

Guidelines for the Care of  
**Sexually Transmitted  
Infections**  
in Conflict-Affected Settings



Developed by the Women's Commission for Refugee Women and Children on behalf of the Reproductive Health Response in Conflict Consortium 2004



**RHRC**  
Consortium



# The Reproductive Health Response in Conflict Consortium

► ► ► ► [www.rhrc.org](http://www.rhrc.org)

**Members:** American Refugee Committee  
CARE  
Columbia University, Mailman School of Public Health, Heilbrunn  
Department for Population and Family Health  
International Rescue Committee  
JSI Research and Training Institute  
Marie Stopes International  
Women's Commission for Refugee Women and Children



Columbia University  
MAILMAN SCHOOL  
OF PUBLIC HEALTH



MARIE STOPES  
INTERNATIONAL



## Mission Statement

The Reproductive Health Response in Conflict (RHRC) Consortium is dedicated to the promotion of reproductive health among all persons affected by armed conflict. The RHRC Consortium promotes sustained access to comprehensive, high quality reproductive health programs in emergencies and advocates for policies that support reproductive health of persons affected by armed conflict.

The RHRC Consortium believes all persons have a right to quality reproductive health care and that reproductive health programming must promote rights, respect and responsibility for all. To this end, the RHRC Consortium adheres to three fundamental principles: using participatory approaches to involve the community at all stages of programming; encouraging reproductive health programming during all phases of emergencies, from the initial crisis to reconstruction and development; and employing a rights-based approach in all of its work, as articulated in the 1994 International Conference on Population and Development Program of Action.

## Photo Credits

**Large cover photo:** Sandra Krause

**1<sup>st</sup> row:** Jenny Perlman

**2<sup>nd</sup> row (left-right):** Raghu Rai, David and Lucile Packard Foundation;  
Mary Diaz

**3<sup>rd</sup> row:** Green Communication Design

**4<sup>th</sup> row (left-right):** Julia Matthews; Women's Commission

**5<sup>th</sup> row:** Rachel Jones

**6<sup>th</sup> row (left-right):** Julia Matthews; Holly Myers

**Pg iv:** Women's Commission

**Pg 32:** Holly Myers

**Pg 87:** Ramina Johal

**Pg 92:** Julia Matthews

\*Please note that all of the photos are taken from conflict-affected settings but do not have any association with sexually transmitted infections.

© 2004 by The Reproductive Health Response in Conflict Consortium

All rights reserved. Reproduction is authorized, except for commercial purposes, provided the RHRC Consortium is acknowledged.

# Table of contents

|  |    |
|--|----|
| Acknowledgements .....   | ii |
| Section 1 >>> Introduction .....   | 1  |
| Section 2 >>> What are STIs? .....   | 5  |
| Section 3 >>> Why focus on STIs? .....   | 11 |
| Section 4 >>> Why focus on STIs in conflict-affected<br>settings? .....                  | 23 |
| Section 5 >>> Contexts for approaching STI care .....                                    | 33 |
| Section 6 >>> A clinic-based approach to STI care<br>in conflict-affected settings ..... | 47 |
| Section 7 >>> Obtaining data .....   | 49 |
| Section 8 >>> Delivering services.....   | 59 |
| Section 9 >>> Improving service utilization .....  | 71 |
| Conclusion .....   | 78 |
| Section 10 >>> Summaries.....  | 79 |
| Self-evaluation .....  | 88 |
| Field evaluation form .....  | 91 |
| Annexes .....  | 93 |



# Acknowledgements

*The Guidelines for the Care of Sexually Transmitted Infections in Conflict-Affected Settings* was principally developed by Wendy Venter, an independent consultant to the Women's Commission for Refugee Women and Children. Sandra Krause, Julia Matthews, Diana Quick and Sarah Chynoweth of the Women's Commission for Refugee Women and Children provided project direction, support and editorial oversight.

The following individuals and organizations are gratefully acknowledged for their contributions to the preparation of this document:

- American Refugee Committee
- CARE International>>> Doris Bartel
- International Medical Corps>>> Mary Otieno  
(formerly of the International Rescue Committee)
- International Rescue Committee>>> Valerie Berno>>> Rick Brennan>>>  
Ann Burton>>> Jennifer Olson>>> Susan Purdin (formerly of Columbia University)
- John Snow International
- Mae Tao Clinic>>> Dan Dwyer>>> Cynthia Maung>>> Sophia>>> Aung Than Wei
- Marie Stopes International>>> Samantha Guy
- United Nations High Commissioner for Refugees>>> Paul Spiegel
- United States Centers for Disease Control and Prevention>>> Riduan Joesoef  
>>> Reinhard Kaiser>>> Mary Kay Larson
- World Health Organization>>> Sibongile Dlodlu>>> Francis Ndowa

Appreciation goes to Sandra Green and her team at Green Communication Design for their outstanding design and production assistance.

*The Guidelines for the Care of Sexually Transmitted Infections in Conflict-Affected Settings* was made possible by the generous support of the Andrew W. Mellon Foundation.

# Acronyms

|               |     |   |
|---------------|-----|---|
| <b>ANC</b>    | >>> | <b>Antenatal care</b>   |
| <b>BCC</b>    | >>> | <b>Behavior change communication</b>                              |
| <b>BV</b>     | >>> | <b>Bacterial vaginosis</b>  |
| <b>CDC</b>    | >>> | <b>(United States) Centers for Disease Control and Prevention</b> |
| <b>CSW</b>    | >>> | <b>Commercial sex worker</b>                                      |
| <b>GUS</b>    | >>> | <b>Genital ulcer syndrome</b>                                     |
| <b>HIV</b>    | >>> | <b>Human immunodeficiency virus</b>                               |
| <b>HPV</b>    | >>> | <b>Human papilloma virus</b>                                      |
| <b>HSV-2</b>  | >>> | <b>Herpes simplex virus type 2</b>                                |
| <b>IEC</b>    | >>> | <b>Information, education and communication</b>                   |
| <b>KAPB</b>   | >>> | <b>Knowledge, attitude, practice and behavior</b>                 |
| <b>KOH</b>    | >>> | <b>Potassium hydroxide</b>  |
| <b>LCR</b>    | >>> | <b>Ligase chain reaction</b>                                      |
| <b>NGO</b>    | >>> | <b>Non-governmental organization</b>                              |
| <b>PCR</b>    | >>> | <b>Polymerase chain reaction</b>                                  |
| <b>PID</b>    | >>> | <b>Pelvic inflammatory disease</b>                                |
| <b>PMTCT</b>  | >>> | <b>Prevention of mother-to-child transmission</b>                 |
| <b>RPR</b>    | >>> | <b>Rapid plasma reagin</b>  |
| <b>RTI</b>    | >>> | <b>Reproductive tract infection</b>                               |
| <b>STD</b>    | >>> | <b>Sexually transmitted disease</b>                               |
| <b>STI</b>    | >>> | <b>Sexually transmitted infection</b>                             |
| <b>UDS</b>    | >>> | <b>Urethral discharge syndrome</b>                                |
| <b>UNAIDS</b> | >>> | <b>United Nations Joint Programme on HIV/AIDS</b>                 |
| <b>UNHCR</b>  | >>> | <b>United Nations High Commissioner for Refugees</b>              |
| <b>VCT</b>    | >>> | <b>Voluntary counseling and testing</b>                           |
| <b>VDS</b>    | >>> | <b>Vaginal discharge syndrome</b>                                 |
| <b>WHO</b>    | >>> | <b>World Health Organization</b>                                  |



# Section 1

## Introduction

- 1.1 Who are the guidelines for?
- 1.2 What is the purpose of the guidelines?
- 1.3 What are the guidelines about?



Sexually transmitted infections (STIs)<sup>a</sup> are a common health problem with potentially serious consequences, including infertility, chronic illness and death. Furthermore, STIs enhance the transmission of HIV infection. Effective measures for the prevention and care of STIs are available, but are often poorly implemented.

<sup>a</sup> This document uses the term "sexually transmitted infection" (STI) rather than the older term "sexually transmitted disease" (STD). In 1998, WHO and the international community changed the term sexually transmitted disease to sexually transmitted infection. As not all infections result in disease, STI reflects both symptomatic and asymptomatic infections, in both men and women.



## 1.1 Who are the guidelines for?

Conflict-affected settings are associated with conditions that may fuel the spread of STIs. However, conflict and its aftermath may also present new opportunities for combating STIs.

The guidelines are aimed at individuals and organizations concerned with improving the quality of care of STIs in conflict-affected settings.

The document primarily targets workers involved in resource allocation, programmatic decision-making and management. The guidelines should be useful to health coordinators, program managers and technical advisors, both in government and non-governmental organizations (NGOs). While technical components relevant to clinical health workers are included, the guidelines will also provide non-clinical staff with insights into the scope and complexity of an important public health issue.

## 1.2 What is the purpose of the guidelines?

The guidelines provide a framework for **clinic-based** care of STIs and aim to show that:

- STIs are an important public health problem in conflict-affected settings.
- Conflict-affected settings pose challenges but also present opportunities for STI control.
- Effective STI care requires investment in technical capacity to design and implement appropriate, technically sound programs.
- Effective service delivery is based upon reliable data, drug management, training and supervision, as well as effective clinical care.
- Advocacy is needed to ensure that STI control receives the necessary attention in conflict-affected settings.

## 1.3 What are the guidelines about?

“...STI control programmes must be designed to address each country’s unique epidemiological situation, behavioral patterns and cultures. Consequently, no standard STI programme will be appropriate for every country, and even within a single country, a control programme is likely to change over time to address changes in STI epidemiology, in society and in control programmes...”<sup>b</sup>

STIs are a significant public health problem. The factors influencing the control of STIs are complex and resource-poor settings present particular challenges. Conflict-affected settings are associated with conditions that may fuel the spread of STIs, thus adding a further layer of complexity. STI care is further influenced by a variety of programmatic issues and a range of sensitivities, uncertainties and controversies.

<sup>b</sup> World Health Organization. Control of Sexually Transmitted Diseases. 1985.

Defining an approach to STI care in conflict-affected settings poses a number of challenges:

- Conflict-affected settings vary with regard to epidemiological patterns.
- The factors affecting STI care vary from context to context.<sup>c</sup>
- There are considerable differences in resource availability among various settings; resource availability is a key factor in determining the feasibility of an approach to STI care.
- STI care must be adapted to the stage of the emergency.
- The syndromic approach is currently the only feasible method of STI case management in most conflict-affected settings, but has well-recognized limitations.
- Clinical care does not function in isolation. Appropriate staff, equipment, drugs, training, supervision and surveillance systems are needed and must be supported by effective financial, administrative and logistical systems. The system as a whole requires political support to promote appropriate resource allocation. Furthermore, services must be accessible and acceptable to the community.

