

DUKE UNIVERSITY MEDICAL CENTER

CURRICULUM VITAE

for
Permanent Record
and the
Appointments and Promotions Committee

Date Prepared: February 7, 2022

Name: Christopher W. Woods, MD, MPH

Primary academic appointment: Department of Medicine

Primary academic department: Department of Medicine

Secondary appointment: Department of Pathology
Duke Global Health Institute

Present academic rank and title (if any): Professor of Medicine with Tenure
Duke University Medical Center
Chief, Infectious Diseases
Durham VA Medical Center

Date and rank of first Duke Faculty appointment:
July 1, 2002, Assistant Professor of Medicine

Medical Licensure: North Carolina License # 95-01460
Date of License: July 15, 1995

Specialty certification(s) and dates (Month/Day/Year):
American Board of Internal Medicine, 1997, Renewal 2012
American Board of Internal Medicine, Infectious Diseases, 2002, Renewal 2012
American Board of Pathology, Medical Microbiology, 2003

Place of birth: Atlanta, Georgia, USA
Citizen of: United States of America

<u>Education</u>	<u>Institution</u>	<u>Date</u>	<u>(Year)</u>	<u>Degree</u>
College	Yale University	9/85-5/89		B.A.
Graduate	Duke University Medical Center	8/90-5/94		M.D.
Professional School	University of North Carolina School of Public Health	8/01-8/02		M.P.H.

Scholarly societies (Alpha Omega Alpha, Sigma Xi, Phi Beta Kappa; etc.):

Engel Honor Society, Duke University Medical School, Moderator

Alpha Omega Alpha, Duke University Medical School

Professional training and academic career (chronologically)

<u>Institution</u>	<u>Position/Title</u>	<u>Dates</u>
Duke University Medical Center	House Officer, Internal Medicine	7/94-7/97
Centers for Disease Control Atlanta, Georgia	Epidemic Intelligence Officer	7/97-7/99
Duke University Medical Center	Fellow, Infectious Disease	7/99-7/02
Durham VA Medical Center	Fellow, Health Services and Research	7/01-7/02
Duke University Medical Center	Fellow, Medical Microbiology	7/00-7/02
Duke University Medical Center	Assistant Professor of Medicine Associate Professor of Medicine Professor of Medicine Division of Infectious Diseases	7/02- 6/07 7/07-6/14 7/14-Present
Durham Veterans Affairs Medical Center	Chief, Medical Microbiology	7/02- 7/05
Durham Veterans Affairs Medical Center	Chief, Infectious Diseases Hospital Epidemiologist	7/05- Present
University of North Carolina at Chapel Hill	Adjunct Professor Department of Epidemiology Department of Health Policy and Administration	7/02- Present
Hubert-Yeargan Center For Global Health Duke University	Co-Director Director	1/06-07/20 7/20-Present
Duke Global Health Institute	Member	1/07-Present
Duke Global Health Institute	Faculty Director, MSc-GH Director, Graduate Studies	7/08-6/16
Duke Institute for Genome Science and Policy	Member Lead, Infectious Diseases Genomics	7/07-Present
Duke-National University of Singapore	Adjunct Associate Professor Emerging Infectious Disease Program	7/11-Present
Duke Center for Applied Genomics & Precision Medicine (CAGPM)	Associate Director for Applied Genomics	10/14-Present
Host Response/Predigen	Founder	07/16-Present

Publications:

Refereed journals:

1. **Woods CW**, Armstrong G, Sackey SO, Tetteh C, Bugri S, Perkins BA, Rosenstein NE. Emergency vaccination against epidemic meningitis in Ghana: implications for the control of meningococcal disease in West Africa. *Lancet*. 2000 Jan 1;355(9197):30-3. doi: 10.1016/S0140-6736(99)03366-8. PMID: 10615888
2. **Woods CW**, McRill C, Plikaytis BD, Rosenstein NE, Mosley D, Boyd D, England B, Perkins BA, Ampel NM, Hajjeh RA. Coccidioidomycosis in human immunodeficiency virus-infected persons in Arizona, 1994-1997: incidence, risk factors, and prevention. *J Infect Dis*. 2000 Apr;181(4):1428-34. doi: 10.1086/315401. Epub 2000 Apr 7. PMID: 10753734
3. Stout JE, **Woods CW**, Alvarez AA, Berchuck A, Dukes Hamilton C. Mycobacterium bovis peritonitis mimicking ovarian cancer in a young woman. *Clin Infect Dis*. 2001 Aug 15;33(4):E14-6. doi: 10.1086/321908. Epub 2001 Jun 21. PMID: 11462205
4. Nelson CG, Iler MA, **Woods CW**, Bartlett JA, Fowler VG. Meningococemia in a Patient Co-infected with Hepatitis C and Human Immunodeficiency Virus: Case Report and Review of the Literature. *Emerging Infectious Diseases* *Emerg Infect Dis*. 2000 Nov-Dec;6(6):646-8. doi: 10.3201/eid0606.000615. PMID: 11076725 Free PMC article.
5. Krause G, Blackmore C, Wiersma S, Lesneski C, **Woods CW**, Hopkins RS. Marijuana Use and Social Networks in a Community Outbreak of Meningococcal Disease. *Southern Medical Journal* 2001 May;94(5):482-5. PMID: 11372796
6. Cabell CH, Peterson GE, Fowler VG, Anderson DJ, **Woods CW**, Corey GR, Sexton DJ, Ryan T. The effect of changing trends in endocarditis on outcomes. *J Am Coll of Card* 2001 37:473A.
7. Cabell CH, Krasuski RA, Peterson GE, Singh R, **Woods CW**, Engemann JJ, Fowler VG, Chen AY, Ryan T, Glower D, Wang A. Differences between patients with prosthetic valve and native valve endocarditis: Report from the Duke Endocarditis service. *Circulation* 2001, 104(17): II-427.
8. Cabell CH, Jollis JG, Peterson GE, Corey GR, Anderson DJ, Sexton DJ, **Woods CW**, Reller LB, Ryan T, Fowler VG. Changing Patient Characteristics and the Effect on Mortality in Endocarditis. *Arch Intern Med* 2002; 162: 90-94. doi: 10.1001/archinte.162.1.90. PMID: 11784225
9. **Woods CW**, Karpati AM, Grein T, McCarthy N, Gaturuku P, Muchiri P, Durster L, Henderson A, Khan AS, Swanepoel R., Bonmarin I, Martin M, Mann P, Smoak BL, Ryan M, Ksiazek TS, Arthur R, Agata N, Peters CJ and the WHO International Hemorrhagic Fever Task Force. An Outbreak of Rift Valley Fever in Northeastern Kenya, 1997-1998. *Emerging Infectious Diseases* 2002; 8: 138-144. doi: 10.3201/eid0802.010023. PMID: 11897064 Free PMC article.
10. Hajjeh RA, Relman D, Cieslak PR, Sofair AN, Passaro D, Flood J, Johnson J, Hacker JK, Shieh WJ, Hendry RM, Nikkari S, Ladd-Wilson S, Hadler J, Rainbow J, Tappero JW, **Woods CW**, Conn L, Reagan S, Zaki S, Perkins BA. Surveillance for Unexplained Deaths and Critical Illnesses Due to Possibly Infectious Causes, U.S.A., 1995-98 *Emerging Infectious Diseases* 2002 Feb;8(2):145-53. doi: 10.3201/eid0802.010165. PMID: 11897065 Free PMC article.
11. Morgan J, Bornstein SL, Karpati AM, Bruce M, Bolin CA, Austin CC, **Woods CW**, Lingappa J, Langkop C, Davis B, Graham DR, Proctor M, Ashford DA, Bajani M, Bragg SL, Shutt K, Perkins BA, Tappero JW; Leptospirosis Working Group. Outbreak of leptospirosis among triathlon participants and community residents in Springfield, Illinois, 1998. *Clin Infect Dis*. 2002 Jun 15;34(12):1593-9. doi: 10.1086/340615. Epub 2002 May 24. PMID: 12032894
12. Bajani MD, Ashford DA, Bragg SL, **Woods CW**, Aye T, Spiegel RA, Plikaytis BD, Perkins BA, Phelan M, Levett PN, Weyant RS. Evaluation of four commercially available rapid serologic tests for diagnosis of leptospirosis. *J Clin Microbiol*. 2003 Feb;41(2):803-9. doi: 10.1128/JCM.41.2.803-809.2003. PMID: 12574287 Free PMC article.
13. Fowler VG Jr. Olsen MK. Corey GR. **Woods CW**. Cabell CH. Reller LB. Cheng AC. Dudley T. Oddone EZ. Clinical identifiers of complicated *Staphylococcus aureus* bacteremia. *Archives of Internal Medicine* 2003; 163:2066-72. doi: 10.1001/archinte.163.17.2066. PMID: 14504120
14. Mirrett S. Reller LB. Petti CA. **Woods CW**. Vazirani B. Sivasdas R. Weinstein MP. Controlled clinical comparison

- of BacT/ALERT standard aerobic medium with BACTEC standard aerobic medium for culturing blood. *Journal of Clinical Microbiology* 2003; 41: 2391-4. doi: 10.1128/JCM.41.6.2391-2394.2003. PMID: 12791854 Free PMC article.
15. **Woods CW**, Cheng AC, Wilson KH, Fowler V, Moorefield M, Frederick J, Tenover FC, Zwadyk P. Endocarditis Caused by *Staphylococcus aureus* with Reduced Susceptibility to Vancomycin. *Clinical Infectious Diseases* 2004; 38: 1188-91. doi: 10.1086/383027. Epub 2004 Apr 5. PMID: 15095227
 16. Ashford, DA, di Pietra, J, Lingappa, J, **Woods CW**, Noll, H, Neville, B, Weyant, R, Bragg, SL, Spiegel, RA, Tappero, J, Perkins, BA. Adverse Events in Humans Associated with Accidental Exposure to Livestock Brucellosis Vaccine RB51. *Vaccine* 2004; 22:3435-3439.
 17. Wellons, JC, Zomorodi, AR, Villaviciencio, AT, **Woods, CW**, Lawson, WT, Eastwood, JD. Sacral tuberculosis: a case report and review of literature. *Surgical Neurology* 2004; 6: 136-9.
 18. **Woods CW**, Bressler AM, LiPuma JJ, Alexander BD, Clements DA, Weber DJ, Moore CM, Reller LB, and Kaye KS. Virulence Associated with Outbreak-Related Strains of *Burkholderia cepacia* Complex among a Cohort of Patients with Bacteremia. *Clinical Infectious Diseases* 2004; 38:1243-1250. doi: 10.1086/383313. Epub 2004 Apr 15. PMID: 15127335
 19. Anderson AML, Varkey JB, Petti CA, Liddle RA, Frothingham R, **Woods CW**. Non-O1 *Vibrio cholerae* septicemia: case report, discussion of literature, and relevance to bioterrorism. *Diagnostic Microbiology and Infectious Diseases* 2004; 49:295-7. doi: 10.1016/j.diagmicrobio.2004.04.016. PMID: 15313536
 20. Joyce M, **Woods CW**. Antibacterial Susceptibility Testing in the Clinical Laboratory. *Infectious Diseases Clinics of North America* 2004; 18:401-434, vii. doi: 10.1016/j.idc.2004.04.001. PMID: 15308270 Review.
 21. **Woods CW**, Ospanov K, Myrzabekov A, Favorov M, Plikaytis B, Ashford DA. Risk Factors for Human Anthrax Among Contacts of Anthrax-infected Livestock in Kazakhstan. *American Journal of Tropical Medicine and Hygiene* 2004; 71:48-52. PMID: 15238688
 22. Murdoch DR, **Woods CW**, Zimmerman MD, Dull PM, Belbase RH, Keenan AJ, Scott RM, Basnyat B, Archibald LK, Reller LB. The etiology of febrile illness in adults presenting to Patan hospital in Kathmandu, Nepal. *Am J Trop Med Hyg.* 2004 Jun;70(6):670-5. PMID: 15211012
 23. Mirrett S, Petti CA, **Woods CW**, Magadia R, Weinstein MP, Reller LB. Controlled clinical comparison of the BacT/ALERT FN and the standard anaerobic SN blood culture medium. *Journal of Clinical Microbiology* 2004; 42:4581-5. . doi: 10.1128/JCM.42.10.4581-4585.2004. PMID: 15472312 Free PMC article.
 24. Petti, CA, Mirrett S, **Woods CW**, Reller LB. Controlled clinical comparison of plastic and glass bottles of BacT/ALERT FA medium for culturing organisms from blood of adult patients. *Journal of Clinical Microbiology* 2005; 43 (4) 1960-62.
 25. Petti CA, **Woods CW**, Reller LB. Use of *Streptococcus pneumoniae* Antigen Test from Positive Blood Culture Bottles as an Alternative Method to Diagnose Pneumococcal Bacteremia. *Journal of Clinical Microbiology* 2005; 43:2510-2512. doi: 10.1128/JCM.43.5.2510-2512.2005. PMID: 15872298 Free PMC article.
 26. Fowler, Jr. VG, Justice A, Moore C, Benjamin, Jr. DK, **Woods CW**, Campbell S, Reller LB, Corey GR, Day NPJ, Peacock SJ. Risk factors for hematogenous complications of intravascular catheter-associated *Staphylococcus aureus* Bacteremia. *Clinical Infectious Diseases* 2005; 40:695-703. doi: 10.1086/427806. Epub 2005 Feb 4. PMID: 15714415
 27. Petti CA, Mirrett S, **Woods CW**, Reller LB. Controlled Clinical Comparison of Plastic versus Glass Bottles of BacT/ALERT PF Medium for Culturing Blood from Children. *Journal of Clinical Microbiology* 2005; 43:445-447. doi: 10.1128/JCM.43.1.445-447.2005. PMID: 15635011 Free PMC article.
 28. Petti CA, Mirrett S, **Woods CW**, Reller LB. Controlled clinical comparison of plastic and glass bottles of BacT/ALERT FA medium for culturing organisms from blood of adult patients. *J Clin Microbiol.* 2005 Apr;43(4):1960-2. doi: 10.1128/JCM.43.4.1960-1962.2005. PMID: 15815032 Free PMC article.
 29. Turner JW, Pien BC, Ardoin SA, Anderson AM, Shieh WJ, Zaki SR, Bhatnagar, Guarner J, Howell DN, **Woods CW**. A Man with Chest Pain and Glomerulonephritis. *Lancet.* 2005 Jun 11-17;365(9476):2062. doi: 10.1016/S0140-6736(05)66701-3. PMID: 15950721 No abstract available.
 30. Chu VH, Sexton DJ, Cabell CH, Reller LB, Pappas PA, Singh RK, Fowler VG Jr, Corey GR, Aksoy O, **Woods CW**. Repeat Infective Endocarditis: Differentiating Relapse from Reinfection. *Clinical Infectious Diseases* 2005; 41:406-409. doi: 10.1086/431590. Epub 2005 Jun 14. PMID: 16007540
 31. Lalani T, Kanafani ZA, Chu VH, Moore L, Corey G, Pappas P, **Woods CW**, Cabell CH, Selton Suty C, Doco-

