



# SOUTHERN SUDAN

HIV Epidemic and Response  
Review Report

*April 2011*



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# **SOUTHERN SUDAN HIV Epidemic and Response Review Report**

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## **ABBREVIATIONS AND ACRONYMS**

AIDS	Acquired immunodeficiency syndrome
ANC	Antenatal clinic
ART	Antiretroviral therapy
BCC	Behaviour change and communication
BMS	Behavioural monitoring survey
CDC	Centres for Disease Control and Prevention
CSW	Commercial sex worker
FGM	Female genital mutilation
FSW	Female sex worker
GoSS	Government of South Sudan
HIV	Human immunodeficiency virus
IDP	Internally displaced population
IDU	Injection drug user
MARP	Most at risk population
M&E	Monitoring and evaluation
MDTF	Multi-donor Task Fund
MMR	Maternal Mortality Rate
MOH	Ministry of Health
MSM	Men who have sex with men
NGO	Non-governmental organisation
OSY	Out of school youth
PEPFAR	President's Emergency Plan for AIDS Relief
PHCC	Primary health care centre
PLWHA	Person living with HIV/AIDS
PMTCT	Prevention of mother-to-child transmission
PoHC	Population of humanitarian concern
PSI	Population Services International
SPLA	Sudan People's Liberation Army
SRH	Sexual and reproductive health
SSAC	South Sudan AIDS Commission
STI	Sexually transmitted infection
TB	Tuberculosis
UNAIDS	Joint United Nations Program on HIV/AIDS
UNFPA	United Nations Family Planning Association
UNGASS	United Nations General Assembly Special Session (on HIV/AIDS)
UNHCR	United Nations High Commission on Refugees
UNICEF	United Nations Children's Emergency Fund
USADI	United States Agency for International Development
VCT	Voluntary counselling and testing
WHO	World Health Organisation

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## **EXECUTIVE SUMMARY**

As part of the World Bank's support to the South Sudan AIDS Commission (SSAC), a consultant was contracted to analyse the current situation of HIV in the country, based on a systematic review of existing data. Specifically, **the objectives of the analysis were to: a) summarize and synthesize available data in order to provide a better understanding of the HIV epidemic in Southern Sudan and its likely drivers; b) provide SSACs and other stakeholders with recommendations in terms of priorities in reducing HIV transmission and other aspects of HIV/AIDS programming; and c) identify gaps in data availability, quality, or analysis and suggest ways by which data collection, analysis, and use could be strengthened.**

Data was collected between July and October 2010, and consisted of meetings with a number of representatives in Juba from SSAC, the Ministry of Health, and key stakeholders working in the HIV and AIDS field in the country, as well as visiting field sites in Wau (Western Bahr Ghazal) and Torit (Eastern Equatoria). Documents were collected, both in hard and soft copy, as well as through internet searches. No new data was collected for this study. The draft report was submitted in October 2010, reviewed by SSAC, World Bank and other local partners, and subsequently revised and amended.

Some limitations in this report need to be noted, largely due to the many years of political instability and conflict in South Sudan. The prolonged civil war meant that the establishment of regular sentinel surveillance has been limited. There is little historical data, and it is only in the last few years that the number of antenatal surveillance sites has been increased. What data does exist still covers only a fraction of the total population – only 30% of the population has access to health care, a smaller proportion of women seek antenatal care or deliver in health facilities, large parts of the country remain inaccessible by road, and it would be dangerous to make too many national generalisations on what is basically still very site-specific data. As well, a number of reports and papers that were cited as having been produced in recent years were not readily available, either in SSAC or the MOH, and other studies that have been carried out in recent months were still being analysed. Other reports were only available in secondary sources, and details of the actual sample size and sampling methodology which would confirm their validity were not available. That being said, the report does bring together most of the information that does exist to date about the current status of the epidemic in South Sudan.

Based on available antenatal surveillance data, **the overall prevalence among adults aged 15-49 in 2009 was estimated to be about 3%**, a slight drop from the 3.7% reported in 2007, but this difference is probably not significant. However, **the epidemic while generalised is extremely heterogeneous**, with prevalences at surveillance sites ranging from 0% at Awiel to 15.5% at Yambio. This variation is not only geographical (with Western Equatoria having the highest state prevalence at 7.2%) but also between closely related sites: eg. Rumbek PHCC (1.7%) and Rumbek State Hospital (5.7%). In general the epidemic is worse in the southern part of the country and in Juba the capital city, with those states on the southern borders with Uganda and Democratic Republic of Congo having the highest HIV prevalence. Conversely, the lowest prevalences are found in the more remote northwestern states – Northern and Western Bahr Ghazal and Warrap.

The antenatal surveillance reports that the highest prevalence levels are found in 20-24 year old women, which is different from other countries in the region where ANC prevalence is usually higher in the 30-35 year old women. One factor that may explain this is the fact that more than 50% of South Sudanese women are sexually active by age 16. The 2010 Household Health survey found that a very low percentage of sexually active women use condoms or any other means of birth control, and that 90% of the women surveyed had given birth, implying that first pregnancies probably occur between the ages of 15 and 19, which is younger than in many other African countries. There was little difference in HIV prevalence between married and unmarried women in the antenatal prevalence data.

Two recent behavioural studies, the Household Health Survey 2010 (HHS) and the Kajo Keji Country Behavioural Survey 2009 (KKBSS), demonstrate that there are several biological and behavioural factors that may be contributing to continuing HIV incidence in South Sudan, including:

- **A high rate of sexually transmitted infections (STIs)** – both the HHS and the KKBSS report that upwards of 10% of the population have had symptoms of an STI, and antenatal surveillance and other reports show an extremely high rate of positive tests for syphilis in both males and females. As well, data also shows high rates of HSV-2 prevalence, but studies on prevalence of gonorrhoea and Chlamydia have not been done.
- **Most men in Southern Sudan who are not Muslim are not circumcised** – A UNHCR survey in Juba in 2008 showed that among the non-Muslim men, 60% were not circumcised. In KKBSS, only 9.4% of the men were circumcised. However, there is some question as to whether these low rates of circumcision are necessarily tied to regions of the country with a higher HIV prevalence
- **Early age of first sex and a low level use of condoms** – In the HHS more than 50% of both young men and young women had initiated sexual activity by age 16, with a very low level of condom use at either first sex or thereafter. This was confirmed in the KKBSS, where 68% of men and 37% of women aged 15-24 admitted to having their first sex before the age of 15.
- **Multiple sexual partners** – In the HHS, 75% of the men who answered the question admitted to having two or more wives or other sexual partners, and 43.2% of the women said that their husbands had other wives. More than 27% of men had sex with more than one partner in the past 12 months, and of these, almost half had three or more partners. This was much the same proportion of men in the KKBSS who admitted to having sex with a non-regular partner in the previous twelve months.
- **A low level of knowledge in both men and women about the means of transmission of HIV and how to protect themselves**
- **A high level of stigma and discrimination against people who might be HIV-positive**

It is also important to acknowledge where there are knowledge gaps. Besides the fact that much of South Sudan is practically inaccessible and its populations have fallen outside the net of surveillance, the following gaps need to be addressed:

- **Recent information about female sex workers is lacking** - in the Behavioural Monitoring Study of 2008, 10% of the women surveyed in Juba and 13% in Morobo stated that they had sex in exchange for money in the past twelve months. The International HIV/AIDS Alliance South Sudan is currently carrying out a mapping exercise to identify hot spots, estimate the number and understand the condition of FSWs in Juba, Yambio and Yei counties, which will be the first definitive study of FSWs in South Sudan.
- **Little is known about the bridge populations, i.e clients of sex workers, truck drivers, etc.** – what studies have been carried out in Sudan have been in Northern populations, who may have different behaviours or risk factors
- **Hardly anything is known about two important high-risk populations that probably exist in Southern Sudan – men who have sex with men (MSM) and injection drug users (IDU)** – both of these populations (including male sex workers) have been identified in neighbouring countries, and there is no reason to assume that they do not also exist in Southern Sudan. Even if their numbers are small, their behaviours mean that their HIV incidence rates can be very high.

Other factors which may be facilitating the epidemic include:

- **The results of conflict and displacement** – although there is some question as to the actual role that displacement plays in HIV transmission, there is little doubt that the disruption of stable societies creates situations that may lead to the breakdown of social norms, sexual violence, poverty which drives women to “survival sex” , etc. In the KKBSS,

which took place amongst a conflict-affected population, 10% of the women stated that they had been raped, but most of these events were with their regular partners, and not part of their wartime experience.

- **Status of women** – Sudan's women have some of the lowest level of literacy in the world, as well as the highest maternal mortality rates. Numerous studies have demonstrated that improving female literacy improves the health of the entire community.

On the other hand, there are a number of factors might reduce the chances of widespread transmission of HIV to the larger population, including:

- Surveys have identified hot spot areas and populations that require priority interventions
- A number of agencies, both governmental and non-governmental that are working to implement intervention and education programs.
- The isolation and inaccessibility of much of the country, especially in the northern areas and farther away from the borders

**There has been a multi-faceted response to the epidemic**, including:

- The formation of the South Sudan AIDS Commission and the formulation of policies that will facilitate the development of intervention, treatment and care programs
- A marked increase in the number of testing centres, from five in 2006 to thirty-one in 2009
- A number of agencies are working in various parts of the country, providing a range of prevention and education services to the local community
- By the end of 2009 there were 19 facilities providing the minimum package of PMTCT services, as compared to only 3 in 2008.
- A gradually increasing number of condoms being distributed, although the total is still far from optimal.
- An increase in the number of people on treatment – more than 2,800 by early 2010, which is still well below the number that should be on treatment.
- The establishment of a Southern Sudan Network of People Living with HIV.

Based on the analysis, the following are some of the conclusions and priority recommendations that should be considered:

- **The quality and quantity of data gathered on HIV/AIDS and associated conditions needs to be improved, strengthened and harmonised. Systems of collection, collation, analysis, reporting, and evaluation of clinical, programmatic and community-based data need to be established in order to better monitor the epidemic and develop evidence-based and targeted responses.**
- **The number of antenatal surveillance sites needs to be increased before the next surveillance exercise, with the priority being to increase the number of sites at the very least in those states that have demonstrated a higher HIV prevalence.**
- **Increased antenatal surveillance needs to be supplemented by regular bio-behavioural surveys of high-risk populations, such as sex workers, STI patients and other bridging populations**
- **More research is urgently needed to determine the numbers and prevalence of HIV in those populations in South Sudan that are considered to be most at-risk: sex workers and their clients, MSMs, and long-distance truck drivers.**
- **Detailed studies on STI prevalence in the general population in the country, as well as in higher-risk groups, is needed, along with strengthening the care and treatment guidelines of STIs among the health profession and service providers**
- **HIV prevention programs in South Sudan need to include realistic HIV interventions aimed at youth, including information on availability and use of condoms, partner reduction, prevention of STIs and reproductive health messages.**
- **HIV Education and Prevention programs aimed at the general population need to be scaled-up, as well as more accurately monitored to provide information on successful models of intervention.**

- **An increased effort needs to be made to make condoms accessible to the larger community.**
- **There is hardly any information about discordant couples and HIV risks within stable relationships, and methodologies need to be investigated for approaching, surveying and intervening with discordant couples**
- **Issues of male circumcision need to be addressed in the coming years as part of the evolving HIV prevention strategy in the country.**
- **The scale-up of the HIV response needs to be conducted as part of a larger overall strengthening of the health systems capacities**

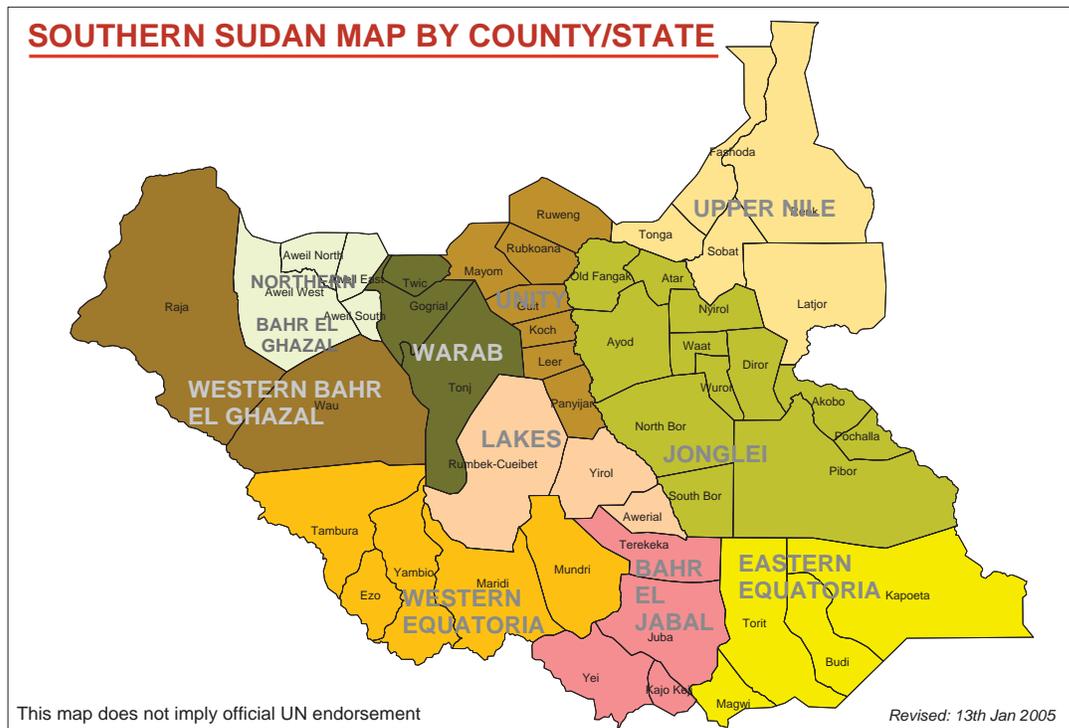
The overarching priority for Sudan needs to be increasing the capacity of the health system to respond to HIV/AIDS as only one of a number of pressing health issues, expand the cadre of trained personnel, improve the information and reporting systems, and implement proper systems of monitoring and supervision to track the progress of the epidemic response

## 1. INTRODUCTION AND BACKGROUND

Sudan is geographically the largest country in Africa with a diverse population of approximately 38 million people. Seventy percent of Sudan's people are Arabic-speaking Muslims, identifying themselves as Arabs and residing primarily in the north. Other ethnic and linguistic groups who practice Christianity and traditional religions (animist) reside primarily in the south. Southern Sudan covers a vast territory of about 640,000 sq km, and is divided into 10 states and 90 counties.

Geographically the Nile River and its tributaries dominate Sudan's landscape. Much of southern Sudan consists of a well-watered plateau, providing cultivation but subject to erosion. Tropical rain forests extend along the southern border with Uganda, the Central African Republic (CAR) and the Democratic Republic of Congo (DRC). Mountains rise along the Sudan-Uganda border to more than 3,000 meters.

Shortly after Independence in 1956, the north and the south engaged in a prolonged civil war that caused over 2 million deaths, displaced more than 4 million, and drove over 500,000 people into refuge in other countries. The Civil war ended in January 9, 2005 when the government of the National Congress Party (NCP) and the Sudan People's Liberation Movement (SPLM) signed the Comprehensive Peace Agreement (CPA) bringing to an end more than two decades of hostilities between the North and the South. Scattered areas of conflict still remain, especially in the disputed border areas with the North, but compared to other areas of greater Sudan, such as Darfur, the South is now relatively stable and at peace.



The Interim Constitution of Sudan refers to one country, two systems in which Southern Sudan and Northern Sudan each have their own government and ministerial institutions. One of the components of the CPA was that South Sudan (defined as those states in the map above) would have a greater level of autonomy, and a referendum carried out in early 2011 has paved the way for South Sudan to move towards autonomy and status as an independent state.

