

**MILITARY PERSONNEL: ON THE MOVE
AND VULNERABLE TO HIV/AIDS
AND OTHER INFECTIOUS DISEASES**

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MILITARY PERSONNEL: ON THE MOVE AND VULNERABLE TO HIV/AIDS AND OTHER INFECTIOUS DISEASES

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1. INTRODUCTION

"Disease is woven intricately into the fabric of war. The story of one cannot be told without the other and yet, each succeeding generation of history, soldier and scholar alike, seems destined to repeat the errors of history and fail to perceive the impact of disease." (Ognibene, 1987)

Throughout time, military populations have formed one of the largest and most mobile sectors of society. At present, the world's armed forces comprise more than 20 million men and women in active service. In an ever more contentious post-Cold War era, national militaries perform an increasingly prominent and visible role. In the late 1990s, 36 countries were actively engaged in armed struggles, eight confronted emergent international conflicts, and 13 were embroiled in internal civil disorders.

To a greater extent than in the past, national military personnel are also employed in multinational interventions to contain domestic and international disputes. By June 2004, 16 United Nations peacekeeping operations were underway in Africa, Asia, the Caribbean, Europe, and the Middle East. These represented 37 percent of all UN peacekeeping missions undertaken since 1948, and involved a total of over 56,000 troops and police drawn from 97 countries. These figures may well expand, both in missions and in personnel involved, since 5 additional missions are currently in preparation or under consideration (Côte d'Ivoire, Burundi, Haïti, Iraq, and Sudan), and others may follow in the coming months (Bluewin (Swiss) Internet News, 2004). Figures from 2002 indicate that, in addition to UN peacekeeping operations, another 30 non-UN peacekeeping, observer, and enforcement missions were deployed in these regions.

1.1 The Hidden Enemy for the Military: Disease and Infection

Just as militaries have always figured centrally in human affairs, disease has presented a perennial problem for military populations and for civilians with whom they come in contact. Troops may find themselves far from home in alien biological environments that are hostile to their immune systems, in adverse physical conditions of weather, climate, and human nutrition, and in disrupted social settings that serve as ideal breeding grounds for infectious bacteria, viruses, and parasitic organisms.

During the 12th Century Crusades, bubonic plague and famine reduced one Christian army from 100,000 to 5,000 troops. In 1741, the Austrian army surrendered Prague to the French because 30,000 defenders had fallen to typhus. During the Napoleonic wars, four French soldiers died of disease to every one killed in action. In the first month of the Russian campaign alone, dysentery and typhus stripped Napoleon's Grand Armée of an estimated 80,000 men. Between 1853 and 1856, some 2,000 Crimean War combatants succumbed to wounds but more than 50,000 died of typhoid, typhus, dysentery, and cholera.

Similarly, in the Spanish-American War of 1898, 469 American troops were killed or mortally wounded in battle while nearly 2,000 fell ill and perished. One-half of all U.S. soldiers who died in World War I, about 43,000, were victims of the 1918-1919 influenza pandemic. As armies streamed home from the Great War, a typhus epidemic resulted in 30 million infections and claimed at least three million lives in European Russia. During World War II, the case rate of dysentery in the U.S. armed forces rose from about 20,000 to over 500,000, of dengue fever from fewer than 700 to more than 84,000, and of malaria from about 8,000 to nearly 461,000.

More recently, malaria and dengue attacked American troops in Somalia, and UN peacekeepers were on high alert for malaria and typhus in post-war Bosnia. U.S. Air Force personnel serving on Guam have been diagnosed with leptospirosis, an infection that is transmitted to humans by exposure to fresh water contaminated with urine from infected animals (Worth, 2004).

Multinational forces in Kuwait were beset by sand-fly fever (leishmaniasis) during Operation Desert Storm and, by early March 2004, more than 500 cases of leishmaniasis had been diagnosed in U.S. soldiers serving in Iraq. It is the largest

outbreak in the history of the American military since World War II. Cutaneous leishmaniasis, which affects the skin, is caused by a sand fly bite that deposits the parasite that eventually causes slow-healing weeping sores. Healing can take up to a year without effective treatment. With large-scale military operations still underway in that country, the number of those who may become infected could reach 750 to 1250 or more (Turner, 2004).

As products of wartime political, social, and economic disintegration, large refugee and internally displaced populations often share the same space and vulnerability to disease with combatants and peacekeepers. By the beginning of 2004, such conditions had produced some 17 million asylum seekers, refugees, and others of concern to the UN High Commissioner for Refugees (2004).

The last two decades have seen an alarming resurgence of tuberculosis (TB) throughout the world – in the industrialized West, but even more dramatically in Africa and South-East Asia. TB kills more young people and adults than any other infectious disease; someone dies of TB every 10 seconds (Aït-Khaled and Enarson, 2003). TB is also a challenging infection among military populations, many of whom live for years in close quarters. TB is the sixth leading cause of death in the Philippines, and it was recently reported that the high rate of TB infection in the Philippine army is causing real concern. Over 200 new cases were recorded in the first six months of 2004, in addition to the 800 cases recorded in 2003. Officials are concerned about the rate of infection among the military, particularly as soldiers often move around the country and could spread the disease (BBC News, 2004). Part of the concern about the resurgence of TB is the increasing prevalence of multidrug-resistant TB (MDR-TB).

Since World War II, advances in medicine have rendered many infectious diseases less dangerous to military and civilian populations alike. Particularly in technologically advanced societies, reduced threat of epidemics has also turned public health concerns more toward curative medicine than toward disease prevention. The trend is perhaps most pronounced with regard to a type of disease that has always been part of military life, and especially on deployment. This is the sexually transmitted infection (STI).

1.2 Sexually-transmitted Infections

The World Health Organization (WHO) estimated that 340 million new cases of STIs occurred in adults worldwide in 1999. The largest number of new infections occurred in the region of South and Southeast Asia, followed by sub-Saharan Africa and Latin America and the Caribbean. However, the highest rate of new cases per 1000 population occurred in sub-Saharan Africa. Of the incidence of new STIs in adults in 1999, WHO estimated that Chlamydia infections accounted for 92 million cases, gonorrhea accounted for 62 million, syphilis accounted for 12 million, and trichomoniasis accounted for 173 million (WHO, 2001).

