BIOGRAPHICAL SKETCH

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| NAME: HEIMBURGER, DOUGLAS |
| eRA COMMONS USER NAME: dheimbur |
| POSITION TITLE: Professor of Medicine, Vanderbilt Institute for Global Health |

EDUCATION/TRAINING

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| INSTITUTION AND LOCATION | DEGREE | Completion Date | FIELD OF STUDY |
| Harding College (now Harding University), Searcy, AR | BS | 05/1973 | Biology & Chemistry |
| Vanderbilt University School of Medicine, Nashville, TN | MD | 05/1978 | Medicine |
| St. Louis University School of Medicine, St. Louis, MO | Resident | 06/1981 | Internal Medicine |
| University of Alabama at Birmingham, Birmingham, AL | Fellow | 06/1982 | Clinical Nutrition |
| University of Alabama at Birmingham, Birmingham, AL | MS | 06/1987 | Nutrition Sciences |

### A. Personal Statement

I am a Professor of Medicine, global health scientist, and physician nutrition specialist in the Vanderbilt Institute for Global Health (VIGH). I directed VIGH’s education and training programs for Vanderbilt students and trainees from 2009 to 2019, including the Global Health Tracks in Vanderbilt’s Master of Public Health Program and Medical School Inquiry Program. I have had continuous NIH support as PI or Co-PI since 1981, particularly for research training and global health capacity building (NCI, FIC, NIDDK, NIAID, CDC). Among these are the Vanderbilt-Emory-Cornell-Duke Consortium for Global Health Fellows (D43TW009337, 2012-2022, PI); the **UNZA-Vanderbilt Training Partnership for HIV-Nutrition-Metabolic Research (UVP, D43TW009744, 2015-2021, PI)**; the NIH Fogarty International Clinical Research Scholars and Fellows Support Center at Vanderbilt (R24TW007988, 2009-2015, MPI); the Vanderbilt-Zambia Network for Innovation in Global Health Technologies (D43TW009348, 2012-2017, MPI); the Vanderbilt-CIDRZ AIDS International Training Research Program (AITRP, D43TW001035, 2009-2016, MPI); the Vanderbilt Training Program in Molecular and Genetic Epidemiology of Cancer (R25/T32 CA160056, 2012-2022, MPI); the University of Alabama at Birmingham Cancer Prevention and Control Training Program (R25CA47888, 1988-2009, PI, which supported the training of 140 pre- and postdoctoral trainees under my leadership); and establishment of the University of Guyana MPH Program (1U2GGH000689, CDC, PI).

My research focuses on nutritionally related non-communicable diseases, including identification of causes of short- and long-term complications and comorbidities of HIV in sub-Saharan Africa, with the University of Zambia (UNZA) and the National Institute for Medical Research in Tanzania. I investigated the contribution of a refeeding-like syndrome to early antiretroviral therapy-associated mortality in underweight Zambian adults (R21AI076430, PI), which led to an 1,800-participant randomized intervention trial with colleagues in 5 other countries including Zambia and Tanzania (EDCTP IP.2009.33011.004, Filteau, PI). I was also MPI of an NIH Fogarty International Center research grant (R21TW010471, Wilbroad Mutale, PI) to assess capacity to prevent and manage major HIV-related NCDs in primary care centers in Zambia.

Finally, I am a Visiting Lecturer in the University of Zambia’s Department of Internal Medicine, in recognition of my extensive engagements with the institution since 2006. I was PI of the UNZA-Vanderbilt Training Partnership for HIV-Nutrition-Metabolic Research (UVP-1) grant, and in 2021 I shifted to MPI for its renewal (UVP-2) when the grant transitioned to the University of Zambia as the prime institution, with my very close colleague Wilbroad Mutale as Contact PI.