Because of the restricted movement of labour and trade in and out of South Sudan during the years of conflict, it was believed that the incidence and prevalence of HIV in Southern Sudan

were lower than in the neighbouring countries. It was assumed that South Sudan could be at higher risk of an increased incidence of HIV following the cessation of hostilities for several reasons, most notably that the four million displaced people who had survived the dislocations and refugee experience and had been living in zones of higher HIV prevalence, would be returning to South Sudan carrying HIV with them. As well, the high levels of poverty, low school enrolment, rudimentary health system, and low status of girls and women were also considered to be factors that could contribute to an accelerated HIV epidemic.

To this end, from 2005 onwards the Government of South Sudan (GoSS) began to create new administrative entities and government departments that would function in the post-conflict period. In the area of HIV/AIDS, the GoSS established the South Sudan AIDS Commission (SSAC) in 2006, with the mandate to provide leadership in coordination and management of the national multi-sectoral HIV/AIDS response through resource mobilization, advocacy, joint planning, monitoring and evaluation. In 2008, the Government set up the Directorate of HIV and AIDS in the Ministry of Health (MOH) to implement the HIV and AIDS programmes such as antiretroviral treatment, care and support, blood screening for HIV and sexually transmitted infections (STIs) and management and reporting of opportunistic infections. The Ministries of Health in the ten states of Southern Sudan also set up focal offices for HIV to coordinate the activities of the MOH, GoSS and monitor and report new cases of infections.

With leadership from SSAC and the MOH, the GoSS developed the Southern Sudan HIV/AIDS Strategic Framework (SSHASF 2008-2012) in 2007 and this was finalized in mid-2008. The SSHASF clearly articulates the need for targeting specific populations in a multi-sectoral response: women and girls, youth, sex workers, orphans and vulnerable children. Also outlined in the SSHASF was an HIV policy for other specific vulnerable population settings such as the workplace, schools and prisons.

As well, the SSAC and MOH have developed a number of guidelines and policy documents in the past few years, including:

- HIV/AIDS Behaviour Change and Communication (BCC) strategy (2008)
- HIV/AIDS Monitoring and Evaluation (M&E) framework (2008)
- Guidelines for ART use in adults and children (Revised 2010)
- Guidelines for syndromic management of STIs (plus training manuals)-2009.
- National blood safety strategy (2009)
- Guidelines for Voluntary Counselling and Testing (VCT) (2008)
- Guidelines for Prevention of Mother-to-Child-Transmission (PMTCT) 2010
- PMTCT training curriculum for trainers and trainees, Job aids and training slides (2010)
- National Condom Strategy
- Maternal, Neonatal and Reproductive Health (MNRH) Strategy
- 5 year Health Sector response work plan

“The situation in Southern Sudan is characterized by a fragile peace, lack of infrastructure and basic services, a depressed economy, and nascent governance and rule of law structures with significant and urgent capacity-building needs. Translating the Comprehensive Peace Agreement into actions and programmes that will facilitate sustainable post-conflict recovery, governance, and delivery of services has been an immense challenge to the GoSS. In fact, the incidence of poverty is very high and development in Southern Sudan remains amongst the lowest in the world. Livelihoods are largely at subsistence level and economic development remains depressed. In Southern Sudan, public services are virtually non-existent, leaving people in these areas isolated in terms of access to basic services.”<sup>1</sup>

The 2008 UNGASS report<sup>2</sup>, using data from the GoSS 2006 Sudan Household Health Survey (SHHS-Southern Sudan Report)<sup>3</sup> stated that Southern Sudan has an estimated population of

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<sup>1</sup> UNDP: 2009 Annual Report Global Fund Grants in Southern Sudan

10 million people, although the Sudan 2008 census estimated the population of South Sudan to be 8.26 million<sup>4</sup>, and other earlier estimates suggested that the population was closer to 11 million, with 98% of the population living in rural areas<sup>5</sup>. Officially, the 2008 census population of 8.26 million is considered definitive.

Children under 5 years constitute 21% of the population while 53% of the population is under the age of 18. Southern Sudan has a natural population growth of 3%, and a total fertility rate of 6.7 children per woman. Neonatal mortality rate is 50.7 per 1,000, while the infant and under five mortality rates stand at 101.4 and 134 per 1000 respectively. The Maternal Mortality Rate (MMR), 2037 women per 100,000, is the highest in the world. Access to formal ANC services is very limited with only 13.6% of mothers delivering in health facilities, while 30% of the deliveries are not assisted at all. For education, only 6.6% of the primary school aged children and only 3% of secondary school aged children are in school. The adult literacy rate for women 15- 24 years is 2.5%, again one of the lowest figures in the world. "A South Sudanese girl is more likely to die in childbirth than to learn to read and write"<sup>6</sup>.

## **2. OBJECTIVES AND METHODOLOGY**

Currently, the World Bank is assisting SSAC in its technical capacity to facilitate the implementation of the Multi-Donor Task Fund (MDTF) HIV/AIDS project, which was developed in consultation with representatives of GoSS, UN Agencies, Civil Society, and other key development partners.

To this end the World Bank is supporting SSAC to review and update the draft HIV M&E framework and the result framework for the MDTF-supported HIV project and the implementation plan. As a first step in this process, a consultant was contracted to analyse the current situation of HIV in the country, based on a systematic review of existing data. Specifically, the objectives of the analysis were to:

- Summarize and synthesize available data in order to provide a better understanding of the HIV epidemic in Southern Sudan and its likely drivers;
- Provide SSACs and other stakeholders with recommendations in terms of priorities in reducing HIV transmission and other aspects of HIV/AIDS programming; and
- Identify gaps in data availability, quality, or analysis and suggest ways by which data collection, analysis, and use could be strengthened.

The consultant carried out two visits to South Sudan in July and a third in October 2010, met with a number of representatives in Juba from SSAC, the Ministry of Health, and key stakeholders working in the HIV and AIDS field in the country, as well as visiting field sites in Wau (Western Bahr Ghazal) and Torit (Eastern Equatoria). Documents were collected, both in hard and soft copy, as well as through internet searches. No new data was collected for this study, but confidence intervals were calculated from the data contained in the 2009 Antenatal Surveillance Report. The draft report was submitted in October 2010, reviewed by SSAC, World Bank and other local partners, and subsequently revised and amended.

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<sup>2</sup> **UNGASS Progress Report (2006-2007)**; SSAC 2008

<sup>3</sup> **Southern Sudan Household Health Survey**; Govt. of Southern Sudan; 2006

<sup>4</sup> **Sudan 2008 census**

<sup>5</sup> Southern Sudan Commission for Census, Statistics and Evaluation (SSCCSE) 2004, quoted in Orero S, Oyaya CO, Odiyo FO; **Situational Analysis of Reproductive Health and Adolescent Sexual and Reproductive Health in South Sudan**; UNFPA 2007

<sup>6</sup> **The Economist**, 5 February 2011

This document consists of the main findings of the situational analysis and a discussion of their implications. Issues of monitoring and evaluation are purposely **not** covered in this document, but will form the substance of a subsequent report.

It should be noted at the outset that there is much less data available to analyse for Southern Sudan than for other countries in the region. This has created some limitations to a comprehensive analysis, and the factors contributing to this include:

- Lack of historical data – the prolonged civil war meant that the establishment of regular sentinel surveillance was limited, especially in the south.
- Limited amount of data – the UNAIDS 2008 Epidemiological Fact Sheet<sup>7</sup> notes only three surveillance sites in Southern Sudan (and only eight in the whole country). As will be seen below, most of the current prevalence data in Southern Sudan is based on a handful of recent studies. Recent data collection has improved, however, and the 2009 Antenatal Surveillance data reported below is taken from 24 sentinel sites<sup>8</sup>. However, it must be emphasised that what data does exist still covers only a fraction of the total population – only 30% of the population has access to health care, a smaller proportion of women seek antenatal care or deliver in health facilities, large parts of the country remain inaccessible by road, and it would be presumptuous to make national generalisations on what is basically still very site-specific data.
- Lack of south-specific Sudan data – much of the epidemiological data on Sudan is based on studies that were carried out in the North, and there is ample evidence that the epidemiology of HIV between the South and North differs in several aspects. Similar data has not yet been gathered in the South.
- Currency and validity of some of the data – some of the data that is available for the South is based either on studies that were carried out many years ago, were based on small samples, or the methodology may have been suspect or questionable. As well, there has not been a well-established system of regular sentinel surveillance or antenatal surveillance established in Southern Sudan
- Availability of reports – copies of a number of reports and papers that were cited as having been produced in recent years were not readily available, either in SSAC or the MOH, and other studies that had been carried out in recent months were still being analysed, and even preliminary results were unobtainable. Much of the prevalence data that are cited in the following pages are extracted from an in-depth analysis of HIV/AIDS in the Middle East and North African countries (including Sudan) carried out last year by the World Bank<sup>9</sup>. Finally, much of the data cited in this report are taken from secondary sources, and details of the actual sample size and sampling methodology which would confirm their validity are not available.

### **3. EPIDEMIOLOGY OF HIV IN SOUTH SUDAN**

#### ***3.1 The Prevalence of HIV in Southern Sudan***

Data from a National survey carried out by the Khartoum government in 2002<sup>10</sup> covering limited geographical areas in three states in the South and eleven in the North and among some high risk populations provided HIV population prevalence estimates of 1.6%<sup>11</sup>. The figure was higher in adults at 2.6% and among certain population subgroups, for example 4.4 % among refugees and 4.0% among sex workers. The survey concluded that while available data

<sup>7</sup> **Epidemiological Fact Sheet on HIV and AIDS 2008: Sudan**; UNAIDS

<sup>8</sup> **Southern Sudan ANC Sentinel Surveillance Report, 2009**; Draft; MOH HIV/AIDS/STI Directorate

<sup>9</sup> Abu-Raddad LJ, Akala FA, Semini I, Rieder G, Wilson D, Tawil O; **Characterizing the HIV/AIDS Epidemic in the Middle East and North Africa**; World Bank Publications 2010

<sup>10</sup> Sudan National AIDS Control Programme, **National Policy on HIV/AIDS. 2005**, quoted in Abu-Raddad et al.

<sup>11</sup> Details of the sample size and sampling methodologies for these surveys is not available

indicates that the epidemic is largely concentrated in certain populations in Northern Sudan, while Southern Sudan has a more generalized epidemic, and that most of the cases in Sudan resided in the South. A recent review of HIV/AIDS in the Middle East and North Africa<sup>12</sup> that examined the epidemic in several dozen countries from Pakistan to Morocco concluded that in the region covered by the study it was only in Southern Sudan that the epidemic could be considered as generalised.

In 2000, a survey of 500 adult samples in each of Tambura, Ezo and Yambio counties (all in Western Equatoria) found an HIV seroprevalence of 1.6% in Tambura, 2% in Ezo and 7.2% in Yambio (with a 3% prevalence in peri-urban areas and 8.7% in Yambio Town). Surveys in 2002 and 2003 in Yei (southern part of Central Equatoria) and Rumbek (Lakes) showed great differences in prevalence, with a prevalence of 2.7% in Yei County, 4.4% in Yei Town, but only 0.4% in Rumbek town<sup>13</sup>. As well, these surveys showed differences between villages close to the roads versus those further away from the roads with, as expected, higher prevalences in the villages closer to the roads<sup>14 15</sup>.

A 2007 analysis of HIV/AIDS in Southern Sudan undertaken by the U.S. Centres for Disease Control and Prevention (CDC) indicated that the epidemic is extremely heterogeneous – with high prevalence found in some areas and much lower prevalence likely in other areas (the report underscored the paucity of robust epidemiological and behavioural surveillance data). The report highlighted that the prevalence levels recently obtained in some areas from antenatal surveillance were “alarming,” as they indicated that the epidemic was further advanced than previously thought. Although ANC data suggested the existence of a generalized epidemic in Southern Sudan, **the existing ANC sites did not adequately represent the entire autonomous region**. Noting the many limitations of the unlinked anonymous ANC surveillance data collected since late 2005, the CDC utilized them to underscore wide variations among locales, with prevalence levels ranging from 1% in Leer (Northern Unity State) to 12% in Tambura (in the Southern state of Western Equatoria, along the Congolese border)<sup>16</sup>.

In 2008 UNAIDS estimated a national Sudan prevalence of 1.4% in the 15-49 age range, with 345,000 people living with HIV (320,000 adults and 25,000 children 15 years and less)<sup>17</sup>. However, no separate regional estimates were produced for urban/rural or northern/southern. Despite limited data, attempts have been made to estimate the HIV prevalence based on available ANC surveillance data in both North and Southern Sudan. The provisional **estimated HIV prevalence for Southern Sudan is slightly over 3%** (3.04% in 2009) with the number of people living with HIV in Southern Sudan being approximately 150,000 (Adult 135,500 and Children 14,500) with approximately 16,000 new infections occurring per year.<sup>18</sup> That is to say, despite containing only 20% of the population of all of Sudan, Southern Sudan is home to more than 40% of the Sudanese people living with HIV/AIDS.

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<sup>12</sup> Abu-Raddad et al ibid

<sup>13</sup> Kaiser R, Kedamo T, Lane J, Kessia G, Downing R, et al. (2006) **HIV, syphilis, herpes simplex virus 2, and behavioral surveillance among conflict-affected populations in Yei and Rumbek**, southern Sudan. *Aids* 20: 942-944; quoted in Abu-Raddad LJ et al.

<sup>14</sup> All these results were from CDC surveys, quoted in **Southern Sudan ANC Sentinel Surveillance Report, 2009**; Draft; MOH HIV/AIDS/STI Directorate

<sup>15</sup> Sudan National AIDS Program, The New Sudan National AIDS Council, UNAIDS. (2006) **Scaling-up the HIV/AIDS response in Sudan: National Consultation on the Road towards Universal Access to Prevention, Treatment, Care and Support.**, quoted in Abu-Raddad et al

<sup>16</sup> Boo T.; **The HIV Situation in Southern Sudan: An Overview of Available Data with Comments upon Program Implications**. Draft.; Juba: Global AIDS Program-Sudan, U.S. Centers for Disease Control and Prevention, quoted in Southern Sudan HIV/AIDS Policy 2008.

<sup>17</sup> **Epidemiological Fact Sheet on HIV and AIDS 2008: Sudan**; UNAIDS

<sup>18</sup> SSAC; **Universal Access Report 2010, Scaling Up HIV/AIDS Response, Southern Sudan**

Under the auspices of SSAC, the CDC carried out an ANC surveillance exercise in 2007<sup>19</sup>, which estimated an overall adult prevalence of 3.7%<sup>20</sup>. This was based on a sample of 4,710 women tested from ten different urban sites. As can be seen from **Table 1**, prevalence levels ranged from 0.8% to 11.5%, with no overlap in the confidence intervals between the lowest and the highest figures. So the aggregate 3.7% prevalence figure does not reflect the impression gained from the detailed data – that South Sudan has a heterogeneous epidemic.

**Table 1: Prevalence of HIV among ANC respondent by site – 2007**

Site Name	Number tested	Number HIV Positive (%)	95% Confidence Interval
Leer – MSF Holland	874	7 (0.8%)	0.3 – 1.6%
Cuiebet-DEA	107	1 (0.9%)	0.02 - 5.1%
Akobo PHCC	110	1 (0.9%)	0.02 - 5.0%
Kajo Keji Hospital	1,045	17 (1.6%)	1.0 - 2.6%
Nimule Hospital-Merlin	492	11 (2.2%)	1.1 - 4.0%
St. Bakhita	792	21 (2.7%)	1.6 - 4.0%
Maridi-AAH	244	14 (5.7%)	3.2 - 9.4%
Boma Hospital-Merlin)	429	31 (7.2%)	5.0 - 10.1%
Pochalla PHCC	18	2 (11.1%)	*
Tambura Hospital/PHCC	599	69 (11.5%)	9.1 - 14.4%
<b>Total</b>	<b>4,710</b>	<b>174 (3.7%)</b>	<b>3.2-4.3%</b>

- 95% CI cannot be calculated because the sample size is very small

Source: S. Sudan ANC Sentinel Surveillance Report 2007

This analysis described South Sudan epidemic as heterogeneous – **with focal areas of high prevalence in Western Equatoria, in border areas with countries with high prevalence and in areas of high concentration of military activities**. However, it was also recognised that only five out of ten states of Southern Sudan were represented here. In addition, all these sites were located in towns, so rates in rural areas were not represented. As well, details of the individual populations surveyed are not available, and so it is difficult to come to conclusions to explain the differing prevalence levels seen at the different sites. It should also be evident that the numbers tested varied considerably between sites (with only 18 women being tested at Pochalla), making most of the confidence intervals wide and leaving room for varying interpretations of the data.