During World War I, STIs were second only to influenza as a cause of lost productivity in U.S. forces. Between 1929 and 1939, the average time lost from duty in recovery from a case of gonorrhea was 38 to 50 days. Monthly morbidity reports from the Army list venereal disease as the number-one diagnosis among common diseases reported from 1965 to the end of the Vietnam War (Emerson, 1997).

In the past three decades, however, one STI has emerged and proliferated to pandemic proportions for which medicine has no cure. This is the Human Immunodeficiency Virus (HIV), which results in the Acquired Immunodeficiency Syndrome (AIDS). Today, in many parts of the world, HIV and AIDS together with other infectious diseases pose a far more serious threat to militaries than the inherently hazardous nature of their occupation.

2. POLICY ISSUES

2.1 The Military Workplace

The armed forces recruit young men and women at a time of their greatest risk to HIV, in the 15 to 25 year age group where more than half of all new infections occurs. The military risk environment is further enhanced by the mobility and absences from home and community that military life demands. In the less-developed world at least, the military workplace imposes a heightened vulnerability to HIV infection and onward transmission, with the dynamic of transmission being similar to that seen in long-distance

transport workers and migrants employed in the mining sector. Military installations also inevitably attract gatherings of sex workers.

The military risk environment is further enhanced by the missions that African, Asian, and other militaries are increasingly called upon to carry out. These may include internal and cross-border armed conflicts, at worst accompanied by genocidal ethnic, religious, and territorial confrontations and massive displacements of civilian populations, combining to produce highly complex humanitarian emergencies. By the late 1990s, 16 such wars raged in Africa (40 percent of the world total) and 14 in Asia (30 percent). Five of the African conflicts resulted in military deaths exceeding 100,000 each (Project Ploughshares, 2000). As members of regional and international peacekeeping forces, soldiers enter or remain in infectious disease-endemic former theaters of operation to assist civilian relief workers in their attempts to improve public health and to restore reasonably normal social and economic activities. Always at the top of the list among wartime and post-wartime infectious diseases are STIs, and HIV is five to 20 times more likely to be transmitted in the presence of other STIs. In peacetime, military STI rates are generally two to five times higher than in surrounding civilian populations (UNAIDS, 1998), and under wartime and immediate post-wartime conditions military infection rates may soar.

And yet, militaries are still significantly (although no longer totally) excluded from the targeted bilateral and multilateral assistance that is absolutely necessary to slow the spread of HIV and AIDS. In the past, exclusion might have been justified by the argument that militaries, which receive their own support, were not proper recipients of humanitarian and development assistance. Now, these militaries are manifestly part of a global humanitarian and developmental crisis. At this point the critical issues are how to convince donors completely to eliminate this deadly bias in foreign assistance, and how to convince the commanders and political supervisors of militaries that receive foreign aid to place HIV/AIDS prevention and management at the top of their wish lists.

2.2 Command and Control

Command and control structures, central features of all formal organizations, are especially visible and important in the armed forces, and incorporate both advantages and

disadvantages for HIV/AIDS prevention and management. The military's well-developed span of control and chain of command hierarchies provide the means to induce change over a wide range of behaviors. And yet changes in sexual behavior, difficult to bring about in the best of circumstances, may be especially difficult to achieve for off-duty soldiers and sailors and for troops who are deployed in operational areas. In these circumstances, it is naïve simply to rely on written codes of conduct. More proactive approaches are needed to mobilize military discipline and behavioral regulation on behalf of HIV prevention.

Two factors have further weakened the capacity of military organizations to control the spread of HIV, especially in regions like Africa where the disease has reached epidemic proportions within civilian populations. First, military commanders and medical officers respond to somewhat different mandates, with commanders more interested in maintaining deployable force strength and medical officers more concerned with maintaining a healthy fighting force. For a long time in Africa, as HIV rapidly spread in the ranks, a second factor has blurred the obvious linkage between these goals.

Unlike other infectious diseases such as dysentery and malaria, HIV is not an immediate deterrent to combat. In adults, an asymptomatic phase occurs for up to 12 weeks after the infection is acquired, even as the circulating viral load steeply climbs and HIV-specific antibodies combined with CD4 positive-t white blood cells attempt to respond. At this point serological testing will reveal the change to "HIV-positive." A chronic phase of decreasing immune function follows that, even if left untreated, may last for up to 10 years of physical fitness before the onset of symptomatic AIDS. However, HIV's symptom-free period may be shorter in Africa and other impoverished regions, which may be deficient in food availability and nutritional quality, rich in other infectious diseases that also challenge the human immune system, and deprived of modern health-care systems. It is also possible that multiple reinfections may shorten the span of HIV's chronic period.

Nevertheless, HIV is a "slow plague" (Gould, 1993) that initially lulled force commanders and civilian leaders into a mistaken belief that their countries were not seriously endangered by the virus. This false sense of security has since all but evaporated, not least because of heavy losses within the officer corps and the civilian

leadership themselves. In spite of a growing understanding of the impact of the epidemic on the security sector, however, military command commitment to HIV control remains heavily oriented toward an illusory "quick-fix" through the use of pre-recruitment testing and screening.

Practical and effective responses are absolutely vital to military commanders and to the troops under their command. Together with the Civil-Military Alliance to Combat HIV & AIDS (CMA), the UN's Department of Peacekeeping Operations (DPKO) has emphasized the pressing need to sensitize senior officers to the top priority of HIV prevention in the conduct of peacekeeping operations (DPKO and CMA, 2000). In late October 2002, the AIDS Control Organization of the Indian Armed Forces released its own *Commander's Handbook, Fighting AIDS on a War Footing* (The Times of India News Service, 2000). A greater effort is still required, of necessity externally funded and otherwise supported, to convey the same sense of urgency and capacity for change to the command and control structures of Asian, African, and many other resource-deprived national militaries, which are also primary troop contributors to UN peacekeeping missions.

