This issue will cover HIV/AIDS epidemiology, prevention, care and treatment in military populations in low and middle-income countries. Given their high risk for HIV, uniformed personnel present unique opportunities for HIV prevention programming across the globe. However, the prevalence of HIV and related risk behaviors are often unknown. The Department of Defense HIV/AIDS Prevention Program (DHAPP), funded by the President's Emergency Plan for AIDS Relief and the US Department of Defense, provides technical assistance, management and administrative support for HIV/AIDS prevention, care and treatment for approximately 60 partner militaries. Collaborating with partner militaries in conducting Seroprevalence and Behavioral Epidemiology Risk Surveys (SABERS) and using the data to monitor the epidemic and inform activities is a key component of DHAPP. In addition, DHAPP has created "building blocks" to address the needs of HIV prevention programming in overseas militaries. The building blocks include basic HIV education and outreach, condoms, HIV policies, HIV testing and counseling, screening for sexually transmitted infections, voluntary male medical circumcision, prevention for mother-to-child transmission, and other supportive services. Closely linked with quality HIV treatment services, these comprehensive military prevention building blocks are the cornerstone of creating an HIV-free generation in military and surrounding communities worldwide.

Surveillance of HIV among military conscripts also provides critically important data to monitor this evolving epidemic in the civilian population, which has been useful to evaluate prevention programs and modify their focus.

1. A Strategy for Conducting HIV Seroprevalence and Behavioral Epidemiology Risk Surveys (SABERS) Among Partner Military Populations

Authors: Caroline A. Macera, Stanley I. Ito, Braden R. Hale, Richard A. Shaffer, Anne G. Thomas, and Janet Dickieson

Abstract: Characterizing HIV infection and associated risk behaviors within military populations is critical for understanding the epidemic and informing prevention activities. However, the prevalence of HIV and related risk behaviors is often unknown. Further, militaries may not have the systems in place or the staff expertise to conduct HIV surveillance and risk behavior studies. The Department of Defense HIV/AIDS Prevention Program (DHAPP), funded by the President's Emergency Plan for AIDS Relief and the US Department of Defense, provides technical assistance, management and administrative support for HIV/AIDS prevention, care and treatment for approximately 65 partner militaries. Collaborating with partner militaries in conducting Seroprevalence and Behavioral Epidemiology Risk Surveys (SABERS) and using the data to monitor the
epidemic and inform activities is a key component of DHAPP. This paper describes the methodology used to plan, adapt, implement and report SABERS studies.

2. **HIV and Syphilis Prevalence and Associated Risks in the Cameroonian Armed Forces**

Authors: Michael Grillo, Bonnie R. Tran, Ubald Tamoufe, Cyrille F. Djoko, Karen Saylors, Kelly Woodland, LTC Wangmene, and Caroline Macera

Abstract: Continued surveillance of the HIV epidemic is critical to monitor changes in trends and risk behaviors. A 2005 study in the Cameroonian Armed Forces (CAF) found an HIV prevalence of 11.3%. The purpose of the current study is to determine the 5-year change in the HIV prevalence, estimate the prevalence of syphilis, and examine factors associated with infection in the CAF. Participants were male and female service members aged 18 and older. Demographic and behavioral risk data were collected from September-November 2011 using personal interview. Blood was collected for HIV and syphilis testing. Of 2,523 participants tested, 5.3% screened positive for HIV, 3.1% screened positive for syphilis, 0.7% screened positive for both. Analyses examining risk factors associated with HIV/syphilis were restricted to 2,255 sexually active men. In a multivariate logistic regression model, the odds of testing positive for HIV/syphilis were higher among men who were separated, divorced, or widowed (adjusted odds ratio [AOR]=3.13, 95% confidence interval [CI]: 1.24–7.89), had commercial sex worker partners (AOR=1.64, 95% CI: 1.19–2.27), and reported a genital sore/ulcer in the past 12 months preceeding the survey (AOR=1.73, 95% CI: 1.05–2.86). Higher HIV knowledge was protective against HIV/syphilis infection (AOR=0.73, 95% CI: 0.54–0.99). While the overall HIV prevalence in this sample of military personnel was lower than previously reported, risky sexual behaviors were identified. HIV and syphilis education among all military personnel as they enter service and proceed forward is important to reinforce prevention methods and practices.

