

CURRICULUM VITAE
(January 17st, 2017)

C. WILLIAM WESTER, M.D., M.P.H.

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Personal:

Spouse: Carolyn N. Wester, MD, MPH
(Medical Director, HIV/AIDS and Sexually Transmitted Diseases, TN State Dept. of Health,
Nashville, TN)

Children:

- C. William Wester, Jr. "C" (b. 1993) (3rd year student at Northwestern Univ., Evanston, IL)
- James Russell "Jimmy" (b. 1996) (1st year student at Northwestern Univ., Evanston, IL)
- Madeline Elizabeth "Maddy" (b. 2000) (9th grade student at Franklin High School, Franklin, TN)

EDUCATION AND POST-GRADUATE TRAINING

1987 Bowdoin College, Brunswick, ME, **B.A.** in Biology and Economics
1991 Dartmouth Medical School, Hanover, NH, **M.D.**
1991-1994 Rush-Presbyterian St. Luke's Medical Center, Chicago, IL, **Residency** in Internal Medicine (including Chief Residency).
1996-1998 **Fellowship in Infectious Diseases**, Rush-Presbyterian St. Luke's Medical Center/Cook County Hospital, Chicago, IL
2010 Harvard School of Public Health, Boston, MA, **M.P.H.** in Quantitative Methods

BOARD CERTIFICATIONS AND MEDICAL LICENSURE

MEDICAL LICENSURE: Tennessee #44131 (expires 3/31/18); DEA # FW1060805 (expires 5/31/17)

MEDICAL BOARDS:

- American Board of Internal Medicine in Internal Medicine (expires: 12/31/17)
- American Board of Internal Medicine in Infectious Diseases (expires: 12/31/18)

PROFESSIONAL APPOINTMENTS

ACADEMIC AND GOVERNMENT

1994-1998 Clinical Instructor, Rush Medical College, Chicago, IL.
1998- 2000 Assistant Professor of Medicine, Rush Medical College, Chicago, IL.
1998-2000 Infectious Diseases Attending, Cook County Hospital, Chicago, IL.
1999-2000 Co-Investigator, Adult Clinical Trials Group (ACTG) Research Trials, The CORE Center, Cook County Hospital, Chicago, IL
1999-2000 Principal Investigator, Terry Beirn Community Programs for Clinical Research on AIDS (CPCRA) the CORE Center, Cook County Hospital, Chicago, IL

2000-2008 Co-Study Coordinator/Site Leader/Site PI, Adult Antiretroviral Treatment (“*Tshepo*”) Study, Botswana-Harvard School of Public Health AIDS Initiative Partnership for HIV Research and Education (BHP), Gaborone, Botswana

2000-Present Research Associate, Harvard School of Public Health, Boston, MA.

2001-2002 Director, Infectious Disease Care Clinic (outpatient HIV/AIDS clinic) at Princess Marina Hospital in Gaborone, Botswana.

2007-2008 Site Leader/Site Principal Investigator, ACTG and the Gaborone PTT/CRS (Botswana-Harvard School of Public Health AIDS Initiative Partnership CTU).

2008-2014 Assistant Professor of Medicine, Vanderbilt University School of Medicine, Vanderbilt Institute for Global Health (VIGH), Nashville, TN.

2014-Present Associate Professor of Medicine, Vanderbilt University School of Medicine, Vanderbilt Institute for Global Health (VIGH), Nashville, TN.

2014-Present Co-Director of Global Health Pathway (Internal Medicine Residency, Vanderbilt University School of Medicine)

HOSPITAL APPOINTMENTS

1994 – 1995 Chief Resident, Rush-Presbyterian St. Luke’s Medical Center, Department of Internal Medicine, Chicago, IL.

1995 – 1996 Internal Medicine Attending, Vencor Hospital, Northlake, IL.

1998 - 2000 Infectious Diseases Attending, Cook County Hospital, Chicago, IL.

PROFESSIONAL ORGANIZATIONS

Alpha Omega Alpha (AOA) Honor Medical Society, 1994-present
 International AIDS Society (IAS), 2011-present
 International Society of Nephrology (ISN), 2014-present

PROFESSIONAL ACTIVITIES

AWARDS AND HONORS

1991 – 1994 Outstanding Medical Resident Teaching Award, (Six Consecutive and Maximum Eligible Terms), Rush-Presbyterian St. Luke’s Medical Center, Chicago, Illinois

1992 Outstanding Internal Medicine Resident Annual Award, Rush-Presbyterian St. Luke’s Medical Center, Chicago, Illinois

1994 Full Scholarship Recipient, SHEA-CDC Training Course

1994 Aesculapios Award (Outstanding Medical Resident), Rush Medical College, Chicago, IL

2010 William Schaffner Teaching Award Recipient in Infectious Diseases, Vanderbilt University Medical Center, Nashville, TN

2010 Teacher Recognition Award (Vanderbilt University School of Medicine – Medical Students)

2016 Selected for Vanderbilt University Department of Medicine Selected Associate Professors with evident leadership ability; Mid-Career Leadership Program (year-long leadership skills development program; to commence in January 2017)

REVIEW AND ADMINISTRATIVE ACTIVITIES

2007-2008 Member, Clinical Management of HIV and AIDS Committee (National Guidelines Committee), Ministry of Health, Botswana.