**There are no “quick fixes” for STI control.** A multi-sectoral approach is needed, addressing the underlying economic, social and cultural factors along with the health care issues. Within the health sector, STI control requires both clinic-based and community-based strategies. The two strategies are closely linked and reinforce each other. Insufficient attention to either will reduce the overall effectiveness of STI control efforts. Within both strategies, behaviors and contexts must be addressed in addition to the clinical aspects of STI control. Adequate discussion of all the components of STI control is beyond the scope of this document. Important community-based components, such as condom programming, behavior change communication and interventions targeting specific groups, warrant separate discussions. Annex 11 suggests a number of reference materials.

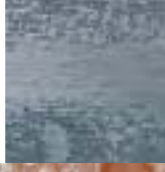
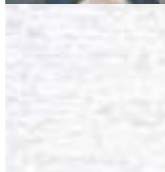
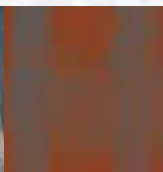
The guidelines address the management of STIs other than HIV/AIDS. However, STIs and HIV/AIDS are closely linked. Effective treatment of STIs is an important HIV/AIDS prevention strategy. Trends in STI incidence and prevalence can also serve as early indicators of changes in sexual behavior and thus assist in monitoring the effectiveness of HIV/AIDS prevention programs.

As conflict-affected settings vary widely, there can be no single “best practice” approach for STI management in these situations. However, program managers and clinicians across a variety of settings may face a number of common challenges. *This document aims to raise awareness of the complexities of STI care and to highlight areas where improvements may be possible.*

Sections 2 and 3 describe STIs and provide a broad overview of the STI problem. Section 4 highlights the implications of STIs in conflict-affected settings. Section 5 provides a contextual framework for STI programs and reviews the debate around syndromic management. Section 6 introduces an approach to clinic-based STI care in conflict-affected settings. Sections 7, 8 and 9 describe components of clinic-based care including data collection, service delivery and utilization. Recommendations for both minimum and comprehensive responses are presented, acknowledging the need to adjust responses to the phase of the emergency. At the end of each section, a summary of key points is provided. Section 10 presents an overview of key points and a summary of recommendations. The annexes include supplementary documents and suggestions for further reading.

<sup>c</sup> For example, NGO services versus government health services, camp settings versus dispersed communities, urban versus rural communities, diverse social, cultural and religious contexts.

***The risks for the spread of STIs in conflict-affected settings warrant urgent intervention. In spite of the challenges associated with STI control, conflict and its aftermath may present new opportunities for combating STIs. The need and the potential for intervention should be realized and appropriate resources allocated from the outset of the emergency.***



# Section 2

## What are sexually transmitted infections?

2.1 Overview of STIs

2.2 STIs and gender



Sexually transmitted infections are infections for which the most common route of transmission from person to person is through sexual contact.



## 2.1 Overview

### Definitions and routes of transmission

Sexual transmission may include penis-to-vagina, penis-to-mouth, penis-to-anus, mouth-to-vagina and mouth-to-anus contact. Ejaculation does not have to occur for STIs to be transmitted. STIs can also be spread to other parts of the body through contact with discharges or ulcers. For example, a gonorrhoea eye infection can result after touching infected genitals and then eyes.

STIs are part of a broader group of infections known as reproductive tract infections (RTIs). RTIs refer to all infections of the reproductive tract, including infections not caused by sexual contact. RTIs not caused by sexual contact may result from unsterile medical procedures (iatrogenic infections), or from overgrowth of organisms normally living in the reproductive tract (endogenous infections), such as BV and candidiasis.

Several STIs can also be transmitted from mother to baby during pregnancy and delivery, for example, syphilis, gonorrhoea and herpes.

### Classification of STIs

More than 30 sexually transmitted organisms have been identified. These include bacteria, viruses, protozoa, fungi and parasites. STIs may be classified as ulcerative or non-ulcerative, curable or incurable. Curable STIs can be treated with medications which stop the disease, but cannot repair any permanent damage resulting from the infection. Incurable STIs are caused by viruses. For some viral STIs, although cure is not possible, measures can be taken to prevent the development of disease (e.g., hepatitis B vaccine) or to alleviate symptoms (e.g., antiviral drugs for genital herpes).

**Table 1. Classification of common sexually transmitted infections**

| INFECTION                       | CAUSATIVE ORGANISM  | ORGANISM CLASSIFICATION |
|---------------------------------|---|-------------------------|
| <b>Curable</b>                  |   |                         |
| <i>Non-ulcerative</i>           |   |                         |
| Gonorrhoea                      | <i>Neisseria gonorrhoea</i>   | Bacterium               |
| Chlamydia                       | <i>Chlamydia trachomatis</i>  | Bacterium               |
| Trichomoniasis                  | <i>Trichomonas vaginalis</i>  | Protozoan               |
| Candidiasis                     | <i>Candida albicans</i>   | Fungus                  |
| Bacterial vaginosis (BV)        | <i>Gardnerella vaginalis</i><br><i>Mycoplasma species</i><br><i>Anaerobic species</i>                           | Bacteria                |
| <i>Ulcerative</i>               |   |                         |
| Syphilis                        | <i>Treponema pallidum</i>   | Spirochete bacterium    |
| Chancroid                       | <i>Haemophilis ducreyi</i>  | Bacterium               |
| Granuloma inguinale/donovanosis | <i>Calymmobacterium granulomatis</i>  | Bacterium               |
| Lymphogranuloma venereum        | <i>Chlamydia trachomatis</i> (L1-L3)  | Bacterium               |
| <b>Incurable</b>                |   |                         |
| <i>Non-ulcerative</i>           |   |                         |
| HIV/AIDS                        | Human immunodeficiency virus (HIV)  | Virus                   |
| Genital warts                   | Human papilloma virus (HPV)   | Virus                   |
| Hepatitis B                     | Hepatitis B virus   | Virus                   |
| Hepatitis C                     | Hepatitis C virus   | Virus                   |
| <i>Ulcerative</i>               |   |                         |
| Genital herpes                  | Herpes simplex virus type 1 (HSV-1)<br>Herpes simplex virus type 2 (HSV-2)<br>Human herpes virus type 8 (HHV-8) | Virus<br>Virus<br>Virus |

This document focuses on the most common curable STIs, those toward which STI programs are usually directed in resource-poor settings, namely syphilis, chancroid, gonorrhea, chlamydia and trichomoniasis. Genital herpes, while not curable, is also discussed, in the light of increasing prevalences and implications for HIV/AIDS. BV and candidiasis are considered RTIs, not STIs, although both can also be transmitted sexually. These infections are included because they are common causes of vaginal discharge. Furthermore, both BV and candidiasis may increase the risk of HIV transmission and BV has been associated with negative pregnancy outcomes.

STIs vary in their geographical distribution. Syphilis, genital herpes, chlamydia and gonorrhea are universally distributed. Chancroid is commonly found in sub-Saharan Africa and the Caribbean. Granuloma inguinale is found mostly in the Caribbean and South East Asia.<sup>1</sup>

### Symptoms and signs of STIs

STIs may cause symptoms and signs in the reproductive organs, as well as in the skin around the vagina, penis or anus, or in the throat or mouth. Some STIs also cause systemic symptoms and signs.

#### *Common symptoms and signs of STIs*

- unusual discharge from the vagina or penis
- pain or burning with urination
- itching or irritation of the genitals
- sores, blisters or lumps on the genitals
- rashes, including those on the palms of hands and soles of feet
- lower abdominal pain
- swelling in the groin (inguinal swelling)

### Asymptomatic STIs

Some STIs may not cause any symptoms or may cause only very mild symptoms. An infected person may therefore not realize they have an infection. Up to 80 of women and 10 percent of men with gonorrhea are asymptomatic.<sup>2</sup> With chlamydia infection, 80 to 90 percent of women<sup>3</sup> and up to 50 percent of men<sup>4</sup> may be asymptomatic. Trichomonas vaginitis may be asymptomatic in 50 percent of cases.<sup>4</sup> **Asymptomatic infections can be transmitted to others.**

**STIs, including asymptomatic infections, can result in serious complications**, especially if they are not treated early. Effective treatment reduces the risk of complications and the possibility of spreading the infection.

## 2.2 STIs and gender

### Vulnerability of women

Women are more vulnerable than men to diseases of the reproductive tract, including STIs, for a number of reasons. This has important implications for STI control.

## Reasons women are more vulnerable than men to STIs<sup>5</sup>

### Biological

- The vagina is lined by a mucous membrane, which is more penetrable to infection than the skin of the penis.
- A woman's genitals have a larger surface area through which infection can occur.
- During intercourse, the receptive partner is usually more exposed to genital secretions in terms of quantity and duration of exposure.
- Changes in the cervix during the menstrual cycle can facilitate infection.
- Younger women are particularly vulnerable because their cervical tissues are less mature and more easily penetrated by organisms.

### Damage to genital tissues

- Lack of lubrication during intercourse can result in abrasions which provide an entry for infection. Older women are more likely to get small abrasions in the vagina during sexual activity because of the thinning of the tissues and dryness that occur with age. Cultural practices such as dry sex also increase the risk of abrasions. (Dry sex involves inserting substances such as herbs or powder into the vagina to reduce lubricating secretions.)
- Vaginal or cervical trauma, such as may occur during violent sex or loss of virginity, may increase the risk of STI transmission.
- Scar tissue resulting from female genital cutting may be easily traumatized and may thus increase the risk for infection.
- The use of vaginal douches increases the risk of pelvic inflammatory disease (PID).
- Women who already have an infection (particularly an STI that causes ulcers) are more likely to acquire or transmit HIV. Since women are often asymptomatic when infected with an STI, they are often not aware of this increased risk.

