BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors.
Follow this format for each person. DO NOT EXCEED FIVE PAGES.

NAME: Harbertson, Judith

eRA COMMONS USER NAME (credential, e.g., agency login): jharbertson

POSITION TITLE: Adjunct Associate Professor

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

INSTITUTION AND LOCATION	DEGREE (if applicable)	END DATE MM/YYYY	FIELD OF STUDY
University of California, Irvine, Irvine, CA	BS	12/1996	Biological Sciences
San Diego State University, San Diego, CA	MPH	06/2004	Epidemiology
University of California, San Diego, San Diego State University, San Diego, CA	PHD	06/2010	Epidemiology

A. Personal Statement

Dr. Harbertson's research background includes basic research in immunology at the Scripps Research Institute in San Diego from 1997-2003 that laid the foundation for a broad understanding of HIV and mental health from acquisition and laboratory testing to transition of biomarkers across the course of infection which evolved into bio-behavioral research. From 2002-2010 Dr. Harbertson transitioned to HIV/ AIDS prevention and other infectious disease public health research that included field studies in San Diego, Mexico, Jamaica, and original data collection and dissertation research in Rwanda. From 2010 to the present time Dr. Harbertson's efforts are focused on STI/HIV prevention research among the ship-assigned United States (US) Navy and Marine Corps population which included leading a data collection effort aboard a deployed ship for two weeks while it was en route, returning from the Mediterranean/ Red Sea. Other research/evaluation efforts focus on HIV prevention, care and treatment efforts in more than a dozen sub-Saharan African military populations including ongoing data collection and analysis in Togo, Sierra Leone and Liberia. Dr. Harbertson has significant experience collaborating and leading domestic and international civilian and military partners on research and human subjects protection protocols, data collection, statistical analysis, manuscript creation and presentation/ publication/ data dissemination. Dr. Harbertson is effective at implementing research in challenging international settings and collaborating with a variety of civilian and military leadership styles. In collaboration with other investigators on this study, she brings cross-organization expertise and substantial research implementation research capabilities to this project to optimize the success of activities which improve military readiness and health.

1. Harbertson J, De Vera K, Scott PT, Li Y, Shaffer RA, Michael NL, Hale BR. Longitudinal survey of condom use across a US Navy and Marine Corps shipboard deployment. BMJ Open. 2019 Jun 22;9(6):e028151. PubMed PMID: 31230018; PubMed Central PMCID: PMC6596944.
2. Harbertson J, Hale BR, Tran BR, Thomas AG, Grillo MP, Jacobs MB, McAnany J, Shaffer RA. Self-reported HIV-positive status but subsequent HIV-negative test result using rapid diagnostic testing algorithms among seven sub-Saharan African military populations. PLoS One. 2017;12(7):e0180796. PubMed PMID: 28686678; PubMed Central PMCID: PMC5501598.
3. Harbertson J, Scott PT, Moore J, Wolf M, Morris J, Thrasher S, D'Onofrio M, Grillo MP, Jacobs MB, Tran BR, Tian J, Ito SI, McAnany J, Michael N, Hale BR. Sexually transmitted infections and sexual behaviour of deploying shipboard US military personnel: a cross-sectional analysis. Sex Transm Infect. 2015 Dec;91(8):581-8. PubMed PMID: 26586849.
4. Harbertson J, Grillo M, Zimulinda E, Murego C, Brodine S, May S, Sebagabo M, Araneta MR, Cronan T, Shaffer R. HIV seroprevalence, associated risk behavior, and alcohol use among male Rwanda Defense Forces military personnel. AIDS Behav. 2013 Jun;17(5):1734-45. PubMed PMID: 23080360.