- Lecompte T, Chirouze C, Raoult D, Miro JM, Mestres CA, Olaison L, Eykyn S, Aburty E, Fowler VG, Jr, The International Collaboration on Endocarditis Merged Database Study Group. Prosthetic valve endocarditis due to coagulase-negative staphylococci: findings from the International Collaboration on Endocarditis Merged Database. *Eur J Clin Microbiol Infect Dis*. 2006 Jun;25(6):365-8. doi: 10.1007/s10096-006-0141-z. PMID: 16767483
32. Basnyat B, Belbase RH, Zimmerman MD, **Woods CW**, Reller LB, Murdoch DR. Clinical features of scrub typhus. *Clin Infect Dis*. 2006 May 15;42(10):1505-6. doi: 10.1086/503680. PMID: 16619174 No abstract available.
 33. Brooks R, **Woods CW**, Benjamin DK Jr, Rosenstein NE. Increased case-fatality rate associated with outbreaks of *Neisseria meningitidis* infection, compared with sporadic meningococcal disease, in the United States, 1994-2002. *Clin Infect Dis*. 2006 Jul 1;43(1):49-54. doi: 10.1086/504804. Epub 2006 May 24. PMID: 16758417
 34. **Woods CW**, Murdoch DR, Zimmerman MD, Glover WA, Basnyat B, Wolf L, Belbase RH, Reller LB. Emergence of *Salmonella enterica* serotype Paratyphi A as a major cause of enteric fever in Kathmandu, Nepal. *Trans R Soc Trop Med Hyg*. 2006 Nov;100(11):1063-7. doi: 10.1016/j.trstmh.2005.12.011. Epub 2006 May 22. PMID: 16714040
 35. Pien B, Saah JR, Miller SE, **Woods CW**. Use of Sentinel Laboratories by Clinicians to Evaluate Potential Bioterrorism and Emerging Infections. *Clin Infect Dis*. 2006 May 1;42(9):1311-24. doi: 10.1086/503260. Epub 2006 Mar 31. PMID: 16586392 Free PMC article.
 36. Brooks R, **Woods CW**, Benjamin DK, Rosenstein NE. Increased Case-fatality Associated with *Neisseria meningitidis* Outbreaks Compared with Sporadic Meningococcal Disease in the United States, 1994-2002. *Clin Infect Dis*. 2006 Jul 1;43(1):49-54.
 37. Whitney EAS, Heilpern KL, **Woods CW**, Bahn CC, Franko EA, Del Rio C, Silk BJ, Ratliff JJ, Bryant KA, Park MM, Watkins SJ, Caram LB, Blumberg HM, Berkelman RL. West Nile Virus among Hospitalized, Febrile Patients: A Case for Expanding Diagnostic Testing. *Vector-borne and Zoonotic Diseases*. 2006 Spring;6(1):42-9. doi: 10.1089/vbz.2006.6.42. PMID: 16584326
 38. Aksoy O, Sexton DJ, Wang A, Pappas PA, Kourany W, Chu V, Fowler VG Jr, **Woods CW**, Engemann JJ, Corey GR, Harding T, Cabell CH. Early surgery in patients with infective endocarditis: a propensity score analysis. *Clin Infect Dis*. 2007 Feb 1;44(3):364-72. doi: 10.1086/510583. Epub 2007 Jan 2. PMID: 17205442
 39. Pien BC, Mirrett S, Crews BR, Reller LB, **Woods CW**. Controlled Clinical Comparison of BacT/ALERT SA and SN Blood Culture Bottles Inoculated Directly or after Transport in Sodium Polyanethol Sulfonate Tubes. *J Clin Microbiol*. 2007 Apr;45(4):1357-9. doi: 10.1128/JCM.02091-06. Epub 2007 Jan 31. PMID: 17267634 Free PMC article. Clinical Trial.
 40. Hanson KE, Alexander BD, **Woods CW**, Petti C, Reller LB. Validation of laboratory screening criteria for herpes simplex virus testing of cerebrospinal fluid. *J Clin Microbiol*. 2007 Mar;45(3):721-4.
 41. Breitschwerdt EB, Maggi RG, Duncan AW, Nicholson WL, Hegarty BC, **Woods CW**. *Bartonella* species in blood of immunocompetent persons with animal and arthropod contact. *Emerg Infect Dis*. 2007 Jun;13(6):938-41. doi: 10.3201/eid1306.061337. PMID: 17553243 Free PMC article.
 42. Bressler AM, Kaye KS, LiPuma JJ, Alexander BD, Moore CM, Reller LB, **Woods CW**. Risk Factors for *Burkholderia cepacia* complex bacteremia among Intensive Care Unit Patients without Cystic Fibrosis: a Case-Control Study. *Infection Control and Hospital Epidemiology*. 2007 Aug;28(8):951-8. doi: 10.1086/519177. Epub 2007 Jun 29. PMID: 17620243
 43. Rupp ME, Holley HP Jr, Lutz J, Dicipinigitis PV, **Woods CW**, Levine DP, Veney N, Fowler VG Jr. Phase II, randomized, multicenter, double-blind, placebo-controlled trial of a polyclonal anti-*Staphylococcus aureus* capsular polysaccharide immune globulin in treatment of *Staphylococcus aureus* bacteremia. *Antimicrob Agents Chemother*. 2007 Dec;51(12):4249-54. doi: 10.1128/AAC.00570-07. Epub 2007 Sep 24. PMID: 17893153 Free PMC article. Clinical Trial.
 44. Chu VH, **Woods CW**, Miro JM, Hoen B, Cabell CH, Pappas PA, Federspiel J, Athan E, Stryjewski ME, Nacinovich F, Marco F, Levine DP, Elliott TS, Fortes CQ, Tornos P, Gordon DL, Utili R, Delahaye F, Corey GR, Fowler VG Jr; International Collaboration on Endocarditis-Pro prospective Cohort Study Group. Emergence of coagulase-negative staphylococci as a cause of native valve endocarditis. *Clin Infect Dis*. 2008 Jan 15;46(2):232-42. doi: 10.1086/524666. PMID: 18171255
 45. Glickman SW, Anstrom KJ, Lin L, Chandra A, Laskowitz DT, **Woods CW**, Freeman DH, Kraft M, Beskow LM, Weinfurt KP, Schulman KA, Cairns CB. Challenges in enrollment of minority, pediatric, and geriatric patients in

- emergency and acute care clinical research. *Ann Emerg Med*. 2008 Jun;51(6):775-780.e3. doi: 10.1016/j.annemergmed.2007.11.002. Epub 2008 Jan 11. PMID: 18191297
46. Caram LB, Linefsky JP, Read KM, Murdoch DR, Lalani T, **Woods CW**, Reller LB, Kanj SS, Premru MM, Ryan S, Al-Hegelan M, Donnio PY, Orezzi C, Paiva MG, Tribouilloy C, Watkin R, Harris O, Eisen DP, Corey GR, Cabell CH, Petti CA; International Collaboration on Endocarditis Investigator Group. Leptotrichia endocarditis: report of two cases from the International Collaboration on Endocarditis (ICE) database and review of previous cases. *Eur J Clin Microbiol Infect Dis*. 2008 Feb;27(2):139-43. Epub 2007 Oct 25. doi: 10.1007/s10096-007-0406-1. Epub 2007 Oct 25. PMID: 17960435 Review.
 47. Kutty PK, Benoit SR, **Woods CW**, Sena AC, Naggie S, Frederick J, Engemann J, Evans S, Pien BC, Banerjee SN, Engel J, McDonald LC. Assessment of *Clostridium difficile*-associated disease surveillance definitions, North Carolina, 2005. *Infect Control Hosp Epidemiol*. 2008 Mar;29(3):197-202. doi: 10.1086/528813. PMID: 18241032
 48. Petti CA, Simmon KE, Miro JM, Hoen B, Marco F, Chu VH, Athan E, Bukovski S, Bouza E, Bradley S, Fowler VG, Giannitsioti E, Gordon D, Reinbott P, Korman T, Lang S, Garcia-de-la-Maria C, Raglio A, Morris AJ, Plesiat P, Ryan S, Doco-Lecompte T, Tripodi F, Utili R, Wray D, Federspiel JJ, Boisson K, Reller LB, Murdoch DR, **Woods CW**; International Collaboration on Endocarditis-Microbiology Investigators. Genotypic diversity of coagulase-negative staphylococci causing endocarditis: a global perspective. *J Clin Microbiol*. 2008 May;46(5):1780-4. doi: 10.1128/JCM.02405-07. Epub 2008 Mar 26. PMID: 18367572 Free PMC article.
 49. Alexander BD, Petzold EW, Reller LB, Palmer SM, Davis RD, **Woods CW**, Lipuma JJ. Survival after lung transplantation of cystic fibrosis patients infected with *Burkholderia cepacia* complex. *Am J Transplant*. 2008 May;8(5):1025-30. doi: 10.1111/j.1600-6143.2008.02186.x. Epub 2008 Mar 3. PMID: 18318775
 50. Ostbye T, Ponnampereuma T, Fernando N, Abeygunawardena V, Wijayasiri WA, Chen JJ, **Woods CW**. The impact of the Tsunami on hospitalizations at the tertiary care hospital in the Southern Province of Sri Lanka. *Am J Disaster Med*. 2008 May-Jun;3(3):147-55. PMID: 18666511
 51. Reddy AJ, **Woods CW**, Welty-Wolf KE. Eastern equine encephalitis leading to multi-organ failure and sepsis. *J Clin Virol*. 2008 Aug;42(4):418-21. doi: 10.1016/j.jcv.2008.03.008. Epub 2008 May 5. PMID: 18456547 No abstract available.
 52. Lalani T, Federspiel JJ, Boucher HW, Rude TH, Bae IG, Rybak MJ, Tonthat GT, Corey GR, Stryjewski ME, Sakoulas G, Chu VH, Alder J, Steenbergen JN, Luperchio SA, Champion M, **Woods CW**, Fowler VG. Associations between the genotypes of *Staphylococcus aureus* bloodstream isolates and clinical characteristics and outcomes of bacteremic patients. *J Clin Microbiol*. 2008 Sep;46(9):2890-6. doi: 10.1128/JCM.00905-08. Epub 2008 Jul 2. PMID: 18596141 Free PMC article.
 53. Breitschwerdt EB, Maggi RG, Nicholson WL, Cherry NA, **Woods CW**. *Bartonella* sp. bacteremia in patients with neurological and neurocognitive dysfunction. *J Clin Microbiol*. 2008 Sep;46(9):2856-61. doi: 10.1128/JCM.00832-08. Epub 2008 Jul 16. PMID: 18632903 Free PMC article.
 54. Simmon KE, Hall L, **Woods CW**, Marco F, Miro JM, Cabell C, Hoen B, Marin M, Utili R, Giannitsioti E, Doco-Lecompte T, Bradley S, Mirrett S, Tambic A, Ryan S, Gordon D, Jones P, Korman T, Wray D, Reller LB, Tripodi MF, Plesiat P, Morris AJ, Lang S, Murdoch DR, Petti CA; International Collaboration on Endocarditis Microbiology Investigators. Phylogenetic analysis of viridans group streptococci causing endocarditis. *J Clin Microbiol*. 2008 Sep;46(9):3087-90. doi: 10.1128/JCM.00920-08. Epub 2008 Jul 23. PMID: 18650347 Free PMC article.
 55. Zimmerman MD, Murdoch DR, Rozmajzl PJ, Basnyat B, **Woods CW**, Richards AL, Belbase RH, Hammer A, Anderson TP, Reller LB. Murine typhus and febrile illness, Nepal. *Emerg Infect Dis*. 2008 Oct;14(10):1656-9. . doi: 10.3201/eid1410.080236. PMID: 18826840 Free PMC article.
 56. Durante-Mangoni E, Bradley S, Selton-Suty C, Tripodi MF, Barsic B, Bouza E, Cabell CH, Ramos AI, Fowler V Jr, Hoen B, Konečný P, Moreno A, Murdoch D, Pappas P, Sexton DJ, Spelman D, Tattevin P, Miró JM, van der Meer JT, Utili R; International Collaboration on Endocarditis Prospective Cohort Study Group. Current features of infective endocarditis in elderly patients: results of the International Collaboration on Endocarditis Prospective Cohort Study. *Arch Intern Med*. 2008 Oct 27;168(19):2095-103.
 57. Murdoch DR, Corey GR, Hoen B, Miró JM, Fowler VG Jr, Bayer AS, Karchmer AW, Olaison L, Pappas PA, Moreillon P, Chambers ST, Chu VH, Falcó V, Holland DJ, Jones P, Klein JL, Raymond NJ, Read KM, Tripodi MF, Utili R, Wang A, **Woods CW**, Cabell CH; International Collaboration on Endocarditis-Prospective Cohort Study