### Social

- Social and economic vulnerabilities further increase women's risk of infection. Many women are dependent on their partner and fear abandonment or violence. Therefore, they have little control over when and how they have sex.
- Patterns of sexual mixing and gender power issues put women at increased risk. Many young women have sex with older men who have already been exposed to the risk of STIs for many years. Anecdotal evidence from sub-Saharan Africa suggests that as men become more aware of the dangers of HIV/AIDS, they may seek out younger partners in the belief that young women are unlikely to be infected. Men may be less likely to use condoms in these relationships. Furthermore, the unequal balance of power between older men and younger women makes it exceptionally difficult for the women to negotiate safer sex.<sup>6</sup>

## KEY POINTS

- The most common route of transmission for STIs is sexual contact: vaginal, anal or oral.
- Some STIs can also be transmitted through contaminated medical equipment or blood transfusions, and from mother to baby during pregnancy and delivery.
- The most common curable STIs are syphilis, chancroid, gonorrhoea, chlamydia and trichomoniasis.
- Incurable STIs are caused by viruses, e.g., HIV/AIDS, genital herpes, genital warts and hepatitis B and C.
- Candidiasis and BV are considered reproductive tract infections rather than STIs.
- Common STI symptoms include:
  - unusual discharge from the vagina or penis
  - pain or burning with urination
  - itching or irritation of the genitals
  - sores, blisters or lumps on the genitals
  - rashes, including those on the palms of hands and soles of feet
  - lower abdominal pain
  - swelling in the groin (inguinal swelling)
- Many STIs do not cause any symptoms, especially in women.
- Asymptomatic STIs can still have serious consequences and can still be transmitted to others.
- Women are more vulnerable than men to STIs, for biological, social and economic reasons.

<sup>1</sup> WHO. Report of an expert consultation on improving the management of sexually transmitted infections. 2001.

<sup>2</sup> WHO. Global prevalence and incidence of selected sexually transmitted infections. 2001.

<sup>3</sup> EngenderHealth. Sexually Transmitted Infections. Online minicourse. [www.engenderhealth.org](http://www.engenderhealth.org). 2004.

<sup>4</sup> WHO. Regional Office for the Western Pacific. Laboratory tests for the detection of reproductive tract infections. 1999.

<sup>5</sup> Adapted from: EngenderHealth. Sexually Transmitted Infections. Online minicourse. [www.engenderhealth.org](http://www.engenderhealth.org). 2004.

<sup>6</sup> Laga M, Schwartlander B, Pisania E, et al. To stem HIV in Africa, prevent transmission to young women. *Journal of AIDS*. 2001; 15: 931-4.

# Section 3

## Why focus on sexually transmitted infections?

- 3.1 STIs are a common health problem
- 3.2 STIs have serious consequences
- 3.3 STIs enhance HIV transmission
- 3.4 STI treatment interventions can reduce the incidence of HIV infection
- 3.5 Effective control measures for STIs are available
- 3.6 STIs are poorly managed in many settings



In developing countries, STIs and their complications are among the top five disease categories for which adults seek health care.<sup>1</sup>



### 3.1 STIs are a common health problem

Even excluding HIV, STIs and their complications are second only to pregnancy-related factors as causes of disease, death and healthy life-years lost in women of reproductive age (15-49 years).<sup>2</sup>

The World Health Organization estimates that during 1999 about 340 million new cases of syphilis, gonorrhoea, chlamydia and trichomoniasis occurred throughout the world in men and women of reproductive age. These infections represent the most common curable STIs.

**Table 2. Estimated prevalence and annual incidence of curable STIs by region – 1999<sup>3</sup>**

| REGION                        | POPULATION<br>15-49 yrs (million) | PREVALENCE<br>(million) | PREVALENCE<br>(per 1,000) | ANNUAL INCIDENCE<br>(million) |
|-------------------------------|-----------------------------------|-------------------------|---------------------------|-------------------------------|
| North America                 | 156                               | 3                       | 19                        | 14                            |
| Western Europe                | 203                               | 4                       | 20                        | 17                            |
| North Africa & Middle East    | 165                               | 3.5                     | 21                        | 10                            |
| Eastern Europe & Central Asia | 205                               | 6                       | 29                        | 22                            |
| Sub-Saharan Africa            | 269                               | 32                      | 119                       | 69                            |
| South & South East Asia       | 955                               | 48                      | 50                        | 151                           |
| East Asia & Pacific           | 815                               | 6                       | 7                         | 18                            |
| Australia & New Zealand       | 11                                | 0.3                     | 27                        | 1                             |
| Latin America & Caribbean     | 260                               | 18.5                    | 71                        | 38                            |
| <b>Total</b>                  |                                   | <b>3,040</b>            | <b>116.5</b>              | <b>340</b>                    |

**Table 3. Global estimated new cases of curable STIs among adults – 1999<sup>4</sup>**

|                     |                    |
|---------------------|--------------------|
| Syphilis .....      | 12 million         |
| Gonorrhoea .....    | 62 million         |
| Chlamydia.....      | 92 million         |
| Trichomoniasis..... | 174 million        |
| <b>Total .....</b>  | <b>340 million</b> |

While South and South East Asia have the greatest total number of prevalent cases and of new cases, sub-Saharan Africa has the highest number of STIs per 1,000 population and the highest number of new cases per 1,000 population per year.<sup>c</sup>

The tables above represent the most recent global estimates of these infections. Data are presented as estimates, because data on the incidence and prevalence of STIs and their complications are limited and may substantially underestimate the burden of these diseases.<sup>5</sup> The reasons for this underestimation are discussed in Section 6.

<sup>c</sup> Calculated by dividing the annual incidence by the population.

## Estimated new cases of curable STIs – 1999



### 3.2 STIs have serious consequences

#### Medical

STIs may cause serious illness and have severe long-term medical consequences. In some cases, STIs may result in death. Pelvic inflammatory disease (PID) can result in acute illness and/or chronic pelvic pain. In developing countries, one in seven males has been reported to develop urethral stricture (narrowing) as a consequence of STIs.<sup>6</sup> STIs are also implicated in the development of cancers of the penis, cervix, vagina and anus.

Infertility is a potential consequence of STIs in men as well as in women. About one in five women with PID will become infertile.<sup>7</sup> Among women in Africa, PID may account for 50 to 80 percent of infertility.<sup>8</sup>

The effects of an STI during pregnancy or delivery on the fetus and newborn may be severe. STIs can result in ectopic pregnancy, spontaneous abortion, premature rupture of membranes, premature labor and low birth weight. For example, syphilis during pregnancy will result in fetal loss in one-third of cases and congenital abnormalities in a further one-third. Data from South Africa on syphilis during pregnancy revealed that perinatal death was 19 times more likely if incomplete treatment or no treatment was received.<sup>9</sup> Infections in the newborn such as pneumonia, eye infections and meningitis may also result from an STI during pregnancy or delivery. About 3 percent of newborns with gonococcal eye infection will develop complete blindness if not treated, and 20 percent will have some degree of corneal damage.<sup>10</sup> Further impacts of STIs on the fetus include neurological damage and congenital abnormalities such as blindness and deafness. Some of the consequences of STIs may be apparent at birth but others may not be detected until months or years later.

#### Emotional and social

Concern about health consequences and guilt about infecting a partner or child may be a source of considerable emotional stress. STIs are furthermore associated with significant social stigma. Infertility may have a severe emotional impact on individuals and also carries a stigma, especially for women in societies where a high value is placed upon the ability to bear children. Social impacts of STIs and infertility include relationship problems, domestic violence, divorce and abandonment.

**Table 4. Consequences of STIs**

| MEDICAL CONSEQUENCES   | EMOTIONAL AND SOCIAL CONSEQUENCES  |
|--|--|
| <p><b>Illness</b></p> <ul style="list-style-type: none"> <li>■ Pelvic inflammatory disease</li> <li>■ Chronic pelvic infection / pain</li> <li>■ Urethral stricture</li> <li>■ Cancers of genitals and anus</li> <li>■ Cardiovascular, neurological &amp; musculo-skeletal complications</li> <li>■ Death</li> </ul> <p><b>Infertility</b></p> <ul style="list-style-type: none"> <li>■ Infertility in men and women</li> </ul> <p><b>Mother and child</b></p> <ul style="list-style-type: none"> <li>■ Ectopic pregnancy</li> <li>■ Spontaneous abortion</li> <li>■ Premature rupture of membranes</li> <li>■ Premature labor</li> <li>■ Stillbirth</li> <li>■ Neonatal death</li> <li>■ Low birth weight</li> <li>■ Neonatal infections</li> <li>■ Congenital abnormalities</li> </ul> | <ul style="list-style-type: none"> <li>■ Anxiety</li> <li>■ Guilt</li> <li>■ Stigma of STI</li> <li>■ Stigma of infertility</li> <li>■ Relationship problems</li> <li>■ Domestic violence</li> <li>■ Divorce</li> <li>■ Abandonment</li> </ul> |

### 3.3 STIs enhance HIV transmission

#### HIV/AIDS perspective

According to the 2003 World Health Report, HIV/AIDS is now the world's leading cause of death in adults aged 15–59 years.<sup>11</sup> UNAIDS estimated that at the end of 2003, 40 million people were living with HIV worldwide. Of these, two thirds are in Africa, where between 7.5 and 8.5 percent of adults are now estimated to be living with HIV. Of the 5 million new HIV infections that occurred during 2003, 3.2 million were in Africa. HIV/AIDS is also a significant concern in other regions, where more recent epidemics have continued to expand in China, Indonesia, Papua New Guinea, Vietnam, several Central Asian Republics, the Baltic States and North Africa.<sup>12</sup>

## Increased infectiousness and susceptibility

STIs enhance HIV transmission through:

- Increasing infectiousness:  
the presence of an STI in an HIV-positive individual increases their ability to transmit or “give” HIV.
- Increasing susceptibility:  
the presence of an STI in an HIV-negative individual increases their ability to become infected with or “get” HIV.

A large number of biological and epidemiological studies conducted in four continents have shown that STIs facilitate HIV transmission.<sup>13</sup> The links between STIs and HIV/AIDS are complex. The effects of STIs on HIV transmission have been shown to vary for different STIs, between women and men, among different populations and at different stages of the HIV/AIDS epidemic.