2.3 Training and Service

Particularly in Africa, compulsory pre-recruitment HIV testing and screening have been justified partly on the grounds of a largely intuitive notion that, in and of themselves, strenuous military training and service under harsh conditions weaken the human immune system and accelerate the progression of HIV infection to symptomatic AIDS.

One report from Malawi concluded that "a soldier loses about five kilograms of weight after training which makes him/her more susceptible to infections associated with HIV/AIDS" (The Chronicle Newspaper, Lilongwe, 2001). A more careful but as yet unreplicated study in Zimbabwe compared the effects of training on HIV-positive and HIV-negative army recruits. It found that after only three weeks of strenuous activity, HIV-positive recruits had smaller abdominal, waist, thigh, and calf circumferences and more abnormal blood conditions, abdominal disorders, upper respiratory infections, and the like, compared to their HIV-negative counterparts (Mudambo, 1999). Aside from the

rather brief time frame allocated to this examination of a training program that lasts for nine months or more, the study did not consider the point at which each HIV-positive subject was located along the continuum from initial infection to the appearance of AIDS symptoms. Blood tests for viral load and CD4 cell count were not reported, although they might have contributed to making such a determination. In the absence of these diagnostic benchmarks, it remains difficult to determine the impact of military training and service on the progression of HIV, certainly in the armed forces recruitment pool of Zimbabwe and elsewhere in Africa.

In the light of the assumptions that have been made in this regard, based on the anecdotal evidence cited above, the Civil-Military Alliance to Combat HIV & AIDS has urged for several years that the armed forces, particularly in Africa, study this issue that is clearly important and has policy implications. Interestingly, several studies, carried out on American, Canadian, and French trainees, were reported in the period of 2000-2003 on changes in immune functions induced by rigorous training.

The U.S. Army Ranger Training Course is one of the most physically demanding military training courses. It lasts for 62 days and involves food restriction, sleep deprivation, geographical challenges (forest, mountain, swamp and desert exposures), and prolonged low-intensity physical work. Recruits participating in this course have demonstrated a leukocytosis, a decrease in the number of and percentage of T cells (helper, suppressor, and pan T cells), a suppression of lymphocyte proliferation, a decrease in release of the soluble interleukin-2 receptor to phytohemagglutinin, an impaired delayed-type hypersensitivity skin test, and an increase in the incidence of infection (mainly, cellulitis of the lower extremities and upper respiratory infections) (Shephard *et al*, 2001).

Food restriction makes a major contribution to the observed immunosuppression in these demanding exercises, with energy expenditure greatly exceeding energy input. Among environmental stressors, heat may compound the exercise-induced suppression of immune function (Shephard and Shek, 2000). Likewise, cold exposure can interact with heavy exercise to augment the depression of immune function (Shephard and Shek, 1998).

The French Armed Forces reported on research designed to determine whether the immune and hormonal systems were affected by a 5-day military course following 3

weeks of combat training in a population of 26 male soldiers of the French Military Officer School, (mean age, 21 ± 2 years). The combination of continuous heavy physical activity and sleep deprivation led to energy deficiency. At the beginning of the training program and immediately after the combat course, saliva samples were assayed for secretory immunoglobulin A and plasma samples were assayed for interleukin-6, dehydroepiandrosterone sulphate, prolactin, catecholamines, glucocorticoids, and testosterone. Secretory immunoglobulin A was lower and circulating interleukin-6 was increased by the end of the course, which was attributed to sympathoadrenergic stimulation. Dehydroepiandrosterone sulphate, prolactin, and testosterone levels fell significantly (Gomez-Merino *et al*, 2003).

These results suggest that prolonged and repeated exercise such as that encountered in a rigorous military training program does indeed induce some measure of immune impairment. Related studies, however, seem to indicate that basic infantry training does not appear to affect immune function in the same way. One study examined 23 male subjects enrolled in an 18.5-week Canadian qualification-level, regular infantryman training course. They found an increase in cell function (natural killer cell activity and lymphocyte proliferation), no change in cell-mediated immunity, and a relatively stable incidence of infection during the course. The conclusion was that the pattern of basic infantry training examined in this study does not compromise the soldier's health (Brenner *et al*, 2000). The physical component of basic infantry training is likely to have been much less than that experienced in the more specialized courses in these other reports.

In summary, there are few data to indicate the impact of this type of intensive and stressful training, with its consequences on the immune system, in relation to either the susceptibility to or progression of HIV infection. At present there is only anecdotal evidence to support an adverse and accelerated impact of military training, or military life itself, on HIV-infected individuals, but further research in this area is clearly needed.

Adopting compulsory pre-recruitment HIV testing and screening by African militaries has also been justified partly out of concern that they cannot afford the economic loss that AIDS brings, overwhelming their medical services and necessitating major personnel replacement and training costs. The real problem, in fact, is that such

militaries lack the financial and technical resources to devise and implement recruitment policies that transform HIV's long chronic period from a loss into a gain. Policy reform in this area would significantly reduce the twin evils of social stigmatization and employment discrimination and would help to maximize the overall contributions of young adults seeking military service. Without the necessary means to accomplish this end, militaries must fall back on exclusionary recruitment policies that waste human potential even as they deny basic human rights.

2.4 Deployment and Combat

Notwithstanding the preventive successes of a few militaries noted later in this chapter, it stands to reason that length of deployment in HIV-endemic operational areas is independently and directly associated with risk of HIV infection. Although little empirical evidence is presently available to confirm this hypothesis, at least one case study from Africa may be sufficient to make length of deployment an important policy issue for national military and peacekeeping commanders to consider and resolve.