1. Banerdt JK, Mateyo K, Wang L, Lindsell CJ, Riviello ED, Saylor D, Heimburger DC, Ely EW. Delirium as a predictor of mortality and disability among hospitalized patients in Zambia. *PLoS One* 2021; 16(2):e0246330. <https://doi.org/10.1371/journal.pone.0246330>. PMID: [33571227](https://pubmed.ncbi.nlm.nih.gov/33571227/)
2. Mutale W, Nzala S, Cassell HM, Martin MH, Chi BH, Mukanu M, Shankalala P, Koethe JR, Heimburger DC. HIV research training partnership of the University of Zambia and Vanderbilt University: Features and Early Outcomes. *Ann Global Health* 2019;85:129, 1-11. PMID: [31750078](https://pubmed.ncbi.nlm.nih.gov/31750078).
3. Andrews BL\*, Semler MW, Muchemwa L, Kelly P, Lakhi S, Heimburger DC, Mabula C, Bwalya M, Bernard GR. Effect of an early resuscitation protocol on in-hospital mortality among adults with sepsis and hypotension: A randomized clinical trial. *JAMA* 2017;318:1233-1240. PMID: [28973227](https://www.ncbi.nlm.nih.gov/pubmed/28973227) DOI: [10.1001/jama.2017.10913](https://doi.org/10.1001/jama.2017.10913) (a Zambia-based trial, among the top-trending JAMA publications of 2017).
4. Zunt JR, Chi BH, Heimburger DC, Cohen CR, Strathdee S, Hobbs N, Thomas Y, Bale K, Salisbury K, Hernandez MT, Riley LW, Vermund SH, Van der Horst C. The National Institutes of Health Fogarty International Center Global Health Scholars and Fellows Program: Collaborating Across Five Consortia to Strengthen Research Training. *Am J Trop Med Hyg*. 2016 Jul 5;PubMed PMID: [27382074](http://www.ncbi.nlm.nih.gov/pubmed/27382074/).

### B. Positions and Honors

Positions and Employment

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| 1981 - 2009 | Instructor to Professor, Departments of Nutrition Sciences and Medicine, University of Alabama at Birmingham, Birmingham, AL |
| 2009 -  | Professor of Medicine; Associate Director for Education & Training, Vanderbilt Institute for Global Health, Vanderbilt University School of Medicine, Nashville, TN |
| 2018 -  | Visiting lecturer, Department of Internal Medicine, University of Zambia School of Medicine |

Other Experience and Professional Memberships

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| 1987 -  | Member, Multiple NIH Special Emphasis Grant Review Panels |
| 1988 -  | Member, former Council Member, American Society for Nutrition |
| 1991 - 2009 | Director, UAB Cancer Prevention and Control Training Program |
| 1995 - 1996 | Visiting Scholar, Dunn Nutrition Centre/Darwin College, University of Cambridge, UK |
| 1996 - 2001 | NCI Subcommittee G, Member, National Cancer Institute / NIH |
| 2001 - 2009 | Founding President and Member, American Board of Physician Nutrition Specialists |
| 2004 - 2008 | Member, NIH Fogarty International Center Advisory Board  |
| 2006 - 2007 | Fulbright Scholar, University of Zambia School of Medicine and Centre for Infectious Disease Research in Zambia |
| 2012 - 2015 | Member, Institute of Medicine, Global Forum on Innovation in Health Professional Education |

Honors (selected)

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| 1995 | President’s Award for Excellence in Teaching, University of Alabama at Birmingham |
| 1999 | Dannon Institute Award for Excellence in Medical Nutrition Education, American Society for Nutrition |