**Table 5. Effect of STIs on HIV transmission**

|                     | INCREASED INFECTIOUSNESS   | INCREASED SUSCEPTIBILITY  |
|---------------------|--|---|
| ULCERATIVE STIs     | <ul style="list-style-type: none"> <li>■ HIV has been isolated in men and women from genital ulcers.<sup>14-16</sup></li> <li>■ In addition to shedding of the virus directly from the ulcers, increased concentrations of HIV have also been found in the semen<sup>17</sup> of men and cervico-vaginal fluids<sup>18</sup> of women with genital ulcers.</li> </ul>  | <ul style="list-style-type: none"> <li>■ Genital ulcers may increase susceptibility to HIV through epithelial damage and by increasing the number and activation of HIV-susceptible cells in the genital tract.<sup>19,20</sup></li> <li>■ Increased susceptibility has been documented for HSV-2, chancroid and syphilis.<sup>21,22</sup></li> </ul>   |
| NON-ULCERATIVE STIs | <ul style="list-style-type: none"> <li>■ Increased urethral shedding of HIV has been documented in men with urethritis.<sup>23-25</sup></li> <li>■ Both symptomatic and asymptomatic urethritis are associated with increased HIV shedding<sup>26</sup> and treatment of urethritis has resulted in decreased HIV shedding.<sup>27,28</sup></li> <li>■ Cervical inflammation has been associated with increased viral shedding<sup>29,30</sup> and reduced shedding has been observed following treatment.<sup>31</sup></li> </ul> | <ul style="list-style-type: none"> <li>■ Non-ulcerative STIs may increase susceptibility by increasing the presence of HIV-susceptible cells in the genital tract.<sup>32</sup></li> <li>■ Significant association with HIV seroconversion has been documented for gonorrhea.<sup>33,34</sup></li> <li>■ Infection with chlamydia and trichomonas has also been associated with increased susceptibility to HIV.<sup>35,36</sup></li> </ul> |

## Herpes (HSV-2) and HIV

HSV-2 may be of particular significance in the spread of HIV, especially in Africa.<sup>37</sup> HSV-2 is one of the most common STIs worldwide.<sup>38,39</sup> High sero-prevalences have been reported in both developed and developing countries, with particularly high rates in some parts of Africa.<sup>40-43</sup> A number of studies in Africa have documented a strong association between HSV-2 and HIV/AIDS.<sup>44-46</sup> Mathematical modeling of the HIV/AIDS epidemic in Uganda estimated that genital ulcers were responsible for about 90 percent of HIV infections during the first ten years of the epidemic.<sup>47</sup>

High prevalences, the lifelong recurrent and often asymptomatic nature of the infection, as well as limitations in diagnosis and treatment, contribute to the role of HSV-2 in facilitating HIV transmission.<sup>48</sup> Furthermore, a two-way interaction between HIV/AIDS and HSV-2 has been demonstrated. While HSV-2 infection enhances the transmission of HIV, HIV increases the frequency, duration and severity of HSV-2 clinical manifestations.<sup>49</sup> Recent population-based studies from Africa suggest that most individuals (up to 90 percent) infected with HIV are also infected with HSV-2.<sup>50</sup> Evidence is thus accumulating that HSV-2 and HIV/AIDS are mutually reinforcing epidemics and that this relationship is of particular significance in parts of Africa.

### Other reproductive tract infections and HIV

BV and candidiasis both cause vaginitis but are not traditionally considered STIs. While both the candida yeast and the organisms associated with BV can be transmitted to a woman from a partner, both infections can also occur as a result of other factors.

Candidiasis appears to double female susceptibility to HIV.<sup>51</sup> BV has been strongly associated with HIV infection<sup>52-54</sup> for both susceptibility and infectiousness. In every society, BV is the most common cause of abnormal vaginal discharge.<sup>55</sup> Thus, BV may have important implications for the spread of HIV.

### Summary of the effects of STIs on HIV transmission

- *Ulcerative STIs have been shown to have a greater overall enhancing effect on HIV transmission than non-ulcerative infections.*<sup>56,57</sup>

A review of available studies up to January 2000 presented the following broad conclusions:<sup>58</sup>

- Ulcerative STIs increase the susceptibility of men to HIV about 4 times and increase the susceptibility of women to HIV about 3 times.
- Non-ulcerative STIs increase the susceptibility of men to HIV about 3 times and the susceptibility of women about twice.
- STIs in general appear to increase the infectiousness of an HIV-positive individual about twice.

The reviewers noted, however, that these conclusions are tentative and that further studies are needed to improve understanding of the complex interactions between HIV and various STIs.

## 3.4 STI treatment interventions can reduce the incidence of HIV infection

A 2003 review concluded that treatment of most RTIs results in a reduction of genital tract HIV-I viral load.<sup>59</sup> There is also evidence that interventions to improve the management of STIs can reduce the incidence of HIV infection.

### World Health Report 2002 findings<sup>60</sup>

The World Health Report 2002 evaluated various HIV prevention interventions. These included population-wide mass media, voluntary counseling and testing (VCT), school-based HIV/AIDS education, interventions

for sex workers, peer outreach for men who have sex with men, prevention of mother-to-child transmission (PMTCT), antiretroviral therapy and treatment of STIs. The report noted that specific interventions may have different impacts in different settings. However, it concluded that in all areas except the A-subregions,<sup>d</sup> the treatment of STIs had a higher impact on reduction of HIV transmission at population level than the other preventive interventions. (In the A-subregions, peer education among men who have sex with men had a higher impact.)

### Mwanza and Rakai trials

Between 1991 and 1994, a landmark randomized control trial conducted in the Mwanza Region of Tanzania assessed the impact of improved STI management on about 12,000 adults. The intervention resulted in significant reductions in the prevalences of syphilis and symptomatic male urethritis. HIV incidence in the general population was reduced by about 40 percent compared with a control group.<sup>61</sup> The Mwanza trial was the first study to provide direct evidence that improved clinical services for STIs can reduce HIV incidence. In contrast, however, a randomized controlled trial in Rakai, Uganda, found that intermittent mass treatment reduced the prevalence of some STIs, but had no effect on HIV incidence.<sup>62</sup> The different outcomes of the Mwanza and Rakai trials have been a source of considerable debate. Possible explanations for the differences are discussed in Annex 3.

A WHO/UNAIDS review of the findings of the two trials concluded that there are sufficient scientific data pointing to the fact that STI control can have a significant impact on HIV transmission. The review further concluded that the impact of STI control is greater in the early stages of an HIV epidemic but remains an important control strategy even in mature epidemics.<sup>63</sup>

In conflict-affected settings where the HIV epidemic may be in the early stages, the need for early effective STI intervention is clear. It is also worth noting that while mass treatment did not have a significant impact in the Rakai trial, there may be a role for mass treatment in some conflict-affected settings; for example, where HIV prevalence is low and where there is little interaction between displaced groups and members of the surrounding community, thus limiting opportunities for reinfection after treatment.<sup>64</sup>

### Summary of the links between STIs and HIV/AIDS<sup>65</sup>

- The main transmission route for both HIV and other STIs is sexual.<sup>e</sup>
- Other transmission routes for both HIV and STIs include blood, blood products, donated organs or tissue, and transmission from an infected mother to her fetus or newborn infant.
- Many of the measures for preventing sexual transmission of HIV and STIs are thus the same, as are the target audiences for these interventions.
- Clinical services for STIs are important points of contact with persons at high risk of both HIV and STIs, both for diagnosis and treatment as well as for education and counseling.
- STIs facilitate the transmission of HIV.
- Early diagnosis and effective treatment of STIs are important strategies for the prevention of HIV transmission.
- There is growing evidence that HIV and some STIs may reinforce the spread of each other.
- Trends in STI incidence and prevalence can be useful early indicators of changes in sexual behavior and may serve as proxy indicators for HIV. Bacterial STIs are, unlike HIV, curable. Therefore, new STI cases are likely to reflect much more recent sexual activity than HIV infection, which can indicate risk behavior many years earlier.<sup>66</sup>

<sup>d</sup> The WHO member states have been divided into five mortality strata on the basis of their levels of child mortality and adult mortality. The six WHO geographical regions have been divided into fourteen subregions based on mortality strata. The A subregions represent the lowest child and adult mortalities.

<sup>e</sup> There have been recent suggestions that unsafe health care practices, particularly injections, may account for the majority of HIV infections in Africa. These suggestions have been strongly refuted by WHO and UNAIDS. An expert committee concluded that evidence points overwhelmingly to the fact that sexual transmission is the primary mode of HIV transmission in Africa. UNAIDS. Press statement. Expert group stresses that unsafe sex is primary mode of HIV transmission in Africa. Geneva, March 14, 2003.

## 3.5 Effective control measures for STIs are available

### Cost-effectiveness of treatment

Many STIs are easily curable with appropriate treatment.

“Syphilis is the classic example of an STI that can be controlled by public health measures due to the availability of a highly sensitive diagnostic test and a highly effective and affordable treatment...”<sup>67</sup>

In Africa during the 1990s, syphilis prevalence amongst pregnant women varied from 2.5 percent in Burkina Faso to 17.4 percent in Cameroon. WHO has advised that antenatal screening and treatment of pregnant women for syphilis is cost-effective, even in areas of prevalence as low as 0.1 percent.<sup>68</sup> It has been estimated that the prevention or cure of 100 initial cases of gonorrhoea in non-core groups would prevent 426 future cases of gonorrhoea over the following 10 years. If the 100 cases were from core (high transmission) groups, the number of cases prevented would be 4,278.<sup>69</sup>

The Mwanza trial intervention, which improved the clinical management of STIs, resulted in a decrease in incidence and prevalence of some STIs as well as HIV. The intervention compared favorably with other cost-effective health care interventions such as childhood immunization programs.<sup>70</sup> STI treatment becomes even more cost-effective when the benefits of reduced HIV transmission are included. In financial terms, the costs of preventing and treating STIs are outweighed by the longer-term gains to the health care system and the economy in terms of cases and complications averted. Furthermore, effective management of STIs reduces the emotional and social costs of illness, infertility, stigma and potential relationship problems.

### Alleviation and prevention

The viral STIs, such as genital herpes and hepatitis, are incurable. However, for some viral STIs, measures are available to shorten the duration of illness, alleviate the symptoms and reduce the frequency of recurrence, for example, acyclovir treatment for genital herpes.

All STIs are preventable. For some, such as hepatitis B, vaccines are available. Most importantly however, all STIs can be prevented through behavioral measures.

## 3.6 STIs are poorly managed in many settings

“...[STI] control in many countries tended to be coercive – police rounding up prostitutes and so on. [STIs] tended to be approached more as an individual’s problem than as a public health problem. And they were always given a very low priority...” Peter Piot.<sup>71</sup>

In spite of the existence of effective prevention and care measures, STIs remain a significant public health problem in both developing and industrialized countries.<sup>1</sup> For example, in the United Kingdom rates of gonorrhoea, syphilis and chlamydial infections have more than doubled since 1995, and increases have also been documented in other Western European countries.<sup>72</sup>

Many factors contribute to the failure to control STIs. An awareness of these underlying issues is important when designing and implementing STI interventions for conflict-affected settings.