B. Positions and Honors

Positions and Employment

1997 - 2002	Research Technician III, The Scripps Research Institute, Immunology, San Diego, CA
2002 - 2003	Research Technician III, Sidney Kimmel Cancer Center, Immunology, San Diego, CA
2003 - 2004	Principal Investigator, Graduate student research project, San Diego Health and Human Services Agency, Division of STD and Hepatitis Prevention, San Diego, CA
2003 - 2005	Principal Investigator, Graduate student research project, VIIDAI Community Health Project, San Diego State University (SDSU), San Diego, CA and Universidad Autónoma de Baja California, Baja, CA
2003 - 2010	Research Epidemiologist, Department of Defense HIV/AIDS Prevention Program (DHAPP), Naval Health Research Center (NHRC), San Diego, CA
2006 - 2006	Principal Investigator, Graduate student research project, University of California, San Diego (UCSD), Department of Family and Preventive Medicine, San Diego, CA
2007 - 2008	Epidemiology Research Analyst, UCSD, SDSU, County of San Diego, Refugee Health, San Diego, CA
2010 - 2016	Research Epidemiologist, Henry M. Jackson Foundation, US Military HIV Research Program, Walter Reed Army Institute of Research, DHAPP, NHRC, San Diego, CA
2013 - 2019	Faculty Lecturer, SDSU, Graduate School of Public Health, San Diego, CA
2016 - 2020	Senior Research Epidemiologist, Leidos, Inc., US Military HIV Research Program, DHAPP, Defense Health Agency, San Diego, CA
2020 -	Research Epidemiologist, Leidos, Inc., Medical Modeling, Mission Support, & Simulation, Naval Health Research Center, San Diego, CA
2019 -	Adjunct Associate Professor, SDSU, Graduate School of Public Health, San Diego, CA

Other Experience and Professional Memberships

2002 - 2003	Member, American Public Health Association
2003 - 2004	Graduate Assistant, Infectious Disease Epidemiology, SDSU, Graduate School of Public Health
2003 - 2005	Graduate Assistant, VIIDAI Community Project, SDSU, Universidad Autónoma de Baja California
2004 - 2004	Graduate Assistant, HIV/AIDS Epidemiology, SDSU, Graduate School of Public Health
2004 - 2006	Graduate Assistant, Infectious Disease Control and Surveillance International Field Course, SDSU, University of Alabama, University of West Indies, Kingston, Jamaica
2014 - 2014	Committee Member, Bliss, MPH Thesis, SDSU, Graduate School of Public Health
2015 - 2015	Committee Member, Madewell, MPH Thesis, SDSU, Graduate School of Public Health
2016 - 2016	Committee Member, Shook, MPH Thesis, SDSU, Graduate School of Public Health
2016 - 2017	Member, American Sexually Transmitted Diseases Association
2017 - 2019	Member, International AIDS Society

Honors

C. Contribution to Science

1. *HIV Prevention Research in sub-Saharan Africa*. As one of the first graduate students to collect original bio-behavioral data from a sub-Saharan African (SSA) military population, the Rwandan Defense Forces (RDF), this required seven separate approvals from human subject's protection organizations at two universities and one military organization in the US, and four in Rwanda. Seroprevalence data collected was among the first to be published within a SSA military population, which was previously challenging given host military concerns for public data sharing and security. Findings from this study resulted in targeted improvements in the RDF HIV prevention program including a follow-on study to address alcohol misuse, critical messaging to younger soldiers reporting STI symptoms, who were divorced, widowed or separated and at highest risk for HIV acquisition. This bio-behavioral survey was a model for more than a

dozen bio-behavioral surveys that followed in other SSAs and several publications, including the first publication on gender-based violence in SSA military populations. Data gathered from these bio-behavioral surveys is integrated into targets as part of the PEPFAR funding and planning cycles in each of these countries resulting in practical recommendations to host militaries for HIV prevention, care and treatment improvements. Additionally, data collected from the original RDF bio-behavioral study showed a non-negligible proportion of soldiers reported they previously tested HIV positive, but subsequently tested HIV negative as part of the study. This prompted a multi-year data collection across several military populations and summary report of possible false-positive diagnoses in several testing programs (which was published in parallel with a special issue supplementary journal on possible HIV testing misdiagnoses across almost 70 countries). These findings resulted in an ongoing follow-on study retesting HIV positive individuals who have been enrolled in ART care which include capacity building on WHO recommended RDT algorithms, ELISA and GeneXpert testing in Togo, Sierra Leone and Liberia.