3. **HIV Risk Behavior and Prevention Considerations Among Military Personnel in Three Caribbean Region Countries: Belize, Barbados, and the Dominican Republic**

Authors: Michael Anastario, Lisa Cowan, Nakisa Asefnia, and Rose Werth

Abstract: We review what is known about HIV prevalence and risk behaviors in military populations from three Caribbean countries (Dominican Republic, Belize, and Barbados). We discuss correlates of risk behaviors in these populations and how structuring aspects of the occupational field produce and reproduce patterns of risk behaviors. In addition, we discuss the use of formative research to tailor individual prevention strategies to military populations. Finally, a discussion of the Positive Health, Dignity, and Prevention framework, and the use of implementation science (including research methods that employ alternative methodological assumptions to better elucidate both cultural nuances and unknown components of program impact in different military populations) is provided.

4. **HIV Risk Behaviors in the Gambia Armed Forces**
Authors: Amanda R. Ratigan, Michael P. Grillo, William M. Conquest, Caroline A. Macera, Jennifer McAnany, Musa Kah, and Richard A. Shaffer

Abstract: A cross-sectional study was conducted between January and March 2012 to examine HIV risk behaviors among members of the Gambia Armed Forces (GAF). A total of 724 soldiers (622 men, 102 women) consented to participate, completed a behavioral risk survey, and underwent an HIV rapid blood test. The median age was 26 years (range, 18–54), most participants were unmarried (62%), had completed at least secondary school (96%), and were ranked Private (78%). HIV prevalence was 0.1%. The data regarding sexual behaviors indicated that condom use was low, access to testing and counseling services was perceived as unavailable, and HIV is stigmatized in the GAF. The results of this study reinforce the low level of HIV disease in the Gambian military and allow the GAF to better direct and address specific HIV prevention messages among the troops.

5. Prevalence and Risk Factors for Human Immunodeficiency Virus (HIV) and Syphilis Infections Among Military Personnel in Sierra Leone

Authors: Djeneba A. Djibo, Foday Sahr, J. Allen McCutchan, Sonia Jain, Maria Rosario G. Araneta, Stephanie K. Brodine, and Richard A. Shaffer

Abstract: HIV and syphilis infections are common in military personnel in sub-Saharan Africa, which impact combat preparedness and increase demands on the military health care system. The prevalence of HIV is estimated at 1.5% among the general population (15-49 years of age) of Sierra Leone. We examined the prevalence and risk factors for these two common sexually transmitted infections in the Sierra Leone military personnel. This cross-sectional study examined 1157 randomly selected soldiers from the Republic of Sierra Leone Armed Forces in 2013 using computer-assisted personal interviews and rapid testing algorithms. Descriptive statistics and logistic regression models were implemented to identify risk factors for HIV and syphilis separately. The mean age of participants was 38 years, 11.1% were female, and 86.5% were married. The seroprevalence of HIV and syphilis were 3.3% (95% confidence interval [CI]: 2.3%-4.3%) and 7.3% (95% CI: 5.9%-8.8%), respectively. Lower educational attainment in women, multiple sexual partners, unintended sex after alcohol use and use of condoms were independently associated with HIV status (p<0.05). After adjustment, HIV infection was associated with female gender, unintended sex after alcohol use, condom use at last sex, having multiple concurrent sexual partnerships and HIV testing at military facilities (p<0.05). Age, positive HIV status and region of residence were associated with syphilis seropositivity. The prevalence of sexually transmitted infections among military personnel was higher than the general population of Sierra Leone. Several high-risk sexual behaviors that expose soldiers to HIV and syphilis could be addressed through prevention interventions.

