

Conflict, HIV and AIDS: a new dynamic in warfare?

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The argument that there is a link between conflict and the spread of HIV has become commonplace in both the academic and policy world. This article examines five key reasons offered for this link: the high HIV prevalence in many militaries; that conflict leads to migration which acts as a vector for the spread of the disease; the changes in sexual behaviour introduced by conflict, including increased incidence of rape; reduced health provision and support as a result of conflict; and the risks introduced in post-conflict settings. The article argues that these reasons offer a poor explanation as to why HIV is spread in some conflicts but not others and develops a new model to explain when conflict might lead to the spread of HIV.

Keywords: HIV; AIDS; conflict; security; Africa

The suffering caused by conflict is both direct in terms of battlefield casualties and indirect through wider social impacts, including the potential for the spread of disease. The early years of this decade saw the emergence of a consensus that conflict acted as a vector for the spread of one such particularly damaging disease, the human immune-deficiency virus (HIV).¹ Evidence for this originated from the 1980s and 1990s. Links were drawn between the fact that sub-Saharan Africa, where HIV is most prevalent, was also an area of high instability and conflict at this time, while the first major epidemic of HIV and AIDS, in Uganda, coincided with the invasion of that country.² As Stefan Elbe wrote in an influential article in 2002, ‘armed conflicts and their participants constitute an important vector of HIV/AIDS, a virus responsible for killing more than ten times as many people in Africa as the conflicts themselves’.³ Similarly Denis Altman wrote in 2003 that ‘the epidemic is inextricably connected with war and civil unrest’.⁴ A US Institute for Peace report baldly stated that ‘no one denies the role of

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- 1 This article uses terminology which differentiates between the human immune-deficiency virus (HIV), a virus which is transmitted by human to human contact, and AIDS, which is not a virus but a syndrome of infections and diseases which develops as the immune system is weakened by HIV. Since the article is concerned with the spread of the virus, its primary focus is on HIV; but it is the syndromic condition referred to as AIDS which results in death. The distinction between HIV and AIDS has also become more commonplace as the development of and access to anti-retroviral therapies has improved such that people living with HIV are not necessarily AIDS patients, making the previous terminology of HIV/AIDS questionable.
- 2 For example Paul B. Spiegel et al., ‘Prevalence of HIV Infection in Conflict-affected and Displaced People in Seven Sub-Saharan African Countries’, *The Lancet* 369 (June 2007): 2187, 2191; Jeff Gow, ‘The HIV/AIDS Epidemic in Africa: Implications for US Policy’, *Health Affairs* 21 (May/June 2002): 65.
- 3 Stefan Elbe, ‘HIV/AIDS and the Changing Landscape of War in Africa’, *International Security* 27 (Fall 2002): 174.
- 4 Dennis Altman, ‘AIDS and Security’, *International Relations* 17 (December 2003): 421. See also for example Duane Bratt, ‘Blue Condoms: The Use of International Peacekeepers in the Fight against AIDS’, *International Peacekeeping* 9 (Autumn 2002): 72; Peter Fourie and Martin Schonteich, ‘Africa’s New Security Threat: HIV/AIDS and Human Security in Africa’, *African Security Review* 10 (2001): 6, <http://www.iss.co.za/Pubs/ASR/10No4/Fourie.html>, subsequent page references are to online version; Jeff Gow, ‘The HIV/AIDS Epidemic in Africa’, 65; N.A. Betsi et al., ‘Effect of an Armed Conflict on Human Resources and Health Systems in Cote d’Ivoire’, *AIDS Care* 18 (May 2006): 36; S. Versteegen, *HIV/AIDS: Waking up to the Challenge*, Working document prepared by Conflict Research Unit, Clingendael Institute for the Netherlands Ministry of Foreign Affairs Special Ambassador for HIV/AIDS, March 2005: 24; Vinh-Kim Nguyen and Katherine Stovel, *The Social Science of HIV/AIDS: A Critical*

conflict in the spread of the virus'.⁵ Perhaps most significant, however, was the endorsement of the UN and especially the Security Council. On 10 January 2000, at its first meeting of the new millennium, the UN Security Council met to discuss the 'impact of AIDS on peace and security'.⁶ Six months later the Security Council passed Resolution 1308, arguing that the spread of HIV was 'exacerbated by conditions of violence and insecurity'.⁷

AIDS continues to be one of the most significant causes of non-natural death worldwide. In its 2007 report on the pandemic, UNAIDS estimated that 2.1 million people died of AIDS in 2006, and that a further 33.2 million people were living with HIV, including 2.5 million children under 15. The disease however is not evenly spread. By far the largest concentration is in sub-Saharan Africa, where 22.5 million people are believed to be living with HIV and where 1.6 million people died of AIDS in 2006.⁸ The claim of a link between conflict and the spread of HIV is important in understanding the response to this pandemic. In particular it has been a key argument in the securitisation of HIV and AIDS.⁹ Uniquely for a single disease, HIV has been presented as a national security threat and a risk to international stability. The link between conflict and the spread of HIV, although not directly making HIV a threat to security and stability, nevertheless serves to draw the net more closely around HIV as a national security issue. As Elbe has argued, this has both positive and negative consequences.¹⁰ But as Spiegel and others have suggested, these security arguments have often been based on assertion, limited empirical evidence and the desires of advocacy groups to generate greater attention and resources, and too rarely on solid evidence.¹¹

By the middle years of this decade, further research into HIV and conflict was beginning to suggest that the links were more complex than first imagined.¹² Some long conflicts demonstrated little change in HIV prevalence, while a number saw prevalence reduce, suggesting that that conflict might act as a 'brake' on the spread of HIV. Not least, if conflict isolates regions and reduces the ability of people to move freely around a country or between states,

Review and Priorities for Action, Report Prepared by the Social Science Research Council Working Group on HIV/AIDS, October 2004: 11–12; Nancy B. Mock et al., 'Conflict and HIV: A Framework for Risk Assessment to Prevent HIV in Conflict-affected Settings in Africa', *Emerging Themes in Epidemiology* 1 (October 2004), available from BioMed Central, subsequent page references from the open access version, <http://www.ete-online.com/content/1/1/6> (accessed 12 May 2008).

- 5 Timothy Docking, *AIDS and Violent Conflict in Africa* USIP Special Report 75, <http://www.usip.org> (accessed 12 May 2008), 7.
- 6 UN Security Council [UNSC] Press Release SC/6781, 10 January 2000, <http://www.un.org/News/Press/docs/2000/20000110.sc6781.doc.html> (accessed 13 May 2005). See also Statement by Sir Jeremy Greenstock, Permanent Representative of the United Kingdom, in the Security Council, 19 January 2001, 'The Impact of HIV/AIDS on Peace and Security', <http://www.ukun.org>; (accessed 11 December 2002) Tom Porteous (Africa Command) to Mark Lyall Grant, *HIV/AIDS and Conflict*, UK Foreign Office, 14 June 2002, RESTRICTED, released to author under UK Freedom of Information Act request; Spiegel et al., 'Prevalence of HIV Infection', 2187.
- 7 UNSC Resolution [UNSCR] 1308, July 2000, 2, http://www.un.org/Docs/sc/unsc_resolutions.html (accessed 11 December 2002).
- 8 UNAIDS, *2007 AIDS Epidemic Update* (Geneva: UNAIDS/WHO, 2007), 1, 4, 7, 15–20.
- 9 See for example Colin McInnes and Kelley Lee, 'Health, Security and Foreign Policy', *Review of International Studies* 32 (January 2006): 5–23; Colin McInnes, 'HIV/AIDS and National Security', in *AIDS and Governance*, ed. Nana Poku, Alan Whiteside and Bjorn Sandkjaer (Aldershot: Ashgate, 2007), 93–110; Colin McInnes, 'HIV/AIDS and Security', *International Affairs* 82 (March 2006): 315–26; Elbe, 'HIV/AIDS and the Changing Landscape of War'; Stefan Elbe, *The Strategic Implications of HIV/AIDS*, Adelphi Paper 357 (Oxford: OUP for IISS, 2003); Stefan Elbe, 'Should HIV/AIDS be Securitized?', *International Studies Quarterly* 50 (March 2006): 119–44.
- 10 Elbe, 'Should HIV/AIDS be Securitized?'
- 11 Spiegel et al., 'Prevalence of HIV Infection'; McInnes, 'HIV/AIDS and Security'; McInnes, 'HIV/AIDS and National Security'; Alex de Waal, 'HIV/AIDS and the Military', Background paper to expert seminar and policy conference *AIDS, Security and Democracy*, Clingendael Institute, The Hague, 2–4 May 2005; Tony Barnett and Gwyn Prins, 'HIV/AIDS and Security', *International Affairs* 82 (March 2006): 359–68.
- 12 See for example Paul B. Spiegel, 'HIV/AIDS among Conflict-affected and Displaced Populations: Dispelling Myths and Taking Action', *Disasters* 28 (September 2004): 323.