- (ICE-PCS) Investigators. Clinical presentation, etiology, and outcome of infective endocarditis in the 21st century: the International Collaboration on Endocarditis-Pro prospective Cohort Study. *Arch Intern Med*. 2009 Mar 9;169(5):463-73. doi: 10.1001/archinternmed.2008.603. PMID: 19273776 Free PMC article.
58. Caram LB, Chen J, Taggart EW, Hillyard DR, She R, Polage CR, Twersky J, Schmader K, Petti CA, **Woods CW**. Respiratory syncytial virus outbreak in a long-term care facility detected using reverse transcriptase polymerase chain reaction: an argument for real-time detection methods. *J Am Geriatr Soc*. 2009 Mar;57(3):482-5. doi: 10.1111/j.1532-5415.2008.02153.x. Epub 2009 Jan 23. PMID: 19187415 Free PMC article.
 59. Chu VH, Miro JM, Hoen B, Cabell CH, Pappas PA, Jones P, Stryjewski ME, Anguera I, Braun S, Muñoz P, Commerford P, Tornos P, Francis J, Oyonarte M, Selton-Suty C, Morris AJ, Habib G, Almirante B, Sexton DJ, Corey GR, Fowler VG Jr; International Collaboration on Endocarditis-Pro prospective Cohort Study Group. Coagulase-negative staphylococcal prosthetic valve endocarditis--a contemporary update based on the International Collaboration on Endocarditis: prospective cohort study. *Heart*. 2009 Apr;95(7):570-6.
 60. Zaas AK, Chen M, Varkey J, Veldman T, Hero AO 3rd, Lucas J, Huang Y, Turner R, Gilbert A, Lambkin-Williams R, Øien NC, Nicholson B, Kingsmore S, Carin L, **Woods CW**, Ginsburg GS. Gene expression signatures diagnose influenza and other symptomatic respiratory viral infections in humans. *Cell Host Microbe*. 2009 Sep 17;6(3):207-17. doi: 10.1016/j.chom.2009.07.006. Epub 2009 Aug 6. PMID: 19664979 Free PMC article.
 61. Rao S, Scattolini de Gier N, Caram LB, Frederick J, Moorefield M, **Woods CW**. Adherence to self-quarantine recommendations during an outbreak of norovirus infection. *Infect Control Hosp Epidemiol*. 2009 Sep;30(9):896-9. doi: 10.1086/598346. PMID: 19619058
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89. Langley RJ, Tsalik EL, Mohney RP, Harrod KS, Cairns CB, Rivers E, **Woods CW**, Kingsmore SF. Integrative Analysis Of The Metabolome, Proteome, And Transcriptome In Systemic Inflammatory Response Syndrome. ATS International Conference, Abstract A2195, 2014.
90. Dinwiddie DL, Tsalik EL, van Velkinburgh JC, **Woods CW**, Miller NA, Kingsmore SF, Langley RA. Transcriptional Analysis of Sepsis Patients Reveals Differential Expression Patterns. 64th Annual Meeting of the American Society of Human Genetics, Abstract 1076M, 2014.
91. Bodinayake, CK, Tillekeratne, LG, Nagahawatte, A, Devasiri, V, Kodikara Arachchi, W, Vidanagama, D, Ostbye, T, Gubler, DJ, **Woods, CW**, Reller, ME. Accuracy of Clinical Diagnosis of Dengue Fever in Southern Sri Lanka, 2012- 2013. 24th European Congress of Clinical Microbiology and Infectious Diseases, May 2014.
92. Bodinayake, CK, Tillekeratne, LG, Nagahawatte, A, Devasiri, V, Kodikara Arachchi, W, Kurukulasooriya, R, De Silva, D, Ostbye, T, Gubler, DJ, **Woods, CW**, Reller, ME. Patient Costs Associated with Healthcare Utilization and Decreased Productivity Due to Undifferentiated Acute Febrile Illness in Southern Sri Lanka. 2nd International Conference on Global Public Health, July 2014.
93. Tillekeratne, LG, Bodinayake, CK, Nagahawatte, A, Vidanagama, D, Devasiri, V, Kodikara Arachchi, W, Kurukulasooriya, R, De Silva, D, Ostbye, T, Reller, ME, **Woods, CW**. High Rate of Antibiotic Prescriptions for Outpatients with Influenza-Like Illness in Southern Sri Lanka. ID Week, October 2014.
94. Uehara A, **Woods CW**, Gubler DJ, Sessions OM, Tillekeratne LG, Reller ME, Bodinayake C, Nagahawatte A, De Silva D. Molecular and Epidemiologic Assessment of Dengue Fever in Southern Sri Lanka in 2012. American Society of Tropical Medicine and Hygiene, Nov 2014.
95. Yan Q, Ahn SH, Sharma-Kuinkel BK, Tsalik EL, Cyr DD, **Woods CW**, Thaden JT, Messina JA, Qi R, Hu M, Ruffin F, Hecker E, Fowler VG. Crif1 Is Associated with Susceptibility to *Staphylococcus aureus* Infection through Regulating Host Cell Apoptosis. IDWeek, Oral Presentation 51154, 2015.
96. Yang WE, Suchindran S, Nicholson BP, McClain MT, Burke T, Ginsburg GS, Harro CD, Chakraborty S, Sack DA, **Woods CW**, Tsalik EL. Transcriptomic Analysis of the Host Response to Enterotoxigenic *E. coli* Infection in Humans. ID Week, Poster 51040, 2015.

97. Tillekeratne LG, Bodinayake CK, Nagahawatte A, Vidanagama D, Devasiri V, Kodikara Arachchi W, Kurukulasooriya R, De Silva D, Ostbye T, Reller ME, **Woods CW**. Use of Rapid Influenza Testing to Reduce Antibiotic Use Among Outpatients with Influenza-Like Illness, Southern Sri Lanka, 2013- 2014. 25th European Congress of Clinical Microbiology and Infectious Diseases, April 2015.
98. Tillekeratne LG, Vidanagama D, Tippalagama R, Lewkebandara R, Joyce M, Nicholson B, Nagahawatte A, Bodinayake C, De Silva D, **Woods CW**. High prevalence of community-acquired urinary tract infections due to extended-spectrum β -lactamase- producing Enterobacteriaceae in southern Sri Lanka. American Society for Microbiology, May 2015.
99. McClain MT, Suchindran S, Schmader K, Ginsburg GS, and **Woods CW**. Genomic signatures for detection of upper respiratory viral infections. Veterans Affairs Health System Career Development Award Workshop. Washington, DC. 2015.
100. McClain MT, **Woods CW**, Tsalik EL, Ginsburg GS, Nicholson BP, Burke T, Hudson L, Veldman T, Better OM, Dobos S, Suchindran S, Nichols M, Valente A, Park L, Henao R. Host Transcriptomic Signatures for Early Diagnosis of Acute Respiratory Viral Infection in a University-based Index-Cluster Cohort. IDWeek, New Orleans, Oral Presentation, Abstract 60202, 2016.
101. Yang WE, Suchindran S, Nicholson BP, McClain MT, Burke T, Ginsburg GS, Harro CD, Chakraborty S, Sack DA, **Woods CW**, Tsalik EL. Human ETEC Challenge: Differences in the Symptomatic and Asymptomatic Host Response. Vaccines Against *Shigella* and ETEC (VASE) Conference, Washington DC, Oral Presentation, 2016.
102. Yang WE, Suchindran S, Nicholson BP, McClain MT, Burke T, Ginsburg GS, Harro CD, Chakraborty S, Sack DA, **Woods CW**, Tsalik EL. Transcriptomic analysis of the host response to Enterotoxigenic *E. coli* infection. 50th US-Japan Cooperative Medical Sciences Program Conference on Emerging Infectious Diseases & Cholera and Other Bacterial Enteric Infections, Rockville, MD, Oral Presentation, 2016.
103. Chao CC, Zhang Z, Belinskaya T, **Woods CW**, Nicholson BP, Tillekeratne LG, Sessions OM, Hsiang J, Lewis M, Reller M, Bodinayake CK, Nagahawatte A, Devasiri V, Kodikara-Arachichi W, De Silva AD, Kurukulasooriya R, Ostbye T, Gubler DJ, and Ching W-M. Scrub typhus as a major cause of illness for patients with unknown fever origin in Galle, Sri Lanka. American Society of Tropical Medicine and Hygiene, November 2016.
104. Ching W-M, Chao CC, Zhang Z, Belinskaya T, Chen H-W, **Woods CW**, Nicholson BP, **Tillekeratne LG**, Sessions OM, Hsiang J, Lewis M, Reller M, Bodinayake CK, Nagahawatte A, Devasiri V, Kodikara-Arachichi W, De Silva AD, Kurukulasooriya R, Ostbye T, Gubler DJ. Leptospirosis is one of the major diseases for patients with unknown fever origin in Galle, Sri Lanka. American Society of Tropical Medicine and Hygiene, November 2016.
105. Montgomery JL, Nawrocki J, Deneris M, Jones J, Crisp RJ, Aydin M, Better OM, Henao R, Burke T, Tsalik EL, Ginsburg GS, **Woods CW**, Hemmert AC. Rapid Discrimination of Viral and Bacterial Infections by Host Transcriptomic Analysis Using the FilmArray[®] System. ASM-Microbe, New Orleans, Oral Presentation, Abstract 3472, 2017.
106. **Woods CW** et al. Skin and Soft Tissue Infections are a Common Reason for Potentially Inappropriate Antimicrobial Use among Inpatients in Sri Lanka. IDSA Annual Mtg 10/3/19.
107. **Woods CW** et al. Evaluation of Multiple Host Response-Based Strategies to Classify Acute Respiratory Illness. IDSA Annual Mtg 10/4/19.
108. **Woods CW** et al. Antibiotic Use in Lower Respiratory Tract Infections: Insights From Patient Interviews in Sri Lanka. IDSA Annual Mtg 10/4/19.
109. **Woods CW** et al. Prevalence and Patterns of Outpatient Antibiotic Prescription at a Public Tertiary Medical Center in Southern Province, Sri Lanka. IDSA Annual Mtg 10/4/19.
110. **Woods CW** et al. Prevalence of Antibiotic Use and Administration among Hospitalized Adult Patients at a Tertiary Care Hospital in Kilimanjaro, Tanzania. IDSA Annual Mtg 10/5/19.
111. **Woods CW** et al. Murine Models for the Host Response to Typical and Atypical Pneumonia. IDSA Annual Mtg 10/5/19.
112. Wijayarathne WMDGB, Vanderburg S, Devasiri V, Nagahawatte A, Bodinayake CK, Petzold E, Gunasena S, Danthanarayana N, Piyasiri B, Sellathurai M, Weerasinghe NP, Fonseka CL, Kurukulasooriya RP, Gunasekara NC, Nicholson BP, **Woods CW**, Tillekeratne LG. An outbreak of adenovirus causing severe respiratory illness in southern Sri Lanka, 2018. ASTMH Annual Mtg 11/21/19.