During the 1990s, Nigerian ground forces were deployed as the major component of the sub-regional Economic Community of West African States Ceasefire Monitoring Group (ECOMOG) in Liberia and Sierra Leone. An epidemiological study of this campaign was conducted by Brigadier General A. Adefolalu, Commandant and Chief Consulting Surgeon at the Nigerian Army Medical Command School Headquarters in Lagos. Adefolalu concluded that HIV prevalence among Nigerian Army troops increased from less than 1 percent in 1989/90 to 5 percent in 1997, and by 1999 to 10 percent. The years 1998 and 1999 coincided with a return of troops from ECOMOG operational areas, and among them the HIV prevalence rate was 12 percent. The Adefolalu study also included a comparative analysis of HIV incidence and the lengths of soldiers' duty tours in the turbulent Operation Sandstorm area of Sierra Leone. Incidence rates among these troops increased from 7 percent after one year in the operational area to 10 percent after two years, and to more than 15 percent after three years of deployment, for a cumulative annual risk factor of about 2 percent (Adefolalu, 1999).

An effective response to the length-of-deployment issue depends on whether militaries can acquire the necessary tools to lessen their soldiers' exposure to war zones

made additionally dangerous by HIV and to lower their risk of infection while serving in these places. This means shorter tours of duty in conflict and immediate post-conflict theaters of operation, together with constant reinforcement of pre-deployment HIV prevention education, including squad-level peer education, and proactive condom promotion and distribution extending well into the post-deployment period. These are not technically complicated or even necessarily expensive responses, but at present they are well beyond the means of most militaries in Africa, Asia, and other less-developed regions.

2.5 Complex Humanitarian Emergencies and Peacekeeping

Once HIV has become firmly established through heterosexual contact, it can spread rapidly in societies that are at peace and where free movement of people and trade is the norm. But HIV and many other infectious diseases thrive almost unchallenged in the complex humanitarian emergencies that are created and sustained by socio-economic and political disintegration, communal strife, and armed conflict. Combat places cross-border refugees and internally displaced persons (IDPs) on the move and into situations of extreme vulnerability to contagion and the spread of infectious diseases.

In central Africa, for example, the migration of throngs of Hutu refugees from the civil war in Rwanda to camps in Zaire provoked eruptions of cholera, dysentery, and other highly communicable diseases. Unable to address the problem effectively, Zaire pushed the repatriation of Hutu refugees, who were reluctant to return in the face of threats from Rwanda's new Tutsi rulers. While the political game played out, the squalor of the camps continued to breed disease (Moodie *et al*, 2000).

By the end of 2000, the UN High Commissioner for Refugees (UNHCR) had reported nearly 5.5 million refugees and IDPs in Africa and more than 7 million in Asia (Population Data Unit, PGDS/DOS, UNHCR, 2002). What had become a culture of violence partly because of HIV and AIDS also helped to extend the chances of acquiring the virus. This reflects the structural nature of the HIV risk environment for populations trapped in complex humanitarian emergencies, which exists before hostilities have commenced and continues after the fighting has ended.

The structural HIV risk environment is an extremely important factor to consider when peacekeeping forces are sent in to separate contending parties and to help restore public order. Countries that both contribute and host peacekeepers have recognized that HIV transmission is a two-way street. Troops can bring the virus home with them and they can transmit it to comrades-in-arms and civilians in the field. These are particular concerns for ministries of defense that are increasingly asked to provide peacekeepers for deployment in their own regions.

The UN Security Council confirmed these realities at its opening session on January 10, 2000. For the first time in UN history, the Council recognized a public-health problem, HIV/AIDS in Africa, as a threat to international peace and security (UN Security Council press release, 2000). Following similar alarms raised in the General Assembly, attempts were made to strengthen HIV prevention activities in the DPKO at pre-deployment training sites and for peacekeepers already in the field. As is typical of relations linking national governments to UN organizations, rhetoric has not been matched by actual commitment. HIV/AIDS prevention remains grossly under-funded in the DPKO, which is forced largely to rely on troop-contributing states to provide the necessary levels of prevention education, testing and counseling, condom promotion and monitoring of use, and STI treatment. This obligation is impossible for most contributing militaries to fulfill without substantial external assistance. Bilateral cooperation to relieve the problem is specifically called for in Security Council Resolution 1308 of July 2000 (UN Security Council, 2000), but affluent UN members have yet significantly to respond.

In April 2000, the U.S. National Intelligence Council (NIC) released a declassified version of the Central Intelligence Agency's (CIA's) own first-ever intelligence estimate related to public health, concerning the global impact of infectious diseases. This report described the HIV/AIDS pandemic as a direct threat to U.S. national security (CIA, 2000). In late 2002, a further report issued by the NIC/CIA and a paper prepared for the independent Center for Strategic and International Studies (CSIS) focused immediate security attention on the next wave of the HIV/AIDS pandemic in the populous regional giants of China, Ethiopia, India, Nigeria, and Russia (DCI Strategic Warning Committee, 2002). Further justification should not be necessary for a substantial commitment of bilateral and multilateral assistance toward the creation and maintenance

of an HIV-free international peacekeeping force. In Africa, the most pressing case in point, not moving in this direction will result in a catastrophic loss of regional force strength, "effectively shifting the burden of peacekeeping operations . . . to non-African countries (including the United States)" (Price-Smith, 2002).

2.6 Demobilization

The Chinese and Russian armed forces have demobilized the world's largest number of troops in recent years but, from the standpoint of HIV/AIDS prevention and management, the human stakes of military demobilization are still highest in Sub-Saharan Africa. Following decades of relentless poverty and economic downturn, socio-political instability, and outright warfare, Africa now faces the challenging issue of how to retire thousands of soldiers from duty and to reintroduce them into civilian society. The problem is further complicated by the fact that HIV incidence and prevalence rates are generally much higher in military than in civilian populations, and African civilian as well as military populations are already inundated by HIV/AIDS. Nevertheless, "if demobilisation programmes do not include prevention and peer counseling, the reintegration of HIV-positive soldiers into new communities and the return of combatants to their original villages may result in a major proliferation of the virus" (Mendelson Forman and Carballo, 2002).