then one of the most significant vectors for the spread of the disease – human mobility – is directly affected. The case of Angola appeared particularly interesting in this respect. UNAIDS commented that ‘largely due to the internal armed conflict, the Angolan HIV prevalence appears considerably lower than in neighbouring countries. This suggests that the restricted mobility as a result of the conflict may have slowed the spread of HIV in the country’.¹³ In its 2005 report on the global AIDS epidemic, UNAIDS similarly commented that ‘Angola, which is emerging from decades of war, has by far the lowest HIV prevalence in southern Africa’.¹⁴ Similarly in Burundi, the high prevalence rates at the time when conflict began actually fell in the capital during the period of conflict.¹⁵ Initially, cases such as Angola and Burundi could be presented as exceptions. But as more evidence emerged of lower HIV rates in some conflicts, not least in sub-Saharan Africa where the disease is most prevalent, so the picture became even less clear.¹⁶ Nor is the end of conflict necessarily the end of the problem – increasingly it is apparent that the post-conflict phase may witness increased prevalence as confidence returns, mobility within a region increases and foreign workers begin to appear (as has happened in Mozambique and Afghanistan).¹⁷

One of the key handicaps in assessing the link between conflict and the spread of HIV is the quality of data available. The collection of data in conflict situations generally is dangerous and often susceptible to a variety of limitations; obtaining accurate data on numbers of people living with HIV and AIDS remains problematic even outside conflict situations;¹⁸ and longitudinal studies, especially at population level, are often absent from many of the areas suffering most. In a major article in 2007, Paul Spiegel and colleagues examined the available data on HIV, conflict and refugees, imposing a rigorous quality threshold. Their assessment of much of the work to date was blunt: ‘past assumptions that conflict and displacement increase prevalence of HIV infection were made from a few surveys, some of questionable quality and others with biased interpretation of results’.¹⁹ They concluded that ‘there is insufficient evidence that HIV transmission increases in populations affected by conflict. Furthermore, there are insufficient data to conclude that refugees fleeing conflict have a higher prevalence of HIV infection than do their surrounding host communities’.²⁰

The lack of available evidence is however insufficient to dismiss the link between HIV and conflict. Many of those at risk from acquiring HIV in conflict – soldiers and vulnerable civilians – are also at risk from death by other causes, not least combat. Thus the degree to which HIV is spread may be obscured because people are killed before they are tested. It also assumes that medical infrastructure exists prior to, during and after a conflict to give accurate measures of HIV prevalence. General population surveys and even sentinel surveillance surveys are lacking for many of these countries prior to and during conflict, making it extremely difficult to track the progress of the disease. As a result even critics such as Spiegel are unwilling to deny that such a link exists: ‘Displaced populations and those affected by conflict are clearly

13 UNAIDS, *On the Front Line*, 3rd ed. (Geneva: UNAIDS/WHO, 2005), 26.

14 UNAIDS, *AIDS Epidemic Update: December 2005* (Geneva: UNAIDS/WHO, 2005), 24.

15 Spiegel et al., ‘Prevalence of HIV Infection’, 2192.

16 In 2005 for example, Alex de Waal argued that the evidence from other African conflicts (Sierra Leone, Sudan, Somalia, Uganda, northern Ethiopia and ‘even’ the DRC) was suggesting that far from conflict spreading HIV, with a number of exceptions, the reverse might actually prove to be the norm. de Waal, ‘HIV/AIDS and the Military’, 8.

17 Spiegel, ‘HIV/AIDS among Conflict-affected Populations’, 322–5; Netherlands Ministry of Foreign Affairs, 6; de Waal, ‘HIV/AIDS and the Military’, 8–9.

18 In its 2007 annual report on the spread of the disease for example, UNAIDS (not for the first time) recognised that previous estimates had been significantly in error due to the difficulties in obtaining data. As a consequence it reduced its estimate of people living with the disease from c.39 m in 2006 to c.33 m in 2007. UNAIDS, *2007 AIDS Epidemic Update* (Geneva: UNAIDS/WHO, 2007), 3.

19 Spiegel et al., ‘Prevalence of HIV Infection’, 2193.

20 *Ibid.*, 2192.

at risk of HIV transmission. Furthermore, to expect that incidence of HIV infection will be high in survivors of conflict and rape is understandable.²¹

Five main reasons are usually offered to explain the link between conflict and the spread of HIV, reasons which obtained a high degree of consensus in the early years of this decade when an orthodoxy over HIV and security was established: high prevalence amongst the military; conflict-induced migration; changes in sexual behaviour, especially increased sexual violence towards women; the impact of conflict upon health provision; and risks which emerge after a conflict, especially with regard to peacekeepers.²² Although there is some merit in these reasons as risk factors, they are far from straightforward causal variables and do not offer a robust model for understanding when conflict will lead to the spread of HIV. What this article argues is that rather than a direct causal relationship, there is an increased *risk* of HIV spreading in times of conflict, but this risk is not always realised. The article therefore offers a different explanatory model built upon susceptibility and vulnerability. It argues that a state needs to have both a series of background factors (susceptibility) and a number of changes induced by conflict (vulnerability) for HIV to be spread during conflict. Five variables can contribute to susceptibility: existing prevalence rates; population density; transport and communication infrastructure; levels of poverty; and the duration and type of conflict. Four conflict-induced changes can contribute to vulnerability: increased disassortive mixing; changes in sexual practices, including rape and other violent sexual acts; increased IV drug use; and reduced health provision. The article begins however by examining the five reasons usually offered for why conflict leads to the spread of HIV and why they are limited as an explanation.

HIV/AIDS and the military

In 2001 the International Crisis Group stated that it had become an ‘accepted assumption . . . that the rates of HIV are higher among the military and other uniformed forces than among the general population’.²³ The available data to support this was and is limited, not least for national security reasons (and in some cases a lack of resources to test for HIV), but a growing number of states are publicly acknowledging that HIV is prevalent amongst their uniformed services.²⁴ The

21 Ibid., 2193.

22 For a discussion of this orthodoxy see McInnes, ‘HIV/AIDS and Security’; McInnes, ‘HIV/AIDS and National Security’.

23 International Crisis Group, *HIV/AIDS as a Security Issue in Africa: Lessons from Uganda* (Kampala/Brussels: ICG, 2004), 1. For a more extensive discussion on this and the reasons behind it, see McInnes, ‘HIV/AIDS and Security’; McInnes, ‘HIV/AIDS and National Security’. See also Eric G. Bing et al., ‘HIV/AIDS Behavioural Surveillance among Angolan Military Men’, *AIDS Behaviour*, accessed from PubMed PMID 17641966, <http://www.plosmedicine.org> (accessed 12 May 2008); A. Pistorius, G. Gergen and B. Willershausen, ‘Survey about the Knowledge of the HIV Infection amongst Recruits of the German Military’, *European Journal of Medical Research* 30 (April 2003): 154–60; E. van der Ryst et al., ‘HIV/AIDS Related Knowledge, Attitudes and Practices among South African Military Recruits’, *South African Medical Journal* 91 (July 2001): 587–91; Harley Feldbaum, Kelley Lee and Preeti Patel, ‘The National Security Implications of HIV/AIDS’, *PLoS* 3 (June 2006), 171; and Elbe, ‘HIV/AIDS and the Changing Landscape of War’.