a. Harbertson J, Hale BR, Tran BR, Thomas AG, Grillo MP, Jacobs MB, McAnany J, Shaffer RA. Self-reported HIV-positive status but subsequent HIV-negative test result using rapid diagnostic testing algorithms among seven sub-Saharan African military populations. PLoS One. 2017;12(7):e0180796. PubMed PMID: 28686678; PubMed Central PMCID: PMC5501598.
b. Nightingale VR, Tran BR, Harbertson J, Langa A, Grillo M, Kalombo O, Thomas AG. Sexual and Gender-Based Violence Attitudes and Experiences among Nine Sub-Saharan African Militaries. Curr HIV Res. 2017;15(2):116-127. PubMed PMID: 28176644.
c. Harbertson J, Grillo M, Zimulinda E, Murego C, Cronan T, May S, Brodine S, Sebagabo M, Araneta MR, Shaffer R. Prevalence of PTSD and depression, and associated sexual risk factors, among male Rwanda Defense Forces military personnel. Trop Med Int Health. 2013 Aug;18(8):925-33. PubMed PMID: 23692352.
d. Harbertson J, Grillo M, Zimulinda E, Murego C, Brodine S, May S, Sebagabo M, Araneta MR, Cronan T, Shaffer R. HIV seroprevalence, associated risk behavior, and alcohol use among male Rwanda Defense Forces military personnel. AIDS Behav. 2013 Jun;17(5):1734-45. PubMed PMID: 23080360.

2. *Sexual risk behaviors and STI research in the US*. In 2010, my team initiated examination of behavioral risk factors that put deploying, ship-assigned US Navy and Marine Corps service members at risk for sexually transmitted infections (STIs). This culminated in the development and launch of a longitudinal study that tracked service members across 11 ship platforms assigned to the Third Fleet (pacific) area of responsibility through their entire deployment cycle (timepoints before, during and after deployment). This was a logistically challenging study most research groups have been unwilling to undertake with the last most similar study conducted 20 years prior (when women were not aboard ships), and included leading a data collection effort aboard a deployed ship for two weeks while it was en route, returning from the Mediterranean/ Red Sea. This study was able to collect one-of-a-kind data, given data among service members is generally collected before or after deployment and in non-deployment settings because of logistical barriers. Findings from this study led to several publications (and additional in process) which suggest a substantial sexual network among military beneficiaries who have access to the free military health system revealing an important opportunity to interrupt STI transmission.

a. Harbertson J, De Vera K, Scott PT, Li Y, Shaffer RA, Michael NL, Hale BR. Longitudinal survey of condom use across a US Navy and Marine Corps shipboard deployment. BMJ Open. 2019 Jun 22;9(6):e028151. PubMed PMID: 31230018; PubMed Central PMCID: PMC6596944.
b. Harbertson J, Scott PT, Lemus H, Michael NL, Hale BR. Cross-Sectional Study of Sexual Behavior, Alcohol Use, and Mental Health Conditions Associated With Sexually Transmitted Infections Among Deploying Shipboard US Military Personnel. Mil Med. 2019 Apr 20;PubMed PMID: 31004170.
c. Harbertson J, Jamerson M, Graf PCF, Kennemur L, House B, Michael NL, Scott P, Hale B. Population-based Neisseria gonorrhoeae (NG), Chlamydia trachomatis (CT) and Trichomonas vaginalis (TV) prevalence using discarded, deidentified urine specimens previously collected for drug testing. Sex Transm Infect. 2018 Mar;94(2):123. PubMed PMID: 29066630; PubMed Central PMCID: PMC5870458.
d. Harbertson J, Scott PT, Moore J, Wolf M, Morris J, Thrasher S, D'Onofrio M, Grillo MP, Jacobs MB, Tran BR, Tian J, Ito SI, McAnany J, Michael N, Hale BR. Sexually transmitted infections and sexual

behaviour of deploying shipboard US military personnel: a cross-sectional analysis. Sex Transm Infect. 2015 Dec;91(8):581-8. PubMed PMID: 26586849.