2008-2011 Member, Optimization of Co-Infection and Co-Morbidity Management (OpMAN) Committee, Adult AIDS Clinical Trials Group (ACTG).

2010-Present Active Member, Vanderbilt University Medical Center, Division of Infectious Diseases, Fellowship Program Planning Committee (FPPC).

2011 Ad Hoc Grant Reviewer, Creative and Novel Ideas in HIV Research (CNIHR) Developmental Grant Program – Collaboration between the International AIDS Society, University of Washington (UW), University of Alabama Center for AIDS Research (CFAR), and Institute of Translational Health Sciences.

2011-2016 Active Member, Vanderbilt University School of Medicine, Division of Infectious Diseases Education Committee.

2011-Jan 2014	Member, Co-Infections and Malignancies Sub-Committee, Adult AIDS Clinical Trials Group (ACTG).
2011-2016	Co-Course Director, Vanderbilt University Medical Center, Division of Infectious Diseases Grand Rounds.
2011-2014	Active Member, Vanderbilt University School of Medicine, Curriculum 2.0 Global Health curriculum development.
2012-2015	Member, Centers for AIDS Research (CFAR), HIV & Aging Inter-CFAR Working Group/Committee.
2012-2013	Active Member, Vanderbilt University School of Medicine, Department of Medicine, Division of Infectious Diseases Chairperson Search Committee.
2012-Present	Member, Vanderbilt University School of Medicine (VUSM), Interview Admissions Committee (IAC).
2011-Present	Active Member, Division of Infectious Diseases, Fellowship Oversight Committee
2014-Present	Co-Chair, International epidemiologic Databases to Evaluate AIDS (IeDEA) Site Assessment Working Group.
2014-Present	Active Member, International epidemiologic Databases to Evaluate AIDS (IeDEA) Clinical Outcomes Working Group, including member of Renal Outcomes sub-group.
2016-Present	Faculty Member; Center for Clinical Quality and Implementation Research at Vanderbilt

Journal Reviewer (Active)

AIDS Research and Human Retroviruses

Journal of Infectious Diseases

The American Journal of Tropical Medicine and Hygiene

The Lancet

Expert Review of Anti-Infective Therapy/Future Science Group PLoS One

Journal of AIDS and HIV Research

JAMA

Extramural: Grant Reviews / NIH Study Section

- 1) **NIDDK**; Center for Scientific Review Special Emphasis Panel; Center for Scientific Review; **ZRG1 AARR-M 53**; *Elucidating HIV and HIV-treatment Associated Metabolic/Endocrine Dysfunction (7/6/2016)*; Role: primary/secondary reviewer.
- 2) **NIH**; 2017/01 **ZRG1 AARR-J (56) R** - PAR Panel: Multidisciplinary Studies of HIV and Viral Hepatitis Co-Infection.

OTHER PROFESSIONAL ACTIVITIES

SELECTED PRESENTATIONS

2011	Vanderbilt University Department of Dermatology Grand Rounds on May 19 th , Nashville, TN. <i>“Dermatologic Manifestations of HIV Disease.”</i>
2011	Meharry Medical College, Departments of Family, Occupational, and Preventive Medicine, Grand Rounds on October 5 th , Nashville, TN. <i>“Rethinking HIV Prevention: 2010-2011 HIV/AIDS Research Update and Implications for Resource-Limited Settings.”</i>
2012	Vanderbilt University School of Medicine, Division of Infectious Diseases Grand Rounds, Nashville, TN. <i>“HIV-Associated Renal Disease: Update & Future Directions.”</i>
2014	Vanderbilt University School of Medicine, Division of Infectious Diseases Core Curriculum Series, Nashville, TN. <i>“HIV-Associated Renal Disease”</i>
2014	Vanderbilt University School of Medicine, Division of Infectious Diseases; invited presentation to Vanderbilt Tuberculosis Center, Nashville, TN. <i>“HIV/TB Metrics and Programmatic Evaluation/Process Improvement: Our Mozambique PEPFAR Experience.”</i>
2015	Vanderbilt University School of Medicine, Department of Medicine Grand Rounds (May 28 th , 2015); <i>“Bringing HIV Care to Rural Mozambique: Challenges in Quality and Sustainability.”</i>
2016	Vanderbilt Institute for Global Health (VIGH), Grand Rounds presentation (November 21 st , 2016); <i>“Scale-Up of Comprehensive HIV/AIDS Services in Rural Mozambique: Avante Zambézia Update and Future Directions”</i> .