24 UNAIDS, *On the Front Line*, 3rd ed., 12. For example shortly after of the UN Security Council discussion on HIV/AIDS, the Congolese military, the South African Defence Forces and the Nigerian military all released data on HIV infection rates. See Lynne Mikangou, ‘Health-Congo: AIDS Number One Cause of Death in the Army’, *Inter Press Service*, 10 January 2000; ‘SAfrica [sic]-AIDS-military: 17 percent of South African Soldiers HIV-Positive: Minister’, *Agence France-Presse*, 15 September 2000; ‘11% of Nigerian soldiers in Ecomog [sic] are HIV-positive – President’, *Media Institute of South Africa*, 29 May 2000. Garrett makes the point that almost nothing is known of HIV/AIDS in the world’s two largest militaries – India and China. Laurie Garrett, *HIV and National Security: Where are the Links?* (New York: Council on Foreign Relations, 2005), 28. However in *On the Front Line* (3rd ed.) UNAIDS claims that HIV/AIDS is the fifth highest reason to be invalided out of the Indian military and the second highest cause of death in its navy (p. 12). Although Russia has released figures which suggest that HIV prevalence in its armed forces is roughly in line with national trends, UNAIDS remains sceptical of this considering it might be an underestimation of the problem (p. 31ff). A number of Western militaries, including the UK, do not screen recruits or survey them for HIV prevalence.

figures most often cited (not least by UNAIDS in the first half of this decade) are those of two to three times, or sometimes two to five times that of the general population.²⁵ In sub-Saharan Africa in particular, infection rates amongst the military were often cited as being especially high, with claims that a number of militaries were experiencing rates above 50%, those of Malawi and Zimbabwe in the order of 75–80%, and some elements of the South African military perhaps 90%.²⁶ Figures were not available for many rebel groups, but these were generally believed to be similarly high if not higher,²⁷ while concern has also been expressed over the vulnerability of child soldiers to HIV infection.²⁸

The argument that HIV levels are significantly higher in the military needs to be treated carefully however. In particular the statistical evidence is no longer so clear-cut as it appeared a few years ago. In 2005 UNAIDS admitted that 'little reliable information is available on levels of HIV infection among uniformed services. Few countries conduct systematic screening and public health surveillance systems are often weak', although it did go on to state that high prevalence rates had been discovered in some uniformed services and that states were increasingly expressing concern.²⁹ The argument that the military experiences significantly higher prevalence rates than the general population was largely drawn from limited evidence from the mid-to-late 1990s. A decade later there is evidence that prevalence rates may be case-dependent and subject to a number of variables, including age, rank structure, deployment patterns and military culture.³⁰ Moreover, HIV is preventable and there is a growing body of evidence to suggest that militaries have been acting to prevent its spread.³¹ Not least, in 2003 the UN General Assembly launched a global initiative to improve AIDS awareness in militaries. Within two years UNAIDS had undertaken programmes in over 50 states while a number of states had undertaken programmes in advance or independent of UNAIDS.³² The success of awareness training however also appears to be case-dependent,³³ and condom use in particular appears

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- 25 For example, UNAIDS, *Technical Update: AIDS and the military, May 1998* (Geneva/New York: UNAIDS, 1998); UNAIDS, *HIV/AIDS Prevention and Care among Armed Forces and UN Peacekeepers: The Case of Eritrea* (Geneva/New York: UNAIDS, 2003), 8.
- 26 UNAIDS, *On the Front Line*, 1st ed. (Geneva/New York: UNAIDS, 2003), 5–6; US National Intelligence Council, *The Global Infectious Disease Threat and Its Implications for the United States*, National Intelligence Estimate NIE99-17D (Washington: CIA, 2000), <http://www.cia.gov/cia/publications/nie/report/nie99-17d.html>; Lindy Heinecken, 'Facing a Merciless Enemy: HIV/AIDS and the South African Armed Forces', *Armed Forces and Society* 29 (Winter 2003): 784; Robert L. Ostergard Jr., 'Politics in the Hot Zone: AIDS and National Security in Africa', *Third World Quarterly* 23 (April 2002): 343; International Crisis Group (ICG), *HIV/AIDS as a Security Issue* (Brussels: ICG, 2001), ii; *Lessons from Uganda*, 2–3; Mark Schneider and Michael Moodie, *The Destabilising Impact of HIV/AIDS* (Washington: Center for Strategic and International Studies, 2002), 2; Paolo Tripodi and Preeti Patel, 'The Global Impact of HIV/AIDS on Peace Support Operations', *International Peacekeeping*, 9 (Autumn 2002): 54, table 1.
- 27 For example Docking, *AIDS and Violent Conflict*, 7. But in contrast see de Waal, 'HIV/AIDS and the Military', 7.
- 28 For example K.S. Subramanian, *Impact of Conflict on HIV/AIDS in South Asia* (2002), 50, available at <http://aidsportal.org/store/770.pdf>. See also P.W. Singer, 'AIDS and International Security', *Survival* 44 (Spring 2002): 150–51. Though Ciantia sounds a note of caution, Filippo Ciantia, 'HIV Seroprevalence in Northern Uganda', *Journal of Medicine and the Person* 2 (December 2004): 174.
- 29 UNAIDS, *On the Front Line*, 3rd ed., 11.
- 30 *Ibid.*, 27; Netherlands Ministry of Foreign Affairs (NMFA), *HIV/AIDS, Security and Democracy*, Seminar Report, Clingendael Institute, 4 May 2005, 5.
- 31 On possible initiatives to prevent the spread of HIV/AIDS in militaries, see UNAIDS *Uniformed Services Programming Guide* (Geneva: UNAIDS, 2003). See also Martin Foreman, *Combat AIDS: HIV and the World's Armed Forces* (London: Healthlink Worldwide, 2002), 37–48.
- 32 *UNAIDS Initiative on HIV/AIDS and Security: Third Quarterly Report* (2002), http://www.who.int/hac/techguidance/pht/UNAIDS_initiative_HIV_security/en/ (accessed 29 July 2005); ICG, *Lessons from Uganda*, 3, 8–9, 14. The UN's AIDS awareness card is available from Awareness@unaids.org. For details on the card see UNAIDS, *Uniformed Services Programming Guide*, 12.
- 33 UNAIDS, *Uniformed Services Programming Guide*, 13; UNAIDS, *On the Front Line*, 3rd ed., 10, 37; UNAIDS, *HIV/AIDS Prevention and Control: An Experience of the Royal Thai Army* (Geneva: UNAIDS, 2004); UNAIDS, *HIV/AIDS Prevention and Care*, 9.

to be susceptible to religious and cultural barriers.³⁴ HIV prevalence may also be reduced by screening recruits to ensure that they are HIV negative (as occurs in the South African military),³⁵ although screening poses civil liberties and/or resource issues such that it is unlikely to be widely adopted. The stereotype of highly mobile young men with money to burn and a willingness to engage in casual or commercial sex is also questionable. Many soldiers, particularly conscripts, are poorly paid, largely stationary and may be based in remote rural areas where HIV prevalence is generally lower. Moreover, evidence suggests that sex workers operate in a hierarchical manner, with a particular group being identified with, for example, the lower ranks, another with NCOs, and another with junior officers. This creates a relatively closed group which limits the spread of HIV. Nevertheless, in a major systematic survey of available data on 21 African militaries published in 2008, Oumar Ba and colleagues concluded:

HIV prevalence within the military is elevated compared to the general population. The differences were significant (odds ratio 1.97, 95% confidence interval: 1.58–245, $P < 0.001$). Further, inflated rates of HIV in militaries compared to non-military males of similar age were also significant (6.09, 4.47–8.30, $P < 0.0001$) . . . HIV/AIDS prevalence rates in most African militaries are significantly elevated compared to their host communities.³⁶