113. Wijayarathne WMDGB, Bodinayake CK, Tillekeratne LG, KodikaraArachchi W, Devasiri V, Ostbye T, Kurukulasooriya RP, Gunasekara N, Reller M, **Woods CW**, Nagahawatte A. A comparison between IgM-ELISA and IgM Rapid Immunochromatography Test in the Diagnosis of Leptospirosis during the acute phase of illness in Southern Sri Lanka. ASTMH Annual Mtg 11/22/19.
114. **Woods CW**. Harnessing the Host Response for Real Time Clinical Decision Making in Tropical Infectious Diseases. ASTMH Annual Mtg 11/24/2019.
115. Jaffe IS, Jaehne AK, Quackenbush E, Rivers EP, McClain MT, Ginsburg GS, **Woods CW**, Tsalik EL. Comparing the Diagnostic Accuracy of Clinician Judgment to a Novel Host Response Diagnostic for Acute Respiratory Illness. ID Week, October 2020.

Consultant appointments

Consultant-World Health Organization, 1999 “Encephalitis in the Maldives”
 Consultant-Centers for Disease Control and Prevention, 2001 “Deliberate Release of *Bacillus anthracis*”
 Consultant-Microbiological Risk Assessment for Boston University BSL-4, TetraTech, 2009

Advisory Boards

Gates Foundation, Neonatal Sepsis Diagnostics, October 2008
 PhenX: Infectious Diseases and Autoimmunity Working Group, NIAID/RTI, 2010
 Gates Foundation, Biomarkers for Childhood Respiratory Infections in LMIC, 2014

Industry Advisory Boards

Becton Dickinson
 bioMerieux
 Cubist Pharmaceuticals
 Emergo Therapeutics
 Giner
 Nanosphere
 Regeneron
 Roche Molecular Sciences
 Theravance Pharmaceuticals

Grant Review Boards

Southeastern Center for Emerging Biological Threats (SECEBT), 2008-2013
 Genome Canada, 2009
 Gates Foundation, Pneumonia Etiology Research for Child Health (PERCH), 2009
 Military Infectious Diseases Research Program (MIDRP), 2013
 NIH/USAID Partnerships for Enhanced Engagement in Research (PEER) Health, 2013
 NIH/USAID Partnerships for Enhanced Engagement in Research (PEER) Health, 2016
 NIH/USAID Partnerships for Enhanced Engagement in Research (PEER) Health, 2017
 NIH/NIAID Omnibus Broad Agency Announcement: Advanced Development of Vaccine Candidates for Biodefense and Emerging Infectious Diseases-Viruses, 2017
 Department of Homeland Security, Border Security, 2018
 Ad hoc Reviewer, NIH/Fogarty D-43, 2019
 Ad hoc Reviewer, [International Research in Infectious Diseases, including AIDS \(R01\)](#), NIH Special Emphasis Panel 2019
 Chair, University of California Laboratory Fees Research Program Proposal Review Board, 2021

Editorial Board Activities

Infectious Disease News, 2013-Present

Journal and Manuscript Reviewer

Emerging Infectious Diseases, 2000-Present
Clinical Infectious Diseases, 2001-Present
Journal of Infectious Diseases, 2003-2005
The Lancet, 2001-Present
Journal of the American Medical Association, 2006-Present
American Journal of Tropical Medicine and Hygiene, 2002-Present
Transactions in Tropical Medicine and Hygiene, 2005-Present
Journal of Clinical Microbiology, 2005-Present
Vectorborne and Zoonotic Diseases, 2006-Present
MMWR Special Sections, 2003-2005
PLoS Neglected Tropical Diseases, 2010-Present
PLoS One, 2010-Present
Journal of Clinical Investigation, 2014-Present

Professional awards and special recognitions:

1989, Yale University, Edward Gordon Cup: Character and Leadership in the Finest Traditions of Yale
1991, Duke University Medical School, Daniel Griffith Graduate School Community Service Award
1992-1993, Eugene A. Stead Research Scholarship, Duke University Medical Center
1992-1994, Engel Honor Society, Moderator
1993-1994, Stead-McDaniel Research Scholarship, Duke University Medical Center
1994, Ciba-Geigy Community Service Award
1996, AMA/Glaxo Wellcome Community Service Award
1996, Duke University Medical School, Excellence in Teaching Award
1996-1997, Assistant Chief Resident, Duke University Medical Center
1997, AMA/Glaxo Wellcome Achievement Award
1998, National Centers for Infectious Diseases Outstanding Service Award
1999, National Centers for Infectious Diseases Outstanding Service Award
1999, Public Health Service Outstanding Unit Citation
1999, Public Health Service Foreign Duty Award
1999, Public Health Service Achievement Award
1999, Langmuir Prize nominee, Centers for Disease Control and Prevention
2001, Health Services Research Fellowship
2003, American Society for Tropical Medicine and Hygiene Young Investigator Award Nominee
2003, Davidson Council, Duke University Medical School Student Mentorship Award
2005, Golden Apple Teaching Award Nominee
2005, Duke, Department of Medicine, VA General Medicine Teaching Award
2008, Alpha Omega Alpha Medical Honor Society
2009, Fellow, Infectious Diseases Society of America
2014, Best Duke Medicine Grand Rounds Presentation, Nominee
2015, Joseph C. Greenfield, Jr. Research Mentorship Award, Duke Department of Medicine
2016, Duke, Department of Medicine, VA General Medicine Teaching Award
2017, Fellow, American Society of Tropical Medicine and Hygiene
2017, NIH/BARDA Antimicrobial Resistance Diagnostic Challenge Team, First phase winner
2018, World Small Animal Veterinary Association (WSAVA) Global One Health Award
2019, Duke School of Medicine Research Mentoring Award for translational science research

Organizations and Professional Participation:

American Society of Tropical Medicine and Hygiene, Fellow
Infectious Diseases Society of America, Fellow
International Society for Disease Surveillance, Research Advisory Board
American Society of Microbiology
American Medical Association

American College of Physicians
American Public Health Association
Physicians for Social Responsibility
North Carolina Medical Association
North Carolina Infectious Diseases Society

Local, State, National Service

2001- 2012, Inactive Reserve, Lt. Commander, Public Health Service
2004- 2014, Duke Representative, Southeastern Center for Emerging Biological Threats
2007-2014, SECEBT /SERCEB Preparedness Program Leader:
“Vectorborne Diseases in the Southeastern US”, May 8-9, 2007
“Foodborne Toxoplasmosis Outbreak Detected on College Campuses”, June 24-25, 2009
“Academic Consortia: Untapped Resources for Preparedness, Response, and Recovery – Examining the Cholera Outbreak in Haiti”, Feb 14-15, 2011
“Defining the One Health Research and Education Agenda”, Jan 23-24, 2012
“Emerging Vectorborne Diseases of the Southeastern US, Feb 10-11, 2014
2004- Present, North Carolina State Health Department, Infection Control Advisory Committee
2008- 2012, ASM International Laboratory Capacity Development Committee (LABCAP)
2009- 2012, IDSA, National and Global Public Health Committee
2012-2014, ASTMH, Global Health Committee
2013- Present, ASTMH, Scientific Program Committee
2017- Present, Agnes Scott College, Advisory Council on Global Health
2018- Present, American Society of Microbiology, Committee on Global Public Health, Chair
2021-Present, ICEID 2022 Scientific Program Committee (SPC)

Teaching responsibilities including continuing education:

1999-2003, Medical Student Physical Diagnosis Course, Department of Medicine, medical student lectures,
1999-2010, Medical Microbiology for Infectious Diseases Fellows, Curriculum Development
2003-2010, Program Faculty, Duke University Medical Microbiology Fellowship, Department of Pathology

2003-2010, Duke School of Medicine, Lecture presentations (6 annually),
Body and Disease-Tickborne diseases
Body and Disease-Zoonoses
Body and Disease-Bloodborne Parasites
Body and Disease-Streptococci I
Body and Disease-Streptococci II

2001-2005, Medical Microbiology for Pathology Residents Lecture Series
Laboratory Diagnosis of Viral Infections
An Update on Antimicrobial Susceptibility Testing in the Clinical Laboratory
Gram Positive
Gram Negative
Clinical Mycology
Clinical Pathology and Public Health
Real-time PCR

2004 UNC-SPH EPID Infections and Inequality
The Global Ecological Deficit: Who is Responsible? Who will Suffer? March 18, 2003

2003-2012, UNC-SPH, HPAA Critical Issues in Global Health
Globalization and Infectious Diseases

2003 UNC-SPH, Epidemiology 213, Acute Disease Surveillance and Outbreak Investigation, 3 Credit Course

2003-2012, UNC-SPH, HPAA Disaster Certificate Course

Module #2 Acute Disease Surveillance and Outbreak Investigation.

Unit 1-Historical Review and Establishing a Surveillance System

Unit 2-Using and Presenting Surveillance Data

Unit 3-Evaluation of a Surveillance System

Unit 4-The Future of Surveillance: Integrated, Automated, Syndrome-based

Unit 5-Outbreak Investigation

2006-2016 Duke Global Health Certificate Course

Critical Global Health Issues: Focus on Infectious Diseases

2006-2016 Science and Policy of Natural Catastrophes EGR 060/PPS 107/ENV 161

Public Health Emergencies: Emerging Infections and Agents of Bioterrorism

Acute Disease Surveillance and Outbreak Investigation

2009-2016 Duke Global Health Institute (MSc-GH, Director of Graduate Studies)

Global Health Challenges (3 Credit Course)

2010-Present One Health, from Principles to Practice (2 or 3 credit course)

Instructed in collaboration with Faculty from Duke, UNC-SPH, and NC State

Mentoring

Role	Trainee	Training Period	Institution, Date and Type of Degree Awarded or Funding	Title of Research Project	Current Position or Source of Support ²
Past Trainees					
Primary	Bressler, Adam	2000-2002	Resident	Virulence Associated with Outbreak-Related Strains of <i>Burkholderia cepacia</i> Complex among a Cohort of Patients with Bacteremia	Private Practice, Atlanta GA
Primary	Fox, James	2001-2002	Resident	Diagnosis of HSV Encephalitis	Associate Professor, Pediatric Emergency Medicine, Duke University
Primary	Brooks, Richard (pre-doc)	2002-2003	UNC-CH, 2003, MPH Duke MD, 2004	Meningococcal Clusters in the United States	Epidemic Intelligence Service Officer, CDC Atlanta, Ga
Primary	Churpek, Matthew (pre-doc)	2003-2004	UNC-CH, 2003, MPH Duke MD, 2005	Automated Surgical Site Infection Surveillance	Assistant Professor, Internal Medicine, University of Chicago
Primary	Caram, Lauren B	2003-2006	Internal Medicine Resident	Surveillance for WNV in the Emergency Department	Former Assistant Professor, Duke University Medical Center and DVAMC, Medical Leave
Primary	Pien, Brian	2004-2007	Infectious Diseases and Microbiology Fellow	Improved Methods of diagnosing bacteremia	Private Practice, Honolulu, HI