In a way similar to military service itself, demobilization and its aftermath present not only a problem for HIV/AIDS prevention and control but also an advantage. Regular troops and even guerilla forces are readily identifiable and subject to cantonment, where HIV prevention education and counseling can be administered and where voluntary testing, care, and transitional support can be provided before they are sent home. It may also be possible to convert former combatants into fighters in the war against HIV and AIDS. According to Mendelson Forman and Carballo (2002):

In Sub-Saharan Africa, where the resources for HIV prevention are limited at best and non-existent at worst, the structured and externally financed demobilisation of military personnel presents a number of opportunities for innovative and creative solutions. Many of the region's armies are capable of delivering healthcare and providing community education and logistical support to villages. With sound

training and follow-up supervision, some demobilised military personnel could work with active duty forces to become 'agents of change', specifically in regard to HIV prevention. They could be trained in the organisation of discussion groups, the provision of counselling and the marketing and distribution of condoms, and they could assist in carrying out urgently needed community-based surveillance of changing attitudes and behaviour regarding HIV/AIDS.

These new functions, which might well apply in other less-developed regions, would help to change local attitudes toward returning war veterans from perceptions of foreboding to expressions of support. They would likewise improve African governments' standing with bilateral and multilateral loan and aid partners that more-or-less formally mandate military downsizing as a condition of recovery and development assistance, but which may also fear the spread of HIV/AIDS that can result from rapid and massive reductions in force. The quandary is that considerable foreign aid is needed to activate this constructive linkage between demobilization, public health and development, and here the record to date is spotty.

One of Africa's largest demobilization and reinsertion exercises has occurred in Nigeria. Although the U.S. Agency for International Development (USAID) and the British Department for International Development (DFID) provided assistance in this effort, little if any funding was assigned to HIV prevention and control (Yeager and Kingma, 2000). On the other hand, USAID and DoD are now including HIV activities in their demobilization support for African defense ministries and health-care agencies. Similar initiatives are being planned and implemented by the DFID, the Canadian International Development Agency (CIDA), the German Gesellschaft für Technische Zusammenarbeit (GTZ), the Swedish International Development Authority (SIDA), and other governments including the Netherlands and Norway (Mendelson Forman and Carballo, 2002).

It would also be highly beneficial if the mandate of the multilateral Global Fund to Fight AIDS, Tuberculosis, and Malaria could be expanded specifically to address pressing demobilization issues in Africa and elsewhere. Item 1.10 of the Fund's official scope of action may provide an avenue for this commitment: "For areas in conflict or distress, the Fund will develop special criteria to support technically sound proposals

designed to address critical HIV/AIDS, TB, and malaria problems" (Global Fund, 2003). But unless the levels of all such assistance are significantly raised and applied in an informed manner, what has been invested thus far may soon become a wasteful example of too little and too late.

3. OPERATIONAL ISSUES

3.1 Prevention Education

"With no vaccine, and no cure, education is all we have" (Gould, 1993). Written more than a decade ago by a scholar of HIV and its global diffusion, this statement remains largely valid today. When the ultimate goal is to transform behavior in highly sensitive areas of human life, simple information transfer is not the same as education. Motivational learning does not result from episodic didactic lectures and briefings, but rather from on-going interactive relationships linking teachers and students at all levels, with peer education among both groups providing constant reinforcement. Unfortunately, this is the most difficult and expensive form of learning to offer on a mass scale.

In 2000, the CMA published the results of a global survey of military HIV/AIDS policies and practices (Yeager, Hendrix, and Kingma, 2000). The survey found that, while most reporting militaries carried out STI/HIV prevention education, the majority relied on infrequent (yearly or less often) large-group briefings and on the passive distribution of written materials. Regularly scheduled briefings of any type occurred less often in Africa and Asia than in all other regions of the world, and virtually no militaries reported using peer-educational techniques. The study also revealed that 90 percent of militaries provided pre-deployment STI/HIV briefings to their troops, but only slightly more than half matched these sessions with post-deployment briefings despite long-standing evidence that the post-deployment period carries special risk of STI transmission (Yeager, Hendrix, and Kingma, 2000).

Despite improvements in some countries, there is little evidence that STI/HIV prevention education has broadly advanced since the CMA survey was published, and for very good reason. One major programmatic problem for low-income, high-incidence countries lies in finding sufficient financial resources to mount comprehensive STI/HIV

and sexuality education campaigns for children and adolescents during their school years. The same resource constraint faces the defense sector which often lacks the resources to pursue full-scale, interactive STI/HIV prevention education during recruit and officer training and also frequently thereafter, including before and after deployment and at military discharge. This implies that sufficient funding will have to be found to train large numbers of civilian and military STI/HIV prevention instructors and peer educators, using curricula and teaching methods that are already available and tested for effectiveness or are now being developed (Ruscavage and Purnell, 1999; Ruscavage and Yeager, 2002).

3.2 Condom Promotion and Provision

"In a world with an HIV pandemic, the latex condom emerges as the only practical and responsible strategy" (Gould, 1993). Ensuring the maximum consistent employment of latex condoms through their widespread promotion, practical usage instruction, and ready availability is absolutely essential to breaking the pattern of STI/HIV infection through sexual intercourse. Moreover, the value of this particular weapon in the war against AIDS has been greatly enhanced by the recent development of an efficient and effective female condom. Embodying highly organized command and control structures, militaries are relatively well placed to promote and distribute these crucial barrier devices.

In the earlier CMA survey, differences in military condom promotion and provision seemed to coincide with the magnitude of threat posed by HIV and AIDS. Reporting African militaries ranked among the world's highest in promotional policies and plans, including preliminary knowledge-attitude-practices-belief (KAPB) troop assessments and provision for free distribution with instructions for proper use. More generally, two shortcomings that appeared at the time of the survey remain today. First, condom promotion methods were similar to those for STI/HIV prevention education, with most respondents mentioning only group briefings and written materials (Yeager, Hendrix, and Kingma, 2000). Second, both then and now there are simply not enough funds available to facilitate more proactive approaches to condom promotion, to

distribute condoms free of charge and in sufficient numbers, and to monitor consistent condom use in the armed forces of the most needful countries.