TEACHING ACTIVITIES

Lectures

- 2000-2008 **Guest Lecturer**, Botswana-Harvard School of Public Health AIDS Initiative Partnership for HIV Research and Education (BHP); 50+ Lectures
- 2000-2008 **Senior Lecturer**, National HIV/AIDS training program for all Health Professionals in Botswana (physicians, nurses, counselors and pharmacy staff); 30+ Lectures.
- 2015 **Senior Lecturer**; Vanderbilt University/Friends in Global Health, Alto Molocue district hospital, Mozambique; led 2 day training (theoretical plus practical) of 13 health professionals (doctors, medical technicians, plus pharmacy staff) on Kaposi's sarcoma (establishing them and their hospital as a center of excellence for the province); November 2015
- 2015 **Director/Primary Instructor**; lead journal club discussions for all medical doctors plus senior technical staff working for our CDC-PEPFAR funded grant in rural Mozambique;
- 2015 **Director/Primary Instructor**; lead clinical case discussions for all medical doctors plus senior technical staff working for our CDC-PEPFAR funded grant in rural Mozambique;

Courses

- 2010-Present **Guest Lecturer**, *Global HIV/AIDS: Case Presentations from Sub-Saharan Africa*, Vanderbilt University School of Medicine Infectious Diseases Fellowship Program Core Curriculum.
- 2010-Present **Guest Lecturer**, *Travel Medicine*, Vanderbilt University School of Medicine Emphasis Project Core Curriculum.
- 2010-Present **Course Director/Primary Instructor**, *Case Studies in Tropical Diseases* (SPR.AS.MHS 316.01; IHGM 5249); 6 course offerings in 4 successive years (**NOTE**: last 2 courses were conducted completely on-line through taped/posted lectures with live course thread), Vanderbilt University School of Medicine.
- 2010-2013 **Group Facilitator/Primary Discussant**, Vanderbilt Institute for Global Health (VIGH) Health Team Program for HIV Prevention and Care in Nigeria (Bi-Weekly HIV Clinical Case Discussions and Journal Club facilitation – via conference call); 30+ Calls.
- 2011-Present **Guest Lecturer**, *Prevention and Treatment Interventions in Resource Limited Environments*, Vanderbilt University Foundation of Global Health Certificate Course.

PhD Student Committee Member

- 2011-2012 Zhuo Song, Vanderbilt Core for Human Genetics Research (CHGR)/Human Genetics, *Mitochondrial Toxicity Research*.
- 2016-present Aggrey Mweemba, MD; Nephrologist; University Teaching Hospital, Lusaka, Zambia, *Tenofovir-associated kidney toxicity research among HIV-infected and exposed young adults/adolescents*

Infectious Disease Fellowship Trainees Mentoring Committee Member

- 2011-2015 Yuri van der Heijden, MD, Vanderbilt Division of Infectious Diseases, *Tuberculosis/Drug Resistance Research*
- 2011-2015 Heather N. Paulin, MD, Vanderbilt Division of Infectious Diseases, *Global Health/Predictors of HIV Voluntary Counseling and Testing Among Females in Rural Mozambique (Primary Research Mentor)*.
- 2012-2013 Moises Huaman, MD, Vanderbilt Division of Infectious Diseases, *Tuberculosis/Global Health Research*.
- 2012-2015 Jessica Castilho, MD, Vanderbilt Division of Infectious Diseases, *Cancer Epidemiology/Global Health Research*
- 2014-2015 Nathan Bullington, MD, Vanderbilt Division of Infectious Diseases, *Global Health / Prevention of Mother-to-Child Transmission (PMTCT) in Resource-Limited Settings / Global Health (Primary Research Mentor)*.

2014-2015	Mary Hopkins, MD, Vanderbilt Division of Infectious Diseases, <i>HIV clinical outcomes/Global Health</i> .
2015-Present	James Carlucci, MD, Vanderbilt Division of Pediatric Infectious Diseases, <i>HIV clinical outcomes including HIV/Tuberculosis co-infection in sub-Saharan Africa / Global Health</i> .
2016-Present	Courtney Zola, MD, Vanderbilt Division of Infectious Diseases, <i>Global Health / Non-communicable diseases (NCDs); specifically Pulmonary Hypertension in the Setting of HIV and Hepatitis C Co-Infection (Chairperson of her Mentoring Committee)</i> .
2016-Present	Folasade Arinze, MD, Vanderbilt Division of Infectious Diseases, <i>Global Health / The HIV Care Continuum: Optimizing retention in care in combination Antiretroviral (ART) treated pregnant women in Zambezia Province, Mozambique (Primary Research Mentor)</i> .