Primary	Caram, Lauren B	2006-2008	ASP-IDSA/Hartford Foundation/ Atlantic Philanthropies Young Investigator Award in Geriatrics IDSA Infectious Diseases Fellow	Prospective Respiratory Surveillance in the Elderly	Former Assistant Professor, Duke University Medical Center and DVAMC; Medical Leave
Primary	Krishnarao, Anita	2005-2007	Undergraduate	Strain Susceptibility of Community-acquired <i>C. difficile</i>	Gastroenterology Fellow, Lahey Medical Center, Boston
Secondary	Federspiel, Jerome	2005-2007	Undergraduate	Predictors of Mortality in Coagulase Negative Staphylococcal Native Valve Endocarditis	Assistant Professor, OB-Gyn UNC
Primary	Naggie, Susanna	2005-2007	Chief Resident	Community-acquired <i>C. difficile</i>	Associate Professor, Duke University Medical Center and DVAMC
Secondary	Hanson, Kimberly	2005-2006	Infectious Diseases Fellow, MHS	Diagnosis for Herpes virus infections	Professor, Medicine and Pathology, University of Utah
Primary	Rao, Supriya	2006-2008	Medical Student	Automated Influenza-like illness surveillance	Gastroenterology/Internal Medicine, UPenn, Philadelphia
Secondary	Hamilton, Carol D	2006-2007	MHS	Tuberculosis in HIV-infected Tanzanians	Director of Research, FHI-360
Primary	Varkey, Jay	2007-2009	ID Fellow, MSCRP	Pre-symptomatic diagnosis of Respiratory Viral Infections	Associate Professor, Infectious Diseases, Emory University
Secondary	McClain, Micah	2007-2009	ID Fellow, MSCRP	Immunological Response to VEE vaccine	Associate Professor, Duke University Medical Center and DVAMC
Primary	Tsalik, Ephraim	2009-2011	MD, PhD ID Fellow	Improved diagnostics for infectious diseases	Associate Professor of Medicine, MGM, Duke University
Secondary	McClain, Micah	2010-2013	K-08, NIAID, NIH	Immunological Response to VEE vaccine	Associate Professor, Medicine, Duke University and DVAMC
Primary	McClain, Micah	2012-2015	CDA/VA	Respiratory Viral Host Response in the Elderly	Associate Professor, Medicine, Duke University and DVAMC
Primary	Ferguson, Brandy	2006-2008	Medical Student	Bartonella bacteremia in Veterinarians	Assistant Professor, Emergency Medicine, NYU
Primary	Munoz, Beau	2007-2009	Medical Student	Febrile illness in Nicaragua	Surgical Residency, US Navy
Primary	Lyons, Jeremy	2007-2009	Medical Student	Febrile illness in Nicaragua	Orthopedics Residency, San Diego
Secondary	Kirchner, Amy	2007-2010	UNC-CH, DPH	Use of Early Biological Detection Data to Minimize the Consequences of No-notice Infectious Disease Outbreaks	DOD, GEIS
Primary	Gong, Winston	2009-2012	MSc-GH	Geospatial mapping of etiologies of febrile disease in Sri Lanka	Doctoral Student; Epidemiology Johns Hopkins School of Public Health, Baltimore, MD

Primary	Akoroda, Ufuoma	2010-2012	MSc-GH	Chikungunya as an etiology of febrile disease in Southern Sri Lanka	Pediatric Resident, Vanderbilt University Medical Center, Nashville, TN
Primary	Sen, Reeshi	2010-2012	MSc-GH	Etiology of Pediatric Fever in Western Kenya: A Case-Control Study of Falciparum Malaria, Respiratory Viruses, and Streptococcal Pharyngitis	Physician Assistant Student
Primary	Reller, Megan	2007-2009	T-32, Johns Hopkins Medical Microbiology Fellow	Etiology of Febrile Illness in Low and Middle Income Countries	Associate Professor, Medicine, Duke University, Durham, NC
Secondary	Reller, Megan	2010-2013	K-23, NIAID, NIH	Multimodal Predictive Models of Febrile Illness in Low and Middle Income Countries	Associate Professor, Medicine, Duke University, Durham, NC
Primary	Williams, Jason	2010-2012	Medical Student MD 2014	Non-human primate models of <i>S. pneumoniae</i>	Research Specialist, Premier Research Durham, NC
Primary	Lantos, Paul	2013-2016	Internal Medicine Faculty KL-2	Geospatial modeling of vectorborne infectious diseases	Assistant Professor, Medicine Duke University, Durham, NC
Primary	Tsalik, Ephraim	2012-2015	CDA/VA	Genomic Signatures for Healthcare Associated Infections	Assistant Professor, Medicine, Duke and DVAMC
Primary	Tillekeratne, Gayani	2012-2014	Global Health Fellow; Fogarty Fellow MSc-GH	Epidemiology of acute respiratory tract infections in Sri Lanka	Assistant Professor, Medicine Duke University
Primary	Uehara, Anna	2012-2014	MSc-GH	Molecular and Epidemiologic Assessment of Dengue Fever in Southern Sri Lanka in 2012	PhD Candidate, Emerging Infections Program Duke-NUS
Secondary	Taylor, Steve	2012-2017	K-08	Malaria chemoprevention in children with sickle cell anemia in Western Kenya	Assistant Professor of Medicine and Global Health, Duke University
Primary	McMullen, Chelsea	2013-2014	MSc-GH	Interspecies Transmission of Respiratory Viruses at Lola ya Bonobo, DRC	World Health Organization
Secondary	Catania, Jelena	2013-2014	MHS Infectious Diseases Fellow	Antifungal MIC and outcomes in invasive aspergillosis	Assistant Professor, University of South Florida Orlando VAMC, Orlando Fla.
Primary	Bertumen, JB	2014-2016	Infectious Diseases Fellow	Transmission of Community-Acquired CDAD within Hospital	Private Practice, Chicago, Ill
Primary	Shapiro, David	2015-2017	Pediatric Fellow, T-32	Burden and Seasonality of Viral Acute Respiratory Tract Infections among Outpatients in Southern Sri Lanka.	Private Practice, Pensacola, Fla

Primary	Tillekeratne, Gayani	2015-2017	DOM/HYC Bridge Funding	Antibiotic overuse for acute respiratory tract infections in Sri Lanka	Assistant Professor of Medicine and Global Health, Duke University
Secondary	Sobel, Ashley	2014-2017	MD, PhD	Deep Sequencing of Influenza A Virus from a Human Challenge Study Reveals a Selective Bottleneck and Only Limited Intra-host Genetic Diversification.	Completing MD, Duke University
Current Trainees					
Secondary	Uehara, Anna	2015-	PhD Candidate	A multiplatform approach to emerging infectious diseases investigation	Duke-NUS; Emerging Infectious Diseases Program
Secondary	Vanderburg, Sky	2017-	MD, MPH	Severe Acute Respiratory Infections (SARI) in Sri Lanka	Global Health Fellow Internal Medicine, Duke University
Primary	Hostler, Chris	2016-	MD, MPH	Antimicrobial Stewardship in the VA Health System	Medical Instructor, Medicine, Duke University Durham VAMC
Primary	Tillekeratne, Gayani	2017-	K-23	Novel Diagnostics to Improve Antimicrobial Stewardship for Acute Respiratory Tract Infections in Resource-Limited Settings	Assistant Professor of Medicine and Global Health, Duke University
Secondary	Wang, Annie	2017-	DVM/PhD Candidate	Antimicrobial Resistance among <i>Campylobacter coli</i> and potential for interspecies transmission	NC State School of Veterinary Medicine Raleigh, NC
Primary	Hastings, Megan	2017-	High School Senior	Procalcitonin and Ventilator Associated Pneumonia	NC School of Science and Math Durham, NC
Primary	Neighbors, Corelei	2019-	MSc-GH	TBD	Student
Primary	Lehmann, Anna	2019-	MSc-GH	TBD	Student
Primary	Uthappa, Diya	2020-	MSc-GH	TBD	Student

Invited Presentations:

1. April 20, 2021: COVID-19 Research: Bringing Us Together for Team Science in a Time of Social Distancing. Duke COVID-19 Research Seminar Series, Durham, NC
2. August 31, 2019: Harnessing the Host Response for Biomarker Development in Respiratory Infection Options X Influenza Conference, Singapore
3. August 14, 2019: Host Response for Clinical Decision Making in Infectious Diseases in Low and Middle Income Countries. Sri Lankan Society of Microbiology, Colombo, Sri Lanka
4. July 16, 2019: Global Health Challenges and Clinical Trials for Emerging Infectious Diseases, FHI Clinical Trials Unit. Durham, NC

5. June 11, 2019: Harnessing the Host Response for Real Time Clinical Decision Making in Infectious Diseases Conference on Infectious Diseases in the Immune Compromised Host. Seattle, Washington
6. December 20, 2018: Harnessing the Host Response for Real Time Clinical Decision Making in Infectious Diseases. Grand Rounds, University of Utah. Salt Lake City, Utah.
7. September 25, 2018: One Health Award Presentation. Bartonellosis—A Paradigm for the One Health Approach to Emerging Infectious Diseases. World Small Animal Veterinary Association. Singapore
8. May 8, 2018: Harnessing the Host Response in Clinical Virology. ASM Virology. Orlando, Florida.
9. June 30, 2017: Presidential Address. Harnessing the Host Response for Real Time Clinical Decision Making in Infectious Diseases. ASM Microbe. New Orleans, Louisiana
10. May 24, 2017: Harnessing the Host Response for Real Time Clinical Decision Making in Infectious Diseases. Precision Medicine World Conference. Durham, NC
11. May 22, 2017: Emerging Antimicrobial Resistance: The Role of Industrial Agriculture. One Health Certificate Program. Durham, NC.
12. March 28, 2017: Duke Applied Genomic and Precision Health: Opportunities for a Global Alliance. Duke-NUS Precision Medicine Symposium. Singapore
13. March 6, 2017: Bartonellosis: A Paradigm for the One Health Approach to Emerging Infectious Diseases. Western Veterinary Conference. Las Vegas, NV
14. June 28, 2016: Keynote Address. “Host Response Diagnostics for Infectious Diseases of Global Health Importance”, 6th International Conference on the Development of Biomedical Engineering. Ho Chi Minh City, Vietnam
15. June 15, 2016: Human: Bonobo Zoonotic Pathogen Transmission in the Democratic Republic of Congo”, 5th International Symposium on One Health Research. Ulaan Baater, Mongolia
16. June 8, 2016: Moderator “Biodefense Challenge to the Warfighter”, Medical, Biomedical and Biodefense: Support to the Warfighter Symposium. Durham, NC
17. March 31, 2016: “The Long and Winding Road: Developing Host Response Classifiers for Bacterial and Viral Disease of Global Health Importance”, Dengue and Emerging Infectious Diseases Symposium. Singapore.
18. October 8, 2015: “The Biothreat Situation Room: Driving a Revolution in Diagnostics”, ID WEEK, San Diego, California.
19. June 6, 2015: “Update on Novel Diagnostics for Infective Endocarditis”, 13th Meeting, International Society of Cardiovascular Infectious Diseases. Rio De Janeiro, Brazil.
20. April 24, 2015: “The Near Patient Diagnostic Revolution: Clinical Drivers on a Bumpy Road”, 30th Annual Clinical Virology Symposium, Daytona Beach, Fla.
21. May 1, 2015: “Ebola Outbreak 2013-2015: From West Africa to Duke and Back”, Duke University, Dept of Medicine Grand Rounds, Durham, NC.