6. The Importance of Military Conscripts for Surveillance of Human Immunodeficiency Virus Infection and Risk Behavior in Thailand

Authors: Kenrad E. Nelson and Ram Rangsin
Abstract: The human immunodeficiency virus (HIV) epidemic in Thailand was first recognized in 1988 among injection drug users (IDUs) in Bangkok. Soon thereafter, HIV infections were reported among female sex workers (FSWs) and men attending sexually transmitted disease (STD) clinics. Routine serological surveillance for HIV began in 1991 among young men who were conscripted annually into the Royal Thai Army (RTA). The data from these populations provided a national population-based sample to determine sexual behaviors and HIV prevalence among sexually active young men. The men were selected by a random process that conscripted about 10% of 21 year-old men from throughout Thailand each year. HIV seroprevalence data from these men provided data to evaluate the spread of the epidemic in the young male population throughout the country. In 1991, the Ministry of Public Health established the “100% Condom Program” to prevent sexual transmission of HIV. The data from cohorts of RTA conscripts showed a dramatic reduction in HIV seroprevalence among successive cohorts between 1991 and 1995. The reduced HIV prevalence among military conscripts was found to be associated with substantial temporal changes in sexual behavior, including increased condom use during sex with FSWs and less frequent commercial sex. In 1998, men with a history of injection drug use had a higher HIV prevalence than those with a history of sex with FSW. After 2005, men with a history of sex with men had the highest HIV prevalence. In conclusion, surveillance of HIV among military conscripts in Thailand has provided critically important data to monitor this evolving epidemic, which has been useful to evaluate prevention programs and modify their focus.

7. Prevention Interventions for People Living with HIV in Military Settings

Authors: Michael P. Grillo, Margo Sloan, Che Wankie, Kelly Woodland, Elizabeth Reader, Bruce Porter, Caroline A. Macera, and Richard A. Shaffer

Abstract: Military prevention programs and healthy living programs were developed in the mid-1980s to manage and support newly HIV-positive military personnel in the US military. Since then, a program developed by the Centers for Disease Control and Prevention with support from the Department of Defense HIV/AIDS Prevention Program (DHAPP), called Positive Health, Dignity and Prevention (PHDP), is currently being rolled out by DHAPP in partner militaries. The program, designed to reduce HIV transmission, is a package of interventions for people living with HIV (PLHIV), including risk reduction counseling, condom provision, disclosure counseling, testing of sexual partner(s) and children, adherence counseling, diagnosis and treatment of sexually transmitted infections, and provision of family planning services. DHAPP has trained military and civilian personnel caring for military personnel, their families, and the civilians seen at military installations in sub-Saharan Africa, such as Rwanda, Democratic Republic of the Congo, Malawi, and Zambia. These programs have varying degrees of implementing the program with innovative ways of reaching PLHIV. Many successes are being achieved through the training of military and civilian personnel working for or at military health care settings. In 2015, one of DHAPP’s goals for the PHDP program is to enhance the monitoring, evaluation, and reporting of PHDP to reach at least 90% of HIV-positive patients over the next 5 years.

8. Global HIV Prevention, Testing, and Counseling in Military Populations
Authors: Michael P. Grillo, Margo Sloan, Che Wankie, Kelly Woodland, Elizabeth Reader, Bruce Porter, Richard Shaffer, Caroline A. Macera, and Marc Bulterys

Abstract: Given their high risk for HIV, uniformed personnel present unique opportunities for HIV prevention programming across the globe. Compared with the general population in low and middle-income countries, military members tend to be fitter, travel more frequently, and have a consistent source of income. In response, the Department of Defense HIV/AIDS Prevention Program has created “building blocks” to address the needs of HIV prevention programming in overseas militaries. The building blocks include basic HIV education and outreach, condoms, HIV policies, HIV testing and counseling, screening for sexually transmitted infections, voluntary medical male circumcision, prevention of mother-to-child transmission, and other supportive services. Closely linked with HIV treatment services, these comprehensive military prevention building blocks are the cornerstone of creating an HIV-free generation in military and surrounding communities worldwide.

