Science Achievement Award
1989	American Heart Association Research Training Fellowship
1990	Phi Beta Kappa
2000-2002	Achievement Awards for College Scientists Fellow

KEYWORDS /AREAS OF INTEREST:

Epidemiology, health outcomes research, blood supply safety, blood donors, transfusion medicine, infectious diseases, cost effectiveness, economic analyses, mathematical modeling.

PROFESSIONAL ORGANIZATIONS:

1999-now American Association of Blood Banks, Individual Member
2007-now International Society for Blood Transfusion, Individual Member
2007-now Society for Medical Decision Making, Individual Member

SERVICE TO PROFESSIONAL PUBLICATIONS:

2000-now Ad hoc referee for **Transfusion** (40 papers in last 5 years), **Vox Sanguinis** (10 papers in last 5 years), **Transfusion Medicine** (3 papers in last 5 years), **Vaccine** (2 papers in last 5 years), **Medical Decision Making** (3 papers in last 5 years), **Management Research News** (1 paper in last 5 years), **Journal of Infection** (1 paper in last 5 years), **Journal of Medical Virology** (1 paper in last 5 years), **Cancer Detection and Prevention** (1 paper in last 5 years)

INVITED PRESENTATIONS:

INTERNATIONAL:

2004 HemaQuebec Public Forum, Blood Safety: At What Cost? Montreal QUE, Canada
2006 Alliance for Blood Operators - International Blood Emergency Planning Action Group, Pandemic Influenza Planning, Toronto ONT, Canada
2007 Canadian Consensus Conference on Pathogen Inactivation, Toronto ONT, Canada
2007 International Association of Biological Standards, 5th Symposium on Advances in Transfusion Safety, Cost-effectiveness in US Blood Safety, Sao Paulo SP, Brazil
2007 WHO/Global Collaboration on Blood Safety 8th Meeting, International Cost Utility Analyses in Blood Safety, Geneva. Switzerland
2008 Public Health Agency of Canada, 7th International Expert Advisory on Risk Modeling, Ottawa ONT, Canada
2008 WHO/Global Collaboration on Blood Safety 9th Meeting, International Cost Utility Analyses in Blood Safety, Geneva Switzerland
2008 American Association of Blood Banks, Annual Meeting, Montreal QUE, Canada
2009 Public Health Agency of Canada, 8th International Expert Advisory on Risk Modeling, Ottawa ONT, Canada
2010 17th International Plasma Fractionation Association/Paul-Erlich-Institute Workshop on Surveillance and Screening of Blood Borne Pathogens, Zagreb, Croatia.
2010 International Society of Blood Transfusion, Annual Meeting, Berlin Germany

NATIONAL:

2004 US Food and Drug Administration, Blood Products Advisory Committee, Washington DC
2004 American Association of Blood Banks, Annual Meeting, Baltimore MD
2005 American Association of Blood Banks, Annual Meeting, Seattle WA
2005 University of Washington Pharmaceutical Outcomes Seminar, Seattle WA
2005 Conference on Retroviruses and Opportunistic Infections, Satellite Session, Boston MA
2006 US Department of Health and Human Services, Advisory Committee on Blood Safety and Availability, Washington DC
2006 Oregon Health & Science University, Evidence-based Practice Center, Portland OR
2006 Blood Systems Annual Medical Directors Meeting, Scottsdale AZ
2006 American Association of Blood Banks, Annual Meeting, Miami FL
2007 US Food and Drug Administration, Blood Products Advisory Committee, Washington DC
2007 International Society for Cell Therapy, 7th Annual Somatic Cell Therapy Symposium, Donor Issues and Decision Analysis, Bethesda MD
2008 US Department of Health and Human Services, Advisory Committee on Blood Safety and Availability, Washington DC .

- 2008 America's Blood Centers Annual Meeting, SMT Forum, New York NY
- 2009 US Department of Health and Human Services, Advisory Committee on Blood Safety and Availability, Washington DC
- 2009 American Association of Blood Banks, Education Audioconference Series
- 2010 US Food and Drug Administration, Blood Products Advisory Committee, Gaithersburg, Maryland.
- 2010 US Department of Health and Human Services, Advisory Committee on Blood Safety and Availability, Gaithersburg, Maryland.