As well, it was noted that whereas the rates found in ANC and true prevalence rates in the community can vary substantially from place to place, these relationships have not been defined in Sudan, so the true prevalence in the communities studied may be slightly higher or slightly lower than the levels found here<sup>21</sup>. A number of factors that have been postulated for the differing prevalence rates include geography (closer to the Ugandan or Congolese borders), distance from the highways, urban versus rural, as well as proximity to zones of conflict.

Although the 2007 ANC surveillance came up with an aggregate prevalence estimate of 3.7% (see above), this was reported as 3.1% in most subsequent official documents. In 2009 the HIV prevalence in S. Sudan was estimated to be “around 3 percent”<sup>22</sup>, although it is unclear how this estimation was made.

<sup>19</sup> While antenatal data is used in many countries as a proxy for the general population, it must be emphasised that fewer than 30% of women in South Sudan have access to antenatal services, and fewer than 20% deliver in health facilities, so what ANC data exists must mainly represent women in urban areas or those living close to a health facility, and cannot be said to represent the majority of pregnant women, much less the general population.

<sup>20</sup> Southern Sudan ANC Sentinel Surveillance Report, Cumulative to August 2007; CDC, MOH and SSAC

<sup>21</sup> The report cites limited evidence from Yei suggesting that the prevalence levels in pregnant women attending ANC in St. Bakhita Health Centre in Yei (2.7%) may slightly underestimate the prevalence in the town, which in November 2002 was found to be 4.2%.

<sup>22</sup> Universal Access Report (2010), SSAC

The results of the second round of ANC surveillance carried out in 2009 have recently been released<sup>23</sup>. These were taken from a sample of 5,913 women from 24 sentinel sites in all ten states – 14 urban and 10 rural - and found **an overall prevalence of 3.0%**. However, as can be seen from **Table 2**, this 3% figure does not describe the wide variations in prevalence between sites (2007 figures are included in column 4):

**Table 2: Prevalence of HIV among ANC respondent by site - 2009**

Site Name (U- urban; R – rural)	Number tested	Number HIV Positive (%) 2009	95% Confidence Interval	Number HIV Positive (%) 2007
Awiel Civic Hospital (U)	299	0 (0.0%)	---	--
Cuiebet PHCC (R)	300	1 (0.3%)	0 – 0.98%	1 (0.9%)
Akobo PHCC (R)	169	1 (0.6%)	0 – 0.7%	1 (0.9%)
Kuajok PHCC (U)	289	2 (0.7%)	0 – 1.6%	---
Renk Civic Hospital (R)	216	2 (0.9%)	0 – 2.2%	---
Torit Civic Hospital (U)	298	4 (1.3%)	.03 – 2.7%	---
Wau Teaching Hospital (U)	299	4 (1.3%)	.04 - 2.6%	---
Bentiu State Hospital (U)	296	4 (1.4%)	.04 - 2.7%	---
Rumbek PHCC (U)	300	5 (1.7%)	0.2 - 3.1%	---
Leer – PHCC (R)	135	3 (2.2%)	0 - 4.7%	7 (0.8%)
Kajo Keji Civil Hospital (R)	264	6 (2.3%)	0.5 – 4.1%	17 (1.6%)
Maridi PHCC (R)	250	6 (2.4%)	0.5 – 4.3%	14 (5.7%)
Boma PHCC (R)	159	4 (2.5%)	.08 – 5.0%	31 (7.2%)
Bor Civil Hospital (U)	300	8 (2.7%)	0.9 – 4.5%	---
Malakal Hospital(U)	265	8 (3.0%)	1.0 – 5.1%	---
St. Bakhitia PHCC (R)	255	8 (3.1%)	1.0 – 5.3%	21(2.7%)
Malakia PHCC (U)	140	5 (3.6%)	0.5 – 6.6%	---
Bam PHCC (U)	169	6 (3.6%)	0.8 – 6.3%	---
Nyakuron PHCC (U)	300	12 (4.0%)	1.8 – 6.2%	---
Nimule PHCC (R)	249	14 (5.6%)	2.8 – 8.5%	11 (2.2%)
Rumbek State Hospital (U)	283	16 (5.7%)	1.0 – 8.3%	---
Juba Teaching Hospital (U)	299	18 (6.0%)	3.3 – 8.7%	---
Pochalla PHCC	---	----	---	2 (11.1%)
Tambura PHCC (R)	250	19 (7.6%)	4.3 – 10.9%	69 (11.5%)
Yambio Hospital (U)	129	20 (15.5%)	9.3 – 21.8%	---
<b>Total</b>	<b>5,913</b>	<b>176 (3.0%)</b>	<b>2.6 – 3.4</b>	<b>174 (3.7%)</b>

Source: Southern Sudan ANC Sentinel Surveillance Report, 2009

These results again show the marked heterogeneity of the epidemic, with significant differences between the sites of lowest and highest prevalence. The differences in prevalence between Rumbek PHCC (1.7%) and Rumbek State Hospital (5.7%) could perhaps be a sampling anomaly (the wide confidence intervals in both results do overlap), but the high prevalence levels in Juba (6%), Tambura (7.6%) and Yambio (15.5%) are of concern. **Table 3** shows the ANC prevalence results by state.

<sup>23</sup> Southern Sudan ANC Sentinel Surveillance Report, 2009; Draft; MOH HIV/AIDS/STI Directorate

**Table 3: Prevalence of HIV among ANC respondents by state - 2009**

STATE (SITE)	Number of sites	Number tested	Number positive (%)	95% Confidence interval
Northern Bahr Ghazal (Aweil)	1	299	0 (0%)	---
Warrap (Kuajok)	1	289	2 (0.7%)	0 – 1.6
Western Bahr Ghazal (Wau)	1	299	4 (1.3%)	.04 – 2.6
Unity (Bentiu, Leer)	2	431	7 (1.6%)	0.4 – 2.8
Jonglei (Bor, Boma, Akobo)	3	628	13 (2.1%)	1.0 – 3.2
Lakes (Cuiebet, Rumbek x2)	3	883	22 (2.5%)	1.5 – 3.5
Upper Nile (Malakal, Bam, Malakia, Renk)	4	790	21 (2.7%)	1.5 – 3.8
East. Equatoria (Nimule, Torit)	2	547	18 (3.3%)	1.8 – 4.8
Central Equatoria (Juba, Nyakuron, St. Bakhita, Kajo Keji)	4	1118	44 (3.9%)	2.8 – 5.1
West. Equatoria (Yambio, Maridi, Tambura)	3	629	45 (7.2%)	5.1 – 9.2

Source: Southern Sudan ANC Sentinel Surveillance Report, 2009

These results demonstrate quite forcefully that in general the epidemic is worse in the southern part of the country and in Juba the capital city, with those states on the southern borders with Uganda and Democratic Republic of Congo having the highest HIV prevalence. In Eastern Equatoria, the prevalence in the border town of Nimule was 5.6% while in Torit further north it was only 1.3%. Yambio and Tambura in Western Equatoria had the highest prevalences in the country, and the prevalence in Western Equatoria (7.2%) would have been even higher had Maridi (2.5%) also not been surveyed. Conversely, the lowest prevalences are found in the more remote northwestern states – Northern and Western Bahr Ghazal and Warrap. Urban/rural differences seem to be of less importance than geographical location, for example, Nimule is a rural location with a high prevalence, but close to the Ugandan border, whereas Aweil and Kuajok are both urban, but located in a Northern low prevalence state, and Yambio (urban) and Tambura (rural) both are in Western Equatoria, where the prevalence is generally high.

An analysis of the trends between 2007 and 2009 is shown in **Table 4**, Again, there are striking differences between the sites, but one should be cautious drawing conclusions, given the range of confidence intervals and the underlying questions about sampling methodology,

**Table 4: Change in antenatal prevalence between 2007 and 2009 by site**

SITE	Prevalence 2007	Prevalence 2009	% change
Leer	0.8%	2.2%	+175%
Nimule	2.2%	5.6%	+154%
Tambura	7.6%	11.5%	+51%
Kajo Keji	1.6%	2.3%	+44%
Bakhtia	2.7%	3.1%	+15%
Akobo	0.9%	0.6%	-33%
Cuiebet	0.9%	0.3%	-66%
Boma	7.2%	2.5%	-153%
Maridi	5.7%	2.4%	-173%

**Table 5**, the age specific HIV prevalence for the antenatal clinic clients in 2007, demonstrates that as would be expected, the highest prevalence levels were found in the 20-34 year population, although it is interesting that the highest levels are in the 20-24 year old group – in most countries with a generalised mature epidemic, the highest levels are found in the older women of reproductive age – the 30-35 year olds, which may imply a more recent arrival of HIV in the country. However, it can also be seen that the confidence intervals for the three groups 20-24, 25-29 and 30-34 largely overlap, so there may not be a significant difference in the prevalence levels between the different ages 20-34. One factor that may explain this is the fact that more than 50% of South Sudanese women are sexually active by age 16. The 2010

Household survey<sup>24</sup> found that a very low percentage of sexually active women use condoms or any other means of birth control, and that 90% of the women surveyed had given birth, implying that first pregnancies probably occur between the ages of 15 and 19, which is younger than in many other African countries.

**Table 5: Age specific HIV prevalence for ANC respondents - 2007**

Age group (years)	Number tested	Number HIV Positive (%)	95% Confidence Interval
<=19	791	23 (2.9%)	1.9 - 4.3
20-24	1,375	59 (4.3%)	3.3 - 5.5
25-29	1,342	47 (3.5%)	2.6 - 4.6
30-34	717	26 (3.6%)	2.4 - 5.3
35-39	400	11 (2.8%)	1.4 - 4.9
40+	43	2 (4.7%)	0.5 -15.8
<b>Total</b>	<b>4,668<sup>±</sup></b>	<b>168<sup>±</sup> (3.6)</b>	<b>3.1-4.2</b>

<sup>±</sup>Numbers do not add up exactly because those whose age is unknown have been excluded

Source: S. Sudan ANC Sentinel Surveillance Report 2007

By contrast, **Table 6** is the age-specific prevalence for antenatal clinic clients in 2009. What is notable is that the prevalence in the 15-19 year olds has stabilized (with whatever changes not being significant), the higher levels seen in the 20-24 year group in 2007 are no longer seen, and the prevalence is essentially the same for all three age groups between 20 and 35 years, which would imply the continued maturation of the epidemic from the results seen in 2007 – with new incidence in the 15-19 group and a stable prevalence in the older groups (implying a continued incidence of new infections as well as mortality in those previously infected).

**Table 6: Age specific HIV prevalence for ANC respondents - 2009**

Age group (years)	Number tested	Number HIV Positive (%)	95% Confidence Interval
15 - 19	1019	25 (2.3%)	1.4 – 3.2
20-24	1811	59 (3.3%)	2.4 – 4.1
25-29	1605	51 (3.2%)	2.3 – 4.0
30-34	858	29 (3.4%)	2.2 – 4.6
35-39	468	11 (2.4%)	1.0 – 3.7
40-44	44	1 (2.3%)	0 – 6.7
45 -49	34	0	0
missing	2	0	0
<b>Total</b>	<b>5,913</b>	<b>176 (3.0%)</b>	<b>2.6 – 3.4</b>

Source: Southern Sudan ANC Sentinel Surveillance Report, 2009

Finally, **Table 7** shows the antenatal HIV prevalence by marital status. As can be seen, there is essentially no difference between the prevalence levels in women who are married, either in monogamous or polygamous marriages, and single women. One might be tempted to draw conclusions about the high prevalence (16.7%) in those who were widowed (husbands having died of HIV, or perhaps women turning to high-risk survival sex as a result of widowhood) but the small sample size does not give weight to these hypotheses.

**Table 7: ANC HIV Prevalence by marital status - 2009**

Marital Status	Total tested	Number HIV positive (%)	95% Confidence Intervals
Married monogamous	3580	107 (3.0%)	2.4 – 3.6
Married polygamous	2006	54 (2.7%)	2.0 – 3.4
Single	268	10 (3.7%)	1.5 – 6
Widowed	24	4 (16.7%)	1.8 – 3.2
Divorced/separated	29	1 (3.4%)	0 – 10
Missing	6	0	---
<b>Total</b>	<b>5913</b>	<b>176 (3.0%)</b>	<b>2.6 – 3.4</b>

Source: Southern Sudan ANC Sentinel Surveillance Report, 2009

<sup>24</sup> Government of South Sudan, 2010 Household Health Survey, draft report

There is anecdotal evidence suggesting that there could also be sub-epidemics among most-at-risk population groups in some of the major cities of Southern Sudan, particularly those bordering neighbouring states, but no surveys are being undertaken at present to study these putative most-at-risk populations. The second Health Household Survey (SHHS II) to estimate HIV prevalence and other important behavioural indicators among the general population was carried out in 2010 (and some of its results are reported later in this report), but it did not examine any issues in most-at-risk populations.

### **3.2 Prevalence levels in specific populations**

While there have been many studies in Sudan over the past twenty years that have measured prevalence levels in specific populations that are considered to be at high risk, only a few have been carried out in the South. Some of these results are listed in **Table 8** below.

**Table 8: HIV Prevalence in Specific Populations in South Sudan**

<b>Population</b>	<b>Location</b>	<b>Year</b>	<b>HIV Prevalence</b>
Female sex workers	Juba	1995	16% <sup>25</sup>
Sex worker clients	Juba	1995	14% <sup>26</sup>
Military personnel	Yei	2005	2.9% <sup>27</sup>
Military personnel	Rumbek	2005	0.8% <sup>28</sup>
TB patients	South Sudan	2002	4.8% (3.6% N. Sudan) <sup>29</sup>
STD Clinic attenders	Yei	2006	5.8% <sup>30</sup>
VCT clinic attenders	Southern Sudan	2004	14% <sup>31</sup>
VCT clinic attenders	Southern Sudan	2006	17% <sup>32</sup>

Source: see footnotes for each study – in most cases, details of sample size and sampling methodology not given

There are some high-risk populations, such as men who have sex with men (MSM) and truck drivers, for which no specific data exists for South Sudan – what data does exist comes either from all-Sudan research, or studies in Northern locations. That these figures are from the North (where, for example the population of truck drivers may be Muslim and circumcised) makes them not very useful for a Southern analysis.