9. Voluntary Medical Male Circumcision Among Rwanda Defense Force Members

Authors: Michael P. Grillo, Djeneba A. Djibo, Caroline A. Macera, Charles Murego, Eugene Zimulinda, Marcellin Sebagabo, and Valentin Gatsinzi

Abstract: Strong scientific evidence supports voluntary medical male circumcision as part of an overall HIV prevention strategy, but self-report information on circumcision status may be inaccurate. Data were collected from members of the Rwandan military during their annual physical examination. A self-administered questionnaire collected demographic and circumcision characteristics. Self-reported circumcision status was compared with the medical exam evaluation. Using questionnaires with complete data (n = 579), 69% of the study participants were circumcised by physical examination and there was strong agreement with self-reported circumcision status (κ = 0.97). Almost half (44%) of all circumcisions had been performed within the past 2 years. These results suggest that self-report is an appropriate method to collect information on circumcision status in the Rwandan military. Many of the circumcisions occurred within the last 2 years, possibly as an effect of the successful scale-up of voluntary medical male circumcision in the Rwandan military utilizing effective messaging, demand creation, and positive news reporting by the media.

10. Sexual and Gender-Based Violence Attitudes and Experiences Among Nine Sub-Saharan African Militaries

Authors: Vienna R. Nightingale, Bonnie R. Tran, Judith Harbertson, Antonio Langa, Michael Grillo, Olivier Kalombo, and Anne G. Thomas

Abstract: While sexual and gender-based violence (SGBV) is recognized as an important factor driving the HIV epidemic in sub-Saharan Africa, attitudes toward and prevalence of SGBV within sub-Saharan African military populations are unknown. Data on SGBV were collected from military service members of nine sub-Saharan African militaries. Attitudes related to SGBV and characteristics of those who commit and experience
SGBV are reported. Data for 8665 service members (7963 men and 629 women) who participated in the Seroprevalence and Behavioral Epidemiology Risk Surveys were included in this secondary data analysis. Self-reported data were collected on demographics, SGBV attitudes, and experiences. Descriptive and bivariate statistical analyses are reported. Five percent of men and 9% of women reported experiencing SGBV, and 6% of men reported they had ever committed SGBV. Men and women who had experienced SGBV were significantly more likely to agree with negative gender attitudes toward SGBV, and the majority of those who reported experiencing SGBV reported SGBV was committed by someone outside of the military. This is the first study to examine SGBV in sub-Saharan military populations in nonconflict settings. It provides evidence that SGBV is experienced by both male and female service members at rates not typically found in previous research examining SGBV in other military populations. A better understanding of SGBV in sub-Saharan military service members is necessary to ensure appropriate services and interventions are part of the military infrastructure.

11. Virological Suppression and Patterns of Resistance Amongst Patients on Antiretroviral Therapy at 4 Nigerian Military Hospitals

Authors: Babajide Keshinro, Ojor Ayemoba, Kene Terfa, Julie Ake, Trevor A. Crowell, Yakubu Adamu, Tahir Mohammed, Ifeanyi Okoye, Sunday Odeyemi, Keith Crawford, Lindsay Hughes, Ezekiel Akintunde, Tahir Umar, Tiffany E. Hamm, and Ogbonnaya S. Njoku

Abstract: Plasma HIV-1 RNA quantification is used routinely in resource-rich countries to assess response to antiretroviral therapy (ART). In resource-constrained settings, this monitoring tool has not been routinely available. This study evaluated virological suppression rates amongst patients on first-line ART in four Nigerian military hospitals. We conducted a cross-sectional study of 325 randomly selected adult clinic clients (≥18 years old) prescribed first-line ART regimens at four Nigerian military hospitals. Plasma HIV-1 RNA was assayed using a Roche COBAS TaqMan48 with High Pure System. Virological failure was defined as HIV-1 RNA >1000 copies/ml. Specimens with HIV-1 RNA >1000 copies/ml were referred for genotyping. HIV-1 RNA results were obtained in 322 participants. Two hundred and seventy eight study participants (86.3%) had HIV viral RNA < 1000 copies/ml, including 273 (84.8%) with HIV-1 RNA <400 copies/ml. HIV drug resistance genotyping results were obtained in 35 of 44 study participants with HIV-1 RNA >1000 copies/ml. Only 14% (5/35) had no resistance mutations. Of the remainder, 10% (3/30) had no nucleoside analogue mutations while 33% (10/30) had only M184V along with non-nucleoside reverse transcriptase inhibitor (NNRTI) mutations (K103N or Y188C). 25% (5/25) of participants failing on zidovudine had more than two thymidine analogue mutations (TAMs). We observed a high virological suppression rate in Nigerian military hospitals. However, virological failure and the development of resistance occurs. The study supports the current WHO HIV treatment guidelines which emphasize virological monitoring of patients on ART for early detection of ART failure in order to improve treatment outcome and preserve future treatment options.

