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P A R T I V

COUNTING THE INDIRECT COSTS OF WAR

Part IV examines the impact of armed conflict on society. Battle-death counts are the commonly used indicators of the severity of conflicts. But while important, they measure only a small part of the real human cost of war.

COUNTING THE INDIRECT COSTS OF WAR

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Counting the costs of political violence is no simple task. The numbers of armed conflicts, battle-deaths, and deaths from politicides and genocides are critically important measures, but relying on them alone risks trivialising and distorting the true impact of war on societies.

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Most attempts to measure war-related 'excess' deaths from disease and malnutrition rely on individual epidemiological surveys in war zones. A radical new approach pioneered by researchers at Yale University uses World Health Organization data to estimate the long-term and indirect effects of wars.

HIV/AIDS and conflict

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Claims that war accelerates the spread of HIV/AIDS and that high levels of AIDS increase the risk of conflict have become increasingly common. But closer examination reveals a more complex picture. Some of sub-Saharan Africa's most peaceful countries have the highest rates of HIV infection in the world, while infection rates in some wartorn countries are very low.



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Introduction

The death toll from combat is an important, but incomplete, measure of the true costs of armed conflict. Warfare destroys infrastructures, disrupts trade, causes capital flight and triggers economic crises. War-related diseases kill and disable far more people than bombs and bullets.

Battle-death numbers, as noted previously, are an inadequate measure of the total costs of war. In most wars far more people die from war-related disease and malnutrition than from combat.

Some idea of just how great the difference between total war deaths and battle-deaths can be is found in a recent study by Bethany Lacina and Nils Petter Gleditsch, which is briefly reviewed in the first section of Part IV.

The authors compare estimates of 'total war deaths' in nine major sub-Saharan African wars with their own count of battle-deaths in the same wars. The total war death estimates were drawn from a diverse variety of sources. They include battle-deaths, but also the far greater number of 'indirect' or 'excess' deaths from war-exacerbated disease and malnutrition.

Case study evidence suggests that the key determinants of excess deaths are the intensity and scope of po-

litical violence, the numbers of people displaced and the level of development—particularly with respect to health services. Poor countries, where most wars take place, are the worst affected.

Three ways of estimating the wider costs of war are examined in the sections that follow. First is a broad measure of the 'societal impact of war' developed by Monty G. Marshall. This measure uses a 10-interval scale to rank the severity of the societal impact of warfare in each country experiencing armed conflict. The societal impact trend data—like the armed conflict data—show a dramatic drop following the end of the Cold War.

A second approach uses epidemiological surveys to determine numbers of direct and indirect deaths in war-affected countries. The International Rescue Committee carried out a series of epidemiological surveys in the Democratic Republic of the Congo (DRC) between 1999 and 2002. The surveys estimated that some 3.3 million people died as a consequence of the civil war.

A third approach to estimating war-related indirect death rates has been pioneered by Yale University's Bruce Russett and colleagues. The Yale team used two datasets. The first was of battle-deaths in some 51 civil wars that took place between 1991 and 1997. The second was the

World Health Organization's 1999 dataset on mortality and disability rates from various causes—from disease to traffic accidents.

Controlling for other social and economic influences, the team sought to determine the association between the direct civil war fatalities from 1991 to 1997 and the death and disability rates reported by WHO in 1999.

The measure of the indirect impact of war wasn't simply the number of deaths, but rather the number of *healthy* years of life lost as a consequence of death, disease or other harmful conditions that develop as a consequence of war.

Using WHO data for 1999, the researchers found that for each civil war battle-death between 1991 and 1997 there were almost four additional years of healthy life lost in 1999.

As indicated in the earlier discussion of WHO's 'direct' war death data, there are many uncertainties associated with the organisation's mortality data. The measurement process is, in Professor Russett's words, an exercise 'subject to considerable approximation and speculation'.¹

In the final section we examine the much-discussed relationship between security and HIV/AIDS, which

Professor Russett's research found headed the list of diseases that are exacerbated by war.

The growing literature that deals with the AIDS-war nexus makes two important claims. First, that war is a major driver of HIV infections, and second, that the AIDS pandemic increases the risk of armed conflict by reducing state capacity.

However, the relationship is more complex than much of the literature suggests and challenges some of the assumptions of the new conventional wisdom on the AIDS-war nexus. Some long-duration wars are associated with very low levels of HIV infection, while some countries where HIV/AIDS is most prevalent are among the least prone to civil war.

Although the *Human Security Report 2005* offers one of the most comprehensive surveys of global political violence ever published, we are unable to do more than speculate about the true human costs of warfare. We know that indirect deaths in most wars greatly outnumber battle-deaths, but that is all.

Because the indirect human costs of war remain largely hidden and are under-researched and too often ignored, they will be a central theme of the *Human Security Report 2006*.



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Beyond battle-deaths

Comparisons of battle-deaths and total war death tolls reveal that the latter often exceed the former by a huge margin. To determine the societal impact of armed conflict we need to look at a range of indicators.