GOVERNMENT and OTHER PROFESSIONAL SERVICE AND EXPERIENCE:

- 1990 – 1991 Oregon Institute of Marine Biology, Charleston OR
Research Assistant Biochemical analysis of respiratory proteins in invertebrates
- 1991 – 1993 US National Marine Fisheries Services, NOAA, Northeast Pacific Ocean
Biological Observer, Analyze fishing fleet catches for species composition and distribution
- 1993 – 1997 Envirochem Services, North Vancouver, British Columbia
Environmental Scientist, Human health and safety stochastic risk assessments of contaminated sites, chemical control stormwater monitoring.
- 1998 – 1999 University of Washington, Seattle WA
Research Assistant, Global burden of hepatitis B virus
- 1998 – 2003 Department of Neurology, Harborview Medical Center, University of Washington, Seattle WA
Research Assistant, Risk factors for intracranial meningioma
- 2001 Veritech, Seattle WA Client: Corixa Corporation
Consultant, Quality of life and health economic measurements of psoriasis
- 2000 Decision Resources, Waltham MA
Consultant, Descriptive epidemiology and disease burden forecasting:
 - 1) Epidemiology of chronic wounds in the US and Europe
 - 2) Epidemiology of chronic abdominal pain and chronic pelvic pain in the US
 - 3) Epidemiology of functional (non-ulcer) dyspepsia in the US
- 2003 – 2004 Veritech, Seattle WA Client: Bristol-Myers Squibb
Consultant, Burden of illness and epidemiology of hepatitis B virus
- 2007 Peer Reviewer – Canadian Blood Services Intramural Grant Competition
- 2007 WHO/Global Collaboration on Blood Safety 8th Meeting, International Cost Utility Analyses in Blood Safety, Geneva. Switzerland
- 2008 Public Health Agency of Canada, 7th International Expert Advisory on Risk Modeling, Ottawa ONT, Canada
- 2008 WHO/Global Collaboration on Blood Safety 9th Meeting, International Cost Utility Analyses in Blood Safety, Geneva Switzerland
- 2008 – 2009 Canadian Blood Services Insurance Company Limited
Medical Panel Member, Blood Risk Catastrophe Medical and Litigation Model Update Project
- 2009 Peer Reviewer – Canadian Blood Services Intramural Grant Competition
- 2009 Public Health Agency of Canada, 8th International Expert Advisory on Risk Modeling, Ottawa ONT, Canada
- 2010 Peer Reviewer – Canadian Blood Services Intramural Grant Competition

INSTITUTIONAL SERVICE - BLOOD SYSTEMS, INC. / UNITED BLOOD SERVICES:

- 2005 Blood Systems, Inc., Scottsdale AZ BSRI job evaluation
- 2006 Blood Systems, Inc., Scottsdale AZ Pandemic influenza planning task force
- 2006 United Blood Services, Scottsdale AZ Component production facility locations