Framing the operational issues are questions of often deeply rooted religious and cultural beliefs and practices that prohibit or ridicule condom use, encourage multiple sex partners, and foster invasive and usually non-sterile procedures such as female circumcision and ritual scarification. These programmatic constraints compound other difficulties for civilians and soldiers alike, involving the risk-taking propensities of young men and women and the resolve-weakening effects of alcohol and drug use. Such impediments to the benefits bestowed by condoms must be carefully examined and mitigated on a country-by-country basis. For as Gould (1993) has argued, "it is only in place that we can observe a particular level of condom use, observe how it changes over time, and speculate about the particular mix of underlying reasons for the particular level we see in a particular geographical and historical setting." It is said that the devil lies in the details, and only after these "particulars" are understood can informed action be taken. Such has been the case in Thailand, which suffered under very high HIV incidence and prevalence rates until the early 1990s when a socially and culturally sensitive safe-sex campaign was mounted and the use of condoms became common practice.

The theme cannot be repeated often enough: PREVENTION WORKS, and the best tool that we have to pursue prevention interventions at this time is a barrier to the sexual transmission of HIV – the condom.

3.3 Testing and Counseling

When the global CMA survey was completed in the late 1990s, experience in HIV antibody testing by African militaries was in its infancy as compared with militaries in Asia and other world regions. Because of the sheer magnitude of the epidemic in Africa and a critical lack of resources, the same can be said of HIV testing within civilian populations. For their part, African militaries ranked lowest in actually having formal testing policies, last in offering voluntary testing, and next to last (ahead of Europe) in requiring testing at any point in uniformed service from recruitment to discharge (Yeager, Hendrix, and Kingma, 2000).

Since then compulsory military testing and screening have increased dramatically in Africa. This new interest is spurred by the burgeoning costs of AIDS care, as well as the financial burden of retraining to fill the positions of people lost to AIDS. Compulsory testing and screening have also gained importance by the attention recently given to the deployment of African forces in UN and other peacekeeping missions, and by an admittedly unenforceable UN recommendation that these troops should test negative for HIV. This is in spite of the UN's correct but somewhat contradictory advice that, except under very special circumstances, mandatory testing practices fail to achieve the goals to which they are addressed. The UN likewise holds that, more often than not, mandatory testing practices are in violation of basic human rights to privacy and freedom from socio-economic and political stigmatization and discrimination.

Non-voluntary testing and screening are increasingly used to exclude HIV-positive individuals from recruitment and career advancement, and thus to preserve force readiness and deployment capacity while easing the strain on military medical and training budgets. Universal testing is also defended as a deterrent to HIV infection in countries where military service offers an important employment option. It is further viewed as a means of yielding surveillance data for future efforts at HIV prevention and vaccine development. Periodic mandatory testing is also seen as an essential way to identify HIV-infected serving personnel, and sequentially to adjust in-service duty assignments until such time as medical discharge is indicated. It goes without saying that HIV testing serves as a vital tool to identify personnel and their partners for counseling and care.

The CMA survey revealed that testing has been widely used to protect blood supplies, to comply with host-country deployment and training restrictions, for promotion in rank, and for screening assignment to duties requiring high performance standards (e.g., aircraft pilots, commandos, and tank commanders). The study added that "a majority of responding militaries fail to test their personnel periodically, which raises the question, for them, of whether any of these purposes can be adequately served through testing" (Yeager, Hendrix, and Kingma, 2000).

Assuming that human rights are fully protected, universal-testing objectives may seem to be reasonable for well-funded and medically equipped militaries in countries

with low HIV incidence and prevalence rates, i.e., militaries in industrial countries. In the militaries of less-developed high-prevalence regions, these purposes cannot be served and some may actually be subverted by compulsory testing and screening.

The critical operational difficulty in this area lies in a familiar disparity between magnitude of need and capacity to act. At regional level, the CMA survey suggested an emerging positive relationship between compulsory military testing and low gross domestic products, high population growth rates, and short life expectancies - in other words, indicators of national poverty which are also excellent markers for high HIV incidence and prevalence. This means that most military and civilian organizations in resource-poor countries have neither the medical capacities nor the financial means effectively and humanely to satisfy the protocols of either mandatory or voluntary testing programs.

Foremost among these is the need for periodic testing accompanied by confidential contact tracing and pre-test/post-test counseling of those found to be both HIV-positive and HIV-negative including their partners and families. In addition to its surveillance value, periodic testing for viral load and antibody/CD4 cell count enables military and civilian health agencies to assess the progress of infection for individual patients and thus to preserve their occupational and natural lives for as long as possible. Testing combined with counseling aimed toward employment- and life-extending treatment and care has further been found to provide an effective strategy for stemming the onward flow of HIV infection (Valdeserri, R.O., 1997).

Not surprisingly, the CMA survey found an economic factor at work in African and Asian military testing and counseling programs. Pre-test counseling was reported by 79 percent of African and 71 percent of Asian militaries which practiced universal testing. These percentages increased to 100 and 88, respectively, when testing encompassed voluntary methods (Yeager, Hendrix, and Kingma, 2000). This speaks to the comparative expense, for African and Asian armed forces, of the mandatory testing with counseling approach to HIV/AIDS prevention and management.

Whether testing and counseling are compulsory or voluntary, neither will create positive effects unless rules of confidentiality and informed consent are tightly defined and strictly followed, and if a diagnosis of HIV infection does not, in effect, become an

economic and social death sentence because of stigmatization and discrimination. The effects of not adhering to these principles are the same for both civilians and military personnel. Cases abound of social ostracism, rejection from insurance and other services, denial of job entry, and dismissal from employment simply because of an HIV diagnosis - which may be inaccurate in the first place because the test may be administered only once. These consequences merely drive the virus underground where it proliferates and mutates in fear and silence.

In one example, some African militaries are now facing a drying up of their recruitment pools, already decimated by AIDS, as a result of their sometimes thoughtless disclosure of test information and their abrupt rejection and/or dismissal of still-healthy recruits, trainees, and soldiers for no apparent reason. The problem, again, lies in a lack of funding and other assistance to train examining and administrative personnel, counselors, and commanders; to require counseling for all tested soldiers and their families; and to offer meaningful in-service duty choices until medical discharge becomes necessary. African militaries are not insensitive to these needs. What they lack are the means to fulfill them.