Thus far this report has analysed battle-deaths—a relatively simple and straightforward measure. But as Figure 4.1 indicates, battle-deaths represent only a small fraction of the total number of people who die as a consequence of war.

Figure 4.1 presents some findings of a study by Bethany Lacina and Nils Petter Gleditsch, who compare battle-death totals with estimates of total war deaths in nine major conflicts in sub-Saharan Africa since the end of World War II.² The differences are sometimes huge—in Ethiopia, the extreme case, the number of battle-deaths was less than 2% of the total war death toll.

The ‘total war death’ figures include both battle-deaths and ‘indirect’ or ‘excess’ deaths. These figures come from a variety of sources—scholars, NGOs and journalists. Few can be considered reliable. They should be viewed as speculative ‘guesstimates’ rather than accurate measures. However, there is no doubt that far more

people die from the indirect effects of political violence than are killed in battle.

The societal impact of war

Recognising the limitations of death tolls as indicators of the total cost of warfare, Monty G. Marshall of the University of Maryland developed a more inclusive yardstick. His ‘societal impact of war’ measure embraces not just war deaths but population dislocations, damage to ‘societal networks’, environmental and infrastructure damage, resource diversion and ‘diminished quality of life’.

The ‘societal impact of war’ measure embraces not just war deaths but population dislocations and damage to ‘societal networks’ as well.

Examining 291 cases of armed conflict from 1946 to 2004, the Maryland researchers scored each country in conflict on a scale of 1 to 10, with 1 indicating very low war costs, and 10 indicating total destruction.

The difference between each level on the scale is the same; two Level 4 conflicts, for example, will have the same

Figure 4.1 Battle-deaths versus total war deaths in selected sub-Saharan African conflicts

Country	Years	Estimates of total war deaths	Battle-deaths	Battle-deaths as a percentage of total war deaths
Sudan (Anya Nya rebellion)	1963–73	250,000–750,000	20,000	3–8%
Nigeria (Biafra rebellion)	1967–70	500,000–2 million	75,000	4–15%
Angola	1975–2002	1.5 million	160,475	11%
Ethiopia (not inc. Eritrean insurgency)	1976–91	1–2 million	16,000	<2%
Mozambique	1976–92	500,000–1 million	145,400	15–29%
Somalia	1981–96	250,000–350,000 (to mid-1990s)	66,750	19–27%
Sudan	1983–2002	2 million	55,000	3%
Liberia	1989–96	150,000–200,000	23,500	12–16%
Democratic Republic of the Congo	1998–2001	2.5 million	145,000	6%

Source: Lacina and Gleditsch, 2004⁴

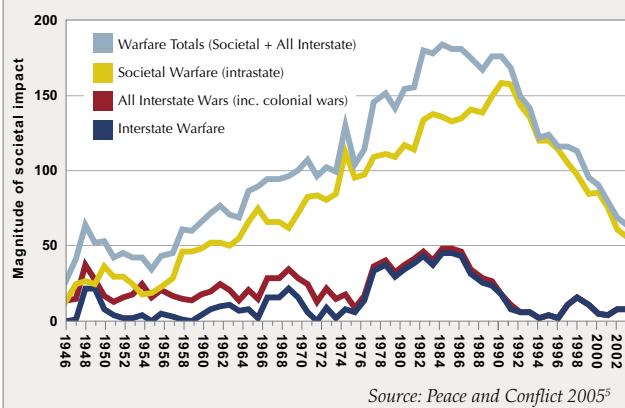
The indirect impact of war in sub-Saharan Africa is revealed by the comparison of battle-deaths with estimates of war deaths from all causes—primarily disease and malnutrition.

societal impact as one Level 8 conflict or four Level 2 conflicts.³ Because the difference between each consecutive level of conflict is assumed to have equal weight, it is possible to sum the impact-of-war scores for all countries to arrive at the annual global totals shown in Figure 4.2.

The trend data in Figure 4.2 reveal that since the end of the Cold War the societal costs of armed conflict have declined more rapidly than the number of armed conflicts, or battle-deaths per conflict.

This has important and encouraging implications for post-conflict recovery. All things being equal, the lower the societal costs of warfare, the greater the prospects for swift and successful recovery once a conflict ends.

Figure 4.2 The falling cost of armed conflict



The global trend in the cost of conflict follows a similar pattern to the conflict numbers: several decades of increase then a sharp decline.



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Measuring the hidden costs of armed conflict

The greatest human costs of war are the ‘indirect’ deaths caused by disease and the lack of access to food, clean water and health care services. A recent study uses WHO mortality and morbidity data to estimate the impact of war on population health.

According to a recent study of battle-deaths around the world, some 134,000 people died as a direct and immediate consequence of armed conflicts in 1999.⁶ These casualties are only the tip of the iceberg. Long after the shooting stops, wars continue to kill people indirectly.

Wars destroy property, disrupt economic activity, divert resources from health care and raise crime rates after the fighting has ended. Crowded into camps, susceptible refugees fall ill from infectious diseases and contribute to the further spread of these diseases.