## Reasons for failure to control STIs<sup>73</sup>

### Policy

- Low priority for resource allocation to address STIs by policy-makers and planners, possibly as a result of failure to recognize the magnitude of the problem. Stigma associated with STIs could also be a contributing factor.
- Restrictive policies limiting services provision to women and youth, or which prevent lower cadres of providers from prescribing.
- Lack of a rational, practical package of activities that could be the basis for STI control programs.
- Inadequate data upon which to base decisions and justify the need for resources.

### Access

- Lack of appropriate health care facilities, long distances and lack of resources to pay for transport and treatment.
- Service delivery through reproductive health services not accessed by all women or by men or youth.
- Socio-cultural factors which prevent women or youth from seeking health care.
- Lack of acceptability of health services as a result of privacy, confidentiality and staff attitude issues.
- Lack of awareness of STIs, myths and social stigma.

### Service delivery

- Poor health system infrastructure.
- Inadequately trained health care providers.
- Lack of quality control in public and private sector services.
- Lack of laboratory facilities and lack of simple, affordable, reliable tests for use at peripheral level.
- Lack of affordable, effective drugs, little control of drug quality, irrational use of antibiotics and antimicrobial resistance.
- Lack of condoms.

### Patient care

- Limitations of the syndromic approach, including lack of means to address asymptomatic infections.
- Lack of awareness or lack of acceptance of the syndromic approach by practitioners.
- Lack of emphasis on counseling, reducing risk behavior and partner management.

## KEY POINTS

- STIs are among the most common health problems affecting adults worldwide.
- Sub-Saharan Africa has the highest incidences and prevalences of STIs.
- STIs can have serious medical consequences, including chronic illness, death, infertility, spontaneous abortion, neonatal illness and congenital abnormalities.
- STIs can have emotional and social consequences.
- Both ulcerative and non-ulcerative STIs enhance HIV transmission through increasing infectiousness and increasing susceptibility.
- Effective treatment of STIs can reduce the incidence of HIV infection.
- Many STIs are curable with appropriate treatment.
- Effective STI management is cost-effective in terms of averting future costs to the individual, the health system and society.
- STIs are poorly managed in many settings for a variety of economic, structural and social reasons.

- 1 WHO. Global prevalence and incidence of selected sexually transmitted infections. 2001.
- 2 World Bank. World Development Report: Investing in Health. Washington. 1993.
- 3 WHO. Global prevalence and incidence of selected sexually transmitted infections. 2001.
- 4 Ibid.
- 5 Report of a WHO consultation, Treviso, Italy, 27 February-1 March 2002. Estimation of the incidence and prevalence of sexually transmitted infections. 2002.
- 6 Family Health International. Control of Sexually Transmitted Diseases: A handbook for design and management of programs. [www.fhi.org](http://www.fhi.org).
- 7 Centers for Disease Control and Prevention. Fact sheet: Pelvic inflammatory disease. 2001.
- 8 Muir DG, Belsey MA. Pelvic inflammatory disease and its consequences in the developing world. *American Journal of Obstetrics and Gynecology*. 1980; 138: 913-928.
- 9 Wilkinson D, Sach M, Connolly C. Epidemiology of syphilis in pregnancy in rural South Africa: opportunities for control. *Tropical Medicine and International Health*. 1997; 21 (1) 57-62.
- 10 WHO. Global prevalence and incidence of selected sexually transmitted infections. 2001.
- 11 WHO. World Health Report. 2003.
- 12 UNAIDS. AIDS Epidemic Update. 2003.
- 13 UNAIDS / WHO. Consultation on STD interventions to prevent HIV: What is the evidence? UNAIDS Best Practice Collection. 2000.
- 14 Plummer FA, Wainberg MA, Plourde P, et al. Detection of human immunodeficiency virus type 1 (HIV-1) in genital ulcer exudate of HIV-1 infected men by culture and gene amplification. *Journal of Infectious Disease*. 1990;161:810-811.
- 15 Kreiss JK, Coombs R, Plummer F, et al. Isolation of human immunodeficiency virus from genital ulcers in Nairobi prostitutes. *Journal of Infectious Disease*. 1989;160:380-384.
- 16 Shacker T, Ryncarz AJ, Goddard J, et al. Frequent recovery of HIV-1 from genital herpes simplex virus lesions in HIV-1-infected men. *Journal of the American Medical Association*. 1998; 280:61- 66.
- 17 Dyer JR, Eron JJ, Hoffman IF, et al. Association of CD4 cell depletion and elevated blood and seminal plasma human immunodeficiency virus type 1 (HIV-1) RNA concentrations with genital ulcer disease in HIV-1 infected men in Malawi. *Journal of Infectious Disease*. 1998; 177: 224-27.
- 18 Ghys PD, Franssen K, Diallo MO, et al. The associations between cervicovaginal HIV shedding, sexually transmitted diseases and immunosuppression in female sex workers in Abidjan, Cote d'Ivoire. *AIDS*. 1997;11:F85-93.
- 19 Spinola SM, Orazi A, Arno JN, et al. *Haemophilus ducreyi* elicits a cutaneous infiltrate of CD4 cells during experimental human infection. *Journal of Infectious Disease*. 1996;173:394-402.
- 20 Stamm WE, Handsfield HH, Rompalo AM, et al. The association between genital ulcer disease and acquisition of HIV infection in homosexual men. *Journal of the American Medical Association*. 1988;260:1429-33.
- 21 Flemming DT, Wasserheit JN. From epidemiological synergy to public health policy and practice: the contribution of other sexually transmitted diseases to sexual transmission of HIV infection. *Sexually Transmitted Infections*. 1999; 75:3-7.

- 22 Schacker T. The role of HSV in the transmission and progression of HIV. *HERPES* 8:2 2001. 46-49.
- 23 Moss GB, Overbaugh J, Welch M, et al. Human immunodeficiency virus DNA in urethral secretions in men: association with gonococcal urethritis and CD4 cell depletion. *Journal of Infectious Disease*. 1995; 172:1469-1474.
- 24 Anderson DJ, O'Brien TR, Politch JA, et al. Effects of disease stage and zidovudine therapy on the detection of human immunodeficiency virus type 1 in semen. *Journal of the American Medical Association*. 1992; 267: 2769-74.
- 25 Eron JJ, Jr, Gilliam B, Fiscus S, et al. HIV-1 shedding and chlamydial urethritis [letter; comment]. *Journal of the American Medical Association*. 1996; 275:36.
- 26 Winter AJ, Taylor S, Workman J, et al. Asymptomatic urethritis and detection of HIV-1 RNA in seminal plasma. *Sexually Transmitted Infections*. 1999; 75: 261-263.
- 27 Atkins MC, Carlin EM, Emery VC, et al. Fluctuations of HIV load in semen of HIV-positive patients with newly acquired sexually transmitted diseases. *British Medical Journal*. 1996; 313: 341-2.
- 28 Cohen MS, Hoffman IF, Royce RA, et al. Reduction of concentration of HIV-1 in semen after treatment of urethritis: implications for prevention of sexual transmission of HIV. *Lancet* 1997; 349:1868-73.
- 29 Wright TC, Jr, Subbarao S, Ellerbrock TV, et al. Human immunodeficiency virus 1 expression in the female genital tract in association with cervical inflammation and ulceration. *American Journal of Obstetrics and Gynecology*. 2001; 184:279-285.
- 30 Laga M, Manoka A, Kivuvu M, et al. Non-ulcerative sexually transmitted diseases as risk factors for HIV-1 transmission in women: results from a cohort study. *AIDS*. 1993;7: 95-102.
- 31 McClelland RS, Wang CC, Mandaliya K, et al. Treatment of cervicitis is associated with decreased cervical shedding of HIV-1. *AIDS*. 2001; 15: 105-110.
- 32 Levine WC, Pope V, Bhoomkar A, et al. Increase in endocervical CD4 lymphocytes among women with non-ulcerative sexually transmitted diseases. *Journal of Infectious Disease*. 1998;177:167-74.
- 33 Kassler WJ, Zenilman JM, Erickson B, et al. Seroconversion in patients attending sexually transmitted disease clinics. *AIDS* 1994;8:351-5.
- 34 Craib KJ, Meddings DR, Strathdee SA, et al. Rectal gonorrhoea as an independent risk factor for HIV infection in a cohort of homosexual men. *Genitourinary Medicine*. 1995;71:150-4.
- 35 Plummer FA, Simonsen JN, Cameron DW, et al. Cofactors in male-female sexual transmission of human immunodeficiency virus type 1. *Journal of Infectious Disease*. 1991;163:233-9.
- 36 Laga M, Manoka A, Kivuvu M, et al. Non-ulcerative sexually transmitted diseases as risk factors for HIV-1 transmission in women: results from a cohort study. *AIDS*. 1993;7: 95-102.
- 37 Del Mar Pujades Rodriguez M, Obasi A, Moshia, Of, et al. Herpes simplex virus type 2 infection increases HIV incidence: a prospective study in rural Tanzania. *AIDS* 2002; 16(3): 451-462.
- 38 Corey L, Handsfield HH. Genital herpes and public health: addressing a global problem. *Journal of the American Medical Association*. 2000; 283: 791-794.
- 39 Brugha R, Keersmaekers K, Renton A, Meheus A. Genital herpes infection: a review. *International Journal of Epidemiology*. 1997; 26: 698-709.
- 40 O'Farrell N. Increasing prevalence of genital herpes in developing countries: implications for heterosexual HIV transmission and STI control programmes. *Sexually Transmitted Infections*. 1999; 75: 377-384.
- 41 Kamali A, Nunn AJ, Mulder DW, et al. Seroprevalence and incidence of genital ulcer infection in a rural Ugandan population. *Sexually Transmitted Infections*. 1999; 75: 98-102.
- 42 Obasi A, Moshia F, Quigley M, et al. Antibody to herpes simplex virus type 2 as a marker of sexual risk behaviour in rural Tanzania. *Journal of Infectious Disease*. 1999; 179: 16-24.
- 43 Wawer MJ, Sewankambo NK, Serwadda D, et al. Control of sexually transmitted diseases for AIDS prevention in Uganda: a randomised community trial. *Lancet*. 1999; 353: 525-535.
- 44 Langeland N, Haarr L, Mhalu F. Prevalence of HSV-2 antibodies among STD clinic patients in Tanzania. *International Journal of Sexually Transmitted Diseases and AIDS*. 1998; 9:104-107.
- 45 Buve A, Carael M, Hayes RJ, et al. The multicentre study on factors determining the differential spread of HIV in four African cities: summary and conclusions. *AIDS* 2001; 15 (suppl 4): S127-S131.
- 46 Gwanzura L, McFarland W, Alexander D'A, et al. Association between human immunodeficiency virus and herpes simplex virus type 2 seropositivity among male factory workers in Zimbabwe. *Journal of Infectious Disease*. 1998; 177: 481-484.
- 47 Robinson NJ, Mulder DW, Auvert B, Hayes RJ. Proportion of HIV infections attributable to other sexually transmitted diseases in a rural Ugandan population: simulation model estimates. *International Journal of Epidemiology*. 1997;26:180-9.
- 48 Chen CY, Ballard RC, Beck Sague CM, et al. Human immunodeficiency virus infection and genital ulcer disease in South Africa: The herpetic connection. *Sexually Transmitted Diseases*. 2000; 27: 21-29.
- 49 Schacker T, Zeh J, Hu HL, et al. Frequency of symptomatic and asymptomatic herpes simplex virus type 2 reactions among human immunodeficiency virus-infected men. *Journal of Infectious Disease*. 1998; 178: 1616-1622.
- 50 Ibid.
- 51 Rottingen JA, Cameron DW, Garnett GP. A systematic review of epidemiological interactions between classic sexually transmitted diseases and HIV. *Sexually Transmitted Diseases*. 2001; 28 (10): 579-597.
- 52 Taha TE, Hoover DR, Dallabetta GA, et al. Bacterial vaginosis and disturbances of vaginal flora: association with increased acquisition of HIV. *AIDS* 1998;12:1699-706.
- 53 Sewankambo N, Gray RH, Wawer MJ, et al. HIV-1 infection associated with abnormal vaginal flora morphology and bacterial vaginosis. *Lancet*. 1997; 350: 546 -550.
- 54 Martin HL, Richardson BA, Nyange PM, et al. Vaginal lactobacilli, microbial flora, and risk of human immunodeficiency virus type 1 and sexually transmitted disease acquisition. *Journal of Infectious Disease*. 1999; 180: 1863 -1868.
- 55 Schmid G, Markowitz L, Joesoef R, Koumans, E. Bacterial vaginosis and HIV infection. *Sexually Transmitted Infections*. 2000;76(1):3-4.
- 56 Cameron DW, Simonsen JN, D'Costa LJ, et al. Female-to-male transmission of human immunodeficiency virus type 1: risk factors for seroconversion in men. *Lancet*. 1989; 2:403- 407.