## **4. FACTORS ASSOCIATED WITH HIV TRANSMISSION**

### **4.1 Sexually Transmitted Infections**

The 2008 Behavioural Monitoring Survey reported that both men and women of all age groups in Juba and Morobo had ever had symptoms of an STI. As seen in **Table 9**, there are obvious

<sup>25</sup> McCarthy MC, Khalid IO, El Tigani A (1995) **HIV-1 infection in Juba, southern Sudan**. J Med Virol 46: 18-20., quoted in Abu-Raddad et al

<sup>26</sup> McCarthy et al, ibid

<sup>27</sup> Sudan National AIDS Program, The New Sudan National AIDS Council, UNAIDS. (2006) **Scaling-up HIV/AIDS Response in Sudan. National Consultation on the Road towards Universal Access to Prevention, Treatment, Care and Support.**

<sup>28</sup> Sudan National AIDS Program, The New Sudan National AIDS Council, UNAIDS. (2006) **Scaling-up HIV/AIDS Response in Sudan. National Consultation on the Road towards Universal Access to Prevention, Treatment, Care and Support.**

<sup>29</sup> El-Sony AI, Khamis AH, Enarson DA, Baraka O, Mustafa SA, et al. (2002) **Treatment results of DOTS in 1797 Sudanese tuberculosis patients with or without HIV co-infection**. Int J Tuberc Lung Dis 6: 1058-1066., quoted in Abu-raddad et al

<sup>30</sup> Sudan National AIDS Program, The New Sudan National AIDS Council, UNAIDS. (2006) **Scaling-up HIV/AIDS Response in Sudan. National Consultation on the Road towards Universal Access to Prevention, Treatment, Care and Support.**

<sup>31</sup> Ahmed SM (2004) **AIDS Patients. Situation Analysis-Behavioral Survey. Results & Discussions. Report.**

Sudan National AIDS Control Program quoted in Abu-Raddad et al

<sup>32</sup> Sudan National AIDS Program, The New Sudan National AIDS Council, UNAIDS. (2006) op cit

differences between Morobo (a cross-border point), Juba (the commercial centre) and the more isolated Rumbek:

**Table 9: Behavioural Monitoring Survey 2008- Ever had an STI symptom<sup>33</sup>**

	JUBA	MOROBO	RUMBEK
Men	17%	24%	5%
Women	9%	9%	--
In school youth	12%	10%	8%
Out of school youth	6%	9%	6%

Source: BMS Survey 2009

The 2010 Household survey report confirmed these findings of a high level of STIs in the population, as seen in **Table 10**:

**Table 10: Household health survey 2010 – Ever had an STI symptom<sup>34</sup>**

	Abnormal Genital discharge	Genital sore or ulcer	Sought treatment
Men	9.6%	7.7%	59.9%
Women	12.6%	10.1%	48%

Source: Household Health Survey 2010

These results are similar to the findings in the Behavioural Surveillance Survey carried out in Kajo Keji County in 2009, which found that 12.7% percent of the men and 19.2% of the women aged 15-49 who were surveyed had an STI symptom in the past 12 months and had sought treatment at a health facility (which implies that a higher percentage may have had symptoms which were treated elsewhere)<sup>35</sup>

The antenatal surveillance exercise carried out by CDC and SSAC in 2007 also tested for syphilis. A total of 4,419 ANC attendees were tested for syphilis and 482 tested positive giving an overall syphilis prevalence of 10.9% (95% CI 10.0-11.9)<sup>36</sup>. Site specific syphilis prevalence ranged from 2.9% in Kajo Keji Hospital to 21.3% in Nimule Hospital and Tambura Hospital as shown in **Table 11**:

**Table 11: Site-specific syphilis prevalence - ANC clients in Southern Sudan 2007**

Site Name	Number tested	Number Syphilis Positive (%)	95% Confidence Interval	HIV Prevalence ranking 2007
Pochalla PHCC	18	0 (0%)	---	2
Kajo Keji Hospital	1,045	30 (2.9%)	1.9 – 4.1	7
Akobo PHCC	98	3 (3.1%)	0.6 – 8.7	8
St. Bakhita	566	27 (4.8%)	3.2 – 6.9	5
Boma Hospital-Merlin	414	42 (10.1%)	7.4 – 13.5	3
Leer-MSF Holland	858	91 (10.6%)	8.6 – 12.9	10
Cuiebet-DEA	107	13 (12.1%)	6.6-19.9	9
Maridi-AAH	227	45 (19.8%)	14.8-25.6	4
Nimule Hospital-Merlin	489	104 (21.3%)	17.7-25.2	6
Tambura Hospital/PHCC	597	127 (21.3%)	18.1-24.8	1
<b>Total</b>	<b>4,419</b>	<b>482 (10.9)</b>	<b>10.0-11.9</b>	

Source: S. Sudan ANC Sentinel Surveillance Report 2007

<sup>33</sup> Kitingulu B, et al 2009 op cit

<sup>34</sup> Government of South Sudan, **2010 Household Health Survey**, draft report

<sup>35</sup> IGAD/UNHCR; **HIV Behavioural Surveillance Survey in Kajo Keji County, Central Equatoria State, Southern Sudan**; 2010

<sup>36</sup> **Southern Sudan ANC Sentinel Surveillance Report, Cumulative to August 2007**; CDC, MOH and SSAC

As can be seen, other than Tambura, which had both the highest HIV prevalence and the highest syphilis prevalence, there does not appear to be much of a relationship between the two sets of figures.

Age specific prevalence of syphilis ranged from 9.2% in the 19 and under group to 12.2% in both the 25-29 and 35-39 age groups, but these differences were not significant. Less than one per cent of the sample was co-infected with both HIV and syphilis. The high rate in the under 19 group may be related to the young age at first sex seen in South Sudanese women<sup>37</sup>.

Syphilis testing was also carried out in the 2009 Antenatal surveillance, and the high levels of syphilis seen in 2007 were confirmed, as shown in **Table 12**:

**Table 12: Prevalence of Syphilis among ANC respondent by site - 2009**

Site Name	Number tested	Number reactive (%)	95% Confidence Interval	HIV prevalence ranking
St. Bakhitia PHCC	255	5 (2%)	0.3 – 3.7	9
Renk Civic Hospital	220	9 (4.1%)	1.5 – 6.7	20
Kuajok PHCC	300	13 (4.3%)	2.0 – 6.6	21
Aweil Civic Hospital	300	14 (4.7%)	2.3 – 7.1	24
Boma PHCC	160	8 (5.0%)	1.6 – 8.4	12
Wau Teaching Hospital	299	18 (6.0%)	3.3 – 8.7	18
Leer PHCC	141	9 (6.4%)	2.4 – 10.4	15
Nyakuron PHCC	220	9 (4.1%)	1.5 – 6.7	7
Nimule PHCC	251	18 (7.2%)	4.0 – 10.4	6
Bam PHCC	170	13 (7.6%)	3.7 – 11.7	8
Juba Teaching Hospital	300	24 (8.0%)	4.9 – 11.1	3
Kajo Keji Civil Hospital	264	23 (8.7%)	5.3 – 12.1	14
Malakia PHCC	140	13 (9.3%)	4.5 – 14.1	9
Yambio Hospital	229	23 (10.0%)	6.2 – 13.9	1
Torit Civic Hospital	301	34 (11.3%)	7.7 – 14.9	19
Akobo PHCC	170	20 (11.8%)	6.9 – 16.6	22
Bentiu State Hospital	300	37 (12.3%)	8.6 – 16.1	17
Rumbek State Hospital	299	37 (12.4%)	8.6 – 16.1	4
Rumbek PHCC	300	38 (12.7%)	8.9 – 16.4	16
Cuiebet PHCC	300	41 (13.7%)	9.8 – 17.6	23
Tambura PHCC	250	35 (14.0%)	9.7 – 18.3	2
Maridi PHCC	349	52 (14.9%)	11.2 – 18.6	13
Bor Civil Hospital	300	48 (16.0%)	11.9 – 20.2	11
Malakal Teaching Hospital	277	56 (20.2%)	15.5 – 25.0	10
<b>Total</b>	<b>6,175</b>	<b>609 (9.9%)</b>	<b>9.1 – 10.6</b>	

Source: Southern Sudan ANC Sentinel Surveillance Report, 2009

**Table 13** shows the syphilis prevalence by state. As with the HIV prevalence, there are significant differences seen between those states with the lowest and highest prevalence.

<sup>37</sup> Government of South Sudan, **2010 Household Health Survey**, draft report

**Table 13: Prevalence of Syphilis among ANC respondents by state - 2009**

STATE (SITE)	Number of sites	Number tested	Number positive (%)	95% Confidence interval	HIV prevalence ranking
<b>Warrap</b> (Kuajok)	1	300	13 (4.3%)	2.0 – 6.6	9
<b>Northern Bahr Ghazal</b> (Aweil)	1	300	14 (4.7%)	2.3 – 7.1	10
<b>Western Bahr Ghazal</b> (Wau)	1	299	18 (6.0%)	3.3 – 8.7	8
<b>Central Equatoria</b> (Juba, Nyakuron, St. Bakhita, Kajo Keji)	4	1119	73 (6.5%)	5.1 – 8.0	2
<b>Eastern Equatoria</b> (Nimule, Torit)	2	552	52 (9.4%)	7.0 – 11.9	3
<b>Unity</b> (Bentiu, Leer)	2	441	46 (10.4%)	7.6 – 13.3	7
<b>Upper Nile</b> (Malakal, Bam, Malakia, Renk)	4	807	91 (11.3%)	9.1 – 13.5	4
<b>Jonglei</b> (Bor, Boma, Akobo)	3	630	76 (12.1%)	9.5 – 14.6	6
<b>Lakes</b> (Cuiebet, Rumbek x2)	3	899	116(12.9%)	10.7 – 15.1	5
<b>Western Equatoria</b> (Yambio, Maridi, Tambura)	3	828	110(13.3%)	11.0 – 15.6	1
Missing (2)					
<b>TOTAL</b>	<b>24</b>	<b>6175</b>	<b>609 (9.9%)</b>	<b>9.1 – 10.6</b>	

Source: Southern Sudan ANC Sentinel Surveillance Report, 2009

Given the close synergistic relationship between HIV and ulcerative STIs, one might have expected there to be a direct correlation between the states in their HIV and syphilis prevalence levels, and to a certain extent this can be seen to be true: the three states with the lowest HIV prevalence (Warrap, Northern and Western Bahr Ghazal) also have the lowest syphilis prevalence, and Western Equatoria has the highest HIV and syphilis prevalence. However, this relationship is not seen for Central and Eastern Equatoria which have high HIV prevalences, nor for Lakes and Jonglei, which have a lower HIV prevalence but rank second and third in syphilis prevalence.

Are these differences in the middle of the order significant? The overlapping confidence intervals would suggest that they are not, and that the highest and lowest prevalence states demonstrate the interrelationship between STIs and HIV. On the other hand, these prevalence levels for syphilis are very high, and the possibility that one in five pregnant women in Malakal, (Upper Nile State) is positive for syphilis is startling. So one must ask whether these results do indeed reflect such a high level of syphilis in South Sudan. As these reported results only in antenatal women, do men also display such a high level of positive tests?

One possibility is that these results are not diagnostic of syphilis at all, but rather cases of chronic or active yaws, another treponemal infection that cross-reacts with most syphilis diagnostic tests. South Sudan lies in the traditional endemic area of yaws, and it has been noted that after the yaws eradication campaigns in the 1950's and 1960's the interest in the disease waned and it has made a resurgence in many areas<sup>38</sup>, which could also have been exacerbated by the many years of conflict and disrupted health services in South Sudan.

If this were the case, it would be seen in the age-specific prevalence of syphilis, and the results of the 2009 ANC surveillance are shown in **Table 14**:

<sup>38</sup> Levine CL; **Diagnosis and Treatment of Yaws**; accessed on October 9 from <http://emedicine.medscape.com>

**Table 14: Age specific syphilis prevalence for ANC respondents - 2009**

Age group (years)	Number tested	Number reactive (%)	95% Confidence Interval
15 - 19	1151	74 (6.4%)	5.0 – 7.9
20-24	1905	183 (9.6%)	8.3 – 10.9
25-29	1662	188 (11.3%)	9.8 – 12.8
30-34	895	99 (11.1%)	9.0 – 13.1
35-39	481	56 (11.6%)	8.8 – 14.5
40-44	45	3 (6.7%)	0 – 14.0
45 -49	34	6 (17.6%)	4.8 – 30.5
missing	2	--	--
<b>Total</b>	<b>6175</b>	<b>609 (9.9%)</b>	<b>9.1 – 10.6</b>

Source: Southern Sudan ANC Sentinel Surveillance Report, 2009

Yaws is usually contracted in childhood, and the fact that the results in the 15-19 age group are significantly lower than in the older age groups is suggestive that what is being measured is not yaws, but is perhaps indeed syphilis that is being contracted sexually<sup>39</sup>. However, if this were the case, and there is such a high rate of syphilis in the population, there ought to be reports of cases of congenital syphilis in infants, and further tests in both women and men would be needed to confirm the conclusion that a high prevalence of syphilis exists in many South Sudanese communities.

However, these levels of syphilis are comparable to a study that was done amongst Sudanese refugees in Ethiopia<sup>40</sup>, which found prevalence levels of 11% in the female and 26% in the male populations studied. That same study also looked at HSV-2 levels, and found them to be 27% in the men and 26% in the women. This compares with levels of only 5.5% found in a household cluster survey in South Sudan itself<sup>41</sup>.

In Khartoum, 7.3% of ANC attendees were found to have multiple viral and bacterial STI infections<sup>42</sup>.

No studies of Chlamydia have been carried out in South Sudan, but a study in the North found a prevalence of 1.2% in a group of women randomly sampled women from a suburban community<sup>43</sup>.

In summary, there appears to be a high rate of STIs in those South Sudanese populations that have been studied, both in the rates of HSV-2 and syphilis, as well as the numbers of respondents who have reported a history of STI symptoms. As elsewhere, these would be co-factors contributing to HIV transmission. What is lacking is more detailed information about other STIs such as gonorrhoea, chlamydia, chancroid, etc. It is presumed that those health centres that do diagnose and treat STIs do so syndromically, and while no information is available on the quality of STI diagnosis and treatment services, it can be assumed these are operating at sub-optimal levels, given the generally weak status of the health care system.

<sup>39</sup> The very high level in the 45-49 age group can probably be discounted because of the small sample size.

<sup>40</sup> Holt BY, Effler P, Brady W, Friday J, Belay E, et al. (2003) **Planning STI/HIV prevention among refugees and mobile populations: situation assessment of Sudanese refugees**. Disasters 27: 1-15, quoted in Abu-Raddad et al.

<sup>41</sup> Kaiser R, Kedamo T, Lane J, Kessia G, Downing R, et al. (2006) **HIV, syphilis, herpes simplex virus 2, and behavioral surveillance among conflict-affected populations in Yei and Rumbek, southern Sudan**. Aids 20: 942-944.. quoted in Abu-Raddad et al.

<sup>42</sup> Ortashi OM, El Khidir I, Herieka E (2004) **Prevalence of HIV, syphilis, Chlamydia trachomatis, Neisseria gonorrhoea, Trichomonas vaginalis and candidiasis among pregnant women attending an antenatal clinic in Khartoum, Sudan**. J Obstet Gynaecol 24: 513-515, quoted in Abu-Raddad et al

<sup>43</sup> Kafi SK, Mohamed AO, Musa HA (2000) **Prevalence of sexually transmitted diseases (STD) among women in a suburban Sudanese community**. Ups J Med Sci 105: 249-253. quoted in Abu-Raddad et al

## **4.2 Circumcision**

The role of male circumcision as an important factor in reducing the risk of HIV transmission has been well-established as a result of the randomised controlled trials in South Africa<sup>44</sup>, Uganda<sup>45</sup> and Kenya<sup>46</sup>. While it is assumed that the vast majority of men in the North of Sudan are circumcised, there has been relatively little data from the South, and the lack of male circumcision in the South may be one of the reasons why the prevalence of HIV is higher in the South than in the predominantly Muslim North.

UNHCR conducted a behavioural survey in Juba Municipality in 2007 among some 800 respondents, and found that 44% of the men said that they had been circumcised, among whom 90% of Moslem men and 39% of non-Moslem men were circumcised. The mean age of circumcision was 10 years. There was no significant difference in the prevalence of male circumcision in different age groups<sup>47</sup>.