22. November 22, 2014: "Emerging Antimicrobial Resistance: The Role of Industrial Agriculture", 1st Annual China One Health Symposium, Guangzhou, China.
23. November 14, 2014: "The Host Response to Infectious Diseases: A Paradigm for Developing Novel Biomarkers of Health and Disease", Association of Molecular Pathology Annual Meeting, Washington, DC.
24. September 29, 2014: "Host Response Genomics to Distinguish Viral from Bacterial Respiratory Infection", Bill and Melinda Gates Foundation, Advisory Meeting on Biomarkers for Pediatric Community Acquired Pneumonia in Africa, Seattle, WA.
25. February 13, 2014: "University Engagement in Global Health...Security: The Duke Experience", 180th American Association for the Advancement of Science Annual Meeting, Chicago, Ill.
26. January 25, 2014: "A One Health Approach to Emerging Infectious Diseases", Sino-African One Health Meeting, Kinshasa, DRC.
27. November 13, 2013: "Global Health Education: The Duke Experience", American Society of Tropical Medicine and Hygiene Annual Meeting, Philadelphia, PA.
28. October 26, 2013: "Global Health Education: The Duke Experience", Asia-Pacific Academic Consortium on Global Health", Wuhan, China.
29. November 10, 2013: "Developing 'omic Signatures for Early Detection of Infectious Diseases: Applications for Global Health", Duke Global Health Institute, Lunch and Learn, Durham, NC.
30. April 22, 2013: "A Program for Developing 'Omic Biomarkers for Early Detection of Infectious Diseases", Duke: Duke NUS Emerging Infectious Diseases Symposium, Durham, NC.
31. September 11, 2012: "Developing Genomic Biomarkers of Health and Disease: Respiratory Viral Infections", Wellcome-Trust, Advisory Meeting on Respiratory Syncytial Virus, London, UK.
32. June 29, 2012: "The Host Response to Infectious Diseases: A Paradigm for Developing Biomarkers of Health and Disease", UNC-CH, Division of Infectious Diseases Grand Rounds, Chapel Hill, NC.
33. March 17, 2012: "Bartonellosis: A Paradigm of the One Health Approach to Emerging Infectious Diseases", Duke University, Dept of Medicine Grand Rounds, Durham, NC.
34. November 13, 2011: "Update on Respiratory Viral Diagnostics", Gilead Pharmaceuticals. San Francisco, CA.
35. November 12, 2011: "Genomes and Medicine: Community Acquired Respiratory Infections", Genome Forum, Durham, NC.
36. November 02, 2011: "The Host Response to Infectious Diseases: A Paradigm for Developing Biomarkers for Health and Disease", Duke: Duke-NUS Emerging Infectious Diseases Symposium, Singapore.
37. August 4, 2011: "Cohort studies for validation and discovery of biomarker signatures of infection", Novartis Infectious Disease Biomarker Symposium, San Francisco, CA.
38. September 17, 2009: "Financing Healthcare: Who Does the Rationing?", bioMerieux Foundation, Durham, NC

39. April 24, 2009. "Surrogate Markers for Sepsis". 3rd European Conference on Bloodstream Infections, Sorrento, Italy.
40. September 20, 2008: "Demystifying DNAemia", European Society of Intensive Care Medicine. Lisbon, Portugal.
41. June 10, 2008: "Tickborne Disease", Wake County Medical Grand Rounds, Raleigh, NC.
42. June 8, 2008: "Acute Infectious Disease Diagnostics: An Update", Infectious Diseases Grand Rounds. Duke University. Durham, NC.
43. May 20, 2008: Vectorborne Diseases of the Southeastern United States. Neurology Grand Rounds. Duke University. Durham, NC.
44. April 20, 2008: "On the Road to "omic"-based Diagnosis, Risk Stratification, and Therapy". Asia-Pacific Institute, University of Hawaii, Honolulu, HI.
45. March 11, 2008: "Healthcare Associated Infections: Old Bugs with New Tricks", Roche Diagnostic, Pleasanton, CA.
46. February 13, 2008: "Profiling Infectious Diseases. Institute of Genome Science and Policy. Duke University, Durham, NC.
47. November 16, 2007: "Emerging Infections: In our Community?" Roche Molecular Sciences. Pleasanton, CA.
48. October 1, 2007: "Community-Acquired Emerging Infections", North Carolina Infectious Diseases Society, Raleigh, NC.
49. June 18, 2007: "Effect of Changing Susceptibility in Streptococci and Enterococci on Treatment and Outcomes of Infective Endocarditis". International Society of Cardiovascular Infectious Diseases. Heidelberg, Germany.
50. June 14, 2007: Increasing Resistance in Enterococci and Streptococci in Infective Endocarditis. International Society of Cardiovascular Infectious Diseases. Heidelberg, Germany.
51. March 30, 2007: Curbing MRSA: Impact of the Increasing MRSA Threat on Treatment Outcomes in Bacteremia and Endocarditis. Miami, Fla.
52. November 13, 2006: "Emerging *Clostridium difficile*-associated Disease in the Community, North Carolina, 2005. Duke University, Department of Medicine Grand Rounds, Durham, NC.
53. October 28, 2006: *Staphylococcus aureus* bacteremia and Endocarditis: Managing recurrent infections. Infectious Diseases Society of America. Toronto, Quebec.
54. Dec 18, 2005: Clinical Challenges of *Staphylococcus aureus* Bacteremia and Endocarditis. National Foundation of Infectious Diseases. Washington, DC.
55. December 17, 2005: Infective Endocarditis: A Disease in Epidemiological Transition. 45th Interscience Conference on Antimicrobial Agents and Chemotherapy. Washington, DC.

56. November 15, 2005: Emerging Infections and Agents of Bioterrorism. Worldview Conference. Chapel Hill, NC.
57. October 18 2005: Emerging *Clostridium difficile* Associated Disease in the Community, Infectious Diseases Society of North Carolina, Raleigh, NC.
58. May 22, 2005: Viridans group streptococci: New classification, different pathogenicity and susceptibility profiles. 8th International Symposium on Modern Concepts in Endocarditis and Cardiovascular Infections. Charleston, SC.
59. November 20, 2004: Infective Endocarditis: A Disease in Epidemiological Transition. Rollins School of Public Health, Emory University, Grand Rounds. Atlanta, Ga.
60. October 6, 2004: Community Acquired Pneumonia: An Update. Cape Fear Valley Medical Center, Fayetteville, NC.
61. November 12, 2003. "Emerging Infections", The Carter Society Annual Lecture. Duke University Department of Obstetrics and Gynecology. Durham, NC.
62. April 23, 2003: "Acute Disease Surveillance and the Primary Healthcare System", Tennessee Primary Care Association. Nashville, TN.
63. May 15, 1999: Acute Disease Outbreaks and Epidemiological Investigations, Rift Valley Fever and Leptospirosis. Department of Medicine Grand Rounds, Durham, NC.

Participation in academic and administrative activities of the University and Medical Center:

Duke School of Medicine Committees

- 1990-1992, Graduate and Professional Student Council
- 1990-1993, Duke University Children's Miracle Network, Student Chairman
- 1990-1994, Duke University Medical Center AIDS Volunteer Network- Co-creator
- 1990-1994, Medical Student Council
- 1990-1996, Habitat for Humanity- DUMC Coordinator and volunteer
- 1992-1993, Medical Student Council Community Service, Vice-President
- 1995, Department of Medicine Chairman Search Committee
- 1996-1997, Duke University Medical Center Executive Committee
- 1996- Present, Department of Medicine, Resident Recruitment
- 2000-Present, Division of Infectious Diseases, Fellow Recruitment
- 2000-Present, Stead Research Scholarship Committee, Co-Chairman
- 2002-2007, Department of Pathology, Resident Recruitment
- 2002-Present, Department of Medicine, Resident Recruitment
- 2002, Division of Pediatric Infectious Diseases, Chairman Search Committee
- 2005-Global Health Initiative, Education Sub-committee
- 2005-Global Health Initiative, Service Sub-committee
- 2005-Tsunami Response Committee
- 2005-Public Health Degree Program Committee
- 2007-2009, Clinical program director, Mentored Career Development Program in Biodefense and Emerging Infectious Disease, Southeastern Regional Center for Excellence in Emerging Biological Threats
- 2007-Duke-NUS Emerging Infections Program Director Search Committee
- 2008-Present, Academic Council, Faculty Representative

2008-Department of Medicine, Division of Infectious Diseases, Chief Search Committee
2009-Human Vaccine Institute, Faculty Search Committee
2010-Joint Duke Global Health Institute/Biomedical Engineering Faculty Search Committee
2009-Ad Hoc University Committee on Pandemic Flu
2018-Present, Department of Medicine Appointments Promotions and Tenure Committee
2018-Present, Department of Medicine, Clinical Research Unit, Faculty Advisory Board

University leadership

2015-2016, Executive Committee of the Academic Council, Duke University
2016-Present, Committee on Facilities and the Environment, Duke University
2016-2019, Presidential Committee on Honorary Degrees, Duke University
2016-2017, Academic Council Chair Nominating Committee
2017-Present, Co-Chair, Committee on Facilities and the Environment, Duke University
2018-Present, Capital Review Committee
2018-Present, Strategic Task Force – The Future of Central Campus
2019-Present, Information Technology Advisory Committee
2019, Duke Health Chancellor Reappointment Committee, Chair

VA committees

2002-2012, Environment of Care Committee, Durham VAMC
2002-Present, Antibiotic Decision Support Team, Durham VAMC
2004-2014, Biosafety Review Committee, Institutional Review Board, Durham VAMC
2002-Present, Infection Control Committee, Chairman (Hospital Epidemiologist) Durham VAMC
2003-Present, VISN 6 Infection Control Committee
2014, Ad hoc, Ebola Response Committee

Areas of research interest:

Infectious Disease Genomic Medicine Program: This program has been supported since 2005 through NIH, DARPA, Bill and Melinda Gates Foundation, W.G. Coulter Foundation, DTRA, and industry partners. Team Science is practiced by the interdisciplinary group of investigators including clinician scientists, microbiologists, immunologists, mathematicians, statisticians, and engineers. The ultimate goal is the development of a more precise means of guiding anti-infective therapeutics in the acute care setting using multidimensional genomic signatures. Christopher Woods oversees this program through his role as Director, Applied Genomics, Center for Applied Genomics and Precision Medicine.

Other areas of interest.

- Molecular epidemiology
- Sepsis diagnostics
- Global Health Education
- Bioterrorism and Emerging Infectious Diseases
- Vectorborne Diseases
- Community-acquired *Clostridium difficile* infections
- Endocarditis

Unique Resources:

The Molecular Epidemiology Research Laboratory (MERL) is a developmental extension of the Durham Veterans Affairs Medical Center Clinical laboratory. The laboratory is supervised by Dr. Bradly Nicholson. The laboratory brings to bear expertise in classical clinical microbiology, epidemiology, clinical research, and molecular microbiology. The laboratory has developed standardized operating procedures for the collection, processing, and storage of clinical research samples for use in a diverse range of clinical diagnostic studies. For example, the laboratory has directed the sample collection, processing, and detection of diverse pathogens of early phase host response diagnostic development through a series of offsite human viral challenge studies (Human rhinovirus, n=2; Respiratory Syncytial Virus, n=2; and Influenza, n=4) funded by the Defense Advanced Research Projects Agency (DARPA). More than 150 subjects

representing over 50,000 aliquots have been handled as part of this diagnostic development program. The laboratory also supports several large, free-living cohort studies for the development and validation of host response diagnostic tests. As an offshoot of a CLIA approved laboratory, the laboratory also participates in Phase II, III, and FDA registration studies with commercial partners.

The MERL uses diverse classical and molecular diagnostic methodologies to identify the etiologic agent in viral, bacterial, and fungal infections. Current technologies include selective media, antigen detection, and specific, broad-range, and multiplex polymerase chain reaction using a variety of amplification and detection platforms. After identification, organisms can be further characterized on site by phenotypic, metabolic, or nucleic acid bases typing techniques such as Ribotyping, Pulsed Field Gel Electrophoresis, or Multi-Locus Sequence Typing (MLST)

The Triangle Acute Infectious Diseases Clinical Research Unit (AIDCRU) is a shared clinical research resource for acute care settings. The primary unit operates at Duke University Health System, but affiliated programs exist at the Durham Veterans Affairs Medical Center and the University of North Carolina Hospitals. The mission of the unit is to coordinate screening and enrollment of patients into clinico-epidemiological studies in acute care clinics, the emergency department, and intensive care units at Duke University Medical Center. The unit was established to focus on the development of a well-characterized biorepository for research into genomic and other host markers of acute infectious disease. The unit includes both a clinical research staff and a supporting molecular diagnostic laboratory.

As a shared resource, the unit is led by Christopher Woods and governed by a group of collaborating investigators from the Duke Department of Medicine (Divisions of Infectious Diseases and Pulmonary/Critical Care) and the Duke Department of Surgery, Division of Emergency Medicine, and the Durham VA Health System.

Duke CAGPM Biorepository (<https://precisionmedicine.duke.edu/researchers/biobank>)

Given the complexity of human biological specimen collections and associated genomic research programs, and the importance of high-quality and well-annotated samples for the research planned in this proposal, it is imperative to develop the appropriate processes and infrastructure to collect, handle, and track these specimens in an accurate and secure manner. This includes deploying a web-based system to support the collection, annotation, storage, handling, and distribution of samples as they are made available to the program, all of which will be subjected to robust quality assurance and chain of custody programs.

Facility Description: This facility is distributed to three locations – a laboratory ‘portal’ for specimen influx/efflux (Fitzpatrick-CIEMAS Bldg, Rm 2149), mid/long-term storage located in a dedicated freezer facility in Duke Environmental Safety Bldg, and long-term storage outsourced to an off-site vendor facility in Research Triangle Park, NC. Each location is access-restricted to biobank personnel only and provides appropriate environmental controls, and each freezer unit is linked into an active-response freezer monitoring system (Minus80 Monitoring Inc) and is connected to emergency generator back-up power.