Because many of these indirect effects may take years to manifest and are difficult to distinguish from the effects of diseases and conditions not attributable to war, they are often ignored in favour of immediate body counts. But disregarding indirect mortality and morbidity grossly underestimates both the human costs of war and the

level of expenditure and effort needed to mitigate post-conflict suffering.

By using WHO data it is possible to estimate the long-term and indirect effects of wars, while holding constant other influences known to affect health outcomes. These include per capita income and health spending, type of political system, inequality of income distribution, urbanisation and women’s education.

In a recent study, Hazem Ghobarah, Paul Huth and Bruce Russett considered 1999 data from selected formerly wartorn countries and their neighbours. They concluded that nearly twice as many years of healthy life were lost to indirectly caused death and disability as were lost from direct combat.⁷

Why does the misery last so long?

Wars increase exposure to conditions that, in turn, increase the risk of disease, injury and death. Prolonged and bloody civil wars usually displace large populations—either internally or across borders.

The Rwandan civil war, for example, generated 1.4 million internally displaced persons and sent some 1.5 million refugees fleeing into neighbouring Zaire (now known as the Democratic Republic of the Congo), Tanzania and Burundi.

Unable or unwilling to return home, refugees often stay in crowded makeshift camps for years. Bad food, contaminated water, poor sanitation and inadequate shelter can combine to transform camps into vectors for infectious disease—measles, respiratory disease and acute diarrhoea—while malnutrition and stress compromise people's immune systems. Diseases rampant in refugee camps easily spread to wider populations. Mortality rates among newly arrived refugees from countries ravaged by civil wars can be 5 to 12 times higher than normal.⁸

Prevention and treatment programs, already weakened by the wartime destruction of health care infrastructure, simply cannot cope with new threats posed by mass population displacements. In Africa, efforts to eradicate Guinea worm, river blindness and polio, successful in most countries, have been severely disrupted in states experiencing intense civil wars. Both soldiers and refugees are implicated in the spread of HIV/AIDS in Africa.

As well, murders, suicides and even accidental deaths often rise in the aftermath of civil war.⁹ The widespread availability of small arms in most post-conflict situations makes violence difficult to control.

Civil wars typically have a severe short-term (approximately five-year) negative impact on economic growth following the end of hostilities.¹⁰ Poor economic performance reduces tax revenues needed to finance public health care, while lower incomes mean people are less able to access the private health care sector. Civil wars also deplete the human and fixed capital of the health care system. Heavy fighting often destroys clinics, hospitals and laboratories, as well as water treatment and electrical systems.

Mortality rates among newly arrived refugees from countries ravaged by civil wars can be 5 to 12 times higher than normal.

Even when funds are available, rebuilding health infrastructure takes a long time. Severe civil wars may also

induce the flight of highly trained medical professionals, who may not return or be replaced until long after the war ends. Authorities are faced with many daunting challenges, including:

- Rebuilding infrastructure and repairing the environment.
- Reforming and rebuilding army and police forces, judicial systems and administrative capacity.
- Responding to continuing military and security threats. (Security threats may derive from domestic insurgent groups or from a powerful military force built up by a neighbouring state to fight its own civil war.)¹¹

To meet these post-war demands, decision-makers must choose between competing priorities—with health care only one among many.

Measuring indirect health effects

WHO considers overall health achievement in any country by using the Health-Adjusted Life Expectancy index, which measures an individual's normal healthy life expectancy at birth. From this figure, WHO subtracts the number of years of healthy life an individual in a particular country loses through death, or through living with a major disability caused by either disease or injury.

This measure of lost years of healthy and productive life varies greatly by region and income level. In rich countries, most disabilities are associated with chronic conditions of old age—and, at that point, relatively short life expectancies.

By contrast, in poor tropical countries, infant mortality is much higher and more health problems arise from the burden of infectious diseases such as malaria and schistosomiasis. These costs are most often borne by children and young adults who may live a long time, but do so with seriously impaired health and quality of life.

Another useful indicator employed by WHO is the Disability-Adjusted Life Year or DALY, which measures the number of potentially healthy years of life lost to death and disability by gender and by age group. DALYs are also broken down according to 23 major disease categories and

conditions.¹² A statistical model can then identify the 'normal' levels of death and disability from each disease in each country. This provides a baseline for measuring the 'excess' deaths and cases of disability caused by war, that is, those that would not have occurred had there been no war.

Thus, the WHO data can be used to determine whether war increases the burden of disease after the fighting has stopped. The data can also show how disease and other conditions arising from war affect a population differently according to age and gender.

Using the DALY measure

The following analysis focuses on civil wars. Not only are these conflicts 20 times more common than interstate wars, they are often far more deadly¹³ in both their direct and indirect effects.

Following customary practice among conflict researchers, civil wars are defined here as armed conflicts challenging the sovereignty of an internationally recognised state, occurring within that state's boundary, and resulting in 1000 or more fatalities in at least one year.