4. Custer B, Johnson ES, Sullivan SD, Hazlet TK, Ramsey SD, Hirschler NV, Murphy EL, Busch MP. Quantifying losses to the donated blood supply due to donor deferral and miscollection. *Transfusion*. 2004 Oct;44(10):1417-26.
5. Custer B, Tomasulo PA, Murphy EL, Caglioti S, McEvoy P, Harpool D, Busch MP. Triggers for switching from West Nile virus mini-pool nucleic acid technology testing to individual donation NAT testing: analysis of 2003 data to inform 2004 decision-making. *Transfusion*. 2004 Nov;44(11):1547-54.
6. Custer B, Sullivan SD, Hazlet TH, Iloeje U, Veenstra DL, Kowdley V. Global epidemiology of hepatitis b virus. *Journal of Clinical Gastroenterology*. 2004 Nov-Dec;38(10 Suppl):S158-68.
7. Phillips LE, Longstreth Jr WT, Koepsell T, Custer BS, Kukull WA, van Belle G. Active and passive cigarette smoking and risk of intracranial meningioma. *Neuroepidemiology*. 2004 Dec 30;24(3):117-122.
8. Participants of the Society for the Advancement of Blood Management (SABM) Cost of Blood Consensus Conference, Charleston SC, May 4-5, 2003. [alpha: Aledort L, Broder M, Busch MP, Custer B, Fergusson DA, Goodnough LT, Hendler R, Hoffman A, Klein H, Louie JE, Page PL, Sazama K, Shander A, Shulman IA, Spence RK, Sullivan MT, Thurer RL; Lucchesi KJ, tech writer.] The cost of blood: multidisciplinary consensus conference for a standard methodology.. *Transfusion Medicine Reviews*. 2005;19(1):66-78. *authors listed in publication, not cited in PubMed, etc.*
9. Custer B, Johnson ES, Sullivan SD, Hazlet TK, Ramsey SD, Murphy EL, Busch MP. community blood supply model: development of a new model to assess the safety, sufficiency, and cost of the blood supply. *Med Decis Making*. 2005 September-October;25(5):571-582.
11. Custer B, Busch MP, Marfin AA, Petersen LR. The cost-effectiveness of screening the U.S. blood supply for West Nile virus. *Ann Intern Med*. 2005 Oct 4;143(7):486-92.
12. Busch MP, Wright DJ, Custer B, Tobler LH, Stramer SL, Kleinman SH, Prince HE, Bianco C, Foster G, Petersen LR, Nemo G, Glynn SA. Estimated proportion of the U.S. population infected with West Nile virus during the 2003 epidemic based on national blood donor screening data. *Emerging Infectious Diseases*. 2006 Mar;12(3):395-402.
13. Custer B, Longstreth WT Jr, Phillips LE, Koepsell TD, Van Belle G. Hormonal exposures and the risk of intracranial meningioma in women: a population-based case-control study. *BMC Cancer*. 2006 Jun 7;6:152.
14. Norris PJ, Pappalardo BL, Custer B, Spotts G, Hecht FM, Busch MP. Elevations in IL-10, TNF-alpha, and IFN-gamma from the earliest point of HIV type 1 infection. *AIDS Res Hum Retroviruses*. 2006 Aug;22(8):757-62.
15. Kamel HT, Bassett M, Custer B, Paden C, Strollo A, McEvoy P, Busch MP, Tomasulo PA. Safety and donor acceptance of an abbreviated donor history questionnaire. *Transfusion*. 2006 Oct;46(10):1745-53.
16. Kleinman SH, Kamel HT, Harpool D, Vanderpool SK, Custer B, Wiltbank T, Tomasulo PA. Two year experience with aerobic culturing of apheresis and whole blood derived platelets. *Transfusion*. 2006 Oct;46(10):1787-94.
17. Busch MP, Custer B. Health outcomes research using large donor-recipient databases: a new frontier for assessing transfusion safety and contributing to public health. *Commentary. Vox Sang. uinis* 2006 Nov;91(4):282-4.
18. Stramer S, Custer B, Busch MP, Dodd R. Strategies for testing blood donors for West Nile virus. *Editorial. Transfusion*. 2006 Dec;46(12):2036-7.
19. Custer B, Chinn A, Hirschler NV, Busch MP, Murphy EL. The consequences of temporary deferral on future whole blood donation. *Transfusion* 2007 Aug;47(8):1514-23.
20. Prince HE, Tobler LH, Yeh C, Geffer N, Custer B, Busch MP. Persistence of West Nile virus antibodies in viremic blood donors. *Clin Vaccine Immunol*. 2007 Sep;14(9):1228-30.
21. Owen RE, Sinclair E, Emu B, Heitman JW, Hirschhorn DF, Epling CL, Tan QX, Custer B, Harris JM, Jacobson MA, McCune JM, Martin JN, Hecht FM, Deeks SG, Norris PJ. Loss of T cell responses following long-term cryopreservation. *J Immunol Methods*. 2007 Sep 30;326(1-2):93-115.
22. Madden E, Murphy EL, Custer B. Modeling red cell procurement using both double red cell and whole blood collection and the impact of European travel deferral on units available for transfusion. *Transfusion*. 2007 Nov;47(11):2025-37.
23. Gultinan AM, Kaidarova Z, Custer B, Orland J, Strollo A, Cyrus S, Busch MP, Murphy EL. Increased all-cause, liver, and cardiac mortality among hepatitis C virus-seropositive blood donors. *Am J Epidemiol*. 2008 Mar 15;167(6):743-50.