Even if militaries do have a higher prevalence rate than the general population, how this creates a risk factor for the spread of HIV in conflict needs to be established. Indeed, in most of the literature the high prevalence rates amongst militaries is presented as a national security problem rather than as a reason for the link between HIV and conflict. Singer is unusual in being direct: ‘The primary connection between AIDS and conflict appears to come from the unique linkage between the disease and the military’.³⁷ However, his subsequent analysis reverts to the more typical focus on high prevalence as a national security issue. The high prevalence rates of militaries as a part of the link between conflict and HIV is nevertheless implicit in much of the literature. One of the key reasons for this is that working in the military creates an environment where risk-taking is endemic due to the nature of the profession, and this is reflected in attitudes towards sex. This attitude may well increase in times of conflict. Moreover deployments away from home – again more often in conflict situations – create loneliness, stress and the build-up of tensions which may seek release in casual or commercial sex.³⁸ Significantly, of course, deployment away from home implies human mobility which, when linked to high risk sexual practices and greater frequency of sexual encounters, suggests an increased risk of HIV being spread. However, according to Ba et al., there is no evidence that militaries engaged in conflict acquire significantly higher seroprevalence as a consequence.³⁹ This suggests that the risk is to those populations encountering militaries that might not otherwise have done so. Therefore it is not the higher prevalence amongst militaries which is the issue so much as disassortive mixing between communities with different prevalence rates, a point

34 Stuart J. Kingma and Rodger D. Yeager, ‘Military Personnel: On the Move and Vulnerable to HIV/AIDS and Other Infectious Diseases’, unpublished paper (Rolle, Switzerland: Civil–Military Alliance to Combat HIV and AIDS, 2005), 10–11.

35 Lindy Heinecken, ‘Facing a Merciless Enemy’, 286. See also de Waal, ‘HIV/AIDS and the Military’, 3; NMFA, *HIV/AIDS, Security and Democracy*, 6.

36 Oumar Ba et al., ‘HIV/AIDS in African Militaries: An Ecological Analysis’, *Medicine, Conflict and Survival* 24 (May 2008): 88–100, quotation from abstract.

37 P.W. Singer, ‘AIDS and International Security’, *Survival* 44 (Spring 2002): 147.

38 UNAIDS, *Uniformed Services Programming Guide*, 7–10; UNAIDS, *On The Front Line*, 3rd ed., 12, 26–37; NIE 99-17D, *The Global Infectious Disease Threat*; ICG, *HIV/AIDS as a Security Issue*, 20–21; Ostergard, ‘Politics in the Hot Zone’, 343; Peter Chalk, ‘Infectious Disease and the Threat to National Security’, *Jane’s Intelligence Review* (September 2001): 49; Alan du Pont, *HIV/AIDS: A Major International Security Issue*, Asia Pacific Ministerial Meeting October 2001 (Canberra: Commonwealth of Australia, 2001), 7; Versteegen, *HIV/AIDS*, 16; Bratt, ‘Blue Condoms’, 71; Schneider and Moodie, *The Destabilising Impact*, 6; Tripodi and Patel, ‘The Global Impact of HIV/AIDS’, 54–7; Elbe, ‘HIV/AIDS and the Changing Landscape of War’, 164.

39 Ba et al., ‘HIV/AIDS in African Militaries’.

later identified as one of the factors affecting a conflict state's vulnerability to increased HIV prevalence.

Migration and refugees

Conflict can lead to the mass movement of people as they attempt to flee violence. Since human mobility is a key vector for the spread of HIV, analysts initially drew a straightforward link: conflict can lead to the spread of the disease through human migration.⁴⁰ In Nepal for example, Singh et al. argued that young men left en masse for India to avoid violence. The areas they migrated to, however, had a much higher HIV prevalence rate so that 10% of the 2–3 million Nepalese in India were estimated to be HIV positive, compared to less than 1% in Nepal itself. Singh et al. also cite the results of a survey demonstrating that 8% of migrant Nepalese workers returning from Mumbai were infected with HIV. Moreover, the pattern of conflict-induced migration from rural areas to the capital, Kathmandu, also served as a means by which the disease was spread.⁴¹ Similarly Kalipeni and others state that 'There is little doubt that the transmission of HIV in east Africa is related to patterns of population movements and interpersonal relations in the region'.⁴²

Refugee camps have also been highlighted as a key concern for the spread of HIV. Health education, including HIV awareness, and more general support may be lacking in such camps. In the Goma refugee camp in Zaire, for example, Bennett argues that the immediate concerns of a cholera outbreak and the high death tolls in the camp meant that health workers had little spare capacity in which to promote HIV awareness.⁴³ People in camps are also usually at a socio-economic disadvantage and women in particular may be forced into transactional sex for survival. Moreover, women in refugee camps may find themselves vulnerable to rape and other forms of sexual violence.⁴⁴

However, more recent evidence suggests that the picture is much less clear. In their 2007 study, Spiegel et al. argued that out of 12 refugee camps for which high-quality data was available across seven African conflicts, three-quarters demonstrated lower prevalence rates than the surrounding hosts.⁴⁵ In North East Kenya, refugee camps demonstrated low prevalence rates despite a high incidence of rape in the early 1990s, though it is speculated that this may have been because of low prevalence amongst the rapists at the time.⁴⁶ Similarly, continued low HIV prevalence in Bosnia-Herzegovina, despite widespread population displacement and rape in the 1990s, may also be accounted for by low initial prevalence.⁴⁷ On the other hand, the low prevalence rates amongst Angolan refugees returning after the conflict has been explained by the effective HIV awareness campaigns conducted in the refugee camps in neighbouring countries.⁴⁸

40 Bratt, 'Blue Condoms', 71; UNAIDS, 'AIDS and Conflict: A Growing Problem Worldwide', in *2004 Report on the Global AIDS Epidemic* (Geneva: UNAIDS/WHO, 2004), http://www.unaids.org/bangkok2004/GAR2004_html/GAR2004_12_en.htm#P1704_379265 (accessed 29 July 2005); Rene Bennett, *The Correlation between Conflict and the Spread of HIV/AIDS to Women*, http://www.sit-edu-geneva.ch/conflicthiv_and.htm (accessed 29 July 2005), 14.

41 Sonal Singh et al., 'HIV in Nepal: Is the Violent Conflict Fuelling the Epidemic?', *PLoS Med* 2 (July 2005): 2–3, <http://www.plosmedicine.org> (accessed 12 May 2008)

42 Quoted in Bennett, *Correlation*, 14.

43 *Ibid.*, 23.

44 *Ibid.*, 14. See also below.

45 Spiegel et al., 'Prevalence of HIV Infection', 2007. See also Richard Walker, 'UNHCR Study Challenges Assumptions about Refugees and HIV Spread', *AIDS Portal news*, http://www.aidsportal.org/News_Details.aspx?id=5215&nex=51 (accessed 12 May 2008); UNAIDS, 'AIDS and Conflict'.

46 De Waal, 'HIV/AIDS and the Military', 8.

47 UNAIDS, 'AIDS and Conflict'.

48 *Ibid.*

What this therefore suggests is that the link between conflict-induced migration and the spread of HIV is not as straightforward as initially supposed.⁴⁹ Existing HIV prevalence rates appears to be a crucial variable. Equally, migration does not in itself directly lead to increased prevalence, rather something else has to change – either the behaviour of migrants becomes more risky (for example changed sexual behaviour or increased injecting drug abuse), or disassortive mixing. These points are returned to later as part of what might constitute a state's susceptibility and vulnerability to HIV during conflict.