The analysis covers civil wars during the years from 1991 to 1997 and uses immediate battle-related deaths as its key indicator of the intensity of the conflict in question.¹⁴ (There are no reliable data on injuries for all countries.) To

determine the intensity of civil war, war deaths per 100 people are measured in the country in question. For the 51 countries that experienced civil war during the period, mortality rates ranged from 0.001 to 9.420.

For most infectious diseases the time lag is usually short (less than five years), while the effects of damage to the health care system typically last five to ten years.

To determine the indirect effect of civil wars, war deaths between 1991 and 1997 are examined against DALY rates for 1999. It is assumed that the effects are not instantaneous, and the time lag used here is an approximation.

For most infectious diseases—the principal cause of indirect civil war deaths—the time lag is usually short (less than five years), while the effects of damage to infrastructure and the health care system typically last five to ten years. The delay preceding clinical manifestation of HIV/AIDS and many cancers can be even longer. In war zones in the developing world, borders are frequently porous and fighters can cross at will into neighbouring countries, often

Figure 4.3 The long-term impacts of civil wars by disease/condition

Disease/condition	Gender and age group affected
HIV/AIDS	Both genders about equal, and all age groups; greatest impact on children 0–4 years and men and women 15–59 years
Malaria	Both genders and all age groups; greatest impact on children 0–4 years
Tuberculosis, respiratory and other infections	Both genders, all age groups, but children 0–4 years particularly affected
Transportation accidents	Both genders, 15–59 years
Homicide	Girls, women and older boys and young men
Cervical cancer, maternal conditions	Older girls and women

Source: Bruce Russett, 2004

The indirect impacts of wars vary according to the age and gender of citizens.

spreading disease and causing disruption, death and injury. But the most significant health impact on border states comes from the floods of refugees seeking cross-border sanctuary from the fighting at home.

The effect of a civil war in a neighbouring country can be measured by the rate of immediate war deaths in that neighbouring country, adjusted for a measure of the border's permeability—the more porous the border, the easier it is for refugees to cross it.¹⁵ If more than one contiguous state experiences civil war, their measures are added accordingly. The maximum value is for Zaire (now known as the Democratic Republic of the Congo), which borders seven countries that experienced civil war in this period and was affected by major wars in four of these countries—Rwanda, Angola, Sudan and Burundi.

These effects were identified by statistical (multiple regression) analysis of data from 165 countries during the late 1990s. The analysis holds constant the effects of several influences known to affect a country's average level of overall health. These include public and private sector health spending, educational levels (especially of women), rapid urbanisation and inequality of income. The last reduces average health levels by devoting more resources to a minority of wealthy households and substantially less to the poor majority.

By controlling for these social and economic influences, we can then ask what the additional effect of direct and immediate civil war fatalities in previous years is, and how these diminish healthy life expectancy below what would be expected in the absence of a war. The reduction in healthy life expectancy comes from diseases or conditions that develop—or increase—as a consequence of the war.

The multiple and long-lasting impacts of war

Inadequate health spending and lack of female education lead to a statistically significant loss of healthy years of life in countries that aren't at war, while rapid urbanisation and income inequality significantly increase that loss. When data analysts control for the impact of these influences, we see that civil wars result in additional loss. Countries ex-

periencing civil war earlier in the 1990s subsequently suffered a significantly increased loss of healthy life in every age and gender category—amounting to almost 3.9 years of healthy life lost to death and disability for every direct and immediate civil war death.

Between 1991 and 1997 direct and immediate war deaths totalled approximately 3.1 million. This suggests that 12 million years of healthy life were lost indirectly from those previous wars in 1999 alone. In many age groups the impact was higher for females than for males. For some countries and some population subsets, the consequences were much worse. In the extreme case of Rwanda, where there were 9.4 civil war/genocide deaths per 100 people—most of them in 1994—subsequent losses amounted to 63 DALYs per 100 boys younger than five.

The implications become clearer in the impact of wars on the incidence of specific diseases and conditions (Figure 4.3).

The most significant health impact on border states comes from refugees seeking cross-border sanctuary from the fighting at home.

Topping the list of diseases magnified by war is HIV/AIDS, hitting both genders hard in all age groups. The most devastating losses are concentrated in economically productive age groups (especially men aged 15 to 44, where the loss rate is more than two DALYs per 100 males) and on very young children (more than one DALY per 100 children). And this is the impact of just one disease out of many—the misery deepens with the accumulated losses wrought by other diseases and by an increase in injuries.

The next most damaging disease is malaria, which also affects all age and gender groups. Controlling for other factors, however, the greatest impact from malaria is reserved for the very young (1.75 years of healthy life lost per 100 boys younger than five). Three other major disease groups showing significant increases in the wake

of civil wars are tuberculosis, acute respiratory infections and diarrhoeal infections—again, for both genders and most ages.