UNHCR and IGAD also conducted a behavioural survey in Kajo Keji County in 2009, surveying 568 females and 389 males aged 15-49 years who had been displaced as a result of conflict. Most of the respondents were not permanent residents of the county, but originated from elsewhere in South Sudan (or had been born in Uganda and recently returned to South Sudan). Only 9.4% of the men were circumcised<sup>48</sup>,

Female circumcision, more properly labelled female genital mutilation (FGM), is widely practiced in both North and South Sudan, but its role as a co-factor in HIV transmission is less clear-cut, although it is postulated that the injuries to the vaginal and perineal tissues from the more severe Pharaonic procedure may contribute to scarring and ulceration, facilitating HIV transmission. Statistics that are two decades old record a prevalence of 89% of FGM among Sudanese women, but the level in the South may be less than that<sup>49</sup>. Indeed, the UNHCR 2007 survey reported that among the women surveyed in Juba, one-half of the Muslim women were circumcised and less than 1% of the non-Muslim women. There was no significant difference in the prevalence of female circumcision in different age groups. The mean age of circumcision was 9 years old among women.<sup>50</sup> In the 2009 Kajo Keji Behavioural Survey noted above, less than 1% of the women surveyed had undergone FGM<sup>51</sup>

Generalising from the above limited data, it could be argued that if approximately 60% of the non-Muslim male population of South Sudan is not circumcised, that could be one of the important factors contributing the higher prevalence of HIV in the South. Given that the available data is only from two locations - urban Juba and a specific population in the far south of the country - it is possible that the rates of male non-circumcision in the more outlying areas are even higher.

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<sup>44</sup> Auvert B et al; **Randomized, Controlled Intervention Trial of Male Circumcision for Reduction of HIV Infection Risk: The ANRS 1265 Trial**; PLoS Med, 2(11): p. e298., 2005

<sup>45</sup> Gray RH et al; **Male circumcision for HIV prevention in men in Rakai, Uganda: a randomized trial**. Lancet, 369: p. 657-666. 2007

<sup>46</sup> Bailey RC et al; **Male circumcision for HIV prevention in young men in Kisumu, Kenya: a randomized controlled trial**. Lancet, 369: p. 643-656., 2007

<sup>47</sup> United Nations High Commissioner for Refugees; **HIV Behavioural Surveillance Survey, Juba Municipality, South Sudan**; 2007

<sup>48</sup> IGAD/UNHCR; **HIV Behavioural Surveillance Survey in Kajo Keji County, Central Equatoria State, Southern Sudan**; 2010

<sup>49</sup> Department of Statistics (1991), Ministry of Economic and National Planning Sudan, Macro International; **Sudan Demographic and Health Survey 1989/1990**. Columbia MD: Department of Statistics and Macro International, 1991, quoted in Abu-Raddad et al

<sup>50</sup> United Nations High Commissioner for Refugees; **HIV Behavioural Surveillance Survey, Juba Municipality, South Sudan**; 2007

<sup>51</sup> IGAD/UNHCR; **HIV Behavioural Surveillance Survey in Kajo Keji County, Central Equatoria State, Southern Sudan**; 2010

However, before conclusions are drawn, a careful examination of the circumcision practices in the various South Sudanese communities needs to be carried out. There is anecdotal evidence that some of the areas of higher HIV prevalence in South Sudan are actually inhabited by groups that do circumcise. This does not invalidate the relationship between non-circumcision and HIV transmission, but it is a reminder that non-circumcision is only one of a number of factors that contribute to increased HIV transmission, and that scaling-up male circumcision programs may not be the highest priority intervention needed to combat the epidemic in South Sudan.

## **5. POPULATIONS AT RISK**

Section 3.2 presented what data exists on HIV prevalence levels in certain high-risk populations, and the following pages presents more detailed information on some of these groups. With the generalized low HIV epidemic, the South Sudan HIV/AIDS Strategic Framework recognizes the existence of Most at Risk Populations (MARPs) in the post conflict environment of South Sudan including uniformed forces, internally displaced persons (IDPs), truck drivers, tea sellers and commercial sex workers (CSWs) etc.

There is scanty information about the MARPs in South Sudan, especially about CSWs which makes it extremely difficult to adequately plan and implement appropriate health programs and evaluations for this sub-population. In post conflict settings such as the one in Southern Sudan, economic and social conditions have been identified that increase pressure on women to become involved in sex work and augment their risk of contracting HIV and STIs and being subjected to sexual abuse and violence. Sexual and reproductive health (SRH) and HIV programmes in such settings often take a blanket approach to prevention, treating everyone as being at equal risk. In doing so, programs risk overlooking those who are most vulnerable and at greatest risk of acquiring and transmitting infection. Sex workers are thus a critical part of the prevention response to HIV in Southern Sudan.

Juba, as the capital city for Southern Sudan, has rapidly grown in population and greater Yei forms one of the important entry points to the country, while Yambio strategically borders DRC Congo and Central African Republic. There are significant numbers of mobile populations, including transport workers and returnees, and internal displacement is high. In addition, a large portion of the population is living below the poverty line. Due to these conditions, Juba and Yei counties are considered to be a potential ground for commercial sex work.

The Government of Southern Sudan recognizes the former Sudanese refugees returning from the neighbouring countries with high levels of HIV prevalence as population of humanitarian concerns (PoHC), even in the absence of specific HIV data. The PoHC include uniformed services, Internally Displaced People, refugees, returnees, commercial sex workers (CSWs) and ex-combatants. As the country opens up with more trans-regional movement of people for trade, the epidemic is gaining importance and priority in the short and medium term. Not all of these populations may necessarily have a higher prevalence of HIV, or be susceptible to HIV, but the criteria for being labelled PoHC includes other health, economic and social factors besides HIV risk.

### **5.1 Women engaged in transactional sex**

Although prostitution is not legalized in South Sudan, commercial sex workers are found in the towns of Juba, Wau and Yei plus Nimule, among others. It is felt that the majority of these commercial sex workers came from D.R. Congo, Uganda, Kenya, Ethiopia and Eritrea. In

Juba, they have been identified in a number of “hot spots”, including Jebel Market, Hai Zurf and Konyokonyo market<sup>52</sup>.

There are few estimates of engagement in sex work among the female population in South Sudan. In the Behavioural Monitoring Study of 2008, 10% of the women surveyed in Juba and 13% in Morobo stated that they had sex in exchange for money in the past twelve months (and presumably they were the supply side in most of the transactions). A study of CSWs in Juba<sup>53</sup> noted that two-thirds were either divorced, separated, or widowed with only 7% being married, but almost 90% of them were the primary bread winners of their families, which numbered six to seven, on average. More than 90% of the CSWs were working individually and not through mediators or organized sex work. They reported about two clients per day, and only about 25% negotiated condom use with their clients, fearing that “insistence on the use of condoms would upset customers and may result in clients leaving them for other CSWs”.<sup>54</sup>

Actual rates of ever-use-of-condoms-with-clients vary in the studies reported from 10%<sup>55</sup> to 58%<sup>56</sup>, and may be a reflection of bias, or the subject’s saying what they think the researchers wanted to hear. In studies of clients of sex workers, one study found that only 2% of clients of FSWs used condoms during last sex<sup>57</sup>.

The International HIV/AIDS Alliance South Sudan is currently carrying out a mapping exercise to identify hot spots, estimate the number and understand the condition of Female Commercial Sex Workers in Juba, Yambio and Yei counties, including the identification of the different health services (and providers) available to sex workers and the service gaps.

## **5.2 Bridge populations and HIV**

Bridge populations are those clients of sex workers (either male or female) who may also be having sex with groups who are not considered to be at high risk. Bridge populations include truck drivers, touts, military and police, and there is some data on these groups in South Sudan.

**Clients of sex workers** – the same study in 1995 that reported a prevalence of 16% in female sex workers also reported 14% prevalence in their clients<sup>58</sup>. More recently, among mostly Sudanese refugees in Ethiopia, 46% of males reported having ever had sex with a FSW and 31% reported contact with a FSW within the last three months<sup>59</sup>.

**Truck drivers** – the Behavioural Monitoring Survey in 2008 surveyed a group of truck drivers in Morobo. In the six months preceding, 39% of the group had paid for sex, and while 70% knew about male condoms, only one-third were aware of any other means of HIV protection<sup>60</sup>.

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<sup>52</sup> Anyaak, B. (2008, Oct). **A clear destination for commercial sex workers**. *SSN*. Retrieved on 23<sup>rd</sup> June 2010 from World Wide Web page: [www.mail-archive.com/jfdinfo@googlegroups.com/msg00878.html](http://www.mail-archive.com/jfdinfo@googlegroups.com/msg00878.html)

<sup>53</sup> ACCORD (2005) **Socio Economic Research on HIV/AIDS Prevention among Informal Sex Workers**. Agency for Co-operation and Research in Development. Federal Ministry of Health, Sudan National AIDS Control Program, and the World Health Organization, quoted in Abu-Raddad et al

<sup>54</sup> ACCORD (2006) **Qualitative Socio Economic Research on Female Sex Workers and their Vulnerability to HIV/AIDS in Khartoum State**. Agency for Co-operation and Research in Development, quoted in Abu-Raddad et al

<sup>55</sup> Ahmed SM (2004) **Sex Sellers. Situation Analysis-Behavioral Survey. Results & Discussions. Report**. Sudan National AIDS Control Program.

<sup>56</sup> Ati HA (2005) op cit

<sup>57</sup> SNAP/UNICEF/UNAIDS (2005) **Baseline study on knowledge, attitudes, and practices on sexual behaviors and HIV/AIDS prevention amongst young people in selected states in Sudan**. HIV/AIDS KAPB Report. Projects and Research Department (AFROCENTER Group), quoted in Abu-Raddad et al.

<sup>58</sup> McCarthy MC, Khalid IO, El Tigani A (1995); **HIV-1 infection in Juba, southern Sudan**. *J Med Virol* 46: 18-20. quoted in Abu-Raddad et al.

<sup>59</sup> Holt BY, Effler P, Brady W, Friday J, Belay E, et al. (2003) **Planning STI/HIV prevention among refugees and mobile populations: situation assessment of Sudanese refugees**. *Disasters* 27: 1-15 quoted in Abu-Raddad et al.

<sup>60</sup> Kitingulu B, Tegang SP, Suji O, Jervase A; **Behavioral Monitoring Survey for HIV/STI/FP/Malaria/GBV**

A study of truck drivers in Khartoum State showed a prevalence of about 1% in truck drivers. But of these drivers, 10.8% reported three partners in the past six months, and 13.4% reported more than three partners<sup>61</sup>. As noted earlier, these North Sudanese truck drivers were probably mainly Muslim and circumcised. If the number of casual partners in the mainly uncircumcised Southern drivers was similar, one would expect a higher HIV prevalence. Unfortunately data does not exist on the HIV prevalence in South Sudanese truck drivers is not yet available.

**Military** – a survey found a prevalence of 2.9% in Yei town and 0.8% in Rumbek town among military personnel and soldiers<sup>62</sup>. In another pan-Sudan study, 39.6% of sexually active military personnel had one sexual partner, 13.4% had two partners, 12.5% had three partners, and almost 1/3 - 31.2% - had more than 3 partners in the preceding six months.<sup>63</sup> These rates are about the same, or even lower than the general population data that is available, leading one to question whether the military and uniformed services should be included amongst the populations at higher risk.

### **5.3 Men who have sex with men**

There have been a handful of studies of men who have sex with men (MSM) in North Sudan, but no reports were found describing MSM populations in South Sudan.

In other countries in the region, MSM, including male sex workers, are a small but extant community that have not been included in national prevention and education campaigns. The community remains hidden, and partly to avoid stigma or perhaps by choice, many MSMs also engage in heterosexual activities, with their partners unaware of their MSM activities. In one study in North Sudan<sup>64</sup>, 23% of MSM reported being ever married to a female, 17% were currently married and 61% reported ever having sex with a female (but 89% said they had used condoms when they had sex with females during the last six months). This data is not dissimilar to the few other studies that have been done in the region.

It is also likely that many MSM activities in Sudan are transactional and there are actual male sex workers (MSWs) working in the larger towns. A report cited as “anonymous” in Abu-Raddad et al’s survey reported that 75.5% of MSMs surveyed in Sudan claimed to have exchanged sex for money<sup>65</sup>. The pan-Sudan situation analysis carried out in 2004 reported that 11.7% of military personnel, 8.1% of truck drivers and 8.6% of prisoners reported exchanging sex for money though it was not clear from this study whether this was with male or female partners or both<sup>66</sup>.

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in Juba, Morobo and Rumbek, Southern Sudan; FHI/USAID/MOH: 2009

<sup>61</sup> Farah MS, Hussein S (2006) **HIV Prevalence, Knowledge, Attitude, Practices and Risk Factors among Truck Drivers in Karthoum State**. quoted in Abu-Raddad et al

<sup>62</sup> Sudan National AIDS Program, **The New Sudan National AIDS Council, UNAIDS. (2006) Scaling-up HIV/AIDS Response in Sudan. National Consultation on the Road towards Universal Access to Prevention, Treatment, Care and Support**. quoted in Abu-Raddad et al

<sup>63</sup> Sudan National HIV/AIDS Control Program (2004) **HIV/AIDS/STIs Prevalence, Knowledge, Attitude, Practices and Risk Factors among University Students and Military Personnel**. Sudan 2004. Federal Ministry of Health. Khartoum, Sudan. quoted in Abu-Raddad et al

<sup>64</sup> Elrashied S (2006) *ibid*

<sup>65</sup> Anonymous (2007) **Improving HIV/AIDS Response among Most at Risk Population in Sudan**. Orientation Workshop, 16th April 2007 quoted in Abu-Raddad et al

<sup>66</sup> Ahmed SM (2004) **Situation Analysis-Behavioral Survey. Results & Discussions. Report**. Sudan National AIDS Control Program, quoted in Abu-Raddad et al

## **5.4 Injection drug users**

Very little is known about the numbers of injection drug users in South Sudan, although a pan-Sudan study estimated that there might be 24,000–38,000 in the country<sup>67</sup>. How many of these might be in South Sudan is open to conjecture.

## **6. VULNERABILITY FACTORS**

### **6.1 Conflict**

The conflict in Southern Sudan is believed to have caused 4 million people to be internally displaced out of a population of 10-12 million (although other estimates of South Sudan's population range from 8-14 million)<sup>68</sup>. It is also estimated that there are between 450,000 to 700,000 Sudanese refugees in eight neighbouring countries, half of whom are in Uganda<sup>69</sup>.

As is well-known, a conflict-affected population may either become internally displaced persons (IDPs) or cross an international border to become refugees. Having been displaced, these populations are surrounded by, and interact with, a host community. They also interact with armed forces, peacekeepers, aid workers and sex workers. When possible, displaced populations return to their original homes or to other locations. Both when displaced populations are amongst host communities and when they return home or relocate, they are at particular risk<sup>70</sup>.

Refugees and IDPs are clearly at risk of contracting HIV infection. The risk depends on the interactions of several complex factors, including the maturity of the HIV epidemic, the relative prevalence of HIV in the host and refugee population, the prevalence of other STIs that may facilitate transmission, the level of sexual interaction between the two populations, the presence of context-specific risk factors such as systematic rape by military or paramilitary groups and commercial sex, and the level and quality of HIV prevention services.

At the same time these higher risk populations interact with local populations on many levels, and are rarely addressed in national HIV/AIDS programs. The IGAD Regional mapping assessment of HIV/AIDS interventions confirmed that at-risk regional populations are often not included in national strategies or policies, and that services are poor or completely lacking for cross-border and mobile populations.

Over the past five years, thousands of South Sudanese who had been in neighbouring countries have been returning home, and it is widely believed that they are bringing with them the HIV virus. In Southern Sudan, HIV prevalence was 4.4% in Yei town, where half of the respondents were internally displaced, but only 0.4% in Rumbek town where the level of displacement was considerably lower<sup>71</sup>. Among Sudanese refugees, HIV prevalence was 5.0% in Kenya<sup>72</sup>, 5% (men) and 2% (women) in Ethiopia<sup>73</sup>, and 1% and 2.7% in Uganda<sup>74</sup>.