Changes in sexual behaviour

Conflict can cause changes in behaviour which are significant in the context of HIV. There is a high degree of consistency in the literature from the early years of this decade that women and children are at much higher risk of sexual violence in conflict situations. One report by the UNAIDS/WHO-sponsored Global Coalition on Women and AIDS, for example, states starkly that sexual violence against women is a 'feature of all recent conflicts'.⁵⁰ A 2002 Human Rights Watch report on the DRC argued that the conflict there had created a situation where abusive sexual relationships were more acceptable and that men regarded sex as a service obtainable by force.⁵¹ Similarly in a UNDP-sponsored study, K.S. Subramanian writes:

In conflict-related emergencies, the HIV/AIDS epidemic is fuelled by sexual bartering – mainly rooted in poverty and powerlessness, sexual violence and exploitation, low awareness about HIV and the breakdown of health and educational infrastructure. Brutality and disrespect for dignity characterises conflicts and can serve to 'normalise' sexual violence against women and girls. Condoms are unlikely to be used, which increases the risk of HIV infection and transmission. Rape by soldiers and non-state actors in conflict situations is systemic.⁵²

This has been linked to a growing concern that rape is being used as a weapon of war. A variety of conflicts, including Bosnia-Herzegovina, Rwanda, the DRC and Liberia, all demonstrated evidence of this. As Singer wrote in 2002, 'AIDS has created a new tie between rape and genocide. Rape itself is certainly nothing new to warfare ... [But] the introduction of AIDS makes such programs a genocidal practice'.⁵³ Not least, the violence of the act of rape making bleeding more likely, and the probability that a condom will not be used heightens the risk of transmission. These concerns were also linked to the strong probability that if rape was a feature of a conflict then the militaries would be involved in rapes. Given the perception of high HIV prevalence amongst militaries, the risk factors appeared to be piling up, creating a case for a link between conflict, violent sexual behaviour and the spread of HIV.

Perhaps the most heavily cited conflict in this respect is Rwanda. The widespread rape of women during the 1994 genocide – estimated by Newbury and Baldwin as between 200,000

49 For example, Fatou Mbow and Douglas Webb, 'HIV/AIDS Affected Children in Conflict Settings and Parliamentary Inaction', *Conflict Trends* 1 (2007): 48, http://www.accord.org.za/downloads/ct/ct_2007_1.pdf (accessed 12 May 2008).

50 Global Coalition on Women and AIDS, 'Sexual Violence in Conflict Settings and the Risk of HIV', *Violence Against Women and HIV/AIDS*, Information Bulletin Series no. 2 (2004): 1. See also UNICEF, *Children, Armed Conflict and HIV/AIDS* (New York: UNICEF, 2003), 2–3; Mock et al., 'Conflict and HIV', 7; Subramanian, *Impact of Conflict on HIV/AIDS*, 49; Nguyen and Stovel, *The Social Science of HIV/AIDS*, 11; Mbow and Webb, 'HIV/AIDS Affected Children', 50.

51 Human Rights Watch, *The War within the War: Sexual Violence against Women and Girls in Eastern Congo* (New York: Human Rights Watch, 2002).

52 Subramanian, *Impact of Conflict*, 50.

53 Singer, 'AIDS and International Security', 152–3. See also Dan Thomas, 'AIDS 2006: Conflict Makes Girls and Women even more Vulnerable to HIV', http://www.unicef.org/aids/index_35317.html (accessed 12 May 2008); UNAIDS, 'AIDS and Conflict'; Bennett, *Correlation*, 13; Versteegen, *HIV/AIDS*, 4; [No author], 'The Democratic Republic of Congo [DRC]: A Country Raped by All Types of Men', *Women's World* 34 (1999): 22–3.

and 500,000⁵⁴ – is strongly linked by commentators to increased HIV prevalence. Typical is the claim that a 1% prevalence rate in 1994 in rural areas increased to 11% by 1997 and that 67% of women who survived rape were infected by the disease.⁵⁵ UNICEF reported that a study of 2000 women who were raped during the conflict found that, five years later, 80% were HIV positive.⁵⁶ Rape, it is argued, was used as a weapon to humiliate and demoralise the Tutsi population and, ultimately, to assist in their destruction through the spread of HIV.⁵⁷ Following the genocide, Rwandan President Paul Kagame stated: ‘We knew that the government was bringing AIDS patients out of the hospitals specifically to form battalions of rapists.’⁵⁸

Although there seems little doubt that rape occurred on a horrendously large scale in Rwanda, Spiegel et al. question the reliability of much of the data linking this to HIV infection. They point to a 1997 study of 4800 women which (implicitly) meets their criteria for rigour. Of these women, 2.2% had been raped in the conflict. Just over 15% of these tested positive for HIV; this compares to 11% of the women in the study who were not raped who also tested positive.⁵⁹ Rape appears therefore to have led to a higher seroprevalence, but not of the order of magnitude implied elsewhere. It is impossible to calculate how many women who were raped were subsequently killed, while how many of the rapists who stated they were HIV positive actually were is difficult to know – not least because testing was not extensive within Rwanda until the introduction of voluntary counselling and testing (VCT) in 1997.⁶⁰ Although Donovan claims that the rape of Tutsi women contributed to a subsequent increase in HIV prevalence in Rwanda,⁶¹ UNAIDS data shows not only that the national prevalence rate continued to decline throughout the 1990s, but that HIV prevalence amongst pregnant women in urban areas of Rwanda *declined* in the years after the genocide.⁶² Moreover, in Bosnia-Herzegovina, again despite considerable evidence of widespread and probably systematic rape, HIV prevalence rates did not dramatically increase.⁶³ In this instance, pre-existing low seroprevalence is probably a crucial factor – rape may increase the risk of spreading HIV, but if the disease is not sufficiently present then it cannot be spread widely. This point is returned to later as a variable in determining a state’s susceptibility to conflict-induced increases in HIV prevalence rates. Moreover, the impact of rape on population-wide HIV levels appears to be less significant than some initially believed. Following Spiegel and colleagues’ earlier work, in 2008 Aranka Anema et al. modelled the impact of rape on population wide levels of HIV in sub-Saharan Africa. Their conclusion was that ‘even in the most extreme situations . . . widespread rape in conflict-affected countries in [sub-Saharan Africa] has not incurred a major direct population-level change in HIV prevalence’.⁶⁴

54 Catherine Newbury and Hannah Baldwin, *Aftermath: Women in Postgenocide Rwanda* (Washington, DC: Center for Development and Information Evaluation, no date given).

55 Global Coalition on Women and AIDS, ‘Sexual Violence’, 1.

56 UNICEF, *Children, Armed Conflict*.

57 For example, Bennett, *Correlation*, 19. See also Elbe, ‘HIV/AIDS and the Changing Landscape of War’.

58 Quoted in Bennett, *Correlation*, 21. Though given the comparatively low rate of HIV at the time, and the presumed poor health of AIDS patients if they were in hospitals, one may question how many such ‘battalions’ there were and how much impact they had.

59 Spiegel et al., ‘Prevalence of HIV Infection’, 2191. Though note that the numbers of rape victims here may be too small to be statistically significant (53 individuals of whom 8 were HIV positive).

60 E. Kayirangwa et al., ‘Current Trends in Rwanda’s HIV/AIDS Epidemic’, *Sexually Transmitted Infections* 82 suppl1 (2006): i27, <http://www.stijournal.com> (accessed 20 October 2008).

61 Paula Donovan, ‘Rape and HIV/AIDS in Rwanda’, *The Lancet* 360 supplement (2002): s18.

62 UNAIDS, *2007 AIDS Epidemic Update*, 18.

63 See data contained in annual UNAIDS AIDS epidemic updates, <http://www.unaids.org/en/KnowledgeCentre/HIVData/EpiUpdate/EpiUpdArchive/> (accessed 12 May 2008).

64 Aranka Anema et al., ‘Widespread Rape does not Directly Appear to Increase the Overall HIV Prevalence in Conflict-affected Countries: So Now What?’, *Emerging Themes in Epidemiology* 5 (2008), <http://www.ete-online.com/content/5/1/11> (accessed 15 September 2008).