3.4 Treatment, Care, and Support

In that AIDS is, or soon will be, a leading cause of death in the militaries and civil societies of less-developed countries, questions inevitably arise as to the competing values of national security versus equal treatment, care, and support for all patients suffering from AIDS-related and other infectious diseases. Defense ministries must also seek a viable balance between military readiness and public health for their own personnel and their dependents. In short, AIDS and other diseases severely diminish and distort civilian and military budgets and decision-making capacities as well.

Of real concern in the context of the resurgence of tuberculosis is the deadly link between TB and HIV. Because of the special and particular ways in which these two infections affect the immune system, they are increasingly important as risk factors with mutual impact, one upon the other. HIV infection is the most powerful risk factor that increases the likelihood of development of TB in a person previously infected with *Mycobacterium tuberculosis*. The risk of developing TB is 10 times higher in an HIV-

positive individual than in a sero-negative individual living in the same conditions.

Tuberculosis is a common complication of HIV infection – one of the more common and important of the opportunistic infections found in AIDS patients. The case-fatality rate is higher for HIV-positive TB patients than for HIV-negative patients (Aït-Khaled and Enarson, 2003).

HIV and TB form a lethal combination, each speeding the other's progress. HIV weakens the immune system. Someone who is HIV-positive and infected with TB is many times more likely to become sick with TB than someone infected with TB who is HIV-negative. TB is a leading cause of death among people who are HIV-positive. It accounts for about 13 percent of AIDS deaths worldwide. In Africa, over the past 10 years HIV has been the single most important factor determining the increased incidence of TB (WHO, 2004).

In the CMA survey, militaries were asked whether career-related consequences for their soldiers followed diagnoses of illnesses suspected to be AIDS-related. African "yes" responses averaged 6 percent, as opposed to a range of from 43 to 89 percent for non-African militaries. No African militaries reported discharge from service solely on the basis of an AIDS diagnosis, while 88 to 100 percent of militaries in other regions reported discharge from service (Yeager, Hendrix, and Kigma, 2000). However, only 88 percent of responding African militaries offered care in military hospitals, the second lowest average in the world next to Western and even Eastern Europe where civilian health-care options are relatively plentiful. Forty-four percent did refer military patients to civilian hospitals and dispensaries, and 71 percent noted provision for some form of home care and family support (Yeager, Hendrix, and Kingma, 2000).

It is well established that, even in upper-middle income African countries such as Botswana and South Africa, AIDS has overwhelmed rural and urban treatment, care, and support facilities (Yeager, 2002). In the civilian and military hospitals of these countries not even enough hospital beds are available to accommodate sick and dying AIDS patients. Financial and technical assistance is urgently needed to enable the civilian and military sectors to find equitable solutions to several critical and politically controversial problems that also apply to the police and other security services. Should military AIDS patients receive priority free care and drug therapies, perhaps in specially established

military AIDS facilities? Should long-term, home-based medical benefits be extended to discharged military AIDS patients and their dependents, which may be much greater than benefits made available to those around them? Should military widows and orphans likewise receive favored treatment in the provision of financial, legal, educational, and other protective benefits? Whatever their specifics, workable answers to these questions will have to involve close, capacity-building collaboration between civilian and military health services, made possible by external assistance to each.

In this, the final and most tragic link in the civil-military relationship created by HIV/AIDS, the need for humanitarian assistance equals the first-link need for successful HIV prevention education among children and youth.

3.5 Civil-Military Collaboration

Especially in less-developed countries, success in the prevention and management of HIV and AIDS requires the establishment of close linkages between military organizations and civilian agencies. As the CMA survey concluded:

Civil-military cooperation can make available to civilian practitioners relatively sophisticated military epidemiological data bases. It can also ease the financial burden placed on military resources and broaden the ability of militaries to offer long-term care through referral to civilian medical facilities. In all countries, the most effective overall goal may be the adoption of long-term, multi-sectoral approaches to the control of HIV/AIDS, which treat the disease not only as an immediate threat to public health but also as a challenge to social, economic, and political stability and thus to national security in the broadest possible sense (Yeager, Hendrix, and Kingma, 2000).

Throughout the world, realization is growing that militaries are central to the war against the HIV/AIDS pandemic. High-prevalence countries that pursue vigorous HIV/AIDS prevention programs in the defense sector tend also to show results in restraining the pandemic across all segments of society. There is growing, albeit less well-established, evidence that when the military is actively represented on national AIDS councils, HIV prevention progresses more rapidly in both the armed services and civil society.

This kind of civil-military collaboration includes combined program planning, direct sharing of training materials, trainers and prevention campaigns, joint access to laboratory facilities and HIV testing and counseling services, and joint responsibility for AIDS hospitalization and care. Nationally and/or locally, countries whose militaries and civilian agencies collaborate freely are likely to be those where incidence curves are flattening out and where prevalence rates may actually be declining. Countries such as Cambodia, Morocco, Senegal, Tanzania, Thailand, Uganda, and Zambia offer valuable insights into best practices and lessons learned for adaptation and application on a wider scale. Thailand and Senegal provide cases in point.

Thailand has endured one of the oldest HIV/AIDS epidemics in Asia, but has also been cited as one of the first countries to achieve stable and indeed declining surveillance curves. Thailand's first AIDS case was reported in 1984 and its first military case in 1987. Between 1985 and 1990, a comprehensive national prevention and care program was implemented with the Royal Thai Army (RTA) taking the lead in several areas. The military leadership had become greatly concerned about the disease, not only because of an increasing number of infections within the ranks, but also because HIV threatened the recruitment of young men especially from northern Thailand. In response, the RTA launched its own HIV/AIDS program that was designed around six main components:

- prevention of new HIV infections;
- supportive measures for already-infected personnel;
- treatment in military medical facilities;
- multi-sectoral coordination with civilian agencies;
- international cooperation with other militaries; and
- material support for medical research and development.