3. *Psychological Health and Substance Abuse*. Psychological health and substance abuse are highly associated with HIV acquisition and risk behaviors so we conducted a series of analyses focusing on these areas of interest. We described alarmingly high proportions of service members who screened positive for hazardous and severe alcohol use (prior studies collected non-anonymous data and levels may have been underreported) particularly among those under 21 years of age. These findings resulted in a randomized control trial currently ongoing assessing the biomarker ethyl glucuronide in urine specimens among service members before and after a weekend of typical alcohol use in the presence of a video (intervention group only) promoting responsible alcohol use and preventive behaviors based on a motivational theory evidence-based model. There was a large gap identified between those who screened positive for risk of PTSD and major depressive disorder and those diagnosed with these conditions in the previous year, as well as large pre-deployment levels of this and other substance use disorders prior to deployment that could be identified and linked to care before immersion in a stressful deployment environment putting units at higher risk for work-related complications due to individuals impacted by these conditions. Recommendations to improve pre-deployment screening and linkage to care have been shared with military leadership and follow-on steps are in discussion.

    a. Harbertson J, Hale BR, Michael NL, Scott PT. Missed opportunity to screen and diagnose PTSD and depression among deploying shipboard US military personnel. BJPsych Open. 2016 Sep;2(5):314-317. PubMed PMID: 27713833; PubMed Central PMCID: PMC5051555.
    b. Harbertson J, Hale BR, Watkins EY, Michael NL, Scott PT. Pre-deployment Alcohol Misuse Among Shipboard Active-Duty U.S. Military Personnel. Am J Prev Med. 2016 Aug;51(2):185-194. PubMed PMID: 27067304.
    c. Harbertson J, Grillo M, Zimulinda E, Murego C, Cronan T, May S, Brodine S, Sebagabo M, Araneta MR, Shaffer R. Prevalence of PTSD and depression, and associated sexual risk factors, among male Rwanda Defense Forces military personnel. Trop Med Int Health. 2013 Aug;18(8):925-33. PubMed PMID: 23692352.

4. *International Public Health Field Work*. While in graduate school, I was highly involved in a series of international field work studies that provided sentinel information in a marginalized population in Mexico, Jamaica, and Sudanese refugees in San Diego. We developed the protocol to examine anemia prevalence in a small Mexican community which described high proportions of anemia and led to a follow-on study assessing improvements in anemia after nutritional-based interventions. The field work in Jamaica was collaborative between several universities and served as a model for teaching graduate students about non-western diseases and control in an application-based setting and fostered multidisciplinary integration of knowledge and cross-country partnerships. Important assessments of presence of schistosomiasis and strongyloidiasis in Sudanese refugees in San Diego led to new recommendations on updating treatment guidance in these populations after resettlement in the US.

    a. Madewell ZJ, Figueiredo VC, Harbertson J, Pérez RL, Novotny T. Exposure to smoking in soap operas and movies: smoking cessation and attempts to quit. Cad Saude Publica. 2017 Sep 21;33Suppl 3(Suppl 3):e00118015. PubMed PMID: 28954051.
    b. Moor MA, Fraga MA, Garfein RS, Harbertson J, Rodriguez-Lainz A, Rashidi HH, Elder JP, Brodine SK. Decreased Anemia Prevalence Among Women and Children in Rural Baja California, Mexico: A 6-Year Comparative Study. J Community Health. 2016 Aug;41(4):780-9. PubMed PMID: 26856732.
    c. Scarlett HP, Nisbett RA, Stoler J, Bain BC, Bhatta MP, Castle T, Harbertson J, Brodine SK, Vermund SH. South-to-North, cross-disciplinary training in global health practice: ten years of lessons learned from an infectious disease field course in Jamaica. Am J Trop Med Hyg. 2011 Sep;85(3):397-404. PubMed PMID: 21896794; PubMed Central PMCID: PMC3163856.
    d. Brodine SK, Thomas A, Huang R, Harbertson J, Mehta S, Leake J, Nutman T, Moser K, Wolf J, Ramanathan R, Burbelo P, Nou J, Wilkins P, Reed SL. Community based parasitic screening and treatment of Sudanese refugees: application and assessment of Centers for Disease Control guidelines. Am J Trop Med Hyg. 2009 Mar;80(3):425-30. PubMed PMID: 19270293.