Two final points are also worth making at this stage regarding changes in behaviour. First, Ostergard et al. have pointed out that the relationship between sexual violence and HIV may be two-way. They identify longstanding speculation that the incidence of HIV may be affecting the rates of rape, particularly amongst young people: 'a fatalist psychology toward HIV/AIDS may be evolving. In particular, if young people are or suspect they are HIV-positive, they have developed an inclination toward spreading the virus to as many people they can'.⁶⁵ They then test this against evidence from provinces in South Africa, using a variety of intervening variables to nuance their analysis. Their research finds 'that HIV prevalence is positively and significantly associated with rape rates in provinces'.⁶⁶ How this relates to conflict situations remains unexplored in any detail, but Ellman et al. point to suggestions that 'for HIV-positive combatants, aware of their status but unable to access care, the absence of hope of treatment means there is little to prevent them from acts of violence and sexual abuse'.⁶⁷ Second, Bratt points to changes in attitudes and behaviour caused by long periods of conflict, and in particular the development of a sense of 'hopelessness or fatalism'. He quotes El Salvador's chief epidemiologist, Dr Santiago Almeida: 'People in El Salvador are used to death. When you lose over 70,000 people to a 10 year civil war . . . it's tough to convince people that AIDS prevention should be their utmost concern.'⁶⁸ This suggestion finds resonance in apocryphal stories from Africa of people, when facing extreme poverty or famine conditions, being less concerned with the risk of a long-term illness such as HIV than with daily survival.

Impact on health services

The destruction or degradation of health services is common in conflict, and their reconstruction afterwards is often slow. The conflict in Sierra Leone left only 38% of its health units working; in Rwanda the number of health workers was reduced by four-fifths through death, injury or flight. In addition to the impact on health workers, buildings may be destroyed, drug supplies plundered, and supply routes interrupted preventing the distribution of new drugs. The result is a potentially dramatic reduction in HIV education, prevention and treatment. The capacity to recognise HIV may be significantly affected if trained personnel or specialised diagnostic kits are not available, while utilisation of health services may be affected if people are unwilling or unable to visit health centres either because of the dangers of moving in a conflict area, or because they do not trust the health workers. Moreover there is evidence that in conflicts health systems adapt to reduce the emphasis on primary care, focusing instead on secondary and tertiary care, while available resources become more concentrated in urban areas at the cost of rural. The result is a reduction in general health care and education, with evidence pointing to high regional variations in knowledge of HIV as a consequence of changes in health provision.⁶⁹ Moreover, care of people living with HIV and AIDS may be compromised. In particular current treatment regimes prescribe a 'cocktail' of drugs (ARTs, anti-retroviral therapies) which need to be precisely sequenced. Vulnerability of supply

65 Robert L. Ostergard, Matthew R. Tubin and Erin Schweber, 'The Relationship between HIV/AIDS and Rape: Evidence from South Africa', Paper presented to annual ISA Conference, San Francisco, March 2008, 1.

66 *Ibid.*, 1.

67 Tom Ellman, Heather Culbert and Victoria Torres-Feced, 'Treatment of AIDS in Conflict-affected Settings: A Failure of Imagination', *The Lancet* 365 (January 2005): 2. The authors provide no evidence of their own but rather point to the 2001 ICG study (*HIV/AIDS as a Security Issue*) as exemplifying this concern. The ICG study forms an important part of the literature establishing the orthodox case for HIV as a national security issue and developing the link between HIV and conflict.

68 Bratt, 'Blue Condoms', 72.

69 See for example Mock et al., 'Conflict and HIV'; Bennett, *Correlation*, 15; Subramanian, *Impact of Conflict*, 51; Anthony B. Zwi, Antonio Ulgalde and Patricia Roberts, 'Effect of War and Political Violence on Health Services', *Encyclopedia of Violence, Peace and Conflict, Vol. 1* (New York and London: Academic Press, 1999), 683–5; Bratt, 'Blue Condoms', 71–2; Elbe, 'HIV/AIDS and the Changing Landscape of War', 172.

places those individuals on ARTs at high risk, while drug resistance may develop if treatment programmes are poorly managed.⁷⁰

In their study of the impact of the 2002 conflict in Cote d'Ivoire on health care systems, for example, Betsi et al. provide evidence of a dramatic (three-quarters) reduction in health professionals, which was most pronounced amongst the highest qualified (doctors, etc.). A significant number of health facilities were closed as a result, while many which remained open lacked crucial drugs including ARTs and diagnostic kits for detecting HIV. This had a major impact upon the ability of the health care system in Cote d'Ivoire to detect and respond to HIV infection. Although the number of health NGOs increased, in many of the rural areas these were poorly equipped local organisations (although international agencies tended to be better equipped when or if they arrived). Overall, though, Betsi et al. conclude that the prevention and care of HIV was significantly reduced as a direct result of conflict, further evidenced by the increase in STIs after the conflict (albeit with regional variations).⁷¹

As Zwi et al. point out, however, the impact of conflict on health systems is not straightforward and is often time and location specific.⁷² Moreover, the impact on public health is also dependent upon what health services were available prior to the conflict and the degree of access to these services, which might have been limited by economic and/or social factors. Crudely put, if there was little or no health care readily available to the majority of people, either because access was limited or because services were simply not present, then conflict is unlikely to have a major impact in this respect. Conflict may also have a number of positive effects on health care systems, including greater community participation and the empowerment of health professionals to allow access based on need. Zwi et al. also argue that conflict invariably leads to the development of both private and traditional health sectors, while they recognise that 'relatively little is known about how health systems actively adapt to adverse conditions during wartime'.⁷³ Therefore although conflict can and often does have a negative impact on health services, thereby creating a risk factor for the spread of HIV, the impact may be mitigated by a number of factors. Crucially it is the changed access to health services which is the key variable, a point later returned to as an element contributing to a conflict state's vulnerability to increased HIV prevalence.

Post-conflict risks

If there is a link between conflict and the spread of HIV, then *prima facie* the end of a conflict should reduce risk of increased seroprevalence. Not least, as health systems recover then HIV awareness campaigns may begin, the provision of ARTs may be regularised and access to condoms improved; radical and risky changes in sexual behaviour may be reduced; refugee flows may be halted and reversed; and exposure to the military reduced. Indeed, there is evidence from some conflicts, such as that in the DRC, of a decline in HIV prevalence when conflict is ended.⁷⁴ However there are also reasons to believe that the end of a conflict may introduce new risk factors. In particular, communities protected from HIV because of isolation during a conflict may be exposed as they are reintegrated; as freedom of movement returns because of a loss of fear, relaxation in government restrictions on movement, or economic growth, so

70 Ellman et al., 'Treatment of AIDS', 2, 4, although the authors also point out that the movement of people living with HIV or AIDS to refugee camps may make ARTs easier to administer. See also Tony Barnett, 'Mapping the Future of HIV/AIDS, Security and Conflict in Africa', Paper presented to Justice Africa/LSE AIDS Joint NGO/Academic Seminar, King's College London, 6 December 2005, 1.

71 Betsi et al., 'Effect of Armed Conflict', 359–64.

72 Zwi et al., 'Effect of War', 682.

73 Ibid., 687.

74 Betsi et al., 'Effect of Armed Conflict', 363.

human mobility – a key vector for the spread of the disease – may increase, leading to the spread of HIV, as appears to have happened in Mozambique;⁷⁵ refugees may develop high seroprevalence as discussed elsewhere in this paper, and bring this back with them on their return; and soldiers may also return with higher rates of infection, as was seen with Ugandan soldiers returning from the DRC.⁷⁶ Increased economic activity will also lead to truck movements with truck drivers a well-established vector for the spread of HIV in some states. There may also be a link in some circumstances between lifestyle changes resulting from increased affluence and the spread of HIV.