But infectious diseases are not the only killers. Included among the 23 categories of disease and other health-threatening conditions are ‘transportation accidents’, ‘other unintentional injuries’, ‘homicides’ and ‘suicides’. Among young and middle-aged adults, a higher rate of transportation accidents may in part reflect the deterioration of roads and vehicles but is also consistent with greater stress and the breakdown of law and order. A more obvious indicator of breakdown in the social order is the increase in homicides—the victims being primarily women and younger men. Increases in other unintentional injuries within the same groups may also derive from stress and include unreported suicides.

Reports of elevated cervical cancer rates may seem surprising, given that cervical cancer usually develops too slowly to be seen in the fairly short time lag used in this analysis, but there are two possible connections to civil wars. First, the finding is consistent with the expectation of a breakdown in social norms—in this case, norms against forced sexual relations. Second, infection with some strains of the human papilloma virus (HPV) plays an important role in the development of cervical cancer,¹⁶ and civil wars increase the incidence of many infectious diseases. In addition, in traditional societies, other sexually transmitted diseases may be recorded as cervical cancer.

Other threats to women’s health in post-conflict situations include increased maternal mortality and morbidity—although some data may merely reflect the misreporting of sexually transmitted diseases.

Countries bordering on those that have been afflicted by civil war also experience rises in disease rates and other

war-related health problems caused by military, refugee and other human traffic across borders during wartime. Once again, it is HIV/AIDS that exerts the greatest impact, with those most susceptible being young and middle-aged adults. Very young children make up the other major category of HIV/AIDS victims.

Civil wars, in one’s own country or a neighbouring country, produce damage to health and health care systems that extends well beyond the period of active warfare.

Malaria, tuberculosis, and respiratory or other infections are responsible for the other big post-war jumps in disease. Homicides of girls and younger women also increase sharply. Liver cancer increases in many age and gender groups, which probably represents the results of infectious hepatitis.

In sum, civil wars, in either one’s own country or a neighbouring country, produce long-term damage to health and to health care systems that extends well beyond the period of active warfare. Women and children are most affected by these delayed war-induced negative health impacts.

Recall that some 12 million DALYs were lost in 1999 as a consequence of the delayed effects of the civil wars that took place between 1991 and 1997. If another 25% is added to take into account the estimated impact of these wars on neighbouring countries, the total number of DALYs lost becomes 15 million. These losses include only those incurred during a single year of a post-war process that lasts many years.

WAR AND DISEASE IN THE DEMOCRATIC REPUBLIC OF THE CONGO

Between August 1998 and November 2002, an estimated 3.3 million people died in the Democratic Republic of the Congo (DRC) as a consequence of civil war. The overwhelming majority of deaths did not result from violence, but from malnutrition and diseases associated with the war.

The shocking death toll in the Democratic Republic of the Congo made headlines only because researchers from the International Rescue Committee (IRC) had carried out a series of health surveys in the DRC during the war—and made major efforts to communicate their findings through the media. The 23 epidemiological surveys recorded crude mortality rates in rural areas of the DRC, and the causes of death.¹⁷ Over the three years in which the surveys were carried out (1999–2002), the average crude mortality rate was 2.5 to 3.7 times the estimated pre-war rate of 1.5 deaths per 1000 per month. Knowing these ratios enabled the IRC researchers to estimate the total number of conflict-induced ‘excess’ deaths—that is, those that exceed the normal peace-time death rate. Of the 2223 civilian deaths reported from the surveys, only 8% resulted from violence. Infectious diseases caused most of the fatalities, with anemia and malnutrition being the most common other causes.

The surveys also revealed that the areas with the greatest rates of violence tended to experience the highest numbers of deaths from non-violent causes. This correlation is highlighted in the death rate in Kalonge, an administrative area within Sud-Kivu province. In November 1999, Rwandan government troops and their allies, the Congolese Rally for Democracy, withdrew from Kalonge, which led to an immediate takeover by rebels, including both Congolese Mayi-Mayi insurgents and former Rwandan soldiers who had fled to the DRC following the 1994 genocide. Killings of civilians were widespread and interviewees reported that virtually the entire population of 62,000 fled the area over a two-month period. The survey data showed that the rebel takeover was associated with a sixfold increase in the murder rate and a fourfold increase in the death rate from malaria and other febrile diseases. Lacking shelter, adequate clothing and access to health services, those who fled were highly susceptible to infectious diseases.

Two of the regions surveyed in 2001¹⁸ were surveyed again in 2002¹⁹ after a ceasefire agreement that sharply reduced the violence. Similar questions were asked in both surveys. In both districts violence-specific and crude mortality rates were initially exceptionally high, but following the troop withdrawals in 2002 the rate of violent death decreased by 96%, while the rate of excess deaths from other causes decreased by only 67%.²⁰

The IRC conducted a repeat survey in the fall of 2004,²¹ two years after the ceasefire and withdrawal of foreign troops, and found that the crude mortality rate was 2.3 per 1000 per month in the war-torn eastern provinces. This translates to approximately 31,000 deaths per month above the baseline rate that existed prior to the Rwandan and Ugandan invasion.

These surveys demonstrate how prolonged conflict can make a population extremely susceptible to death from diseases endemic in the population before the violence began. The link between violent death and death from infectious disease was strong, whether comparing the same populations at different times or different populations at the same time.