### C. Contributions to Science (mentees\* and co-applicants)

1. Medical, global, and public health research training and capacity building. Much of my career investment and impact has been in training medical, global health, and public health students and postdoctoral fellows from the US and low- and middle-income countries. I am PI of two NIH D43 training grants providing pre- and postdoctoral global health research training, and I was MPI of eight other NIH research training grants (see Part D). In the last 10 years I have co-mentored 12 global PhD students (11 being UVP trainees), 18 postdoctoral fellows, and 12 junior faculty members.
	1. Lescano AG, Cohen CR, Raj T, Rispel L, Garcia PJ, Zunt JR, Hamer DH, Heimburger DC, Chi BH, Ko AI, Bukusi EA. Strengthening mentoring in low- and middle-income countries to advance global health research: An Overview. *Am J Trop Med Hyg* 2019;100(1\_Suppl):3-8. PMID: [30430982](https://www.ncbi.nlm.nih.gov/pubmed/30430982)
	2. Gandhi M, Raj T, Fernandez R, Nxumalo N, Lescano AG, Bukusi EA, Rispel LC, Mmbaga BT, Heimburger DC, Cohen CR. Mentoring the mentors: implementation and evaluation of four Fogarty-sponsored mentoring training workshops in low-and middle-income countries. *Am J Trop Med Hyg* 2019;100(1\_Suppl):20-28. PMID: [30430977](https://www.ncbi.nlm.nih.gov/pubmed/30430977)
	3. Heimburger DC, Carothers CL, Blevins M, Warner TL, Vermund SH. Impact of global health research training on scholarly productivity: the Fogarty International Clinical Research Scholars and Fellows Program. *Am J Trop Med Hyg* 2015;93:1201-7. [PMID: 26371155](http://www.ncbi.nlm.nih.gov/pubmed/26371155), PMCID: PMC4674235
	4. Heimburger DC, Carothers CL, Blevins M, Warner TL, Vermund SH. Impact of Global Health Research Training on Career Trajectories: The Fogarty International Clinical Research Scholars and Fellows Program. *Am J Trop Med Hyg*. 2015 Sep;93(3):655-61. PubMed PMID: [26195466](http://www.ncbi.nlm.nih.gov/pubmed/26195466/); PubMed Central PMCID: [PMC4559713](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4559713/).
2. Non-communicable disease research training. As Director of the NIH/NCI-funded Cancer Prevention and Control Training Program (CPCTP) at the University of Alabama at Birmingham for 18 years (plus 3 years as co-director), I facilitated the research training of 140 pre- and postdoctoral trainees. During CPCTP-supported training or within 5 years after completing it, its trainees and graduates collectively produced around 1,000 publications. Many of my mentees through the CPCTP and other avenues have had significant and impactful careers in academic medicine, including Wilbroad Mutale (Associate Dean for Research, University of Zambia School of Public Health), Lloyd Mulenga (Director, HIV & Infectious Diseases, Zambia Ministry of Health), Christine Ritchie, MD (Minaker Chair in Geriatrics at Massachusetts General Hospital), Jamy Ard, MD (Director of Wake Forest U. Weight Control Program), John Koethe, MD (Associate Professor at Vanderbilt, with multiple NIH grants), and Don Hensrud, MD (former Chair of Preventive Medicine at Mayo Clinic).
	1. Desmond RA, Venkatesh R, Padilla LA, Daniel CL, Litton AG, Heimburger DC, Brooks CM, Waterbor JW. Twenty-five-year follow-up of short-term cancer research trainees at the University of Alabama at Birmingham: A brief report. *J Cancer Ed* 2018 <https://doi.org/10.1007/s13187-018-1404-y>.
	2. Bearnot B\*, Coria A\*, Barnett BS\*, Clark EH\*, Gartland MG\*, Jaganath D\*, Mendenhall E\*, Seu L\*, Worjoloh AG\*,Carothers CL, Vermund SH,Heimburger DC. Global health research in narrative: a qualitative look at the FICRS-F experience. *Am J Trop Med Hyg*. 2014 Nov;91(5):863-8. PubMed PMID: [25246694](http://www.ncbi.nlm.nih.gov/pubmed/25246694/); PubMed Central PMCID: [PMC4228876](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4228876/).
	3. Waterbor JW, Heimburger DC, Fish L, Etten TJ, Brooks CM. An interdisciplinary cancer prevention and control training program in public health. *J Cancer Educ*. 2002 Summer;17(2):85-91. PubMed PMID: [12092859](http://www.ncbi.nlm.nih.gov/pubmed/12092859/).
	4. Heimburger DC, Waterbor JW, Fish L, Brooks CM. An interdisciplinary training program in nutrition sciences and cancer. *J Cancer Educ*. 2000 Fall;15(3):130-3. PubMed PMID: [11019757](http://www.ncbi.nlm.nih.gov/pubmed/11019757/).