- 57 Telzak EE, Chiasson MA, Bevier PJ, et al. HIV-1 seroconversion in patients with and without genital ulcer disease: a prospective study. *Annals of Internal Medicine*. 1993;119:1181-1186.
- 58 Rottingen JA, Cameron DW, Garnett GP. A systematic review of epidemiological interactions between classic sexually transmitted diseases and HIV. *Sexually Transmitted Diseases*. 2001; 28 (10): 579-597.
- 59 Coombs RW, Reichelderfer PS, Landay AL. Recent observations on HIV type-1 infection in the genital tract of men and women. *AIDS*. 2003, 17 (4) 455-80.
- 60 WHO. World Health Report 2002.
- 61 Grosskurth H, Mwijarubi E, Todd J, et al. Operational performance of an STD control programme in Mwanza Region, Tanzania. *Sexually Transmitted Infections*. 2000; 76: 426-436.
- 62 Wawer MJ, Sewankambo NK, Serwadda D, et al. Control of sexually transmitted diseases in Uganda: a randomised community trial. *Lancet*. 1999; 353: 525-35.
- 63 UNAIDS/WHO. Consultation on STD interventions to prevent HIV: What is the evidence? UNAIDS Best Practice Collection. 2000.
- 64 Khaw AJ, Salama P, Burkholder B, Dondero, TJ. HIV Risk and Prevention in Emergency-affected Populations: A Review. *Disasters*. 2000; 24(3): 181-19.
- 65 Adapted from: UNAIDS/WHO. Sexually transmitted diseases: policies and principles for prevention and care. UNAIDS Best Practice Collection. 1997.
- 66 Centers for Disease Control and Prevention. Global AIDS Program Technical Strategies. Primary Prevention Technical Strategies: STI Prevention and Care. [www.cdc.gov](http://www.cdc.gov). Accessed 01/03.
- 67 WHO. Global prevalence and incidence of selected sexually transmitted infections. 2001.
- 68 Ibid.
- 69 Over M, Piot P. Human Immunodeficiency Virus infection and other sexually transmitted diseases in developing countries: public health importance and priorities for resource allocation. *Journal of Infectious Diseases*. 1996; 174 (Supplement 23) S 162-75.
- 70 Gilson L, Mkanje R, Grosskurth H, et al. Cost-effectiveness of improved treatment services for sexually transmitted diseases in preventing HIV-1 infection in Mwanza Region, Tanzania. *Lancet*. 1997; 1805-09.
- 71 Cited in: Lush L, Walt G, Ogden J. Transferring policies for treating sexually transmitted infections: what's wrong with global guidelines? *Health Policy and Planning*. 2003; 8(1): 18-30.
- 72 UNAIDS. AIDS Epidemic Update. 2002.
- 73 Adapted from: UNAIDS/WHO. Sexually transmitted diseases: policies and principles for prevention and care. UNAIDS Best Practice Collection. 1997.

# Section 4

## Why focus on STIs in conflict-affected settings?

- 4.1 Overlap of poverty, conflict, displacement, STIs and HIV
- 4.2 Conflict-affected settings present risks for the spread of STIs
- 4.3 Conflict-affected settings present challenges and opportunities for STI control



“(W)arfare is an amplifier of disease, creating ideal conditions for its spread: poverty, famine, destruction of health and other vital infrastructure, large population movements, and the breakdown of family units and thus protective networks for women...”<sup>1</sup>



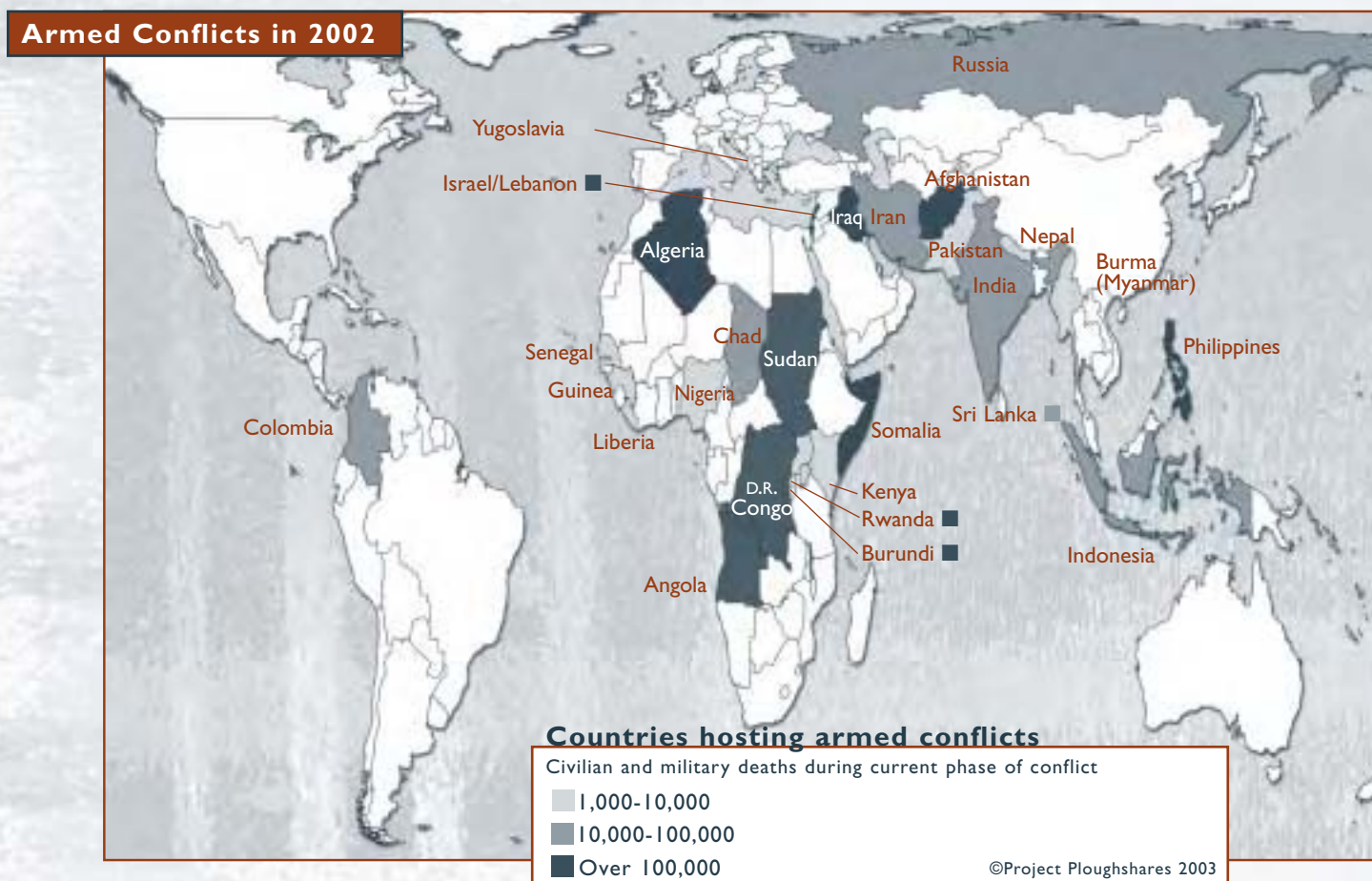
## 4.1 Overlap of poverty, conflict, displacement, STIs and HIV

A degree of geographic overlap exists among resource-poor settings, violent conflicts, population displacements and high prevalences of STIs and HIV/AIDS.