Probably the greatest focus of interest has been on the relationship between HIV and peacekeeping, not least in discussions of the UNSC and in UNSCR 1308.⁷⁷ Two concerns are prominent. The first is that peacekeepers may be at increased risk from HIV. As a paper to the UK government's Africa Conflict Prevention Pool in 2005 noted, 'Since 1980, more peacekeepers have died from AIDS than any other cause'.⁷⁸ This argument is linked to the perception that many of the world's conflicts are in regions with a high prevalence of HIV. This risk will have consequences not only for the peacekeepers themselves but also to the communities they return to. Second, peacekeepers may act as vectors for the spread of HIV. This may have been the case in Sierra Leone and Cambodia, where concerns over peacekeepers being at risk from HIV have also been prominent.⁷⁹ Significantly, the top 10 contributory nations to peacekeeping operations include states with high HIV prevalence rates such as Kenya, Nigeria and Ghana, as well as a number perceived to be at high risk such as Ukraine, Bangladesh, Pakistan and India.⁸⁰ This concern was exacerbated by allegations of sexual exploitation and abuse by UN peacekeepers in the DRC. The UN's report on this acknowledged that exploitation and abuse were 'widespread' in the DRC and had also occurred elsewhere.⁸¹ However, the UN has also been prominent in attempting to reduce the concerns over a linkage between HIV and peacekeeping by raising HIV awareness amongst peacekeepers and other relief workers.⁸² Awareness cards have been distributed to all UN peacekeepers as well as humanitarian workers and national militaries; awareness training has been provided to UN mandated operations such as those in Haiti, Burundi and the Sudan; a senior HIV officer is appointed to each UN peace support operation and major operations have full-time advisers; and awareness training has been established and supported in national militaries.⁸³

Although the UN has hailed the delivery of its awareness training as a success, others have questioned its effectiveness.⁸⁴ Evidence suggests that educating peacekeepers to affect their behaviour is not perhaps as straightforward as the UN might wish. But neither is the data on

75 Mock et al., 'Conflict and HIV'.

76 Versteegen, *HIV/AIDS*, 5. See also Fourie and Schonteich, 'Africa's New Security Threat', 7.

77 'Peacekeeping' here is used in a broad sense, encompassing what are sometimes termed 'peace support operations' and humanitarian interventions as well as the more traditional monitoring of peace agreements.

78 UK Foreign Office, *HIV/AIDS, Security and Peace Support in Africa*, Africa Conflict Prevention Pool Information Note, 21 January 2004, released on 21 September 2005 under Freedom of Information Act request.

79 Bratt, 'Blue Condoms', 68; Schneider and Moodie, *The Destabilising Impact*, 8; Chalk, 'Infectious Disease', 49.

80 See for example UNAIDS, *On the Front Line*, 1st ed., 6, table 2.

81 United Nations, *A Comprehensive Strategy to Eliminate Future Sexual Exploitation and Abuse in UN Peacekeeping Operations Report A/59/710* (New York: United Nations, 2005), paras. 3–10, 44, 62. See also UNSC Press Release SC/8400, 31 May 2005, <http://www.un.org/News/Press/docs/2005/sc8400.htm>, (accessed 26 January 2006). Ironically, the ready availability of condoms to peacekeepers – distributed as a means of protecting them against HIV – was seen by some soldiers as an unofficial endorsement of sexual exploitation.

82 UNAIDS, *On the Front Line*, 3rd ed., 19.

83 See UNSC Resolutions 1308, 1325, 1542, 1545, and 1590, all at <http://www.un.org/documents/scres.htm> (accessed 26 January 2006). See also the quarterly reports from UNAIDS Office on AIDS, Security and Humanitarian Response, published by UN Nordic Office, Copenhagen; UNAIDS, *On the Front Line*, 3rd ed., 5, 20–26; Greenstock, 'The Impact of HIV/AIDS', 2.

84 On the UN's view of the success of the programme, see for example UNAIDS, *On the Front Line*, 3rd ed., 38; UN News Centre, 'UN Makes Progress on AIDS Education for Thousands of Peacekeeping Personnel', 19 July 2005. For a discussion of this see McInnes, 'HIV/AIDS and Security'; McInnes, 'HIV/AIDS and National Security'.

the links between HIV and peacekeeping as clear-cut as it may have initially appeared. Cross-referring UNAIDS data with major peacekeeping missions, what is striking is that – with the exception of Sierra Leone – there appears to be little or no direct correlation between UN peacekeeping missions and high prevalence. Major missions in Ethiopia/Eritrea, the DRC, East Timor and Kosovo either fail to correspond to significantly increased HIV prevalence rates, or if such rates do increase they may be explained by other causal factors (for example, increases in East Timor may be explained by more general phenomena such as widespread IV drug abuse and unsafe sexual practices in large parts of Asia). Nor do longstanding peacekeeping missions outside Africa (for example, Cyprus, Lebanon, El Salvador) appear to have provoked an unusually high HIV prevalence. Moreover, although the overall total number of peacekeepers may be measured in the tens of thousands, only a handful of missions have more than 1000 troops deployed. The impact of peacekeepers on national HIV infection rates therefore may be low simply because of the small numbers usually deployed on a local basis.⁸⁵ What also remains unclear is the extent to which peacekeepers have become infected with HIV while on operational tours of duty – data on this is simply not readily available. As UNAIDS commented, ‘Current tracking systems in many missions are weak and, as a consequence, vital information is being lost or overlooked’.⁸⁶ Once again, although there may be increased risk, this is not always realised in higher seroprevalence.

Explaining HIV and conflict

By the middle of this decade, therefore, there was increasing recognition that the link between conflict and the spread of HIV was not as straightforward as had originally been thought.⁸⁷ In particular, the reasons commonly offered for this link had begun to appear rather more nuanced and subject to variables. In addition, as Spiegel et al. have pointed out, the evidence for such a link is far from clear-cut. Nevertheless, not even Spiegel et al. would deny that conflict does not present a risk factor for the spread of HIV. What is therefore lacking is an explanation of how this risk factor is translated into increased seroprevalence.

What this article suggests is that it is not conflict but *specific types of changes which might occur because of conflict* which lead to increased seroprevalence. If these changes do not occur, or more accurately if they do not occur at a sufficient level of incidence, then HIV prevalence is unlikely to increase. But even these changes are not sufficient. Rather a number of background conditions also need to be in place. Here two terms used by Barnett and Whiteside in their discussion of the impact of HIV on internal state stability are useful: susceptibility and vulnerability.⁸⁸ In their ‘Jaipur paradigm’ Barnett and Whiteside use susceptibility to refer to those factors which make a society more or less likely to experience high prevalence rates of HIV, and vulnerability to refer to the extent to which a society will be affected by HIV and AIDS. This article uses susceptibility and vulnerability as analytical tools in a slightly different manner to understand when conflict might lead to increased seroprevalence. It argues that a number of factors can be identified which render a conflict state susceptible to increased HIV prevalence, which are present as background conditions usually before a conflict begins, but

85 Data for this comparison was taken from: UNAIDS’ annual epidemic updates (see above); UN DPKO, *Background Note: 31 December 2005*, <http://www.un.org/Depts/dpko/bnote.htm#unmil> (accessed 26 January 2006); US General Accounting Office, *UN Peacekeeping: United Nations faces Challenges in Responding to the Impact of HIV/AIDS on Peacekeeping Operations* Report GAO-02-194 (Washington, DC: US General Accounting Office, 2001).

86 UNAIDS, *On the Front Line*, 3rd ed., 25.

87 See for example Ciantia, ‘HIV Seroprevalence in Northern Uganda’, 173–4; Mbow and Webb, ‘HIV/AIDS Affected Children’, 48; Nguyen and Stovel, *The Social Science of HIV/AIDS*, 12; Mock et al., ‘Conflict and HIV’, 2–3.

88 Tony Barnett and Alan Whiteside, ‘The Jaipur Paradigm: A Conceptual Framework for Understanding Social Susceptibility and Vulnerability to HIV’, *South African Medical Journal* 90 (2000): 1098–101.

which do not in themselves mean such a state will experience increased seroprevalence; and a different range of changes introduced by conflict which make it vulnerable to increases. States need to be both susceptible and vulnerable for conflict to be a significant risk factor in the spread of HIV.

Susceptibility

Five variables can contribute to susceptibility: existing prevalence rates; population density; transport and communication infrastructure; levels of poverty; and the duration and type of conflict.