Mentored Pre- and Post-Doctoral students

Post-Doctoral trainees

2004-2011	Natalie T. Do, PharmD, Fulbright Scholar in Botswana & now the US (Primary On-Site Research Mentor/Advisor), D.O. Degree obtained at Western University Health Sciences, CA.
2005-2006	Linda K. Shipton, MD, Brigham and Women's Hospital Infectious Diseases Fellow (One Year ID Fellowship Research Experience/Elective at Princess Marina Hospital, Gaborone, Botswana), Assistant Professor of Medicine, Harvard Medical School, Boston, MA.
2005-2008	Melissa A. Briggs-Hagen, MD, MPH; Princeton AIDS in Africa Fellow in Botswana (Primary Research Mentor/Advisor), Head / Care and Treatment branch, Centers for Disease Control & Prevention (CDC) Mozambique, Maputo, Mozambique.
2008-2010	John R. Koethe, MD, MSCI, International Fogarty Training Scholarship in Zambia and US at Vanderbilt (Primary Research Mentor and Faculty Advisor), Assistant Professor, Vanderbilt University School of Medicine, Department of Medicine, Division of Infectious Diseases.
2010-2013	Deidra D. Parrish, MD, MPH, International Fogarty Training Scholarship in Nigeria and US at Vanderbilt (Primary Research Mentor and Faculty Advisor), Assistant Director of Clinical Research, Vanderbilt Institute for Global Health; now has leadership position at Metro Health, Tuberculosis Branch, Nashville, TN.
2011-2014	Heather N. Paulin, MD, MPH, Vanderbilt University School of Medicine Infectious Disease Fellowship in Mozambique and US at Vanderbilt (Research Mentor and Faculty Advisor), completed her Epidemiologic Intelligence Service (EIS) fellowship, Centers for Disease Control and Prevention (CDC); now working at Global AIDS Program (GAP), HIV Prevention; CDC Atlanta, GA.
2013-2015	Nathan Bullington, MD; Vanderbilt University School of Medicine Infectious Disease Fellowship in Mozambique and US at Vanderbilt (Research Mentor and Faculty Advisor), now in Private Infectious Diseases practice in Louisville. KY.
2011-2013	Bethan McDonald, PhD, Post-Doc at King's College in London (Co-Research Mentor and Faculty Advisor with her ongoing <i>HIV/AIDS Inflammation and Mortality Research</i> with the Botswana-Harvard School of Public Health AIDS Initiative Partnership for HIV Research and Education in Gaborone, Botswana); now Division of Infectious Diseases, Kings College, London, U.K.
2012-Present	Lloyd B. Mulenga, MD; Centre for Infectious Disease Research in Zambia (CIDRZ) as the Head of Adult Clinical Care. He is also the Clinical Head of the Adult Infectious Disease Centre at University Teaching Hospital in Lusaka, Zambia (Primary Research Mentor for his 5 week Vanderbilt-sponsored (VIRDE) grant-writing training).

2012-Present	Aggrey Mweemba, MD; University Teaching Hospital as the Head of the Renal Unit in the Department of Medicine in Lusaka, Zambia (Primary Research Mentor for his 5 week Vanderbilt-sponsored (VIRDE) grant-writing training).
2012-2013	Crispin Moyo, M.D.; Ministry of Health (Zambia); Lusaka, Zambia; active member of his mentoring committee and Co-Investigator in his clinical research study evaluating antiretroviral medication-related laboratory adverse events.
2013-2016	Monica Negrete, M.D., M.P.H.; Friends in Global Health/Vanderbilt University (Mozambique—PEPFAR grant Technical Director); active PI of the grant which she began work on in March 2013 (actively engaged in mentoring her ongoing clinical research activities); now relocated back to her home of Bogota, Colombia to take a Public Health / academic position.
2013-Present	Carolyn M. Audet, PhD; Vanderbilt Institute for Global Health (VIGH), focusing on HIV Engagement into Care (Male engagement/male champions and traditional birth attendants), traditional healers, as well as Prevention of Mother-to-Child Transmission (PMTCT) in rural Mozambique/Resource-limited settings (Research Mentor; Sten Vermund, MD, PhD is her Primary Mentor).
2013-Present	Joshua R. Viele, R.N; Vanderbilt University / Mozambique; Quality Improvement Analyst (active PI of the grant he is working on; actively engaged in mentoring his ongoing clinical research activities which are focused in the area of Quality Improvement).
2016-Present	Meghan Rieth, MD; Vanderbilt University Research Assistant II (active PI of the grant she is working on, and I am her Supervisor/Primary Mentor); actively engaged in mentoring her ongoing clinical research activities which are focused on maternal-child health, HIV voluntary counseling and testing, as well as quality improvement. Just relocated to Denver, CO (July 2016).
2016-Present	Folasade Arinze, MD; Vanderbilt University School of Medicine Infectious Disease Fellowship in Mozambique and US at Vanderbilt (Research Mentor and Faculty Advisor); Implementation Science research (looking specifically at adult retention in care outcomes in rural Mozambique; analyzing programmatic data as part of our ongoing CDC/PEPFAR-funded technical assistance grant for her MPH research project).
2004-2005	Christopher G. Turner, MD, MPH; (Primary On-Site Research Mentor/Advisor for his research experience in Gaborone and Maun, Botswana); now Pediatric Surgery attending/engaged in research at University of Michigan.
2002-2005	Ava Avalos, MD; (Primary On-Site Research Mentor/Advisor for her research experience in Gaborone, Botswana); now works for Ministry of Health, Gaborone, Botswana.
2015-Present	Catrina Mugglin, MD; Research Mentor for her PhD thesis focusing on chronic diseases/Non-communicable diseases (NCDs); University of Bern, Switzerland academic appointment.
2015-Present	Rany Octaria, MD; Vanderbilt University School of Medicine Infectious Disease Fellowship in Mozambique and US at Vanderbilt (Research Mentor and Faculty Advisor); studying key/vulnerable populations / HIV; for her MPH research project).
2004-2005	Gobuiwang Khilly Kurusa (Gasenna), MD; Fogarty Scholar in Botswana (Primary On-Site Research Mentor/Advisor); Infectious Disease physician; Gaborone, Botswana.