The interplay between violence and infectious diseases is complex and differs from year to year and country to country. But the evidence clearly suggests that the greater the wartime violence and the poorer and more vulnerable a country, the greater the number of excess deaths due to non-violent causes. The IRC’s analysis of the first 11 studies undertaken when the fighting was at its peak between 1999 and 2001 found that for every violent civilian death there were six excess non-violent civilian deaths.

The IRC’s surveys also clearly demonstrate that attempting to assess the impact of war by counting only those who die as a direct result of violence grossly underestimates the real human costs of conflict—particularly in poor countries.



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HIV/AIDS and conflict

In both times of conflict and times of peace, the spread of HIV/AIDS depends on a complex range of factors. In some cases war contributes to the spread of the disease, in others it is associated with very low levels of infection. Claims that high rates of HIV/AIDS increase the risk of state failure appear to have little evidence to support them.

War and disease have been partners throughout history. The disruption of social structures, the mass movement of armies and refugees, and restricted access to food and clean water have always created conditions in which diseases flourish, often causing greater casualties than military action. In ancient Greece, Athens was ravaged by plague during its conflict with Sparta. In the 16th century Americas, severe outbreaks of smallpox, measles and typhus among Aboriginal peoples helped Europeans in their violent colonisation of the New World. In 1994 cholera and dysentery took the lives of almost 50,000 refugees in the first month after they fled from the Rwandan genocide.²² Between 1998 and 2004, 3.8 million people are estimated to have died as the result of conflict in the Democratic Republic

of the Congo; the vast majority were killed by disease, not violence.²³

Rates of sexually transmitted infections (STIs) also rise in wartime. Men and women become more sexually active as uncertainty over the future reduces inhibitions among soldiers²⁴ and civilians; more people are encouraged by poverty or opportunism to sell sex; the incidence of rape often rises. Syphilis was first identified in the wake of the French invasion of Italy in 1494. In the 1960s, STI rates among US soldiers in Vietnam were nine times higher than among soldiers in the United States.²⁵

Conflict can also lead to increased HIV infection. The virus probably first affected humans in central Africa in the 1930s in communities where patterns of sexual activity did not allow it to spread widely; in the late 1970s the many rapes committed during the Ugandan civil war and its spillover into Tanzania may have triggered the HIV epidemic in that part of the world.²⁶ HIV incidence in rural Rwanda, where approximately 95% of the population live, was considerably higher following the 1994 genocide—11% in 1997 compared to 1% prewar.²⁷ And reports from Sudan in 2004 showed HIV incidence rising to 21% in the conflict-ridden south, compared with 2.6% in the general adult population.²⁸

HOW HIV SPREADS

HIV can be spread in many ways—from unprotected sex to drug injections. There is no cure for HIV/AIDS.

Human immunodeficiency virus (HIV) infection spreads primarily through sexual intercourse. It can also be transmitted through infected equipment used in recreational drug injection, through transfusion of infected blood products, through use of contaminated medical and other skin-piercing instruments (e.g., tattooing needles) and from infected mothers to their newborn children via the placenta and breast milk.

Although some soldiers, particularly in insurgent forces, inject drugs, sexual transmission alone is believed to play a major role in spreading HIV in times of conflict. Transmission can be prevented through consistent use of condoms.

Infection with HIV leads to a gradual breakdown of the immune system. The body becomes vulnerable to 'opportunistic' infections that it could normally overcome, such as pneumonia, fungal infections and long-term diarrhoea.

AIDS (acquired immune deficiency syndrome) is usually defined as the presence of one or more such infections and confirmation of HIV infection. Although AIDS is the most commonly used term, it only refers to the advanced stage of the disease.

Untreated, AIDS at present is invariably fatal. Antiretroviral therapy can keep HIV infection under control, but it is not widely available or affordable, and cannot cure the disease or prevent it from being transmitted to other people.

In both conflict and peacetime the extent to which HIV spreads depends on a combination of factors, including the following:

- Initial infection rates.
- Patterns of sexual behaviour (what percentage of the population changes partners and how often).
- The frequency of rape.
- Infectivity (individuals are more likely to pass the virus to others when they themselves have been recently infected).
- The presence or absence of other sexually transmitted infections which facilitate the transmission of HIV.
- The age of female partners (women under 25 are more vulnerable).
- The presence or absence of economic or social pressure on women to be sexually active, usually without the right to ensure condom use.
- The extent to which condoms are available, affordable and socio-culturally acceptable.
- Whether the male partner is circumcised (male circumcision reduces vulnerability) and whether, how often and with whom condoms are used.

The nature of a conflict also significantly influences the likelihood of an epidemic. Short wars that depend on 'distance' tactics such as aerial bombardment are less likely to spread HIV/AIDS than conflicts that lead to long-term fighting on the ground, to mass movements of soldiers and civilians, and to opportunities for soldiers and others to find new sexual partners.