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<sup>67</sup> Aceijas C, Friedman SR, Cooper HL, Wiessing L, Stimson GV, et al. (2006) **Estimates of injecting drug users at the national and local level in developing and transitional countries, and gender and age distribution**. *Sex Transm Infect* 82 Suppl 3: iii10-17 quoted in Abu-Raddad et al

<sup>68</sup> IGAD (2006) IGAD/World Bank **Cross Border Mobile Population Mapping Exercise**. Sudan. Draft Report. Intergovernmental Authority on Development.

<sup>69</sup> IGAD ibid and ACCORD (2005) **Socio Economic Research on HIV/AIDS Prevention among Informal Sex Workers**. Agency for Co-operation and Research in Development. Federal Ministry of Health, Sudan National AIDS Control Program, and the World Health Organization, quoted in Abu-Raddad et al

<sup>70</sup> Spiegel PB (2004); **HIV/AIDS among conflict-affected and displaced populations: Dispelling myths and taking action**. *Disasters*, 28(3):322-339

<sup>71</sup> Kaiser R, Kedamo T, Lane J, Kessia G, Downing R, et al. (2006) **HIV, syphilis, herpes simplex virus 2, and behavioral surveillance among conflict-affected populations in Yei and Rumbek, southern Sudan**. *Aids* 20: 942-944.

<sup>72</sup> IRC (2002) **Kakuma refugee camp sentinel surveillance report**. Nairobi.

However, it needs to be noted that it is a presumption and no definitive data exists to prove that the returning refugees are bringing HIV back with them. It is also known that internal displacement may be a greater risk for HIV transmission than crossing borders as a refugee, due to their lack of protection and official status, and possibly differing relations with their host community<sup>75</sup>. The higher HIV prevalence in the border towns may be that they exhibit the same level of transactional and casual sex behaviour as other border points in the region (such as the Uganda-Kenya border) and that the high levels of prevalence may be due to this, rather than the effects of returning refugees.

As noted earlier, a Behavioural Surveillance Survey was conducted by UNHCR in 2009 amongst several hundred persons in Kajo Keji County who has been displaced as a result of the civil war, and the results of that study (some of which have been noted already) are not much different from those found in other surveys amongst other populations in South Sudan<sup>76</sup>, described in **Section 7**:

- 28% of men had sex with a non-regular partner in the past 12 months, of whom only 37% used a condom. Only 30% used a condom with a transactional partner
- Only 26% of men and 16% of women has a comprehensive and correct knowledge of HIV
- Myths and misconceptions about HIV were prevalent, with 27.1% of respondents indicating that people can get HIV from mosquito bites and 19.2% by sharing food with an infected person
- A high rate of stigma against those with HIV – only 15% of men and 13% of women had accepting attitudes towards people with HIV
- Only 49.6% of males and 42.6% of females had received information on HIV and AIDS in the previous 12 months

## **6.2 Status of women**

As noted earlier, the standard indicators of women's status and health indicate that women in Sudan are a disadvantaged population, most notably related to their extremely low rate of literacy, a high rate of maternal mortality and lack of access to services. While the high rate of FGM seen in the North does not appear to be as widespread in the South, they are subject to the traditional norms, and most South Sudanese communities retain a patriarchal power structure.,

Family planning uptake in most of Southern Sudan is also extremely low. By 2004, less than 1% of women in Southern Sudan were using any FP method<sup>77</sup>. This could be culturally related, but may also be related to the lack of access to services. According to the Sudan Household Survey Report, the mean rate of contraception use is only 3.5%<sup>78</sup>. The rate is highest in Central Equatoria (8%), followed by Northern Bahr El Ghazal, Eastern Equatoria and Upper Nile (about 5%). Figures are lowest in Western Equatoria, where only 1.4% of women said they or their partners used any form of contraception. The highest proportion of women ages 15-49 reporting use of condom as a contraception method was 2.3% in Northern Bahr El

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<sup>73</sup> Holt BY, Effler P, Brady W, Friday J, Belay E, et al. (2003) **Planning STI/HIV prevention among refugees and mobile populations: situation assessment of Sudanese refugees**. Disasters 27: 1-15.

<sup>74</sup> UNHCR (2006) **HIV Sentinel Surveillance Report in Two Refugee Settlements in Uganda, 2004**. United Nations High Commissioner for Refugees: Kampala.

<sup>75</sup> Spiegel PB (2004); **HIV/AIDS among conflict-affected and displaced populations: Dispelling myths and taking action**. Disasters, 28(3):322-339

<sup>76</sup> IGAD/UNHCR; **HIV Behavioural Surveillance Survey in Kajo Keji County, Central Equatoria State, Southern Sudan**; 2010

<sup>77</sup> New Sudan Center for Statistics and Evaluation, and UNICEF: 2004.

<sup>78</sup> **Southern Sudan Household Health Survey**; Govt. of Southern Sudan; 2006

Ghazal State. According to the SHHS report, the most popular method of contraception in Sudan as a whole is the oral pill, which is used by almost one in 20 married women. However, in Southern Sudan use of the pill is negligible.

It should also be noted that infertility is perceived to be very common in South Sudan, and this is ascribed to the high rate of STIs<sup>79</sup>. As well, there is anecdotal evidence of high rates of gender-based violence and rape, which in many communities is regarded as culturally acceptable<sup>80</sup>.

Polygamous marriages are common in Sudan, and have been reported to be on the order of 15% of adults stating that they were in a polygamous relationship<sup>81</sup>. This data was for all of Sudan, so the percentage of people in Southern Sudan who are in polygamous relationships may be lower or higher than this figure. In the 2010 Household Health Survey, 75% of the 815 men who answered the question admitted to having two or more wives or other sexual partners, and 43.2% of the women said that their husbands had other wives<sup>82</sup>. Obviously, the risks for HIV transmission within a polygamous marriage lie in the behaviour of each of the partners outside of the marriage unit, or whether one of the partners came into the marriage already HIV positive; once an infection is in one of the partners, the chances are great that it will be transmitted to the rest of the household.

## **7. KNOWLEDGE AND BEHAVIOUR**

The Sudan Household Survey (SHHS) Report (2006)<sup>83</sup> indicated that the level of knowledge of HIV transmission prevention methods was extremely low in most states in Southern Sudan. In Lakes State, for example, the proportion of women ages 15-49 who knew the main ways of preventing HIV transmission stood at only 36%. Central Equatoria had the highest knowledge rate at 64%, but still more than one-third did not know a single method of preventing transmission. Other states such as Jonglei and Warrap had knowledge rates as low as 8.9% and 9.7%, according to the same report.

Family Health International and the Ministry of Health in the Government of Southern Sudan conducted a Baseline Behavioural Monitoring Survey (BMS)<sup>84</sup> jointly in July-August 2008 in three sites — Juba Town, Morobo County of Central Equatoria State (along the Ugandan border) and Rumbek Town of Lakes State.

It documented knowledge, attitudes and behaviour regarding HIV/AIDS, STIs, general reproductive health and Family Planning, Malaria and Gender-Based Violence among selected groups, including in- and out-of-school aged 15-24, truckers (drivers and assistants), community men, and women in households. Overall, the survey reached 3,326 respondents out of the targeted 4,680 (response rate of 71%). Despite there being gaps in the data presented in the report (making some comparisons between sites difficult) the report does reveal a widespread lack of comprehensive knowledge and practice about HIV prevention, despite a significant level of multiple sexual partnerships, early onset of sexual activity and utilisation of sex workers, as shown in **Table 15**.

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<sup>79</sup> Orero S, Oyaya CO, Odiyo FO; **Situational Analysis of Reproductive Health and Adolescent Sexual and Reproductive Health in South Sudan**; UNFPA 2007

<sup>80</sup> Orero S et al, *ibid*

<sup>81</sup> Ahmed SM (2004) **Situation Analysis-Behavioral Survey. Results & Discussions. Report**. Sudan National AIDS Control Program, quoted in Abu-Raddad et al

<sup>82</sup> Government of Southern Sudan, **Household Health Survey**, draft document, 2010

<sup>83</sup> **Southern Sudan Household Health Survey**; Govt. of Southern Sudan; 2006

<sup>84</sup> Kitingulu B, Tegang SP, Suji O, Jervase A; **Behavioral Monitoring Survey for HIV/STI/FP/Malaria/GBV in Juba, Morobo and Rumbek, Southern Sudan**; FHI/USAID/MOH: 2009

**Table 15 : Selected results from the Behavioural Monitoring Survey 2008**

	<b>JUBA</b> (ANC prev 2009: 6.0% Syphilis prev 2009: 8%)	<b>MOROBO</b> (ANC prev 2009 from Maridi 2.4% Syphilis prev 2009 from Maridi 14.9%)	<b>RUMBEK</b> (ANC prev 2009: 1.7% /5.7% (2 sites) Syphilis prev 2009: 12.4% /12.7% (2 sites)
<b>Sexually active youth 15-24</b>			
Out of school	65%		81%
In school	44%		58%
<b>First sex by age 15</b>		Average age for sexual debut for ISY was 13 years. Older out-of-school females had the latest sexual debut at 17 years.	
Out of school youth	29%		40%
In school youth	38%		43%
			(mean age at first sex about 16 years for the two groups)
<b>Had sex with a paying partner in the last six months</b>			
Men	6%	4%	7%
Women in households	10%	13%	
Out of school youth		15%	
<b>Multiple sexual partnerships with non-paying partners</b>			
Men	10%	10%	
Women in households	6%	13%	
Out of school youth		15%	
<b>Knowledge of condoms</b>			
Men	73%	87%	36%
Women in households	51%	55%	
Out of school youth	68%	80%	53%
In school youth		11%	12%
<b>Knew where to purchase condoms</b>			
Men	45%		
Women in households	31%		
Out of school youth			30%
<b>Knowledge of female condom</b>			
Men	38%		16%
Women in households	38%		
<b>Comprehensive knowledge of HIV/AIDS</b>			
Women in households	4%		
In-school youth	9%		
<b>Knowledge of ABC as prevention methods</b>			
In school youth	43%	19%	
Out of school youth	37%	39%	
Men	42%	49%	16%
Women in households.	24%	35%	
<b>knew about contraceptive methods</b>			
men			
in-school youths	58%	67%	14%
out of school youth	40%	35%	32%
Women in households	38%	59%	22%
<b>FP ever use</b>			
Men	31%	48%	13%
Out of school youth	23%	40%	16%
Women in households	19%	38%	
In school youth	18%	24%	19%
<b>Women having experienced gender violence</b>			
physical abuse	51%		
sexual abuse	44%		
	20%		

Source: Behavioural Monitoring Survey 2008

The above results and further details in the BMS report indicate that:

- Onset of sexual activity takes place at a young age: 30-40% of the youth sampled had their first sex by age 15<sup>85</sup>, and in Morobo the average age of onset of sex was as young as 13 years in certain age groups.
- Condom use among the sexually active youth was relatively low with only 24% of the ISY reporting ever using condoms, 16% said they used one during the first sexual intercourse. Among the out-of-school youth (OSY) group, 27% reported using a condom during the first sex act, with a slightly higher proportion (36%) reporting they had ever used a condom
- Procuring sex is not limited to men, but also to youth.
- More than 10% of the “housewives” sampled reported exchanging sex for money in the previous 12 months
- More than 10% of both men and women reported multiple sexual partnerships. The study noted that multiple sexual partners cut across all sites, ages and levels of education.
- While there was a moderate level of knowledge and primary prevention methods, this did not translate into an actual utilisation of condoms.
- Against the background of risky sexual behaviours, knowledge of HIV/AIDS is quite low. Comprehensive knowledge about HIV among the youth was very low.
- More than half the women surveyed had suffered some form of gender violence. One woman in five had suffered sexual abuse.

The 2010 Household Health Survey<sup>86</sup>, which collected information from 4305 men and 9067 women, has provided further information on some of these behaviours. For example, as seen in **Table 16**, 75% of the 815 men who answered the question admitted to having two or more wives or other sexual partners, and 43.2% of the women said that their husbands had other wives.

**Table 16 - Number of sexual partners – males - 2010**

Number of partners	Frequency	Percent
1	198	24.3
2	437	53.6
3	112	13.7
4	31	3.8
5+	37	4.5
Total	815	100.0

Source: Household health survey, draft document 2010

Levels of knowledge about HIV in the 2010 Household survey remained low. While 73% of the men surveyed had heard about AIDS, 70% knew that HIV could be prevented by using a condom and 82% knew that AIDS could be prevented by having sex with an uninfected partner, only 60-65% of the respondents actually answered the questions. Only half knew that HIV could be transmitted from mother to child during delivery<sup>87</sup>.

The results for women were even lower. Only 54% of the women had ever heard about AIDS. Only half the women in the survey answered the questions about HIV prevention, and of those, only 41% knew that HIV could be prevented through using a condom, 25% believed that AIDS could be transmitted through mosquito bites, and only 42% knew that AIDS could be transmitted from mother to child during pregnancy.<sup>88</sup> .,

<sup>85</sup> The 2010 UNGASS Report puts the figure of young people who have had sex by age 15 as 40.9%

<sup>86</sup> Government of Southern Sudan, **Household Health Survey**, draft document 2010

<sup>87</sup> *ibid*

<sup>88</sup> *ibid*

A high level of discrimination was evident, both male and female respondents saying that an HIV-positive woman should not be allowed to teach in a school, that they would not buy produce from someone they knew to be HIV-infected, and that if someone in their household was HIV-positive they would want it to remain a secret. Only 17% of the men in the survey had ever been tested for HIV, and only 15% of the women, but the women answering this question represented only about 50% of the total population surveyed<sup>89</sup>.

The 2010 Household survey also confirmed the early age of onset of sexual activity. Of the 3300 men who answered the question, 29% had initiated sex by age 14 and 52% were sexually active by age 16. Of the 6900 females who answered the question, 23.3% had sex by age 14 and 50.2% were sexually active by age 16. Only 4% of men and 1.8% of women stated that they had used a condom at first sex, and only 7.4% of men and 2.6% of women stated that they had used a condom during their last sex (although more than 90% of both men and women said that their last sex was with their wife, girlfriend/fiancée or current cohabiting partner<sup>90</sup>).

Only 3% of male respondents said that their last sex was casual or with a sex worker. However, of those who answered the question, more than 27% of men had sex with more than one partner in the past 12 months, and of these, almost half had three or more partners. 6.8% of the women admitted to having more than one partner in the past twelve months, and of these women, 66% were with one other partner only, but 33% were with three or more partners<sup>91</sup>.

**Table 17 - Number of sexual partners in past twelve months – males - 2010**

Number of partners	Frequency	Percent	Cumulative Percent
0	5	.6	.6
1	130	16.9	17.5
2	262	34.0	51.6
3	141	18.3	69.9
4	72	9.4	79.2
5+	160	20.8	100.0
Total	770	100.0	

Source: Household health survey, draft document 2010

While a certain percentage of these were in polygamous households, more than 65% of male respondents said that these sexual relationships were with non-regular partners. 20% of the men admitted to paying for sex in the previous year<sup>92</sup>.

In terms of lifetime sexual partners, 44.8% of the male respondents had 2-5 partners, and 28% had more than six, as seen in **Table 18**:

**Table 18: Number of life time sexual partners – men - 2010**

Number of lifetime partners	Frequency	Percent	Cumulative Percent
0	10	.2	.3
1	782	18.2	27.0
2-5	1315	30.5	71.9
6-10	456	10.6	87.4
11+	351	8.2	99.4
95 +	18	.4	100.0
Total	2932	68.1	

Source: Household health survey, draft document 2010

These results from 2010 confirm the high level of risky sexual activity engaged in by both men and women in South Sudan, with very little change from previous surveys.