5. *Basic Research in Immunology*. My participation in basic immunological research prior to graduate school, provided a strong foundation for my current understanding of HIV transmission, laboratory testing for HIV and transition of biomarkers over the course of infection. Mentored closely by the PI, as part of a small research group of two (myself and the Principal Investigator, PI) I was given the opportunity to take on substantial responsibility, independently design, implement and analyze in vivo experiments examining the role of TH1 and TH2 effector cells in development of memory cell populations, expansion and cytokine excretion.

   a. Bradley LM, Harbertson J, Biederman E, Zhang Y, Bradley SM, Linton PJ. Availability of antigen-presenting cells can determine the extent of CD4 effector expansion and priming for secretion of Th2 cytokines in vivo. Eur J Immunol. 2002 Aug;32(8):2338-46. PubMed PMID: 12209647.
   b. Harbertson J, Biederman E, Bennett KE, Kondrack RM, Bradley LM. Withdrawal of stimulation may initiate the transition of effector to memory CD4 cells. J Immunol. 2002 Feb 1;168(3):1095-102. PubMed PMID: 11801643.
   c. Linton PJ, Harbertson J, Bradley LM. A critical role for B cells in the development of memory CD4 cells. J Immunol. 2000 Nov 15;165(10):5558-65. PubMed PMID: 11067910.
   d. Bradley LM, Harbertson J, Freschi GC, Kondrack R, Linton PJ. Regulation of development and function of memory CD4 subsets. Immunol Res. 2000;21(2-3):149-58. PubMed PMID: 10852112.

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

Completed Research Support

W81XWH-07-2-0067, Military Inf. Dis. Res. Prog. Harbertson (PI) 01/01/10-09/09/19
STI Prevalence and Associated Demographic and Behavioral Risk Factors Among Deploying US Navy and Marine Corps Military Personnel
The purpose of this study is to estimate the prevalence and identify correlates of sexually transmitted infections among US Navy and Marine Corps personnel.
Role: Co-Principal Investigator

181467, Defense Health Program HIV Funding Harbertson (PI) 10/01/17-09/30/19
Quality Assurance Evaluation of HIV-positive Individuals Attending HIV Antiretroviral Clinics in Liberia, Togo, and Sierra Leone
The purpose of this study is to evaluate the quality of care at HIV antiretroviral treatment clinics among HIV-positive individuals in Liberia, Togo and Sierra Leone.
Role: Co-Principal Investigator

W81XWH-07-2-0067, Military Inf. Dis. Res. Prog. Harbertson (PI) 10/01/12-09/30/17
Neisseria Gonorrhoeae (NG), Chlamydia Trachomatis (CT) and Trichomonas Vaginalis (TV) Prevalence Using Nucleic Acid Amplification Testing (NAAT) to Screen De-identified Urine Samples from the Navy Drug Screening Laboratory (NDSL), San Diego
The goal of this study was to estimate the prevalence of sexually transmitted infections among U.S. Navy personnel in San Diego, CA using di-identified urine samples from the Navy Drug Screening Laboratory.
Role: Co-Principal Investigator

NHRC.2008.0033, Defense Health Program HIV Funding Harbertson (PI) 10/01/07-09/30/12
Seroprevalence and Risk Factors for Human Immunodeficiency Virus in the Rwanda Defense Forces
The goal of this study was to estimate the prevalence and identify potential risk factors for HIV among military personnel in the Rwanda Defense Force.
Role: PI