The physical trauma of rape considerably heightens the risk of transmitting HIV, to the rapist as well as to the victim. Rape by individual soldiers acting alone and as a military tactic has always been a feature of warfare. The victims are usually women and girls, but rape of men and boys does occur. Reliable statistics are difficult to obtain, but estimates of mass rape in recent conflicts include 'thousands' in Sierra Leone²⁹ in the 1990s, at least 12,000 in Bosnia in 1992–93³⁰ and at least 250,000 in Rwanda.³¹ Seventy percent of one group of victims in Rwanda later tested HIV-positive,³² although it is not known how many contracted the virus during rape.

HIV infection may also rise in the aftermath of conflict. The rise in HIV incidence in Cambodia from 0% in 1990 to 2.6% by 2004 (the highest per capita incidence

in Asia) has been attributed partly to the presence of peacekeepers in the early 1990s and partly to the re-emergence of sex workers after two decades of political and social repression. Peacekeepers have significant physical, moral and economic power, which frequently enables them to have sex with locals and sex workers, either consensually, in a short- or long-term relationship or through some form of coercion. That is not to argue that peacekeepers ‘introduced’ the virus to Cambodia or any other country—soldiers from many countries test HIV-negative before deployment and HIV-positive on return.

The nature of conflict influences the likelihood of an epidemic.

A rise in HIV infection is not inevitable in warfare. Where HIV incidence is minimal at the start of a conflict, as

in several of the countries listed in Figure 4.4, rates do not rise significantly. Other factors may also reduce spread of the virus; it is believed that rates remained low during the Sierra Leone conflict because mass movement, including cross-border migration, became more difficult and impeded growth of the epidemic.³³ Similar factors may explain the relatively low rates of infection in Angola after three decades of war.³⁴

HIV and the armed forces

Rates of sexually transmitted infection in the armed forces are usually higher than in the general population. Most soldiers are young men who spend long periods away from home and family and who are encouraged by peers, alcohol use and other factors to be sexually active. Military bases attract women who offer sexual services in return for money, gifts or accommodation, particularly in impoverished communities where soldiers have higher than average incomes. Where relatively few women have many soldiers as partners, infection can spread rapidly among both

Figure 4.4 Estimated HIV infection rates in the general population and the armed forces in sub-Saharan Africa

Country	HIV prevalence in 2001, 15–49 year-olds (%)	HIV prevalence in 1997–2002, armed forces personnel (%)
Angola	5.5	50 (1999)
Botswana	38.8	33 (1999)
DR Congo	4.8	50 (1999)
Lesotho	31.0	40 (1999)
Malawi	15.0	50 (1999)
Namibia	22.5	16 (1996)
South Africa	20.1	20–23 (2002)
Swaziland	33.4	48 (1997)
Zambia	21.5	60 (1998)
Zimbabwe	33.7	55 (1999)

Source: Heinecken, 2003³⁵

Rates of HIV are generally higher in the armed forces than in the general population. Only Botswana and Namibia’s armed forces recorded lower rates in the period studied.

groups and to their subsequent partners in both civilian and military life.

The extent of HIV infection in the world's armed forces is uncertain. Few in-depth surveys have been published, methodology is not always certain and some of the statistics regularly quoted may now be out of date. Where data are available, it is clear that soldiers in many countries have higher rates of infection than adults in the general population. The highest figures were recorded in Africa, as seen in Figure 4.4. Elsewhere, the highest figures came from Cambodia, where 7.1% of the armed forces were reported HIV-positive in 1997.³⁶

The impact of widespread HIV on military preparedness can be severe. Soldiers lost through illness and death must be replaced, a process that costs time and money, particularly in the higher ranks. High turnover of personnel leads to potential disruptions in the chain of command and the loss of skills and institutional knowledge; it can

also lead to increased absenteeism and reduced morale. So serious is the potential link between HIV rates and military preparedness that some militaries, such as Namibia's,³⁷ treat infection rates as classified information.

Since the 1990s many countries in Africa, Asia and the Americas have undertaken measures to minimise the incidence of HIV in the armed forces. These include rejecting recruits who test HIV-positive, educating soldiers and placing restrictions on their sexual behaviour (for example, making locations where sex workers are known to congregate out of bounds). A number of militaries have succeeded in maintaining or reaching low rates of infection. In 2000 only 2 in 100,000 soldiers were HIV-positive in Morocco, compared with 3 in 100,000 in the general population.³⁸ In Thailand, where a national campaign significantly increased the rate of condom use, HIV infection rates among new recruits fell from 12% to 3% between 1993 and 1998.³⁹

Figure 4.5 HIV infection and the rise of conflict: Is there a correlation?