<sup>89</sup> ibid

<sup>90</sup> ibid

<sup>91</sup> ibid

<sup>92</sup> ibid

As part of their project activities for the Multi-Donor Task Fund Project, the Churches Health Association of Sudan (CHAS) conducted community-level baseline behavioural surveys in late 2010 in Rumbek County (Lakes State) and Yambio County (Western Equatoria) and comparing some of the results, as shown in **Table 19**, demonstrates not only the differing behaviours in different regions of the country (remembering that Yambio has been identified as a hot spot, and Rumbek is in an area of lower prevalence), but also the differing levels of knowledge, perhaps reflecting the effects of other HIV interventions in recent years:

**Table 19: Selected CHAS Behavioural Survey Results 2010<sup>93</sup>**

Indicators	Men Rumbek	Women Rumbek	Men Yambio	Women Yambio
Percentage of women (15-49) and men (15-54) who have ever used condoms	12.2	5	41.7	20.2
Percentage of women (15-49) and men (15-54) who consistently use condoms during sexual encounters	2.2	0	9.9	5.8
Percentage of women (15-49) and men (15-54) who had sex with a non-marital/regular partner	13.6	6.7	28.4	14.1
Percentage of women (15-49) and men (15-54) who requested VCT and got results	13.9	4.2	59.3	46.5
Percentage of women with children (0-11months) who were counseled for VCT/PMTCT at ANC	---	9.7	---	47.1
Percentage of women (15-49) and men (15-54) seeking treatment for an STI from an appropriate site	51.7	11.4	34.4	25
	<b>Young people Rumbek</b>		<b>Young people Yambio</b>	
Percentage of young people (15-24) who are sexually active and have ever used a condom	7.9		38.2	
Percentage of young people (15-24) who used a condom at their last sexual encounter	3.5		13.2	
Percentage of young people (15-24) who know how to use a condom correctly	9.9		24.3	
Percentage of young people (15-24) with knowledge of STI symptoms	23.9		27.6	

Source: CHAS: Baseline Survey SSMHA Project

What is notable is that while the percentage of men and women who have had sex with a non-regular partner is twice as high in Yambio, the percentages of both men and women who have ever used condoms, or have been counselled and tested for HIV is also many times higher, reflecting the in Yambio the effects of existing intervention activities. The consistent use of condoms in Yambio is low, but it is still several times higher than it is in Rumbek. Interestingly, STI knowledge is high in Rumbek, implying other sources of information besides the HIV intervention programs. These differences in knowledge and behaviour are mirrored in the results for young people. In conclusion, a “one-size-fits-all” intervention program will not work for the different states in South Sudan, given the differences in both knowledge and behaviour.

## **8. IDENTIFICATION OF HOT SPOTS**

There is some indication that the epidemic in Southern Sudan is more severe in certain hot spots, such as market areas in Juba, or cross-border areas. It has been noted earlier that 2009 Behavioural Monitoring Survey found higher levels of high prevalence and risky behaviours in Morobo, a border town, than in either Juba or Rumbek.

<sup>93</sup> Christian Health Association of Sudan (CHAS); **Baseline Survey SSMHA Project** - Lakes State; 2010 (used with permission)

This might be explained by the fact that a high proportion of the young people, both in-school and out-of-school and older women surveyed in Morobo were involved in the service industry to the cross-border traffic, working in bars or restaurants, hawking, or selling the locally-produced alcohol. A sizeable proportion of female in-school youth (7%), women in households (4%) and women out-of-school (4%) reported that they were involved in the sex trade as a source of income. Six male out-of-school youth also reported sex work<sup>94</sup>.

High levels of sexual activity were seen in Morobo in the number of sexual partners, both paid and unpaid, by women, men, and truckers, as shown in the following **Table 20**. But the table also shows an equally high level of sexual activity among the men and women surveyed in Juba, so a high level of sexual networking is not confined to the perceived hot spot location.

**Table 20: Percent distribution of sexually active respondents according to the number of sexual partners past 12 months by type of sexual partners (Morobo and Juba)**

	Women in Households		Community Men		Truckers (6 months) (Morobo)
	Morobo	Juba	Morobo	Juba	
<b>Paying sexual partners</b>					
0	86.9	90.2	96.2	93.6	60.8
1	8.2	2.4	1.9	7.5	8.8
2+	5.0	7.5	1.9	3.0	30.4
<b>Non-paying partners</b>					
0	44.7	65.5	80.1	71.1	47.9
1	42.8	31.8	9.6	19.2	30.9
2+	12.6	2.7	10.3	9.8	21.1
<b>N</b>	<b>159</b>	<b>255</b>	<b>312</b>	<b>266</b>	<b>194</b>

Source: Behavioural Monitoring Survey 2008

## **SUMMARY**

As evidenced by the preceding pages, while a lot of information about HIV/AIDS in South Sudan is not known or is piecemeal, what is known suggests that a number of factors that would facilitate an increasing HIV epidemic are in place. These include:

- the country is bordered by countries with high prevalence of HIV, had up to 4 million displaced people, many of whom were living in these countries with high prevalence and are now returning home
- many of the population are vulnerable, being either impoverished, women and girls with a low status, Amongst the most vulnerable to HIV and STI are the sex workers – female, male and transgender some of whom may only be involved intermittently or may not recognize what they do to be sex work<sup>95</sup>
- The health system is rudimentary, and had neither the infrastructure nor the human resource capacity to mount effective prevention interventions.
- The possibility of renewed conflict and displacement, should the process towards independence hit a snag or reawaken traditional animosities within the South itself.

What data does exist indicates that a number of risk factors to HIV transmission are in place, including:

- Early onset of sexual activity in both boys and girls
- Low levels of condom use
- Low levels of knowledge of HIV transmission and prevention methods
- High levels of STIs
- Low rate of male circumcision
- A high level of sexual networking

<sup>94</sup> Kitingulu B, Tegang SP, Suji O, Jervase A; **Behavioral Monitoring Survey for HIV/STI/FP/Malaria/GBV in Juba, Morobo and Rumbek, Southern Sudan**; FHI/USAID/MOH: 2009

<sup>95</sup> UNHCR and UNFPA draft 3 Technical Note; **HIV and Sex Work**; March 2010

- A high level of transactional sex in the population, not only with sex workers but with those who do not consider themselves to be commercial sex workers.

On the other hand, there are a number of factors might reduce the chances of widespread transmission of HIV to the larger population, including:

- Surveys which have identified hot spot areas and populations that require priority interventions
- A number of agencies, both governmental and non-governmental that are working to implement intervention and education programs.
- The isolation and inaccessibility of much of the country, especially in the northern areas and farther away from the borders
- The formation of the South Sudan AIDS Commission and the formulation of policies that will facilitate the development of intervention, treatment and care programs

## **9. THE RESPONSE TO THE EPIDEMIC**

### **9.1 Donors and Government Policy**

A number of donors are supporting the HIV/AIDS response in Southern Sudan. These include:

- **World Bank** – through the **Multi-Donor Trust Fund** (contributions from more than 12 countries including the European Union), which is to support the Comprehensive Peace Agreement. The HIV/AIDS component is to support the SSAC infrastructure and some of its activities.
- **Global Fund** – Sudan received a Round 4 grant for HIV/AIDS. It is being implemented by UNICEF, WHO, SSAC and PSI, and is targeting “Soldiers, sex workers, returnees, IDPs, transporters, cattle traders, unaccompanied children, female and child headed households, PLWHA, Youth, and children in and out of school.”<sup>96</sup> The grant runs until 2011, and another HIV/AIDS grant has been applied for under Round 10 funding.<sup>97</sup>
- **Centres for Disease Control (CDC) / PEPFAR** - PEPFAR is supporting Intrahealth in its HIV/AIDS work with the military (SPLA).
- **USAID** – the South Sudan HIV/AIDS Project is a USAID-funded five year project, being implemented with PSI, the International HIV/AIDS Alliance, FHI and Howard University. The Roads Project which ran until 2009 was an attempt to develop HIV outreach activities through other development strategies.
- **UNICEF, WHO, UNFPA**
- **IGAD** – the Regional IGAD group is funding projects focussing on cross-border and mobile population, including the IRAP Project which deals specifically with HIV/AIDS issues.

As well, a number of international NGOs are working in the HIV/AIDS field, including the International HIV/AIDS Alliance, CAFOD, Help Age International, Family Health International and Population Services International (PSI).

As noted in the opening pages, the Government of Southern Sudan established the Southern Sudan AIDS Commission (SSAC) in 2006 to coordinate and monitor the overall response to HIV/AIDS, and in 2008 established a Directorate of HIV/AIDS in the Ministry of Health to specifically deal with the health-related responses to the epidemic. Each of these entities has their counterpart at the State and country level. As well, the South Sudan military established its own SPLM HIV Secretariat to implement HIV prevention, care, treatment and support activities.

<sup>96</sup> UNDP: **2009 Annual Report Global Fund Grants in Southern Sudan**

<sup>97</sup> South Sudan has also received Global Fund Round 7 grants for both TB and malaria which run until 2013-2014, and a Round 9 Health Systems grant which runs until 2015.

One of SSAC's first tasks was to operationalise a multi-sectoral response to HIV/AIDS by establishing focal persons for HIV/AIDS in each ministry. There are 19 ministries, and by mid-2010 only a handful of ministries had designated their focal person.

As noted, earlier, a large number of policy documents have been produced in South Sudan in the past five years, including an overall HIV/AIDS Strategic Framework and work plan, strategies for BCC, blood safety and condoms, an M&E framework, and guidelines for ART use, syndromic management of STIs, VCT and PMTCT, to name a few. A review of these policy documents demonstrates that by and large they follow the established principles of best practice established by WHO, UNAIDS, UNICEF and other international agencies. However, based on the statistics on prevention, testing and counselling, and care and treatment, many of these policies and strategies have yet to be fully implemented, or even officially sanctioned.

### **9.2 Counselling and testing:**

The Behavioural Monitoring Survey in 2008 demonstrated a low level of testing uptake in their sample populations<sup>98</sup>:

- Juba - overall less than 30% of respondents having been tested (community men 34%, in-school-youth and women in households 25%, out-of-school youth 21%)
- Morobo - HIV testing well below 50%, for all population groups (community men 42%, women 36%, in-school youth 35%, truck drivers 26%, out-of-school youth 25%)
- Rumbek - A fairly high proportion of in-school youth (41%) reported to have tested for HIV; but out-of school youth only 26% and community men 22%.

The 2008-2009 UNGASS Report notes a sharp increase in the number of VCT sites in the country – only 5 in 2006, 13 in 2008 rising to 31 in 2009. This was also reflected in large increases in the number of people tested, as shown in **Table 21**.

**Table 21: Increase in VCT sites and numbers tested**

YEAR	Number of VCT sites	Number of people tested
2006	5	7,603
2007	10	12,328
2008	13	27,076
2009	31	50,052

Source: UNGASS Report 2008-2009

(There is a slight discrepancy here, in that the 2010 Universal Access Report states that by the end of 2009 there were actually 42 testing centres in the country, and the 31 figure is the 2008 number. However, the Universal Access Report cites the 50,052 people tested figure as coming from the 42 sites<sup>99</sup>. The Millennium Development Goals Report of 2010 again cites the 50,052 figure, but reports that as of March 2010 there were 65 VCT sites in the country<sup>100</sup>).

However, the UNGASS Report also noted that the distribution of VCT sites around the country was very uneven, and while it was not possible to accurately estimate the percentage of men and women in the country who had received HIV counselling and testing and knew their status, the figure would almost certainly be very low.

The 2010 Household Health Survey asked questions about testing. Only 32% of the men and 18% of the women who answered the question knew where they could get an HIV test. 23% of the men had ever had an HIV test, and about half (48.7%) had received the test in the previous

<sup>98</sup> Kitingulu B, Tegang SP, Suji O, Jervase A; **Behavioral Monitoring Survey for HIV/STI/FP/Malaria/GBV in Juba, Morobo and Rumbek, Southern Sudan**; FHI/USAID/MOH: 2009

<sup>99</sup> **Universal Access Report 2010, Scaling Up HIV/AIDS Response, Southern Sudan**; SSAC

<sup>100</sup> Govt of South Sudan; **Millennium Development Goals 2010 Report**

twelve months (although only 700 men actually answered the question)<sup>101</sup>. Among the women, 28% had received an HIV test during antenatal screening. Only 300 women out of 9000 surveyed answered the question “Have you had an HIV test since your last pregnancy?” but of those, 58.2% had received the test within the past twelve months<sup>102</sup>.

These results are not dissimilar from the results of the Kajo Keji Behavioural Study in 2009 where only 49.6% of males and 42.6% of females had received information on HIV and AIDS in the previous 12 months, and of those who had heard about AIDS, 70% knew where a person could be tested for HIV. About 45% of the respondents had ever been tested for HIV, with more women having tested than men, many through testing in antenatal clinics. An equal proportion of men and women (43%) had tested for HIV in the previous 12 months<sup>103</sup>.

### **9.3 Information, Education, Communication, and Behaviour Change Interventions**

According to SSAC, by December 2009, “98,681 people had been reached with HIV and safe sex messages through various awareness approaches. 71, 882 young people, both in and out of school had been reached through interventions implemented through 418 schools through 182 trained peer educators. Primary and secondary school curriculums have been reviewed to incorporate life skills for youth to ensure standardized HIV message delivery in all schools.”<sup>104</sup>

A number of agencies are working in various parts of the country, providing a range of prevention and education services to the local community. For example, the International Medical Corps (IMC) is providing the following services in Tambura County and Merlin is providing similar services in Magwi County (both funded by CDC)<sup>105</sup>:

- Prevention of Mother to Child Transmission (PMTCT)
- Post Exposure Prophylaxis
- Prevention with Positives (PwP)
- HIV/AIDS awareness and prevention campaigns
- Testing and counseling.

### **9.4 Prevention of mother-to-child transmission**

As noted earlier, Southern Sudan has one of the worst statistics in the world for maternal mortality, with over 2,000 maternal deaths in every 100,000 live births. The 2009-2010 UNGASS Report states that only 1.7% of HIV-positive pregnant women received ARVs to reduce the risk of MTCT. This is an increase of the 0.87% figure that was in the previous UNGASS Report. However, this figure is a combination of North and South Sudan data<sup>106</sup>.

By the end of 2009 there were 19 facilities providing the minimum package of PMTCT services, as compared to only 3 in 2008. Supported mainly by UNICEF and Intrahealth, these centres tested over 13,000 women in 2009, as compared to only 3000 in the previous year. Of those 13,000 women tested, 265 tested positive for HIV and 155 of them received nivrapipe prophylaxis. The rapid increase in PMTCT services is laudable, but still represents a small fraction of the total population of pregnant women who could benefit from PMTCT services.

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<sup>101</sup> Government of Southern Sudan, **Household Health Survey**, draft document 2010

<sup>102</sup> *ibid*

<sup>103</sup> IGAD/UNHCR; **HIV Behavioural Surveillance Survey in Kajo Keji County, Central Equatoria State, Southern Sudan**; 2010

<sup>104</sup> **Universal Access Report 2010, Scaling Up HIV/AIDS Response, Southern Sudan**; SSAC

<sup>105</sup> Intrahealth International Inc. Southern Sudan Program; **Preventing and Reducing the Impact of HIV in S. Sudan under PEPFAR, Quarterly Report** Sept 30-Dec 31, 2009

<sup>106</sup> **UNGASS Report 2008-2009**

### **9.5 Condom distribution**

Population Services International (PSI) operates a large condom distribution program in Southern Sudan. In 2009 it sold 827,128 Number 1 condoms through social marketing and distributed a further 374,164 generic condoms during outreach and educational activities conducted by CBOs. Condom use has been promoted as part of specific promotional and educational activities, and according to PSI condom use has been increasing by 30% annually since the program began in 2005. Given the current rate of growth, they are projecting a distribution of about 3 million condoms annually within the next two years, which is still very much below the government's target of 30 million socially marketed condoms by 2012<sup>107</sup>.