12. Development and Implementation of the DHAPP Military eHealth Information Network System
Authors: Mary Kratz, Anne Thomas, Ricardo Hora, Delphis Vera, Mickey Lutz, and Mark D. Johnson

Abstract: As the joint United Nations Programme on HIV/AIDS (UNAIDS), the Global Fund, and the United States President’s Emergency Plan for AIDS Relief (PEPFAR) focus on reaching 90-90-90 goals, military health systems are scaling up to meet the data demands of these ambitious objectives. Since 2008, the US Department of Defense HIV/AIDS Prevention Program (DHAPP) has been working with military partners in 14 countries on implementation and adoption of electronic health information systems known as eHealth, providing valuable experiences in leadership and technology implementation. Each country implementation plan followed a structured process of technical capacity assessment, software development, customization, infrastructure deployment, system adoption, and support using international eHealth standards. DHAPP worked with the private sector to develop a commercial-off-the-shelf (COTS) electronic medical record (EMR) for the collection of data, including patient demographic information, clinical notes for general medical care, HIV encounters, voluntary medical male circumcision, and tuberculosis screening information. The COTS software approach focused on sharing a single version of the EMR across countries, so that all countries could benefit from software enhancements and new features over time. This approach provided a zero-dollar software license fee to DHAPP partner militaries. DHAPP also worked with the public sector to modify open source disease surveillance tools and open access of HIV training materials. Important lessons highlight challenges to eHealth implementation, including a paucity of technology infrastructure, military leadership rotations, and the need for basic computer skills building. While not simple, eHealth systems can be built and maintained with requisite security, flexibility, and reporting capabilities that provide critical information to improve the health of individuals and organizations.

13. An Analysis of Site Heterogeneity and HIV Outcomes Across Rural and Urban Study Sites in Phidisa II – A Multi-Site Randomized Controlled Antiretroviral Treatment Trial in a South African Military Cohort

Authors: John Steytler, Pamela A. Shaw, Alice K. Pau, Paul Khabo, Gyan Joshi, and Pieter Oelofse

Abstract: Clinical trials frequently enroll subjects from different study sites. Few such studies provide analysis by individual site. Between 2004-2007, the South African Military Health System (SAMHS) established 6 research sites (3 urban, 3 rural) to build capacity for clinical research and HIV care. We explore differences in clinical, virologic and CD4 outcomes by site in the context of a randomized controlled trial. Phidisa-II is the first trial conducted in the South African military setting, which compared 4 antiretroviral regimens in treatment-naïve advanced HIV subjects. Primary study outcome was first AIDS event or death. Kaplan-Meier curves for AIDS events and mortality were compared across sites. Hazard rates were adjusted for baseline risk factors to assess the independent effect of site. Secondary outcomes of CD4 count and viral responses are also compared across study sites. 1,771 subjects (average age=35.4 years old, 68% male, with median CD4 count=105 cells/mm3 and HIV RNA=144,000 copies/mL) enrolled in 3 urban and 3 rural sites. Sites varied considerably in resources and diagnostic capacities. Adjusting for baseline factors, site was significantly associated
with mortality (p=0.008), with Urban 2 and Rural 2 sites had the lowest mortality. Site was also associated with the adjusted hazard for AIDS events (p=0.038). At 24 months, CD4 count was similar across sites, but HIV suppression rate varied considerably (range 40-70%). Site heterogeneity was found in primary clinical outcomes of mortality and AIDS event rates, but there were no clear patterns for differences between the rural versus urban sites. Site differences were also found in the proportion of confirmed AIDS events.