Eighty-five percent of new STIs occur in resource-poor settings.<sup>2</sup> Sub-Saharan Africa and South East Asia have the highest incidences and prevalences of STIs.<sup>3</sup> These regions are also home to 66 percent and 16 percent respectively of the world's people living with HIV/AIDS.<sup>4</sup> Eighty percent of the world's poorest countries today have suffered a major armed conflict during the past 15 years.<sup>5</sup> In 2002, there were 21 major armed conflicts in 19 locations throughout the world. The majority of these conflicts took place in Africa and Asia.<sup>6</sup> In sub-Saharan Africa, the number of states at war or with significant lethal conflicts increased from 11 in 1989 to 22 in 2000.<sup>7</sup>

According to the United States Committee for Refugees, at the end of 2002 there were 34.8 million uprooted people worldwide.<sup>8</sup> Of these, 13 million were refugees and asylum seekers and 21.8 million were internally displaced. Of the total number of "people of concern"<sup>f</sup> to UNHCR during 2002, 46 percent were in Asia and 22 percent in Africa. The 10 countries that received the greatest refugee influxes during 2002 were all in Africa.<sup>9</sup>

Resource-poor settings with high STI and HIV/AIDS burdens form the backdrop to STI management in a significant number of conflict-affected situations.



<sup>f</sup> People of concern to UNHCR include refugees, internally displaced, asylum seekers, returnees and others. Statistics concerning displaced people are inexact and controversial.

## 4.2 Conflict-affected settings present risks for the spread of STIs

In conflict-affected settings, a number of factors may increase vulnerability to STI/HIV transmission.

### Risk factors for STI spread in conflict situations

#### Population movements

Population movements and migration are recognized as important risk factors for the transmission of STIs and HIV.<sup>10-12</sup> Spread of STIs may result from sexual interaction between populations with different STI prevalences, for example, between displaced and host communities, returnees and home communities, urban and rural populations, or among displaced populations from different geographical areas or cultures.<sup>13-16</sup>

#### Social instability

Disruption of family and social structures as well as the psychological trauma of conflict and displacement may result in changes in sexual behavior.<sup>17</sup> Lack of work, educational and recreational opportunities, and the accompanying boredom and frustration, further contribute to risky sexual behavior.<sup>18</sup> Young people are particularly at risk.

#### Poverty

Increased economic vulnerability of women and unaccompanied minors in conflict situations may result in survival sex,<sup>19,20</sup> involving commercial sex or the bartering of sex for basic commodities and shelter.

#### Sexual violence and exploitation

Social turbulence and economic vulnerability, as well as breakdown of law and order, increase the vulnerability of women and young people to sexual violence and exploitation. Refugee women often lack access to social or legal protections.<sup>21</sup> Rape has been associated with violent conflict for centuries, both as a weapon of war in the case of systematic rape, or as opportunistic exploitation of women.<sup>22</sup> For example, during the Bosnian conflict, an estimated 30,000 - 40,000 women were raped.<sup>23</sup>

#### Commercial sex

The commercial sex trade may flourish in conflict-affected situations, with an influx of commercial sex workers from other areas.<sup>24</sup> Clients may include the displaced population, as well as military or peacekeeping forces and relief workers.

#### Presence of military or peacekeeping forces

Armed forces are vulnerable to STIs due to factors such as young age, mobility, separation from families, high stress work environments, lack of recreational outlets and alcohol misuse, all of which may predispose soldiers to risky sexual behavior. During peacetime, HIV prevalences among armed forces are generally two to five times higher than in civilian populations; in times of conflict the difference can be much greater.<sup>25</sup> Soldiers interact with civilian populations where they are stationed and upon returning home also spread STIs into their home communities. Geographical distribution of AIDS cases in Uganda in 1990 reflected patterns of recruitment in Uganda's national liberation army a decade earlier.<sup>26</sup>

## **Risk factors for STI spread (cont'd)**

### **Reduced access to health services**

Conflict may disrupt curative services and prevention programs. Access to condoms may be limited. Health facilities may be destroyed. High workloads, shortages of trained staff and lack of supplies may result in risky health care practices, such as neglect of universal precautions, unsafe injections and unscreened blood transfusions.<sup>27</sup> Conflict-related injuries may result in an increased need for blood transfusions. Where health services remain functional, access may be limited because of insecurity, lack of transport or lack of money.

### **Increased substance abuse**

Conflict has been associated with increased use of illicit drugs. Risks include both those associated with injecting drug use as well as risky sexual behavior while under the influence of drugs or alcohol.<sup>28</sup>

### **Delayed risk**

While there are clear risk factors, all the factors influencing STI transmission in conflict-affected settings are not yet fully understood. In some settings there appear to be competing factors which may reduce or delay the risk for STI transmission.<sup>29</sup>

For example, in the Balkans many of the risk factors commonly associated with HIV spread, such as mass displacement, sexual violence, large numbers of returning combatants and refugees, and trafficking of women have been present over the past decade. Yet HIV infection rates in this region have remained low. In Tanzania, data from antenatal sentinel surveillance in eight refugee camps in 2001 indicated that median HIV prevalence among refugee women attending antenatal clinics was lower than in the women's countries of origin and lower than in the Tanzanian population.<sup>30</sup>

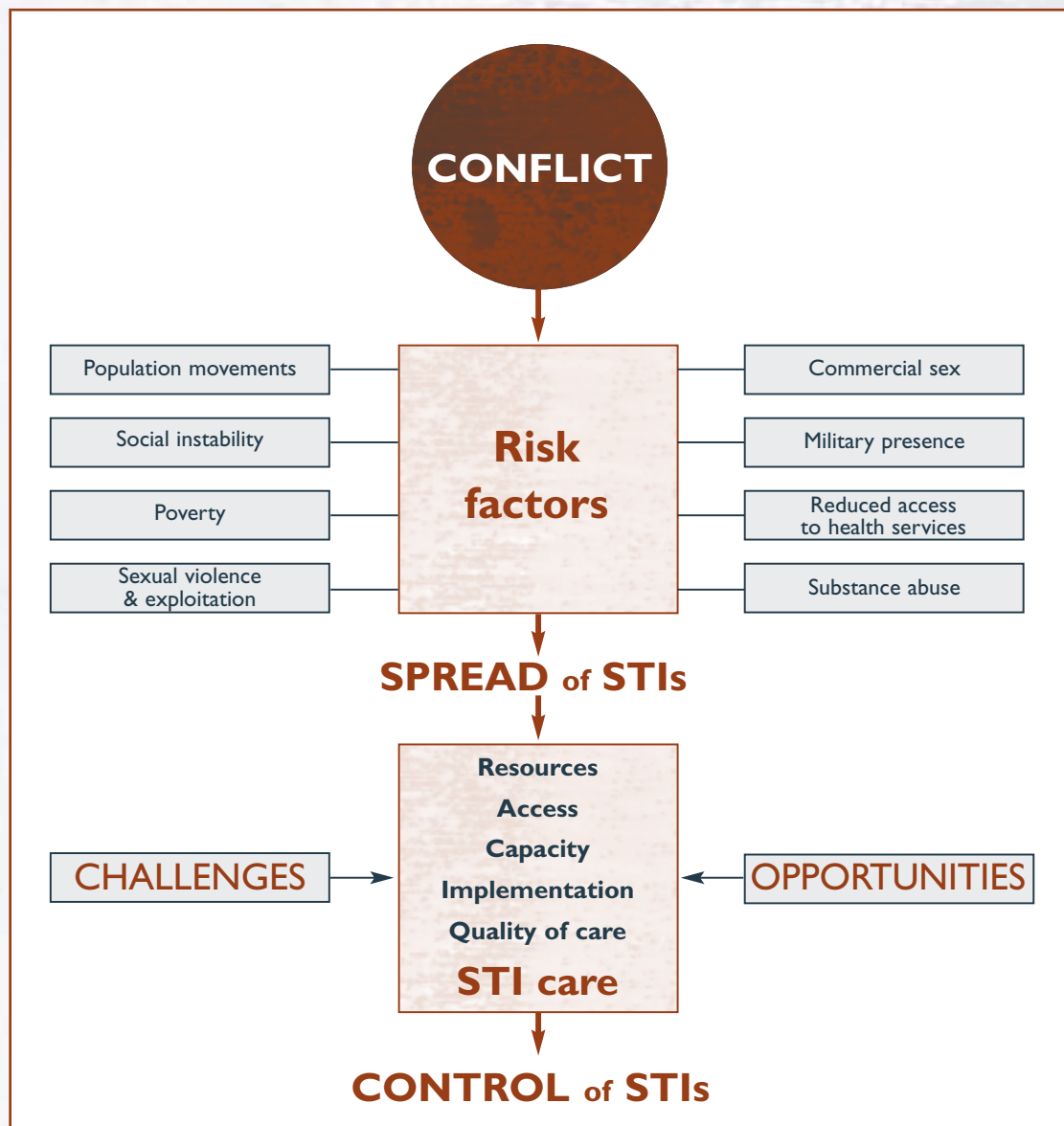
Several factors may contribute to reducing the risk. Reduced access and mobility into and out of conflict-affected populations may limit exposure to external sexual networks. For example, UNHCR recently provided evidence that populations in conflict settings - typically thought to be at higher risk of contracting HIV - in some circumstances, such as Angola, where people have been isolated and less mobile, may keep their prevalence rate lower than that of neighboring countries.<sup>31</sup> NGO presence may bring improved access to health services and prevention activities. However, the aftermath of conflict may carry particular risks for STI transmission:

- Displaced people and soldiers return home, carrying infections into their communities.
- Transport routes re-open, bringing truck drivers, migrant workers and travelers into areas previously relatively isolated.
- Post-war reconstruction brings new business opportunities and may bring foreign workers.
- Populations emerging from extended periods of instability may not have had exposure to basic information about STIs and HIV/AIDS.

### **In summary, STI transmission in conflict-affected populations depends upon:**

- the relative prevalence of STIs in different populations;
- the level of sexual interaction among the different populations; and
- a variety of other contextual factors not fully understood.

Further research is needed to understand these factors. In addition, care should be taken to avoid stigmatizing refugees and displaced people as being responsible for spreading HIV and STIs. However, conflicts have a clear potential to promote the transmission of STIs and HIV in displaced populations, in host communities, in other war-affected communities and in the home communities of military and returnees. Therefore, *all conflict-affected populations should be regarded as vulnerable.*



### 4.3 Conflict-affected settings present challenges and opportunities for STI control

The management of STIs is challenging in any setting, but particularly so in resource-constrained contexts. Recognition of resource-related issues is important for effective program management and particularly for sustainability. Conflict-affected settings present an additional set of challenges but may also present new opportunities for combating STIs.