3. Non-communicable disease research in low- and middle-income countries, especially in Africans with HIV.
	1. Kweka B, Lyimo E, Jeremiah K, Filteau S, Rehman AM, Friis H, Manjurano A, Faurholt-Jepsen D, Krogh-Madsen R, PrayGod G, Heimburger DC. Influence of hemoglobinopathies and glucose-6-phosphate dehydrogenase deficiency on diagnosis of diabetes by HbA1c in Tanzanian adults with and without HIV: a cross-sectional study. *PLoS One* 2020;15(12): e0244782. PMCID: [PMC7775052](http://www.ncbi.nlm.nih.gov/pmc/articles/pmc7775052/). [https://doi.org/10.1371/journal. pone.0244782](https://doi.org/10.1371/journal.%20pone.0244782).
	2. Jeremiah K\*, Filteau S, Faurholt-Jepsen D, Kitilya B… Range N, Kamwela J, Ramaiya K… Heimburger DC, PrayGod G. Diabetes prevalence by HbA1c and oral glucose tolerance test among HIV-infected and uninfected Tanzanian adults. *PLoS ONE* 2020 15(4): e0230723. PMID: [32267855](https://pubmed.ncbi.nlm.nih.gov/32267855/).
	3. Masenga SK\*, Elijovich F, Hamooya BM\*, Nzala S, Kwenda G, Heimburger DC, Mutale W, Munsaka SM, Zhao S, Koethe JR, Kirabo A. Elevated eosinophils as a feature of inflammation associated with hypertension in virally suppressed people living with HIV. *J Am Heart Assoc* 2020;9:e011450. PMID: [32064996](https://pubmed.ncbi.nlm.nih.gov/32064996/).
	4. Kayamba V,\* Butt J, Waterboer T, Besa E, Choudhry N, Hamasuku A, Julius P, Heimburger DC, Atadzhanov M, Kelly P. Molecular profiling of gastric cancer in a population with high HIV prevalence reveals a shift to MLH1 loss but not the EBV subtype. *Cancer Med* 2020;00:1–10. PMID: [32207245](https://pubmed.ncbi.nlm.nih.gov/32207245/).
	5. Mutale W, Bosomprah S, Shankalala P, Mweemba O, Chilengi R, Kapambwe S, Chishimba C, Mukanu M, Chibutu D, Heimburger DC. Assessing capacity and readiness to manage NCDs in primary care setting: Gaps and opportunities based on adapted WHO PEN tool in Zambia. *PLoS ONE* 2018 13(8): e0200994. <https://doi.org/10.1371/journal.pone.0200994>.
4. Nutritional influences on outcomes of antiretroviral therapy (ART) in Africans with HIV/AIDS. My research initiated during a Fulbright Scholar award-supported sabbatical in Zambia in 2006-2007 found an independent mortality effect for depleted serum phosphate at ART initiation in a population of undernourished Zambians. This led to a nutritional intervention trial, NUSTART, with colleagues from Zambia, the UK, Tanzania, Ethiopia, and Denmark.
	1. Fuseini H, Gyan BA, Kyei GB, Heimburger DC, Koethe JR. Undernutrition and HIV infection in Sub-Saharan Africa: Health outcomes and therapeutic interventions. *Curr HIV/AIDS Rep* 2021. PMID: [33606196](https://pubmed.ncbi.nlm.nih.gov/33606196/). DOI: [10.1007/s11904-021-00541-6](https://doi.org/10.1007/s11904-021-00541-6)
	2. Rehman AM, Woodd SL, Heimburger DC, Koethe JR\*, Friis H, PrayGod G, Kasonka L, Kelly P, Filteau S. Changes in serum phosphate and potassium and their effects on mortality in malnourished African HIV-infected adults starting antiretroviral therapy and given vitamins and minerals in lipid-based nutritional supplements: secondary analysis from the Nutritional Support for African Adults Starting Antiretroviral Therapy (NUSTART) trial. *Brit J Nutr* 2017;117:814-21. PMCID: [PMC5426318](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5426318/)
	3. Woodd S, Kelly P, Koethe JR\*, PrayGod G, Rehman AM, Chisenga M, Siame J, Heimburger DC, Friis H, Filteau S. Risk factors for mortality among malnourished HIV-infected adults eligible for antiretroviral therapy. *BMC Infect Dis* 2016; Oct 12;16(1):562. PMID: [27733134](https://www.ncbi.nlm.nih.gov/pubmed/27733134) doi: 10.1186/s12879-016-1894-3.
	4. NUSTART Study Team, Filteau S, PrayGod G, Kasonka L, Woodd S, Rehman AM, Chisenga M, Siame J, Koethe JR\*, Changalucha J, Michael D, Kidola J\*, Manno D, Larke N, Yilma D, Heimburger DC, Friis H, Kelly P. Effects on mortality of a nutritional intervention for malnourished HIV-infected adults referred for antiretroviral therapy: a randomised controlled trial. *BMC Med*. 2015 Jan 28;13:17. PubMed PMID: [25630368](http://www.ncbi.nlm.nih.gov/pubmed/25630368/); PubMed Central PMCID: [PMC4308881](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4308881/).