14. Short-Term Transfer of Knowledge Assessment in the Military International HIV Training Program (MIHTP)

Authors: Michael Grillo, Kelly Woodland, Gregory Talavera, Richard Shaffer, and Stephanie Brodine

Abstract: The Military International HIV Training Program (MIHTP) was established in 2002 to address the overwhelming needs of international military personnel concerning HIV and AIDS prevention, care, and treatment. The purpose of this study was to determine short-term knowledge transfer in trainees attending the MIHTP by comparing data collected from pre-training and post-training knowledge assessments. We used identical 40-question pre-training and post-training assessments to determine the short-term transfer of knowledge of international HIV military physicians attending the MIHTP. Findings revealed a statistically significant increase in short-term transfer of knowledge of HIV prevention, care, and treatment in a population of international military physicians, nurses, and auxiliary medical personnel from 47 developing countries (n=136). Trainees had significantly higher post-test scores (67.9%) compared with pre-test scores (50.5%, p<0.001). Trainees showed a similar level of HIV knowledge as assessed by pre-training evaluations (F=1.38). We found significant increases in acquired individual knowledge after a 4-week HIV training program. Results of this study are important as many developing countries rely heavily on international training programs to aid in the development of health care systems in an ever-changing infrastructure.

15. Building a Successful Military-To-Military Partnership Through Confronting HIV: The U.S.-Nigeria Experience

Authors: Darrell E. Singer, Lindsay Hughes, Robbie Nelson, Tahir O. Umar, and Ogbonnaya S. Njoku

Abstract: Foundational to a successful and sustainable partnership are shared leadership and responsibility, bilateral contributions, and the inclusion of partners’ competencies and goals. These are the principles on which the Nigerian Ministry of Defence and the Walter Reed Army Institute of Research formed their successful partnership in response to the growing HIV crisis in Nigeria. In 2005, the Nigerian Minister of State for Defence and U.S Ambassador to Nigeria, with funding from the President’s Plan for AIDS Relief and Nigerian Government Counterpart Funding, initiated the Nigerian Ministry of Defence – United States Department of Defense HIV Program. As of 2014, this program has expanded and improved the Nigerian military health system, engaged in cooperative HIV/AIDS prevention and treatment activities, and provided life-saving treatment to over 24,000 Nigerian HIV infected military personnel and civilians. The
program has expanded to include clinical and preventative HIV components. The capacity developed by this partnership and its subsequent achievements represent a sustainable effort to provide current standard-of-care for those afflicted by infectious diseases, while investigating the causes and developing novel treatments.

16. HIV/AIDS Securitization: Outcomes and Current Challenges
Authors: Aladdin H. Shady, Braden R. Hale, and Richard A. Shaffer

Abstract: The securitization of HIV/AIDS by the United Nations Security Council in 2000 changed the notion of HIV/AIDS as only a health issue. Although it is now accepted that HIV/AIDS does indeed represent a security threat, the consequences of securitization are still under scrutiny. The purpose of this paper is to present an evidence-based review of the outcomes and current challenges associated with HIV/AIDS securitization in the context of national security. We provide an overview of HIV/AIDS securitization, followed by a discussion of the impact of securitization on peacekeeping personnel and uniformed services. We review the United States Government’s response to securitization and the potential risks and benefits of securitization. Finally, we conclude that it is important to reinforce the HIV/AIDS security nexus in the political and global sphere moving forward.

17. Ten Years of the Department of Defense HIV/AIDS Prevention Program
Authors: Richard A. Shaffer
Abstract: awaited

- Submission deadline of articles for review: February 29, 2016
- Peer review complete: June 15, 2016
- Final approval of the manuscripts: July 30, 2016
- Submission deadline of the issue August 1, 2016