24. Hillyer CD, Blumberg N, Glynn SA, Ness PM, for the members * of the NHLBI Working Group in Transfusion Recipient Epidemiology and Outcomes Research. Transfusion recipient epidemiology and outcomes research: possibilities for the future. [Committee Report] *Transfusion*, 48(8):1530-7, Aug 2008. * members of the Working Group include: Alter HJ, Blumberg N, Busch M, Carson JL, Custer B, Hillyer CD, Kakaiya R, Katz LM, Kiss JE, Klein H, Kleinman SH, Luban N, Murphy E, Ness P, Norris P, Steiner ME, Triulzi D, Barbosa L, Glynn S, Mondoro TH, Nemo G, Peterson C, Shurin SB. cited in PubMed as "Collaborators (23)"
25. Wiltbank T, Giordano G, Kamel H, Tomasulo P, Custer B. Faint and pre-faint reactions in whole blood donors: An analysis of pre-donation measurements and their predictive value. *Transfusion*. 2008 Sep;48(9):1799-808.
26. Su L, Kamel H, Custer B, Vanderpool S, Harpool D, Busch M, Tomasulo P. Bacterial detection in apheresis platelets: Blood Systems experience with a two-bottle and one-bottle culture system. *Transfusion*. 2008 Sep;48(9):1842-52.
27. Custer B, Hoch JS. Cost effectiveness analysis: What it really means for transfusion medicine decision-making. *Transfus Med Rev*. 2009 Jan;23(1):1-12.
28. Custer B, Kamel H, Kiely NE, Murphy EL, Busch MP. Associations between WNV infection and symptoms reported by blood donors identified through nucleic acid test screening. *Transfusion*. 2009 Feb;49(2):278-88.
29. Busch M, Walderhaug M, Custer B, Allain JP, Reddy R, McDonough B. Risk assessment and cost-effectiveness/utility analysis. *Biologicals*. 2009 Apr;37(2):78-87.
30. Spencer B, Steele W, Custer B, Kleinman S, Cable R, Wilkinson S, Wright D, for the Retrovirus Epidemiology Donor Study (REDS) II Group. Risk for malaria in United States donors deferred for travel to malaria-endemic areas. *Transfusion*. 2009 Nov;49(11):2335-45.
31. Murphy EL, Shaz B, Hillyer CD, Carey P, Custer BS, Hirschler N, Fang J, Schreiber GB. Minority and foreign-born representation among US blood donors: demographics and donation frequency for 2006. *Transfusion*. 2009 [Jun 23. Epub ahead of print]
32. Kamel H, Tomasulo PT, Bravo M, Wiltbank T, Cusick R, James RC, Custer B. Delayed adverse reactions to blood donation. *Transfusion*. 2010 Mar;50(3):556-65.
33. Lanteri MC, O'Brien KM, Purtha WE, Cameron MJ, Lund JM, Owen RE, Heitman JW, Custer B, Hirschhorn DF, Tobler LH, Kiely N, Prince HE, Ndhlovu LC, Nixon DF, Kamel HT, Kelvin DJ, Busch MP, Rudensky AY, Diamond MS, Norris PJ. Tregs control the development of symptomatic West Nile virus infection in humans and mice. *J Clin Invest*. 2009 Nov;119(11):3266-77.
34. Carneiro-Proietti AB, Sabino EC, Sampaio D, Proietti FA, Gonçalez TT, Oliveira CD, Ferreira JE, Liu J, Custer B, Schreiber GB, Murphy EL, Busch MP. Demographic profile of blood donors at three major Brazilian blood centers: results from the International REDS-II study, 2007 to 2008. *Transfusion*. 2010 Apr;50(4):918-25.
35. Edgren G, Kamper-Jørgensen M, Eloranta S, Rostgaard K, Custer B, Ullum H, Murphy EL, Busch MP, Reilly M, Melbye M, Hjalgrim H, Nyrén O. Duration of red blood cell storage and survival of transfused patients (CME). *Transfusion*. 2010 Jun;50(6):1185-95.
36. Goodrich RP, Custer B, Keil S, Busch M. Defining "adequate" pathogen reduction performance for transfused blood components. *Transfusion*. 2010 Aug;50:1827-37.
37. Mast AE, Schlumpf KS, Wright DJ, Custer B, Spencer B, Murphy EL, Simon TL. Demographic correlates of low hemoglobin deferral among prospective whole blood donors. *Transfusion*. 2010 Aug;50(8):1794-802
38. Gonzalez T, Sabino E, Sales N, Chen YH, Chamone D, Busch M, Murphy E, Custer B, McFarland W. Human immunodeficiency virus test-seeking blood donors in a large blood bank in São Paulo, Brazil. *Transfusion*. 2010 Aug;50(8):1806-14
39. Agapova M, Busch MP, Custer B. Cost-effectiveness of screening the US blood supply for *Trypanosoma cruzi*. *Transfusion*. 2010 May 12. [Epub ahead of print]
40. Custer B, Agapova M, Martinez RH. The cost-effectiveness of pathogen reduction technology as assessed using a multiple risk reduction model. *Transfusion*. 2010 May 24. [Epub ahead of print]
41. Kleinman S, Cameron C, Custer B, Busch M, Katz L, Kralj B, Matheson I, Murphy K, Preiksaitis J, Devine D. Modeling the risk of an emerging pathogen entering the Canadian blood supply. *Transfusion*. 2010 Jun 10. [Epub ahead of print]

42. Rice MS, Custer BS, Hindes DA, Hirschler NV, Nguyen KA, Busch MP, Murphy EL. Genetic research in the blood bank: acceptability to Northern California donors. *Transfusion*. 2010 Jun 17. [Epub ahead of print]
43. Sabino EC, Salles NA, Sarr M, Barreto AM, Oikawa M, Oliveira CD, Leao SC, Carneiro-Proietti AB, Custer B, Busch MP; NHLBI Retrovirus Epidemiology Donor Study-II (REDS-II), International Component. Enhanced classification of Chagas serologic results and epidemiologic characteristics of seropositive donors at three large blood centers in Brazil. *Transfusion*. 2010 Jun 23. [Epub ahead of print]

Editorials

1. Custer B. The cost of blood: did you pay too much or did you get a good deal? *Transfusion*. 2010 Apr;50(4):742-4.