Pre-Doctoral trainees

- 2005-2014 Sikhulile Moyo, BsC, MPH (Now completing PhD; Stellenbosch University, Cape Town, South Africa); (Research Mentor); Associate Laboratory Director, Botswana-Harvard School of Public Health AIDS Initiative Partnership for HIV Research and Education (BHP), Gaborone, Botswana.
- 2006-2008 Devan L. Darby Bartels MD, MPH; Princeton AIDS in Africa Fellow in Botswana (Primary On-Site Research Mentor/Advisor), Pediatrician, Cambridge, MA.
- 2013-2015 Mary DeAgostino, MD; (Primary Research Mentor and Faculty Advisor); for her MPH thesis while a Vanderbilt University School of Medicine student; focused on women's and adolescent health research in a global health context (with experience in East Africa/Kenya); now completing her Obstetrics and Gynecology residency training at the University of Pennsylvania.
- 2012-Present Magdalena Dorvil, MD; Vanderbilt University School of Medicine Emphasis Program in Haiti and US at Vanderbilt (Primary Research Mentor and Faculty Advisor), Still completing her Medical School Training, and has applied for Masters in Public Health (MPH) training.
- 2007-2008 Amy Wu, Harvard Undergraduate Student in Botswana (Primary On-Site Research Mentor/Advisor), Insight Venture Partners, NY.
- 2011-2014 Jordan J. Cohen, MD; Vanderbilt University School of Medicine Emphasis Program in Kenya and US at Vanderbilt (Primary Research Mentor and Faculty Advisor); currently undergoing Emergency Medicine residency training; Providence, R.I. (Brown University).
- 2008-2012 Lindsey L. Stephens, MD; Princeton AIDS in Africa Fellow in Botswana (Primary On-Site Research Mentor/Advisor); Internist; San Francisco, CA.
- 2008-2013 Sarah M. Ashburn, MD; Harvard Undergraduate Student in Botswana (Primary On-Site Research Mentor/Advisor); Johns Hopkins University Center for Global Health MSPH Program. Clinton HIV/AIDS Foundation, Boston, MA.
- 2008-Present Allison N. Martin, MD, MPH; Vanderbilt University School of Medicine Emphasis Program in Liberia and US at Vanderbilt (Primary Research Mentor and Faculty Advisor); University of Virginia, Internal Medicine Residency training; Charlottesville, VA.
- 2014-Present Cristin Quinn Fritz, MD; (Primary Research Mentor); for her MPH thesis while a Vanderbilt University School of Medicine student; focused site level HIV data in low-to middle-income countries globally; now completing Pediatrics residency at Vanderbilt.
- 2013-2015 M. Katherine (Katie) Charles, MD, MPH; Vanderbilt University School of Medicine research project (Primary Research Mentor and Faculty Advisor); focused on tuberculosis screening, prevention, and treatment capacity globally; currently completing her Internal Medicine residency training; Duke University.

RESEARCH GRANT SUPPORT

CURRENTLY ACTIVE GRANTS (as of 11/17/2017):

1U2GGH001943-01(PI: Wester) CDC (PEPFAR)	9/30/2016 - 9/29/2021 \$8,245,876.00	1.4 calendar
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Avante: Towards Epidemic Control

The purpose of the Avante program is to control the HIV epidemic by supporting the sustainable implementation of Ministry of Health (MOH) HIV and TB services in Zambézia province; and specifically the district of Quelimane (and its 16 health facilities). Avante will provide technical assistance (TA) to the Government of the Republic of Mozambique (GRM) at the national, provincial, district and health facility level for activities that have a significant impact to control the epidemic, leveraging community structures that can catalyze program implementation. Key programmatic areas include: i) prevention; ii) adult care, support and treatment; iii) HIV/TB; and iv) pediatric care, support, and treatment.

3U2GGH000812-05 (PI: Wester) CDC/GAP (PEPFAR)	9/30/2012 - 9/29/2017 \$21,677,424.00	7.0 calendar
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Avante Zambézia: Technical Assistance to the Ministry of Health (MOH) for HIV Services and Program Transition in Zambézia

This large CDC-PEPFAR-funded initiative entitled “*Avante Zambézia*” (“*Go forward*” Zambézia province) allows Dr. Wester and his team to offer comprehensive HIV services (including the provision of ART including ART for PMTCT) to HIV-infected persons residing in 14 of Zambézia provinces 23 districts. *Avante Zambézia* goals are as follows: (i) To expand HIV-related clinical services; (ii) To enhance clinical knowledge and skills among health care workers at health facility, district, and provincial levels to provide quality HIV-related care; (iii) To increase the quality and capacity of health care planning and management among health sector staff at facility, district, and provincial levels; (iv) To strengthen linkages between communities and the health sector in order to increase enrollment and retention of HIV+ patients; and (v) To strengthen capacity of existing local organizations and to transition technical support activities over the project period.