Sample data management and analysis: The Biorepository employs LabVantage™ for the integrated collection, annotation, inventory management, and distribution of biospecimens. The web-based LabVantage™ system, in conjunction with standard operating procedures (SOPs) provide the program management, annotation, inventory management tools, and software components necessary to maintain a comprehensive and efficient banking program with the appropriate safety and bioethics framework. LabVantage™ supports all aspects of biobanking including data entry, barcode-based chain-of-custody tracking and inventory management, specimen annotation, query and data reporting, while providing security and access restrictions ensuring data privacy (HIPAA) and integrity. This infrastructure supported 33 research projects resulting in the acquisition and banking of ~340,000 biospecimens since 2007.

Genomic Assay and Diagnostic Device Development (GAD3) Lab: The Laboratory is supervised by Thomas Burke, PhD, and was established as a strategic collaboration between CAGPM and the Pratt School of Engineering. The laboratory is located in Fitzpatrick-CIEMAS Building Rm 2149 with ~1000 sq.ft. dedicated “wet” laboratory workspace designed and equipped for the handling, processing, and characterization of sensitive clinical genomic samples, extraction and purification of nucleic acids from a range of endogenous sources (including human tissue and fluid specimens), and to perform quality analysis of endogenous or synthetic RNA or DNA samples and standards. The lab plays the important roles of creating “calibration” quality test standards, developing novel methods and assays for targeted measure of

analytes, and migrating, refining and validating molecular signatures with prototype diagnostic technologies. The laboratory also serves as the staging point for influx of biospecimens into the CAGPM Biobank and efflux of specimens for molecular analyses.

Lab equipment include: ViiA7 real-time PCR system (Applied Biosystems) with Twister automated plate loader, Mastercycler Pro thermal cycler (Eppendorf), QIAcube automated sample processing system for nucleic acid purification (Qiagen), Bioanalyzer 2100 (Agilent), Nanodrop 2000 spectrophotometer and Qubit 4 fluorimeter (Thermos Fisher) for nucleic acid QC, Biofire FilmArray and BD Veritor instruments for rapid pathogen testing, gel electrophoresis equipment and imager (BioRad), tissue homogenizer, benchtop centrifuge and microcentrifuges, analytic and top-loading balances, -80°C and -20C freezers (monitored, alarmed, backup power), +4C refrigerator and cold room, PCR workstation with HEPA filtration, biosafety cabinet, chemical fume hood, and UPS power supply and generator backup for critical equipment.

External support - gifts, grants, and contracts:

Dr. Woods has a dual appointment at Duke University and the Durham VAMC (6/8).

Past

Centers for Disease Control and Prevention (Ryder) Public Health Preparedness and Response Training UNC-SPH NC Center for Public Health Preparedness	Woods (I)	2002-2004 \$150,000
Centers For Disease Control and Prevention (Stephens) CDC/Southeastern Center for Emerging Threats Seroprevalence of WNV among patients with acute febrile illness in the southeastern US.	Woods (PI)	2003-2004 \$50,000
5U01 AI066569-02 05 & 3U01AI066569-05S1 (Kingsmore) NIH/NIAID Sepsis and CAP: Partnerships for Diagnostic Development Purpose is to develop plasma protein biomarker-based diagnostics of outcome in sepsis and community acquired pneumonia.	Woods (Co-PI)	2005-2010 \$3,000,000
Cubist-Pharmaceuticals Gram-positive organisms in Infective Endocarditis Identification and Susceptibility of Gram-positive Organisms from the International Collaboration on Endocarditis Microbial Collection (ICE-Micro)	Woods (PI)	2006--2007 \$35,000
Cubist-Pharmaceuticals Virulence Factors in <i>Staphylococcus aureus</i> in Infective Endocarditis Prevalence of Panton-Valentine Leukocidin and Other Virulence Genes in the Cubist (SAB) Endocarditis Collection and the ICE Collection	Woods (PI)	2007-2008 \$115,000
N/A (Provenzale) American College of Gastroenterology Development of a Comprehensive Molecular Epidemiology Program for <i>Clostridium difficile</i> -Associated Diarrhea using a Novel, Automated Surveillance Methodology.	Woods (Co-PI)	2006-2008 \$35,000
N/A (Breitschwerdt) CDC-SECEBT Detection of <i>Bartonella</i> Species Infection among a Cohort of Healthy and Sick Veterinarians and Veterinary Technicians	Woods (Co-PI)	2007-2008 \$50,000
N66001-07-C-2024 (Ginsburg) Defense Advanced Research Program Agency Clinico-Molecular Predictors of Pre-Symptomatic Infectious Disease	Woods (Co-PI)	2007-2010 \$2.9 million

NIH/NIAID (Haynes)	Woods (Co-I)	2007-2009
Mentored Career Development Program in Biodefense and Emerging Infectious Disease		\$350,000
Southeast Research Center for Excellence in Biological Defense		
MM-1044-08/09 (Woods)		2007-2010
Association of American Medical Colleges		\$15,564 per annum
Isolation of <i>Clostridium Difficile</i> from Stool Specimens		
Clinical laboratories participating in the FOODNET surveillance network will identify stool specimens from patients identified as having community acquired <i>Clostridium difficile</i> infection.		
Roche Diagnostics, Inc.	Woods (PI)	2007-2010
Prospective Evaluation of Septifast™		\$488,000
To the performance of Roche's novel multiplex PCR platform "SeptiFast" for rapid diagnosis of bloodstream infection and rapid identification of etiologic agent in patients presenting to the emergency department with febrile illness.		
Centers for Disease Control and Prevention	Woods (PI)	2009-2020
CDC IPA for Lawrence (Larry) Park		\$48,937
The CDC Division of Healthcare Quality Promotion (DHQP), Duke University, and the Durham VA Medical Center are working together to use electronically stored health data for the Veteran's Integrated Service Network (VISN) 6 to improve patient care.		
W.H. Coulter Foundation Sub# 26-P3831354	Ginsburg/Woods (PI)	2009-2010
Duke-Coulter Foundation Translational Partnership		\$388,327
Development of a Point-of-Care Diagnostic for Candidemia and Community-acquired Respiratory Tract Infection Nanoprobes Using Molecular Sentinel (Phase I)		
The goal of this project is to define a blood-based RNA gene expression signature for community acquired respiratory tract infection (CARI) and candidemia and to utilize a microfluidic-based molecular sentinel nanoprobe chip to detect this signature.		
WH Coulter Foundation Sub# 26-P3831354	Ginsburg/Woods (PI)	2010-2011
Duke-Coulter Foundation Translational Partnership		\$283,027
Development of a Point-of-Care Diagnostic for Candidemia and Community-acquired Respiratory Tract Infection Nanoprobes Using Molecular Sentinel (Phase II)		
The goal of this project is to further define a blood-based RNA gene expression signature for community acquired respiratory tract infection (CARI) and candidemia and to utilize a microfluidic-based molecular sentinel nanoprobe chip to detect this signature.		
1K08-AI082283-01 (McClain)	Woods (Co-Mentor)	2009-2012
NIH/NIAID	Venezuelan Equine Encephalitis Immunology and Vaccine Design	\$78,317
This proposal involves the complete progression from discovery and description of important antigenic regions of the Venezuelan Equine Encephalitis (VEE) virus through the design, construction, and preclinical testing of a new vaccine for prevention of VEE infection.		
5R25-TW007734-02 (Merson)	Woods (Co-I)	2008-2011
NIH/Fogarty	Developing an Interdisciplinary Graduate Curriculum in Global Health	\$223,568
In "Developing an Interdisciplinary Graduate Curriculum in Global Health at Duke University," the Duke Global Health Institute (DGHI) proposes the development of an interdisciplinary Master of Science in Global Health (MSc-GH) degree program that will target undergraduates, graduate and professional students from schools and departments across the University who wish to pursue a dual degree, and medical residents.		
N66001-07-C-2024	Ginsburg/Woods (PI)	2009-2010

Defense Advanced Research Projects Agency	Predicting Health and Disease (PHD)	\$237,798
The primary goal of this program is to develop a host-based diagnostic system capable of detecting respiratory viral infections before onset of symptoms.		
N66001-09-C-2082 (Woods)	Ginsburg/Woods (PI)	2009-2013
Defense Advanced Research Projects Agency	PHD	\$247,393
RSV Challenge		
This human challenge study with RSV will focus on model refinement of host-based genomic signatures for the diagnosis of pre-symptomatic respiratory viral infection.		
N66001-09-C-2082 (Woods)	Ginsburg/Woods (PI)	2009-2013
Defense Advanced Research Projects Agency	PHD	\$563,585
Community Acquired Respiratory Disease Surveillance (CARDS)		
This second phase focused on validation and model refinement of host-response genomic signatures in a free-living cohort of University students.		
N66001-09-C-2082 (Woods)	Ginsburg/Woods (PI)	2009-2013
Defense Advanced Research Projects Agency	PHD	\$190,267
Interventional Flu Challenge		
This human challenge study with Influenza H3N2 focused on model refinement of host-based genomic signatures for the diagnosis of pre-symptomatic respiratory viral infection.		
N66001-09-C-2082 (Woods)	Ginsburg/Woods (PI)	2009-2013
Defense Advanced Research Projects Agency	PHD	\$145,267
HRV Challenge		
This human challenge study with HRV focused on model refinement of host-based genomic signatures for the diagnosis of pre-symptomatic respiratory viral infection.		
N66001-09-C-2082 (Woods)	Ginsburg/Woods (PI)	2009-2013
Defense Advanced Research Projects Agency	PHD	\$243,691
Tamiflu- Woods		
This Influenza H1N1 challenge study focused on the effect of an antiviral intervention on a host-based diagnostic.		
N66001-09-C-2082 (Woods)	Ginsburg/Woods (PI)	2009-2013
Defense Advanced Research Projects Agency	PHD	\$203,973
Dx Predictors- Woods		
This second phase focused on validation and model refinement of host-response genomic signatures in a free-living cohort of Emergency Department patients.		
N66001-09-C-2082 (Woods)	Ginsburg/Woods (PI)	2009-2013
Defense Advanced Research Projects Agency	PHD	\$70,464
Ex Vivo-		
The primary goal of this program was to challenge human PBMC with a variety of respiratory viruses (including novel H1N1) to assess the similarity of genomic response to free-living human cohorts.		
N66001-09-C-2082 (Ginsburg)	Ginsburg/Woods (PI)	2009-2011
Defense Advanced Research Projects Agency	PHD	\$256,264
Assay Development		
The effort described here is the second phase of this work which shall focus on targeted biomarker detection sensors. We will evaluate three separate platforms in collaboration with Duke biomedical engineering.		
N/A (Woods)		2009-2014

University of North Carolina - Chapel Hill Emergency Response and Preparedness Program The role of SERCEB's Emergency Response Preparedness Core is to provide educational and preparedness activities for personnel in SERCEB and to encourage and facilitate communication with public health.		\$190,000
Novartis Diagnostics Early Detection of Healthcare Associated Infections in the Intensive Care Unit The goal of this project is to define a blood-based RNA gene expression signature for healthcare-associated and ventilator-associated pneumonia (HAP/VAP).	N/A (Woods)	2010-2013 \$1,326,770
U54-CK000164-01 (Sexton) NIH/Centers for Disease Control and Prevention <i>A Four-arm Prospective, Multicenter Study to Assess the Clinical Efficacy, Effectiveness, and Feasibility of Enhanced Room Disinfection with Chlorine and UV light</i>	Woods (Co-I)	2011-2016
Bill and Melinda Gates Foundation OPP1017554 (Ginsburg) <i>Development of a Non-human Primate Model for Pneumococcal Pneumonia</i> This program is funded to develop a baboon model of pneumococcal pneumonia for biomarker diagnostic test development and assessment.	Ginsburg/Woods (PI)	2011-2015 \$3,150,000
N/A Duke-National University of Singapore <i>Interspecies Transmission of Respiratory Viruses at Lola ya Bonobo</i> To detect interspecies transmission of respiratory viruses between orphaned bonobos and their human caregivers.	Woods (PI)	2014-2016 \$200,000
N/A Duke Global Health Institute <i>Detection of Human Respiratory Viruses at Lola ya Bonobo</i> To detect respiratory viruses in orphaned bonobos and their human caregivers.	Woods(PI)	2014-2016 \$50,000
5UM1-AI104681-03 SUB #27-P2038641 NIH/NIAID/Antimicrobial Leadership Group (ARLG) <i>RADICAL: Rapid Diagnostics for Categorizing Acute Lung Infections (RADICAL I).</i> <i>A host-based mRNA classifier for differentiating viral and bacterial etiologies of acute respiratory tract infection</i>	Woods (PI)	2014-2016 \$2,126,634
NIH/NIAID/DMID HHSN27200003 (Walter) Vaccine Treatment and Evaluation Unit (VTEU) Protocol 13-0020 A Double-Blind, Randomized, Placebo-controlled, Phase I dose escalation trial to evaluate the safety and immunogenicity of an inactivated West Nile Virus Vaccine, Hydrovax-001, in healthy adults.	Woods (PI)	2014-2017 \$785,331
N62645-14-0001 The Henry Jackson Foundation: Advancement of Military Medicine Naval Medical Logistics Command <i>Austere environment consortium for enhanced sepsis outcomes (ACESO).</i> To develop biomarkers for sepsis for use in austere environments.	Ginsburg/Woods (PI)	2014-2017 \$1,500,000
DARPA W911NF-15-1-0161(Ginsburg) <i>Biochronicity Grand Challenge: Baseline Bio-molecular Models to Predict Infectious Disease Susceptibility</i> To determine baseline molecular signatures and shifts during diverse stresses.	Woods (Co-PI)	2015-2016
W911NF-15-1-0107 subaward 2015A-01 (Tsalik) DARPA/Sage Bionetworks <i>Resilience to infection: an open innovation challenge to the community</i>	Woods (Co-I)	2014-2016 \$500,000