Country	HIV-positive (%) [*]	Intrastate armed conflict**	
		1990–2000	since 2000
Swaziland	38.8	no	no
Botswana	37.3	no	no
Lesotho	28.9	yes	no
Zimbabwe	24.6	no	no [†]
South Africa	21.5	yes	no
Namibia	21.3	yes	no
Zambia	16.5	no	no
Malawi	14.2	no	no
CAR	13.5	yes	yes
Mozambique	12.2	yes	no

Source: Martin Foreman, 2005

Of the 10 countries most affected by HIV only 5—the Central African Republic, Lesotho, Mozambique, Namibia and South Africa—have experienced armed conflict since 1990. In recent years only one country, the Central African Republic, has experienced armed conflict. In all cases the level of conflict has been relatively low.

* The estimated percentage of 15–49-year-olds living with HIV at the end of 2003.⁴⁰

** The definition of armed conflict in this table is broader than that of the Uppsala/PRIO conflict database and includes non-state as well as state-based conflict.

† Since 2000 Zimbabwe has suffered from political violence and civil unrest but not at sufficiently high levels to be categorised as armed conflict.

Figure 4.6 HIV infection and fatalities from political violence: Is there a correlation?

Country/region	Battle-related deaths per 100,000 in 2003*	HIV-positive (%)**
Liberia	59.4	5.9
Iraq	35.1	<0.1
Burundi	16.2	6.5
Sudan	8.5	2.3
Uganda	6.5	4.1
Israel and the Palestinian Territories	5.8	Israel: 0.1; Palestine: n/a, believed very low
Nepal	4.4	0.5
DRC	4.2	4.2
Somalia	3.9	1.0–2.0 (1997–1999)
Colombia	1.6	0.7

Source: Martin Foreman, 2005⁴³

In the 10 countries most affected by political violence, no more than 1 in 15 adults has contracted HIV, and in 4 countries fewer than 1 in a 100 adults is HIV-positive.

*From the Uppsala/Human Security Centre dataset 2005.

**The estimated percentage of 15–49-year-olds living with HIV at the end of 2003.

Other militaries, however, particularly insurgent forces, have no screening or education policies, or have policies that are poorly implemented. They may also have weaker discipline and may either turn a blind eye to soldiers' sexual activity or actively encourage it with partners who may or may not consent. In such situations, the rate of infection among soldiers and their partners is likely to be high compared with that of the general adult population.

HIV as a cause of conflict?

A strong argument has been put forward that HIV may not only be a consequence of conflict, but also a cause. In this scenario, whole nations would be affected, when high rates of infection among skilled labour, management and professional classes lead to lost productivity and high replacement costs and a smaller skill base. Increasing numbers of orphans grow up uneducated and unsocialised. Poor health correlates with distrust in local government and crime, reducing social cohesion. The impact on the military

leads to lack of leadership, reduced competency and failure to modernise. Weakened in both civilian and military life, the nation becomes subject to internal disorder and more vulnerable to neighbouring states with aggressive intentions. Possible outcomes include destabilisation, civil conflict, war with neighbours and collapse of the state.⁴¹ Currently, sub-Saharan Africa is at greatest risk, but countries in Central Asia and elsewhere may face similar problems in a few years.⁴²

However, the actual evidence that HIV poses a current threat to national and international security is weak. Figure 4.5 indicates that, more than 20 years into the epidemic, there is no correlation between the intensity of HIV infection and the existence of conflict.

Figure 4.6 compares deaths from political violence with HIV infection, and again no clear correlation is shown. Other conflicts that have led to high death tolls in recent years also have relatively low rates of infection, including Algeria (0.1%) and Angola (3.9%). East Timor and the Solomon Islands witnessed the collapse

of government functions but also had very low rates of HIV infection.

It is possible that the epidemic is at an early stage and a clear correlation between high infection rates and destabilisation will eventually be seen. In the absence of such evidence, however, a more appropriate analysis is that HIV is only one among many factors, including poverty, hunger, environmental degradation, ethnic and/or religious tensions and political ambition, that lead to destabilisation and conflict. As yet, the impact of the virus does not appear to play a primary role.

The links between HIV and conflict are more complex than they appear.

An alternative view is that HIV may reduce rather than enhance the likelihood of combat. External threats may diminish when countries weakened by high rates of HIV infection have neighbours facing the same problem. Civil unrest may be less likely if individuals are increasingly preoccupied by their own health and that of their families.

Furthermore, the conclusion to be drawn from Uganda and other countries where the virus has hit hardest may be that communities are resilient and although weakened are not overwhelmed by the epidemic.

In many countries awareness of HIV has led to a wide range of responses, from education programs for the military and increasing provision of antiretroviral therapies to involvement of the commercial sector in prevention and care activities. Such responses are often far from ideal and are sometimes missing where they are needed most, but they help to mitigate the worst impact of the epidemic. By doing so, they weaken the potential link between HIV and conflict both within and between nations.

The links between HIV and armed conflict are therefore more complex than they at first appear. While there is evidence that under certain conditions armed conflict can accelerate HIV epidemics, some conflicts appear to reduce the rate at which the virus spreads. Furthermore, the intuitive and widely quoted view that widespread HIV infection inevitably leads to conflict and other political violence is clearly not supported by the available evidence. More nuanced hypotheses, better data and more critical analyses are needed.

PART IV

ENDNOTES

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