1 U01 DK112271-01 (Co-PIs: Wester, Aliyu) NIH (NIDDK)	12/1/2016-11/30/2021 \$375,000.00	1.2 calendar
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Optimal Management of HIV Infected Adults at Risk for Kidney Disease in Nigeria

In this study, we plan to determine the optimal means to manage and thereby reduce the risk of kidney and potentially other end organ complications among genetically at-risk northern Nigerian HIV-infected adults. Based on data from the diabetic literature using medications that block the renin angiotensin aldosterone system (RAAS), we plan to evaluate whether or not RAAS inhibition (with the ACE-inhibitor lisinopril) in HIV-infected adults produces similarly promising results. This is a placebo-controlled randomized clinical trial where we will randomize HIV-infected adults (on ART for 6+ months) having low-moderate levels of albuminuria to either receive combination antiretroviral therapy (ART) alone (standard of care) versus ART plus the ACE-inhibitor Lisinopril (n = 100 per arm) and follow each for 24 months.

PENDING GRANTS (submitted; pending review; as of 1/17/2017):

T32AI132162T-00 (PI: Wester) NIH (NIAID) Vanderbilt Implementation Science Training Award (VISTA)	7/1/2017-6/30/2022 \$211,407.47	0.6 calendar
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This application proposes a new T32 “*Vanderbilt Implementation Science Training Award (VISTA)*.” The goal of the program is to leverage innovative teaching and learning methods to train post-doctoral scientists in the domains of the continuum of care, maternal-child health, and non-communicable diseases. An experienced and proven team of Senior Advisors and Research Mentors (including Junior Mentors) will provide one-on-one mentoring to MD and MD/PhD trainees undergoing clinical fellowship training in Infectious Diseases and other Internal Medicine subspecialty disciplines with the goal of producing investigators who are able to independently perform high impact implementation science research allowing them to train the next generation of scientists.

GRANTS COMPLETED (as of 1/17/2017):

2011-2016 **International Epidemiologic Databases to Evaluate AIDS (IeDEA)**IeDEA Network Coordinating Center (INCC) at Vanderbilt; 1U01AI096186-05 (Wester/Lindegren, Co-PIs); 7/1/2011-6/30/2016; NIAID/NIH

As Co-PI, Dr. Wester is working with Dr. Lindegren to assist in the overall management, coordination, administration, and direction of the project, including participation in all requisite IeDEA network activities, and is assisting Dr. Lindegren in the following: coordination and administration of meetings, including investigator and specialty conference calls, as well as transforming the IeDEA website into an online Community of Practice, with both password-protected internal sections for investigators and NIH staff (as well as open external sections for public access), to advance the IeDEA scientific agenda and foster multi-regional research projects within the IeDEA consortium. In addition, our grant work included the awarding of a 1 year supplement for data harmonization activities across the consortium; additional % effort for Dr(s) Wester and Lindegren to mentor/oversee work of Dr(s) Wehbe and Duda (VU Biomedical Informatics) as well as Meridith Blevins (VU Dept. of Biostatistics).

2013-2016 **HIV Quality Improvement Research, Zambezia Province, Mozambique.**
(Wester: PI of sub- contract); 6/1/2013 – 5/31/2016; HealthQUAL International, New York State Dept. of Health AIDS Institute Quality of Care Program, Vanderbilt University/Friends in Global Health (FGH); Federal ID# 62-0476822.

2014-2015 **International Epidemiologic Databases to Evaluate AIDS (IeDEA); North America**
5U01 A1069918-08; North American AIDS Cohorts Collaboration on Research and Design (NA ACCORD); 8 U01 AI68818 Supplement; 7/01/2014 – 6/30/2015; (Wester: PI)

In this supplement to the North American AIDS Cohorts Collaboration on Research & Design (NA ACCORD) project of the International Epidemiologic Databases to Evaluate AIDS (IeDEA) consortium, we propose to conduct a pair of analyses evaluating long-term health outcomes among HIV-infected adults as a collaborative effort between the Johns Hopkins University NA-ACCORD data center and the Vanderbilt University. The proposed analyses will address two research areas of emerging importance as HIV-infected patients survive longer and HIV becomes more of a chronic disease, namely, (i) the role of angiotensin converting enzyme-inhibitors (ACE-I) and angiotensin receptor blockers (ARBs), both potent anti-inflammatory agents, in the prevention of mortality and the development of cardiovascular, metabolic, and other inflammation-related non-AIDS defining events (NADEs); and (ii) the effect of being overweight or obese (a growing proportion of HIV-infected adults) on CD4+T-cell recovery on antiretroviral therapy (ART). These projects will promote a collaborative framework in which NA-ACCORD contributing institutions develop statistical models for processing by the data center; an approach which will increase the capacity of the NA-ACCORD data center to conduct research by decentralizing the effort of statistical programming while still adhering to confidentiality and data use requirements.

2007-2012 **NIAID/NIH K23AI073141** (Wester, PI); Vanderbilt University; *Risk Factors for Lactic Acidosis and*

Pancreatitis among HAART-Treated Adults in Botswana.

In-depth study evaluating the clinical, laboratory, and host genetic factors associated with higher than expected rates of mitochondrial toxicity (specifically, lactic acidosis and pancreatitis) among combination antiretroviral therapy (ART)-treated adults in the region. This project uses data and specimens already prospectively collected during a clinical trial in Botswana. Career development activities include additional experience in: (a) the design and implementation of global multi-center clinical trials, (b) development of research infrastructure in Africa, and (c) developing additional, fundable translational research projects aimed at preventing or treating antiretroviral therapy-related complications in both resource-limited and –replete settings.