**Table 6.** Challenges and opportunities for STI control in conflict-affected settings

|                  | <b>CHALLENGES</b>   | <b>OPPORTUNITIES</b>   |
|------------------|---|--|
| <b>RESOURCES</b> | <ul style="list-style-type: none"> <li>■ In the past, STIs and HIV have not been considered an immediate threat to life, and therefore not a relief issue.<sup>32</sup> Furthermore, STIs are less visible causes of mortality and morbidity and may thus receive inadequate attention from funders and implementers.</li> </ul>  | <ul style="list-style-type: none"> <li>■ Conflict situations may attract significant resources, with governments and international organizations providing financial aid and other assistance.</li> <li>■ Media attention may raise the profile of the situation, potentially attracting further resources.</li> </ul>   |
| <b>ACCESS</b>    | <ul style="list-style-type: none"> <li>■ Damage to health and transport infrastructure, remote settings and insecurity may limit patient access and service operation.</li> </ul>   | <ul style="list-style-type: none"> <li>■ In camps, geographic access to health services may be better than in the dispersed rural communities from which people may originate.</li> <li>■ Free-of-charge services provided by NGOs allow access to people previously unable to afford care.</li> <li>■ Post-conflict reconstruction provides an opportunity to upgrade existing infrastructure and services.</li> <li>■ Host population health facilities in the proximity of displaced populations are often improved, in the interests of equity and to serve as referral facilities.</li> <li>■ Host communities should also have access to health services provided for the displaced population.</li> </ul> |
| <b>CAPACITY</b>  | <ul style="list-style-type: none"> <li>■ War casualties and displacement among health staff may result in shortages of qualified service providers.</li> <li>■ Remote settings pose challenges to recruiting and retaining staff.</li> <li>■ Staff recruited from different areas or cultural groups may be unfamiliar with STI issues in the conflict-affected population.</li> <li>■ High staff turnover results in lack of institutional memory and necessitates repeated training.</li> </ul> | <ul style="list-style-type: none"> <li>■ NGOs are frequently present in conflict-affected areas, bringing funding, technical expertise and logistical capacity, and thus the capacity to provide comprehensive STI services.</li> <li>■ NGO programs often include capacity-building opportunities for refugee as well as host country staff.</li> </ul>   |

|                 | CHALLENGES  | OPPORTUNITIES  |
|-----------------|---|--|
| IMPLEMENTATION  | <ul style="list-style-type: none"> <li>■ Conflict-related trauma may affect health care-seeking behavior.</li> <li>■ After conflict, there may be an impetus to re-populate and thus adults may not want to use condoms.<sup>33</sup></li> <li>■ Camp settings may function like small communities, with confidentiality issues and stigma potentially impacting effective STI care.</li> <li>■ The presence of a number of different cultural or religious groups within one conflict-affected population may require different approaches to STI management within a single program.</li> </ul> | <ul style="list-style-type: none"> <li>■ Camp populations are usually clearly defined, basic population data are often available, and logistically the population is easier to reach.</li> <li>■ The contained environment may facilitate health services coverage, and activities such as partner notification and health education.</li> <li>■ Education and recreation programs for young people often initiated by NGOs may provide avenues to reach in- and out-of-school youth with STI information and services. Social groups and self-reliance programs can be used to reach women and men.</li> <li>■ The presence of military and commercial sex workers (CSW) may provide unique opportunities to work with these high risk groups.</li> </ul> |
| QUALITY OF CARE | <ul style="list-style-type: none"> <li>■ NGOs may take on the role of rehabilitating or supporting the government health system. A tension may exist between the need to achieve the appropriate level of service to address urgent problems, and the slow and complex process of achieving sustainable improvements to a system.</li> <li>■ Drug supply is a key example of where these tensions could exist, involving issues such as logistics, appropriate prescription and accountability.</li> </ul>  | <ul style="list-style-type: none"> <li>■ In some settings NGOs may have autonomy over health services provision. This autonomy can facilitate STI service delivery, both through the provision of resources as well as training and supervision of the quality of service provision.</li> <li>■ Collaboration between NGO and government services can improve quality of care in both.</li> </ul>  |

In spite of the challenges to STI management, the risks for spread of STIs in conflict-affected settings warrant urgent intervention. ***The potential for intervention should be realized and opportunities actively sought from the outset of the emergency.***

The importance of STI management in emergencies, including conflict-affected settings, is emphasized by two key documents on humanitarian response. The Sphere project, which represents internationally agreed minimum standards in disaster response, presents the syndromic case management of STIs as part of a package of minimum services to control HIV/AIDS.<sup>34</sup> The “Guidelines on HIV/AIDS interventions in emergency settings”<sup>35</sup> prepared by the Interagency Standing Committee includes syndromic management as part of a minimum response to HIV/AIDS “...to be conducted even in the midst of an emergency...”

The HIV/AIDS pandemic is exacerbated by conditions of violence and instability... If unchecked, the HIV/AIDS pandemic may pose a risk to stability and security..." UN Security Council Resolution 1308 (July 17, 2000)

## KEY POINTS

- Overlaps exist among resource-poor settings, violent conflicts, population displacements and high prevalences of STIs and HIV/AIDS.
- In conflict-affected settings, a number of factors may increase vulnerability to STI/HIV transmission:
  - population movements
  - social instability
  - poverty
  - commercial sex
  - presence of military or peacekeeping forces
  - reduced access to health services
  - substance abuse
- Conflict may have an immediate or a delayed effect on the spread of STIs.
- Conflict-affected settings present both challenges and opportunities for STI control, encompassing:
  - resources
  - access
  - capacity
  - implementation
  - quality of care

- 1 Andrew Price-Smith, cited in: United States Institute of Peace. AIDS and Violent Conflict in Africa. 2001. [www.usip.org](http://www.usip.org)
- 2 Family Health International. HIV/AIDS Prevention and Care in Resource-Constrained Settings. 2001.
- 3 WHO. Global prevalence and incidence of selected sexually transmitted infections. 2001.
- 4 UNAIDS. AIDS Epidemic Update. 2003.
- 5 World Bank Group. Conflict prevention and reconstruction unit. Homepage. [www.worldbank.org](http://www.worldbank.org). Accessed December 2003.
- 6 Stockholm International Peace Research Institute (SIPRI). SIPRI Yearbook 2003. Chapter 2. Major armed conflicts. Wiharta S, Anthony I. Armaments, Disarmament and International Security. Oxford: Oxford University Press. 2003.
- 7 United States Institute of Peace. AIDS and Violent Conflict in Africa. 2001. [www.usip.org](http://www.usip.org)
- 8 United States Committee for Refugees. World Refugee Survey 2003. [www.refugees.org](http://www.refugees.org)
- 9 UNHCR. Refugees by numbers. 2003. [www.unhcr.ch](http://www.unhcr.ch)
- 10 Salama P, Dondero TJ, HIV surveillance in complex emergencies. AIDS; 2001.15 Supplement 3: S4-12.
- 11 Mabey D, Mayaud P. Sexually transmitted diseases in mobile populations. Genitourinary Medicine 1997; 8-22.
- 12 UNAIDS. Population mobility and AIDS. 2001.
- 13 Mayaud P, Msuya W, Todd J, et al. STD rapid assessment in Rwandan refugee camps in Tanzania. Genitourinary Medicine. 1997; 73: 33-38.
- 14 Van Rensburg EJ, Lemmer HR, Joubert JJ. Prevalence of viral infections in Mozambican refugees in Swaziland. East Africa Medical Journal. 1995; 72: 588-90.
- 15 Family Health International. Rwanda and HIV/AIDS. Washington: FHI/IMPACT project. 1999.
- 16 De Hulsters B, Barreto A, et al. Geographical focusing: an intervention to address increased risk for sexually transmitted diseases during repatriation and resettlement in post-war Mozambique. Sexually Transmitted Infections. 2003; 79: 74-78.
- 17 Khaw AJ, Salama P, Burkholder B, Dondero TJ. HIV Risk and Prevention in Emergency-affected Populations: A Review. Disasters. 2000; 24(3): 181-197.
- 18 International Rescue Committee. The Role of Complex Humanitarian Emergencies in Driving the HIV Epidemic. September 2002. Unpublished Draft.
- 19 Zwi A, Cabral AJR. Identifying 'High Risk Situations' for Preventing AIDS. British Medical Journal. 1991; 303: 1527-29.
- 20 Hankins CA, Friedman SR, Zafar T, Strathdee S. Transmission and prevention of HIV and sexually transmitted infections in war settings: implications for current and future armed conflicts. AIDS. 2002, 6:2245-52.

- 21 United States Committee for Refugees.
- 22 Hankins CA, Friedman SR, Zafar T, Strathdee S.
- 23 UNAIDS. AIDS Epidemic Update. 2002.
- 24 Holt BY, Effler P. Planning STI/HIV prevention among refugees and mobile populations: situation assessment of Sudanese refugees. *Disasters*. 2003; 27 (1) 1-15.
- 25 UNAIDS. Fact sheet no 3. HIV/AIDS and unformed services.
- 26 Hankins CA, Friedman SR, Zafar T, Strathdee S.
- 27 International Rescue Committee.
- 28 Hankins CA, Friedman SR, Zafar T, Strathdee S.
- 29 Spiegel PB. HIV/AIDS Surveillance in Situations of Forced Migration. June 9. 2003. Unpublished draft.
- 30 UNAIDS. AIDS Epidemic Update. 2003.
- 31 Spiegel, Paul B. HIV prevalence among Refugees: Dispelling the Myth. RHRC Consortium Conference, October 2003.
- 32 UNAIDS/ UNHCR. HIV/AIDS and STI prevention and care in Rwandan refugee camps in the United Republic of Tanzania. Best Practice Collection. 2003.
- 33 Obaso in: Khaw AJ, Salama P, Burkholder B, Dondero, TJ. HIV Risk and Prevention in Emergency-affected Populations: A Review. *Disasters*. 2000; 24(3): 181-197.
- 34 Sphere Project, Sphere Humanitarian Charter and Minimum Standards in Disaster Response, Chapter 5: Minimum Standards in Health Services, Revised Handbook 2004. [www.sphereproject.org](http://www.sphereproject.org)
- 35 Interagency Standing Committee. Guidelines on HIV/AIDS interventions in emergencies. 2004. [www.unhcr.ch](http://www.unhcr.ch)