Preventive measures encompass HIV prevention education, HIV/AIDS awareness classes introduced into all military curricula, peer-group interventions targeted toward STI clinic attendees and other personnel at high risk, and comprehensive anti-discrimination education. Research and development include AIDS vaccine trials, in which the Thai Armed Forces Research Institute of Medical Sciences (AFRIMS) cooperates with international bodies such as the HIV Prevention Program of the U.S. Department of Defense (DoD), in addition to HIV molecular biological studies and the

natural history of HIV infection. Reaching out into communities from which it draws new recruits, the RTA HIV/AIDS prevention and management program has provided a major boost to civilian initiatives.

Senegal retains low HIV/AIDS rates, largely because of its early and concerted response to the West African HIV2 epidemic. In spite of the fact that Senegalese rural and urban areas share the same risk factors with neighboring countries exhibiting much higher rates of infection, here the surveillance curves remain flat with less than 1 percent prevalence. This success can be attributed to vigorous HIV/AIDS prevention and care programs in the military as well as in civilian society. Africa's premier HIV virology laboratory is located in Dakar, and its director is also a colonel in the Army of Senegal.

From the outset, the Senegalese government has presented a very open public approach to HIV prevention, complete with a campaign involving condom promotion, distribution, and education on proper use. Nowhere is this more evident than in the armed forces. HIV prevention is strongly reinforced each time an army contingent prepares for a peacekeeping mission, with overwhelmingly positive results. Pre- and post-deployment testing has confirmed that Senegalese troops have never yet brought a case of HIV home with them from peacekeeping operations, a record that almost no other country can match among the more than 100 that contribute UN peacekeeping troops, observers, and support personnel.

3.6 Inter-Military Cooperation

Sharing of data and lessons learned is essential to the prevention and management of HIV/AIDS in the armed services of less-developed countries, which are among the most vulnerable groups to infection worldwide. Between 1995 and 2003, this premise has guided the work of the CMA through 11 regional technical and policy workshops convened in Africa, Asia, the Caribbean, Eastern Europe, and Latin America (Leonard, 2001). In the spirit of civil-military collaboration, workshop participants have included not only military medical officers, but also representatives of ministries of health, national AIDS committees, and, on occasion, international agencies and non-governmental organizations (NGOs). One important result of these workshops has been the establishment of three networks of technical cooperation among the militaries of

Eastern and Southern Africa, Francophone Africa, and Anglophone West Africa (Yeager and Kingma, 2001). The purpose of these CMA sub-regional networks is to facilitate communication across state boundaries, aimed toward information sharing on HIV/AIDS prevention and management.

Individual countries have also undertaken such initiatives. Thailand, for example, is one of the most active states in Asia engaged in military-to-military cooperation, albeit more in giving than in receiving assistance. The Thai military has much to offer in best practices and lessons learned, and has freely offered these in several regional conferences organized by the CMA and likewise in bilateral exchanges with other Asian militaries. The RTA and the Thai Ministry of Health Public Health Service have been engaged by the United Nations Children's Fund (UNICEF) to carry out several missions in China to help local authorities in the development of plans for HIV/AIDS prevention and care. In 1995, officers of the RTA and AFRIMS participated in a UN Department of Peacekeeping Operations (DPKO) mission to Cambodia with subsequent follow-up visits. The overall goal was to help the Cambodian Ministry of National Defence to devise and implement an AIDS control plan. As previously noted, the RTA and AFRIMS are also active participants with the U.S. military and other foreign partners in the advanced stages of vaccine trials that will ultimately benefit the entire Asian region.

The Senegalese military has likewise shared experience with its counterparts in Africa, in 1997 at an all-Francophone seminar for the militaries of 18 countries of West and Central Africa. In 1998, the Army of Senegal hosted a mixed English/French HIV/AIDS policy seminar involving the militaries of seven West African countries. Seasoned Senegalese military-medical staff members have regularly conducted technical-support missions to countries that had launched their military HIV/AIDS prevention and control programs somewhat later than Senegal.

Also of note is the Zambian National Defence Force, which has introduced its unique Mobile Military Prevention Teams to other militaries in Eastern and Southern Africa (Yeager, 1997). Reaching out to military personnel and their dependents as well, the Zambian mobile teams demonstrate the necessity of both civil-military involvement and military-to-military cooperation in the struggle against HIV/AIDS.

4. CONCLUSIONS

As is often stated, the world's less-developed regions are clearly at a crossroads. Many countries in these regions are haltingly emerging from decades of political instability and authoritarianism, socio-cultural ferment, economic stagnation and mass poverty, and international dependency. A new era of reform has begun and security-sector reform is very much a part of the process, but all of these nascent advances are threatened by the unrelenting crisis of HIV/AIDS and other infectious diseases such as TB and malaria. The good news is that at long last prevention and mitigation of these maladies have become priorities of both the defense and development communities. In the words, for example, of World Bank President James Wolfensohn, spoken at the precedent-setting January 10, 2000 opening session of the UN Security Council, "we face a major development crisis, and more than that, a security crisis. For without economic and social hope we will not have peace, and AIDS surely undermines both. We need to break that vicious circle of AIDS, poverty, conflict, AIDS. For the truth is that not only does AIDS threaten stability, but when peace breaks down it fuels AIDS" (World Bank Group, 2000).

The less happy news is that, while the civil-military programmatic and policy requirements to break the circle are well understood in Africa and elsewhere, the political and financial resolve to do so remains woefully inadequate. And the African HIV/AIDS epidemic is only the first wave of a pandemic that will soon engulf a majority of the world's population and inhabitable landmass.

Across this vast human and physical landscape, the only effective and cost-effective weapons to combat HIV are found in its prevention through changes in behaviors that vary considerably from culture to culture and are often grounded in deeply held attitudes, values, and beliefs. The magnitude of the task at hand, compounded by the vaccine-eluding adaptability of the virus, means that traditional inter-territorial and inter-sectoral distinctions mean little in the struggle to overcome this deadly enemy. The pandemic presents a clear and present danger not only to public health, socio-economic advancement, and political stability, but also to basic human security no matter how it is defined and to the national security of even the least-affected affluent countries that

control most of the world's wealth and power. This realization should prompt a well-founded sense of urgency in the war against HIV and AIDS.

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