2009-2013 NIAID/NIH P30AI 060354 (Wester, PI) **Center for AIDS Research (CFAR) Harvard University**; *Risk Factors for the Development of Nevirapine-Associated Toxicity in Southern Africa.*

The major goals of this project were to continue my involvement in the area of ARV-associated toxicity and host genetics and comprehensively evaluate the risk factors for nevirapine-associated hypersensitivity (skin) reactions which preliminarily are higher than rates reported elsewhere. Specimens already prospectively collected during a recently completed clinical trial in Botswana.

2012-2015 **Optimizing Integrated PMTCT Services in Rural North-Central Nigeria**;
1R01HD075075-02 (PI: Aliyu); 9/28/2012 – 6/30/2014; NIH / NICHD;

The purpose of this R01 proposal was to evaluate the impact and cost-effectiveness of a family-focused integrated prevention of mother-to-child transmission of HIV (PMTCT) package comprising task shifting of PMTCT services (including antiretroviral therapy) to lower-cadre workers, adoption of point-of-care CD4 testing, and a prominent role for influential family members of HIV-infected mothers in rural Nigeria. Role: Co- Investigator

2012-2014 **Vanderbilt-Meharry Center for AIDS Research (CFAR)**; P30AI 060354
(Wester and Koethe, Co-PI's); 07/01/2012 – 08/31/2014; NIAID/NIH. *Pilot Study of Extended-Release Exenatide to Improve Glucose Control and Reduce Systemic Inflammation in Diabetic, HIV-Infected Adults on Antiretroviral Therapy*;

Results will inform our understanding of the potential benefit of an FDA-approved pharmacologic agent to both improve glucose intolerance and simultaneously reduce markers of systemic inflammation demonstrated to predict adverse cardiovascular events among HIV-infected adults on ART. Preliminary data obtained in this 12-week pilot/feasibility study will inform the design of a larger R01-supported randomized controlled trial to determine whether GLP-1 agonists represent a preferred agent for the treatment of diabetes in HIV infected individuals and may have a novel anti-inflammatory indication in these at-risk persons.

PUBLICATIONS AND PRESENTATIONS

Articles in Referred Journals

1. **Wester CW**, Ariga D, Nathan C, Rice TW, Pulvirenti J, Patel R, Kocka F, Ortiz J, Weinstein RA. Possible overestimation of penicillin resistant *Streptococcus pneumoniae* colonization rates due to misidentification of oropharyngeal streptococci. *Diagn Microbiol Infect Dis*. 2002; 42:263-8. PMID: 12007444.
2. **Wester CW**, Durairaj L, Evans AE, Schwartz DS, Husain S, Martinez E. Antibiotic resistance: a survey of physician perceptions. *Arch Intern Med*. 2002; 162:2210-16. PMID: 12390064.
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Review articles, books, book chapters, book reviews, and letters to the editor

60. **Wester CW**, Bussmann H. Recognition and Management of Antiretroviral Toxicities in Adults. In: Marlink RG, ed. *From the Ground Up: Building Comprehensive HIV/AIDS Care Programs in Resource-Limited Settings* (Elizabeth Glaser Pediatric AIDS Foundation) in "Science and Treatment of HIV Infection" Section; 129-148 [Chapter].
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62. **Wester CW**, Limou S, and Winkler CA. “*HIV Pharmacogenetics and Pharmacogenomics*”. In: “Genomic and Personalized Medicine”, 2nd Edition, Edited by GS Ginsburg and HF Willard; Elsevier Publishing. Chapter 117 [Review]; in press 2013; 1211-1230. ISBN: 978-0-12-382227-7 (set).
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Select Presentations at Scientific Meetings