- *HIV prevalence.* If prevalence levels are low then it is unlikely that conflict will lead to a significant spread of the disease simply because there are insufficient numbers of HIV positive people to spread the disease. This appears to explain why Bosnia-Herzegovina for example was not susceptible to the spread of HIV during its conflict in the 1990s.⁸⁹ An additional variable here might be the stage an epidemic is at. There are certain times when the disease is more easily spread, not least just after infection when the viral load spikes.⁹⁰ What may also be required is a different prevalence rate between two communities, such that when a community with a low prevalence of HIV encounters through conflict one with significantly higher rates, then susceptibility is present.
- *Population density.* HIV is spread by contact between humans. There is considerable epidemiological data linking population density to the spread of infectious diseases, and HIV is no exception here. Thus if a conflict is conducted in a remote, rural area with low population density then susceptibility is unlikely to be high. Once population density increases, either because of where the conflict is being fought or because of migration, then susceptibility increases.
- *Transport and communication.* If human mobility is key to the spread of HIV, then the transport and communication infrastructure is an important variable in determining susceptibility. As Mock et al. argue, 'Population density paired with excellent road infrastructure may have a synergistic effect on HIV risk'.⁹¹ Good infrastructure will facilitate the movement of people during conflict – either refugees fleeing the conflict or troops engaged in fighting. The corollary is that poor transport links will allow remote communities, especially those in areas with a low population density, to remain isolated.
- *Type and duration of conflict.* A number of variables come into play here. First, the scale of a conflict may be important. If it is limited in geographic spread and in numbers involved then it may lack the effective mass to generate the spread of the disease. Second if the nature of conflict is not so much a war of acquisition between states as one of identity within states, then this may generate a heightened level of antipathy between communities which renders acts of sexual violence more likely. The duration of a conflict may also be a variable: the longer a conflict lasts the greater the opportunity for the disease to spread – although, equally, longer conflicts may lead to increased isolation of some communities, protecting them from the spread of the disease.
- *Poverty.* Perhaps the weakest variable in terms of susceptibility is poverty. Infectious diseases often attack the poor disproportionately, but there is growing evidence to suggest that this is not the case for HIV in Africa. Rather, England argues that demographic and health surveys of Ethiopia, Kenya and Tanzania suggest higher prevalence amongst middle

89 Mock et al., 'Conflict and HIV', 6.

90 I am grateful to Stefan Elbe for this point.

91 Mock et al., 'Conflict and HIV', 11.

classes.⁹² However, poverty may have an impact in terms of susceptibility in three ways: it may force increasing numbers of women into transactional sex or prostitution for economic survival; there is some evidence from South Africa that poorer women are more vulnerable to rape;⁹³ and malnutrition has a well established detrimental effect on the immune system.⁹⁴

Vulnerability

Four conflict-induced changes can contribute to vulnerability: increased disassortive mixing; changes in sexual practices, including rape and other violent sexual acts; increased IV drug use; and reduced health provision.

- *Disassortive mixing.* One of the striking features of conflict is the potential for mobile groups to mix in new ways. Refugees may seek to flee conflicts by moving from rural areas to urban (or vice versa), from one region of a state to another, or across borders; militaries will encounter new groups of civilians and may be expanded with new recruits (sometimes forcibly and from new areas); new sexual networks may emerge, consensual, casual, commercial or violent; etc. What is crucial for the spread of HIV is not so much the movement of people but *the degree to which they mix* with new communities and the extent of *differential seroprevalence*. If communities do not mix, or if prevalence is low across communities, then changes in HIV prevalence are less likely. But when communities mix and differential seroprevalence exists – as may be the case between urban and rural communities (urban often exhibiting higher seroprevalence), or between military and civilians, or between different regions/states – then vulnerability is higher.⁹⁵
- *Changed sexual practices.* Since the major means by which HIV is spread remains unprotected sex, changes in sexual behaviour as a consequence of conflict represents an important variable. There is a substantial body of literature stretching over centuries, and including the last decade, which suggests that sexual practices can and do change in conflict. Casual sexual encounters, infidelity, sexual predation and numbers of partners can all increase during conflict for a variety of reasons – stress, changing norms over acceptable sexual behaviour, peer group pressure, hypermasculinity, etc. Changes in social perceptions and interactions through conflict can also influence patterns of aggression, not least in respect of sexual violence and rape of women.⁹⁶ Alternately, though, conflict can also lead to depression and trauma. Empirical evidence exists, particularly in post-conflict settings, of increased levels of depression affecting libido and sexual behaviour.⁹⁷
- *Injecting drug abuse.* A second major cause of HIV infection is unsafe injections of drugs, usually associated with drug abuse. There is considerable evidence that drug abuse may increase in conflict situations (not least alcohol abuse, but also narcotics). There is therefore a prima facie case that increased injecting drug abuse might occur, thereby in turn increasing vulnerability to HIV infection. There has been little discussion of this, however, and empirical

92 Roger England, 'The Writing is on the Wall for UNAIDS', *British Medical Journal* 336 (May 2008): 102. Though also note that HIV may force individuals, families and communities into poverty.

93 Ostergard et al., 'The Relationship between HIV/AIDS', 21.

94 Although evidence of malnutrition increasing the risk of acquiring HIV is limited there is a strong impact on the development of AIDS in people living with HIV. Mock et al., 'Conflict and HIV', 9; UNAIDS, 'HIV, Food Security and Nutrition', *Policy Brief* (May 2008), http://data.unaids.org/pub/Manual/2008/jc1515a_policybrief_nutrition_en.pdf

95 See for example Spiegel, 'HIV/AIDS among Conflict-affected and Displaced Populations', 323; Versteegen, *HIV/AIDS*, 25; Mock et al., 'Conflict and HIV', 4, 7; UNAIDS, 'AIDS and Conflict'.

96 Ostergard et al., 'The Relationship between HIV/AIDS', especially 2 and 5; Ciantia, 'HIV Seroprevalence', 172; Mock et al., 'Conflict and HIV', 7.

97 Mock et al., 'Conflict and HIV', 8; Bennett, *Correlation*, 20.

evidence is scant, attention instead focusing upon the sexual transmission of HIV. This may need to change given the increased incidence of conflict in areas which produce narcotics and across established drug routes. Fears of increased HIV prevalence in the Russian military, where drug abuse is a recognised problem, might also warrant greater examination of this phenomenon.

- *Health and education.* Finally changes in health support, including education, can affect vulnerability. HIV awareness, availability of diagnostic kits, supply of condoms, as well as the care and treatment of people living with HIV may all suffer as health services are interrupted by conflict or resources diverted within the health services from primary to secondary and tertiary care. But health provision may also be improved if previous levels of supply were inadequate (either through lack of capacity or through unequal availability). How health services and HIV awareness is affected by conflict therefore remains a major variable in assessing vulnerability.

Conclusion

Conflict causes human suffering, but the emergence of HIV appears to have added a new twist to this. By the beginning of this decade a consensus had emerged that conflict spread HIV, a disease which held the potential to cause many more deaths than those directly attributable to the conflict itself, and which is likely to cause extensive long-term social and economic damage to states with epidemics of the disease. By the middle of the decade, however, the picture looked more complicated. In particular new empirical evidence suggested that sometimes conflict could act as a 'brake' for the spread of the disease, while the reasons offered for the link required considerable nuance and appeared case-dependent – sometimes extensively so. This article has attempted to develop our understanding of the link between conflict and the spread of HIV. It suggests that the reasons currently offered for the link are risk factors but do not constitute a satisfactory explanatory model for the spread of the disease. Instead the article adopts and develops the distinction between susceptibility and vulnerability, a distinction used by Barnett and Whiteside⁹⁸ elsewhere in the debate on HIV, as a means of developing a new model which draws upon these risk factors. Thus it attempts to explain why, even in areas of high seroprevalence, conflict may not necessarily increase the prevalence of HIV, but also why in other circumstances it might, thereby adding considerably to the human suffering involved in conflict.

Note on contributor

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98 Barnett and Whiteside, 'The Jaipur Paradigm'.