## Complete List of Published Work: <http://www.ncbi.nlm.nih.gov/pubmed/?term=heimburger+d%20not%20heimburger+dk>

### D. Additional Information: Research Support and/or Scholastic Performance

Ongoing Research Support

5D43 TW009744 MUTALE, WILBROAD (MPI) 06/15/15-03/31/26

UNZA-Vanderbilt Training Partnership for HIV-NCD Research (UVP-2)

UVP trains Zambian PhD- and postdoctoral-level HIV researchers, equipping them with research skills in non-communicable complications and comorbidities of HIV, while expanding the University of Zambia (UNZA) / University Teaching Hospital’s (UTH) research training and investigative capacities. Role: MPI

2D43 (formerly 5R25) TW009337 HEIMBURGER, DOUGLAS Corbett (PI) 04/04/12-06/30/22

Vanderbilt-Emory-Cornell-Duke Consortium for Global Health Fellows (VECDor)

VECDor aims to nurture a new generation of global health researchers through a collaborative training program with overseas research institutions from low and middle-income countries with which our universities have worked for decades. Role: PI

Completed Research Support

2T32 (formerly R25) CA160056 SHU, XIAO-Ou (PI) 09/13/12-08/31/22

Vanderbilt Training Program in Molecular and Genetic Epidemiology of Cancer (MAGEC)

MAGEC addresses the urgent need to build epidemiologists to lead multidisciplinary collaborative research in cancer by delivering individualized didactic and research training to equip postdoctoral fellows from a variety of disciplines with the methodological tools, practical laboratory and survey-research knowledge, and hands-on research and grant writing experience necessary to launch independent careers in the molecular and genetic epidemiology of cancer. Role: Co-Director 2012-2020

2D43 TW009744-04S1 HEIMBURGER, DOUGLAS Corbett (PI) 02/10/18-05/31/20

Clayton-Dedonder Mentorship Fellows Program

This supplement to the UVP grant funds the creation and refinement of a mentorship curriculum within the University of Zambia PhD Program and the training of 10 Clayton-Dedonder Fellows at UNZA. Role: PI

R21 TW010471 MUTALE, WILBROAD (PI) 09/01/16-08/31/18

Assessment of capacity to prevent and manage major non-communicable diseases (NCDs) in primary care centres in Zambia: A health systems approach

The goal of this study was to assess health systems capacity to provide Non-Communicable Diseases (NCDs) related services. The study adapted and applied the WHO’s PEN NCD tool in the Zambian context. The adapted tool will help in benchmarking interventions aimed at addressing NCDs in low-income settings.
 Role: MPI

D43 TW009348 WRIGHT, DAVID (PI) 08/07/12-07/31/17

Vanderbilt-Zambia Network for Innovation in Global Health Technologies

VZNIGHT aims to nurture 12 American and Zambian postdoctoral research trainees in an integrated training environment to develop and deploy new low-resource diagnostic technologies to enable Zambia to move toward its goal of eradicating malaria. Trainees and mentors include basic scientists, engineering scientists, and global health and clinical scientists working together. Role: MPI

5D43 TW001035 VERMUND, STEN H. (PI) 09/30/98-03/31/16

Vanderbilt University-CIDRZ AIDS International Training Research Program (AITRP)

This partnership with international collaborators from 5 countries (Zambia, China, India, Pakistan, Mozambique) trained foreign scientists and key research support staff to conduct independent research and training in their home countries, as well as perform at an internationally credible level in collaborations with both local and foreign scientists. Role: MPI 2009-2016

5R24 TW007988 VERMUND, STEN H. (PI) 07/01/07-07/31/15

Fogarty International Clinical Research Scholars Support Center @ Vanderbilt-AAMC (FICRS-F)

The goal of the program was to help train and inspire both US and foreign graduate students in research techniques and topic areas applicable to resource-limited and/or tropical countries. Role: MPI 2009-2015

U2G GH000689 HEIMBURGER, DOUGLAS Corbett (PI) 09/30/12-03/31/15

University of Guyana-Vanderbilt-UCSF MPH Program for Guyana

Vanderbilt and UCSF partnered with the University of Guyana to develop and implement a Master of Public Health (MPH) program designed by Guyanese health professionals and educators to meet public health needs identified by the Guyanese stakeholders. Role: PI

R21 AI076430 HEIMBURGER, DOUGLAS Corbett (PI) 09/30/08-08/31/12

Metabolism, Micronutrients, and Antiretroviral Therapy Outcomes in Zambia

This project examined the influence of metabolic and micronutrient status on ART outcomes in a population in Lusaka, Zambia at high risk for early antiretroviral therapy mortality. It identified lower serum phosphate as a significant and independent predictor of early mortality, possibly representing a variant of the refeeding syndrome. Role: PI

R25 CA047888 HEIMBURGER, DOUGLAS Corbett (PI) 09/20/88-08/31/09

Cancer Prevention & Control Training Program

A training program for pre- and post-doctoral students, to increase the pool of chronic disease specialists committed to cancer prevention and control. Role: PI