1. Bussmann H, **Wester CW**, Thomas AM, deGruttola V, Okezie OA, Moyo S, Mine M, Makhema J, Essex M, and Marlink RG. *HAART Outcomes among HIV-1C Infected Adults in Botswana: Interim Results from a Randomized Clinical Trial.* Presented at the 15th Conference on Retroviruses and Opportunistic Infections (CROI), Los Angeles, CA in February 2008.
2. **Wester CW**, Bussmann H, Thomas AM, De Gruttola V, Okezie OA, Moyo S, Mine M, Farahani M, Makhema M, Essex M, and Marlink RG. *NNRTI Outcomes among HIV-1C Infected Adults Receiving First-Line HAART in Botswana: Results from a Randomized Clinical Trial (Poster #595).* Presented at the 16th Conference on Retroviruses and Opportunistic Infections (CROI), Montreal, Canada in February 2009.
3. **Wester CW**, Shepherd B, Hong H, Rebeiro P, Bussmann H, Stinnette S, Gaolathe T, Sterling T, McGowan C, and Marlink RG. *Non-AIDS Defining Events among HAART-Treated Adults in an Urban US versus Urban Sub-Saharan African Setting (Poster #726).* Presented at the 17th Conference on Retroviruses and Opportunistic Infections (CROI), San Francisco, CA in February 2010.
4. **Wester CW**, Eden SK, Bussmann H, Novitsky V, Samuels DC, Hendrickson SL, et al. *Clinical and Laboratory Risk Factors Associated with the Development of Moderate to Severe Symptomatic Hyperlactatemia/Lactic Acidosis among cART-treated Adults in Botswana (Poster #852).* Presented at the 18th Conference on Retroviruses and Opportunistic Infections (CROI), San Francisco, CA during February-March 2011.
5. **Wester CW**, Blevins M, Bussmann H, Moyo S, Farahani M, et al. *ZDV₃/TC versus d4T₃/TC Outcomes among HIV-1-infected Adults Receiving First-line Combination ART in Botswana: Results from a Clinical Trial (Poster #538).* Presented at the 18th Conference on Retroviruses and Opportunistic Infections (CROI), San Francisco, CA during February-March 2011.
6. **Wester CW**, Eden SK, Bussmann H, Makhema J, Moyo S, et al. *Clinical and Laboratory Risk Factors for the Development of Pancreatitis among cART-treated Adults: Botswana (Poster #853).* Presented at the 18th Conference on Retroviruses and Opportunistic Infections (CROI), San Francisco, CA during February-March 2011.
7. Sinxadi PZ, Dave JA, Maartens G, Samuels D, **Wester CW**, Haas DW, and Hulgán TM. *Mitochondrial Genomics and Metabolic Complications Among HIV-infected South Africans Receiving Antiretroviral Therapy (Poster #605).* Presented at the 19th Conference on Retroviruses and Opportunistic Infections (CROI), Seattle, WA in March 2012.
8. **Wester CW**, Eden SK, Bussmann H, Shepherd BE, Moyo S, Makhema J, Novitsky, Essex M, and Marlink RG. *Risk Factors for Mortality among HIV-1 Infected Adults Receiving Combination Antiretroviral Therapy in Botswana: Results from a Clinical Trial (Poster #625).* Presented at the 19th Conference on Retroviruses and Opportunistic Infections (CROI), Seattle, WA in March 2012.
9. Parrish D, Aliyu M, Megazzini K, Blevins M, Gebi U, Muhammed M, Ahmed ML, Nwanyanwu O, Shepherd BE, Vermund SH, and **Wester CW**. Gender differences in timely initiation of highly active antiretroviral therapy (HAART) in North-Central Nigeria (*Poster #538-Thursday*). Presented at the XIX International AIDS Conference, July 22nd-27th, 2012; Washington D.C., USA.
10. Cohen JJ, Blevins M, Mapenzi A, Reppart L, Reppart J, Mainthia R, and **Wester CW**. Overcoming Barriers to Healthcare Access Among Single Mothers in Coastal Kenya (*Poster #695; Monday*). Presented at the XIX International AIDS Conference, July 22nd-27th, 2012; Washington D.C., USA.
11. Paulin HN, Vergara AE, Blevins M, Hinton N, Koethe JR, Vermund SH, **Wester CW**, and Vaz LM. Predictors of HIV Testing Awareness and Service Uptake Among Women in Rural Mozambique: Results from a Province-Wide Survey (*Poster #288: Tuesday*). Presented at the XIX International AIDS Conference, July 22nd-27th, 2012; Washington D.C., USA.
12. Gaseitsiwe S, Maiswe V, Moyo S, Bussmann H, **Wester CW**, Musonda R, Mmalane M, Makhema J, Marlink R, and Essex M. *Body Mass Index and Advanced WHO Clinical Stage Are Predictors of TB Incidence among Patients on*

- HAART in Botswana: Results from a Clinical Trial (Poster # 830)*. Presented at the 20th Conference on Retroviruses and Opportunistic Infections (CROI), Atlanta, GA in March 2013.
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In Process

- **Wester CW**, Limou S, Bussmann H, Novitsky V, Moyo S, Essex M, Marlink RG, and Winkler CA. Large-Scale Gene-Centric Exploration of Risk for NRTI/NNRTI-Associated Toxicities in Botswana (presented in abstract/poster format (Poster # 349) at the recent CROI conference in Boston, MA; March 2014); manuscript being finalized; for submission to *JAIDS* in February 2017.
- Limou S, Winkler CA, Bussmann H, Novitsky V, Moyo S, Essex M, Marlink RG, and **Wester CW**. *NEGR1* Genetic Variants and Risk for Virological Failure with Genotypic Resistance in Botswana (presented in abstract/poster format (Poster # 1932) at the recent CROI conference in Boston, MA; March 2014); manuscript being finalized; for submission to *JAIDS* in January 2017.
- **Wester CW**, Jenkins CA, Koethe JR, Freeman A, Kalayjian R, Mendes A, Abraham AG, Lake JE, Erlandson K, Crane H, Sterling TR, Moore RD, and Shepherd BE. Association between angiotensin receptor blocker and angiotensin converting enzyme inhibitor exposure and all-cause mortality in HIV-infected adults (presented in abstract/poster format at 2015 IWHOD conference; manuscript now being finalized for submission to *AIDS* in January 2017).