CDC (Dreps) <i>S. pneumoniae</i> in Older Adults in Retirement Communities (SOARS)	Woods (Co-I)	2014-2016 \$50,000
Ibis Biosciences sub-HR0011-14-C-0083 (Tsalik) <i>Feasibility for Predicting Warfighter Health Using Transcriptional Markers on the MAP Platform</i> Translating host gene expression signatures to hand held platform.	Woods (Co-PI)	2016-2017
Emergency Medicine Foundation (Limkakeng) <i>MicroRNAs to Identify Myocardial Ischemia During Stress Testing In The Emergency Department</i>	Woods (Co-I)	2017-2018 \$50,000

VA Completed

CDC/Research Triangle International The Effectiveness of Treatments for Influenza among Hospitalized Patients	Woods (Site-PI)	2009-2012
Veterans Affairs Career Development Award (McClain) Genomic signatures for detection of upper respiratory viral infections	Woods (Mentor)	2012-2016
Veterans Affairs Career Development Award (Tsalik) <i>Detecting hospital-acquired infections using host gene-expression profiles</i>	Woods (Mentor)	2012-2015
N/A (Gerding) Department of Veterans Affairs <i>Clostridium difficile</i> infection in longterm care facilities (LTCF) in VA Medical Centers Assessment of disinfection procedures in VA LTCF	Woods (site-PI)	2014-2015
DARPA HR0011-15-2-0057 (Welty-Wolf) Title: Novel Dialysis-Like Therapeutics in Sepsis-induced Shock and Organ Failure Major Goal: to translate novel, dialysis like therapeutics into a treatment for patients with severe sepsis and multiple organ dysfunction.	Woods (Co-I)	2015-2018

Present

NIH/NIAID R21 AI132978-01 (McClain) <i>Host-derived biomarker signatures to differentiate acute viral, bacterial, and fungal infection</i> Expands mRNA biomarkers to be inclusive of patients with fungal infections, including candida and aspergillus.	Woods (Co-I)	2017-2020 \$392,496
NIAID/NIH 1K23AI125677-01A1 (Tillekeratne) <i>Diagnostics to Improve Antimicrobial Stewardship for Acute Respiratory Tract Infections in Resource-Limited Settings</i> To develop genomics-based diagnostics for resource-limited settings to improve stewardship.	Woods (Mentor)	2017- 2022 \$904,948
NIH/NIAID 1R01-AI121378-01 (Crump) <i>Investigating Febrile Deaths in Tanzania (INDITe)</i> To determine the cause of death in febrile subjects using advanced, standardized methodologies.	Woods (Co-I)	2016-2020
DOD BA150703 <i>Novel Host Diagnostics of Febrile Illness in the Warfighter.</i> Expanding the utility of gene expression signatures to high consequence pathogens: Sri Lanka and Tanzania	Woods (PI)	2016-2019 \$3,632,429
5UM1-AI104681-03 (Fowler) SUB #27-P2038641	Woods (PI)	2016-2019

NIH/NIAID/Antimicrobial Leadership Group (ARLG)			\$3,999,436
Rapid Diagnostics for Categorizing Acute Lung Infections (RADICAL II). Validation of viral and bacterial host genomic signatures for respiratory tract infections.			
NIH/NIAID/DMID HHSN272201300017I (McClain)	Woods (Co-PI)		2016-2020
Host-based genomic signatures for diagnosis of acute Valley Fever			\$800,000
NIH/NIAID HHSN272201300017I (Walter)	Woods (PI)		2016-2020
Vaccine Treatment and Evaluation Unit			\$1,380,403
Targeted Reduction of Antibiotics using Procalcitonin in a multi-center, randomized, double-blinded, placebo-controlled non-inferiority study of azithromycin treatment in outpatient adults with suspect lower respiratory tract infection (LRTI) and a procalcitonin level of <0.1 ng/mL (TRAP-LRTI)			
NIH/NIAID HHSN272201300017I (Walter)	Woods (co-I)		2018-2021
Vaccine Treatment and Evaluation Unit			\$1,573,519
Phase 1/2 placebo controlled, partially blinded, clinical trial to assess the safety and efficacy of microbial restoration by enema in those with 1 or more recurrences of Clostridium difficile associated disease (CDAD)			
DARPA HR001118S0023	ECHO	Woods (PI)	2019-2021
Mapping Epigenetic Memory of Exposure to Observe (MEMENTO)			\$2,149,862
This project aims to identify epigenetic markers indicative of exposure to infectious, chemical and radiation exposure and to develop a device for such diagnostics.			
DARPA BAA-16-42	PROMETHEUS	Woods (PI)	2017-2020
Predicting Contagion Using Systems and Genomic Analysis (PRESAGE)			\$3,797,010
The goal of this project is to aim to develop robust and validated clinical, physiologic, cellular, and genomic predictive of contagiousness 24 hours after exposure to a respiratory virus.			
DARPA HR001118S0035	SIGMA	Woods (PI)	2018-2010
Human based sensor system for pre-symptomatic biological exposure detection			\$3,613,575
The goal of this project is to determine whether sensors used for acute symptomatic influenza and respiratory infection increase the detection of pre-symptomatic biological exposure.			
Sanofi		Woods (PI)	2018-2019
Resilience Prediction to RSV Infection			\$447,616
We will work with Sanofi Pasteur to see if we can identify biomarkers to predict low or high risk for RSV infection, or to predict protection from RSV infection.			
Najit Industries/NIH-AI145791-01		Woods (PI)	2019-2021
Yellow Fever Vaccine Trial - U44 Clinical Trial			\$259,851
This project will recruit 25 healthy volunteers to participate in a Yellow Fever H2O2 Vaccine study as a site for Najit Technologies.			
NIH/NIAID HHS75N93019C00054		Walter (PI)	2019-2026
Collaborative Influenza Vaccine Innovation Centers (CIVICs) Component C: Clinical Core			\$176,690,386
The Duke CIVICs Component C Team will work closely with the Vaccine Center. The goal of this contract is to design, implement, and manage ethical and statistically sound clinical trials and human challenge studies for influenza vaccines, vaccine components, and vaccine delivery systems developed by the Vaccine Centers.			
<u>VA Ongoing</u>			
Merit CX001850-01	McClain (PI)	Woods (Co-I)	2019-2013
Host derived biomarker signatures of acute rickettsial diseases			\$1,250,000

Industry Sponsored Clinical Trials

Duke University lists aggregated effort assigned to the following eligible industry-sponsored clinical trial projects. Each of these individual projects has a varying need of effort depending on the type of activity currently in progress such as protocol development, start-up, patient recruitment, enrollment, follow-up, monitoring, data analysis, publication, and closeout. Faculty determine each project's need and adjust their effort between projects within the total aggregated effort assigned to the clinical projects.

Nabi-1407 Clinical Trial (Woods, Site PI) Site-Durham VAMC Initial Safety and Pharmacokinetics Trial of Immune Globulin to <i>Staphylococcus aureus</i> Capsule Polysaccharide (Altastaph™) in Subjects with <i>S. aureus</i> Bacteremia and Persistent Fever	2002-2004
Theravance-00784 (Woods, Site PI) Site-Durham VAMC A Phase 2, Randomized, Double-blind, Parallel-Group, Multinational Trial of Intravenous Telavancin™ (TD-6424) for Treatment of Uncomplicated <i>Staphylococcus aureus</i> Bacteremia.	2003-2005
Theravance-0019 (Woods, Site PI) Site-Durham VAMC Site-Duke (Co-PI) A Phase 3, Randomized, Double-Blind, Parallel-Group, Multinational Trial of Intravenous Telavancin™ Versus Vancomycin for Treatment of Hospital-Acquired Pneumonia with a Focus on Patients with Infections Due to Methicillin-Resistant <i>Staphylococcus aureus</i>	2005-2007
DCRI (Walter) University of Maryland Rapid Response to Flu Outbreak (DMID 09-0032)	2009-2010 \$ 156,107
DCRI (Walter) University of Maryland DMID 09-0053 Sanofi 1 vs 2 adults	2009-2010 \$254,110
Roche Diagnostics Evaluation of the Clinical Utility of the cobas® MRSA/SA Test for Detection of <i>Staphylococcus aureus</i> and Methicillin Resistant <i>Staphylococcus aureus</i> From Nasal Swabs	2013-2014
GenMark Diagnostics, Inc. (Woods, Site PI) A Multi-Center, Prospective Clinical Trial to Evaluate the Clinical Performance of the GenMark Sample to Answer Platform System for the Detection of Respiratory Viruses in Nasopharyngeal Swab Samples.	2013
Cubist Pharmaceuticals, Inc. (Woods, Site PI) A Randomized, Double-Blinded, Active-Controlled Study of CB-183,315 in Patients with <i>Clostridium Difficile</i> Associated Diarrhea	2012-2014
Novartis Pharmaceuticals Corporation (Woods, Site PI) Multi-center, Randomized, Evaluator-blind, Active-controlled, Parallel-group Design to Determine Safety, Tolerability, and Efficacy of Multiple Daily Administration of LFF571 for 10 days in Patients with Moderate <i>Clostridium difficile</i> Infections.	2012-2013
EPOCH/Qiagen (Woods, Site PI)	2014-2015

Performance of the Artus MRSA QS-RGQ MDx

EPOCH/Qiagen (Woods, Site PI) 2015-2016
Performance of the Artus *T. vaginalis* QS-RGQ MDx

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Patents

PCT Application No. PCT/US2010/036257,
“METHODS OF IDENTIFYING INFECTIOUS DISEASE AND ASSAYS FOR IDENTIFYING INFECTIOUS DISEASE”
Filed 5/26/2010, Patent Pending
09/20/2011 International Publication Date
Patent Inventors: Geoffrey S. Ginsburg, **Christopher W. Woods**, Lawrence Carin, Aimee Zaas, Joseph Lucas, Alfred Hero

PCT Application No. PCT/US 14/214,853
“BIOMARKERS FOR THE MOLECULAR CLASSIFICATION OF BACTERIAL INFECTION”
Filed 03/15/2014,
Patent Inventors: Ephraim L. Tsalik, Vance Fowler, **Christopher Woods**, Joseph Lucas, Geoffrey Ginsburg, Sun Hee Ahn

PCT Application No. PCT/US 2016/040437
“METHODS TO DIAGNOSE AND TREAT ACUTE RESPIRATORY INFECTIONS”
Filed 07/01/2015
Patent Inventors: Ephraim L. Tsalik, Ricardo Henao, Micah T. McClain, Thomas W. Burke, Geoffrey S. Ginsburg,
Christopher W. Woods

PCT Application No. PCT/US 62/454,260
“NASOPHARYNGEAL PROTEIN BIOMARKERS OF ACUTE RESPIRATORY VIRUS INFECTION AND METHODS OF USING SAME”
Filed 02/03/2017
Patent Inventors: Thomas W. Burke, Ricardo Henao, Ricardo, Erik Soderblom, Joseph Lucas, **Christopher W. Woods**,
Geoffrey S. Ginsburg

Clinical activity - type of practice and estimate of time commitment:

½ ID clinic day every other week Duke
½ ID clinic day VA weekly
Infectious Diseases Consults (VAMC)-2 months annually
General Medicine Wards (VAMC)-4 weeks annually