The 2009 Global Fund Report noted that by the by end of December 2009, the cumulative number of condoms distributed through ART sites had reached 141,035<sup>108</sup>. A figure of 1,483,358 condoms distributed by March 2010 is reported in the 2010 Millennium Development Goals Report, but the source of this data is not cited<sup>109</sup>.

### **9.6 Treatment and care**

By the end of December 2009, a total of **6,406** patients had been enrolled into HIV Care and receiving co-trimoxazole, and of these **1,961** had been started on ART at nine sites (target for the year was 15 sites), including the three oldest sites transferred from the north Sudan Global Fund Round 3, to the Southern Sudan Global Fund Round 4 grant. However, even excluding these three sites, ART results were ahead of the target for the round 4 grant<sup>110</sup>. The Millennium Development Goals Report states that as of March 2010, the number of people on ART had increased to 2,835.<sup>111</sup>

Cohort analysis was done up to June 2009, with the following findings:

- Percentage patients still alive and on ART after **12 months: 65.6%** (53 cohorts: 332 out of 506) : at Juba, Wau, Yei, Nzara
- Percentage patients still alive and on ART after **24 months: 52%** (20 cohorts: 91 out of 172): at Juba and Wau
- Percentage patients still alive and on ART after **36 months: 64.5%** (1 cohort: 20 out of 31): at Juba.

Although the 36 month follow-up is limited to only one cohort, one of the possible interpretations of this analysis is that because the results do not demonstrate a trend towards loss of follow-up or increased mortality over time, they are more demonstrative of the level of follow-up, ie., there is a 35% loss to follow-up in the first year, but the 55-65% of clients who do not default in the first year and remain on treatment have good results and tend to stay in the program.

The following **Table 22**, from the Global Fund Report reports that there were 1,684 people on ART in South Sudan at the beginning of 2010

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<sup>107</sup> Data provided by PSI

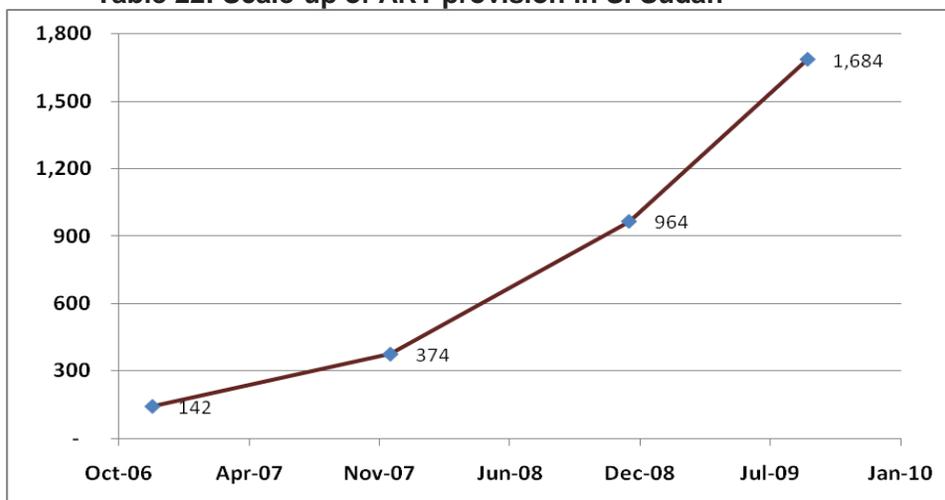
<sup>108</sup> WHO Global Fund Annual Report, 2009

<sup>109</sup> Govt of South Sudan; Millennium Development Goals 2010 Report

<sup>110</sup> WHO Global Fund Annual Report, 2009

<sup>111</sup> Govt of South Sudan; Millennium Development Goals 2010 Report

**Table 22: Scale-up of ART provision in S. Sudan**



Source: WHO Global Fund Annual Report, 2009

The 2010 Universal Access Report, on the other hand, states that 1,829 people were on treatment in the nine sites.<sup>112</sup>

The two reports also differ in their estimates on the number of people in South Sudan who were in need of treatment and therefore the percentage of antiretroviral coverage. The 2009-2010 UNGASS Report states that 4.4% of adults and children with advanced ARV are receiving therapy, but this figure is based on Northern numerators and a Spectrum approximation of the denominator<sup>113</sup>, whereas the Universal Access 2010 Report states that the 1,829 people on treatment at the end of 2009 represented 6.7% of the “approximately 27,452 people in need of treatment according to the estimate”.<sup>114</sup> These discrepancies can possibly be regarded as illustrations of the problem of data collection and analysis in the country, or it could be that the UNGASS and Universal Access Reports were tabulated from different points in time. In either case, the numbers of people on treatment is still very low, based on the presumptive prevalence levels cited earlier.

### **9.7 Blood Safety and Universal Precautions**

By the end of 2009, the number of facilities screening blood according to national guidelines was 16 against a target of 29. The shortfall was ascribed to the limited number of facilities that had the capacity to screen blood, as well as the late arrival of supplies and equipment which did not adequately support activities even at the 16 sites.

The number of facilities implementing national guidelines on universal safety precautions was 31 against a target of 57, a shortfall also largely attributed to the limited number of available supplies<sup>115</sup>.

The 2010 UNGASS Report states that in 2009 only 3,825 units of blood were screened for HIV in South Sudan (as compared to 250,000 in the North) and that there is no system for external quality assurance in blood screening<sup>116</sup>.

<sup>112</sup> Universal Access Report 2010, *Scaling Up HIV/AIDS Response, Southern Sudan*; SSAC

<sup>113</sup> UNGASS Report 2008-2009

<sup>114</sup> Universal Access Report 2010, *ibid*

<sup>115</sup> WHO Global Fund Annual Report, 2009

<sup>116</sup> UNGASS Report 2008-2009

## **9.8 HIV and TB**

The 2008-2009 UNGASS Report states that 8.29% of HIV-positive TB cases received treatment for both HIV and TB. However, this figure is for all of Sudan, with only 175 cases reported from South Sudan (denominator unknown)<sup>117</sup>.

The 2010 Millennium Development Goals Report notes that although its exact burden is not known, the incidence of TB in Southern Sudan is estimated to be 79 sputum smear-positive cases per 100,000 population and 140 for all forms of tuberculosis. This would translate into approximately 12,300 new cases of TB annually, of which almost 7,000 would be infectious. That only 2,513 sputum smear positive TB cases and 4,978 TB cases of all forms were reportedly diagnosed in the last reporting year demonstrates the amount of undiagnosed TB that is likely to be circulating in the country<sup>118</sup>.

## **9.9 Other Sexually Transmitted Infections (STIs)**

Guidelines for syndromic management of STIs were finalised, and staff training was done. Until June 2009 when this indicator was dropped (and subsequently taken up by the MoH), 33,005 cases had been treated for STIs, against an end of 2009 target of 34,500<sup>119</sup>.

## **9.10 Working with most-at-risk populations**

One of the areas that the 2010 UNGASS Report notes is lacking in the HIV Prevention Response in Southern Sudan is a clear policy on Most At Risk Populations (MARPS), hence there is no coordinated national response targeting such groups as sex workers, injecting drug users, men who have sex with men, nor any program promoting male circumcision. The UNGASS Report notes that the MARPS populations “remained invisible and unmapped” with a “near total absence of interventions for these groups”<sup>120</sup>.

It is not known how many people from most-at-risk populations are being tested for HIV. The 2008-2009 UNGASS quotes a figure of 6.5% of CSWs tested, but this is based on a study that took place in Khartoum<sup>121</sup>. The same study proposed a figure of 1.5% as the percentage of MARPs who were reached by prevention programming.

### **Military:**

IntraHealth (financed by CDC) is supporting the SPLA HIV/AIDS Secretariat in the program areas of prevention, care, treatment and health system strengthening<sup>122</sup>:

- HIV counseling and testing services including mobile testing facilities (3,173 SPLA soldiers, their families and civilians tested in last quarter of 2009)
- HIV/AIDS prevention messages including abstinence, being faithful and correct and consistent condom use
- Condom distribution (218,270 distributed in last quarter of 2009)
- Commanders' sensitization workshops
- Care and treatment – 288 clients on antiretroviral therapy (ART) at end of 2009
- SPLA Association of People Living with HIV (PLHIV) - 180 members as of Dec 30, 2009

(the actual prevalence figures for the military were not available for this review)

<sup>117</sup> UNGASS Report 2008-2009

<sup>118</sup> Govt of South Sudan; Millennium Development Goals 2010 Report

<sup>119</sup> WHO Global Fund Annual Report, 2009

<sup>120</sup> UNGASS Report 2008-2009

<sup>121</sup> UNGASS Report 2008-2009

<sup>122</sup> Intrahealth International Inc. Southern Sudan Program; Preventing and Reducing the Impact of HIV in S. Sudan under PEPFAR, Quarterly Report Sept 30-Dec 31, 2009

**Mobile populations:**

The Regional Outreach Activities for AIDS through Development Strategies (ROADS) project is a regional collaborative program to implement HIV/AIDS prevention, care and treatment programs in the East and Central Africa region, funded by USAID. The project is a multi-sectoral collaboration of public and private, regional, national and local partners. The project activities cover eight countries along the major transport corridors. The ROADS project objectives are:

- 1 To link mobile populations and communities along transport corridors to prevention, care, treatment and support services for HIV/AIDS.
- 2 To identify emerging technical issues and share state-of-the-art practices.
- 3 To test new innovations through pilot programs.
- 4 To harmonize national approach for mobile populations along the corridor.

Under the proposed project, ROADS and its implementing partners and agencies plan to establish integrated networks of services in the communities around the selected and other centers in Southern Sudan. The service provision in key areas of counseling and testing, home based care, referral for clinical care, including tuberculosis and HIV integration anti-retroviral ARV treatment; family planning; antenatal care including Prevention of Mother to Child Transmission (PMTCT), and counseling and testing will be strengthened through the SafeTStop cluster model. Strategic Behavioral Communication interventions (SBC) linked to clinic and community based service delivery targeting the community in general, and specifically youth, women and most at risk populations in particular, will be carried out at the center and around the catchment areas of the main health facilities in the three sites.

**People living with HIV/AIDS:**

A Southern Sudan Network of People Living With HIV (SSNeP+) has been established with government support, with the mandate to establish local associations throughout the country. However, as of early 2010, this had not yet been accomplished<sup>123</sup>.

**10. DISCUSSION AND CONCLUSIONS**

The long years of conflict and underdevelopment that South Sudan has experienced over the past decades have hampered efforts to deal not only with HIV and AIDS, but also the numerous other health and social issues that affect the country. Despite this, a number of surveys and data-gathering activities have taken place in the country in the past decade that have informed this report, and efforts are being made to establish an infrastructure to address the needs of the epidemic response.

As well, it needs to be emphasised that while this report is about HIV and AIDS, it is obvious that given the national statistics on maternal and infant mortality, female literacy, malaria, TB and other infectious diseases, as well as the weakness of the health infrastructure and lack of trained personnel, that South Sudan needs to deal with a huge number of health problems that puts the issues of HIV and AIDS into a larger context of urgent development needs.

A comparative analysis of the data that does exist about HIV and AIDS has revealed that there are still shortcomings in both the quantity and quality of data collection, and the amount of research that has been carried out in the country, especially in relation to those groups considered to be at higher-risk, is minimal as compared to the research and knowledge about the epidemic that has been generated in Kenya, Uganda, Ethiopia, or even North Sudan. What data has been published by reputable organisations sometimes conflicts: witness the varying

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<sup>123</sup> UNGASS Report 2008-2009

numbers of people reported to have been counselled or on ARV treatment in different reports<sup>124</sup>, or the estimates of the population of the country varying between 8 and 11 million or more<sup>125</sup>.

- **The quality and quantity of data gathered on HIV/AIDS and associated conditions needs to be improved, strengthened and harmonised. Systems of collection, collation, analysis, reporting, and evaluation of clinical, programmatic and community-based data need to be established in order to better monitor the epidemic and develop evidence-based and targeted responses.**

In any case, this has meant that what data does exist, such as the most recent 2009 ANC Surveillance has been relied upon here (perhaps overly relied upon) to provide some clues about the prevalence of HIV in the country. The 2009 ANC surveillance report suggests that the sampling was carried out under a methodology that was fairly rigorous, with adequate checks and balances, with a relatively small number of missing or spoiled samples. So while, the results may not be 100% accurate, they can be regarded as the best attempt to date to accurately measure the prevalence amongst a sample of pregnant women in South Sudan, keeping in mind that only about 30% of women in South Sudan seek antenatal care, and only a proportion of these will have been tested.

However, based on the data that is available, the following conclusions and recommendations can be made:

- **The epidemic in Southern Sudan can be classified as a “generalised epidemic”, but with great variations between sites, even those geographically near to one another.**

The UNAIDS estimates and the 2009 Antenatal surveillance results agree that the overall prevalence of HIV in Southern Sudan is approximately 3%. What is apparent from the ANC results is that the prevalence varies widely, ranging from 0% in Awiel to 15.5% in Yambio. This also reflects the regional heterogeneity of the epidemic found in neighbouring countries in recent years<sup>127 128</sup>.

But this also implies that despite the increased number of ANC surveillance sites between the 2007 and 2009 antenatal surveys, the number of surveillance sites in most states is still less than optimal. It would be short-sighted to conclude that the prevalence in all of Northern Bahr el Ghazal is 0%, based on the results of the single surveillance site in that state. Eastern Equatoria has the third-highest prevalence of 3.3%, but this figure is based on only two surveillance sites, ranging from only 1.3% in Torit to 5.6% in Nimule. And Western Equatoria, the state with the highest prevalence of 7.2%, contains only three surveillance sites, ranging from Maridi at 2.4% to Yambio at 15.5%.

It is likely that there are other “hot spot” areas in the country that are being missed by the limited number of surveillance sites, and an urgent recommendation would be that **the number of antenatal surveillance sites needs to be increased before the next surveillance exercise, with the priority being to increase the number of sites at the very least in those states that have demonstrated a higher HIV prevalence.**

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<sup>124</sup> UNGASS Report 2008-2009

<sup>125</sup> Universal Access Report 2010, *Scaling Up HIV/AIDS Response, Southern Sudan*; SSAC

<sup>126</sup> This may simply be the result of no detailed census having been undertaken in recent years. But some informants suggested that the differing estimations of the population of South Sudan were the results of political considerations secondary to the still unresolved issue of South Sudan's status, different factions in the North and South having their own agendas and needing either a larger or smaller population to base their claims. This cannot be substantiated within the context of this report.

<sup>127</sup> Berhane Y, Mekonnen Y, Seyoum E, Gelmon LJ, Wilson D; HIV/AIDS in Ethiopia: An Epidemiological Synthesis; World Bank Publications, Washington, 2008

<sup>128</sup> Gelmon LJ, Kenya P, Oguya F, Cheluget B, Haile G; Kenya – HIV Prevention Response and Modes of Transmission Analysis; World Bank/UNAIDS Publications, Washington, 2009

What the antenatal surveillance does demonstrate is that the assumption that the epidemic in the country is being fed by the returnees and cross-border traffic may well be justified – the border areas along the Ugandan border, and the capital of Juba all have some of the highest prevalence levels in the country, while the Northern areas – farther from the southern borders (and perhaps closer culturally to the North) have a lower prevalence.

- **Increased antenatal surveillance needs to be supplemented by regular bio-behavioural surveys of high-risk populations, such as sex workers, STI patients and other bridging populations**

It has been noted by many that antenatal surveillance may not be an accurate reflection of the actual prevalence in the whole population, in that it records only the prevalence in fertile women who choose to attend antenatal clinics, thereby eliminating both infertile or non-pregnant women as well as men from the survey. While some therefore conclude that antenatal surveillance may overestimate the actual population prevalence, there are also arguments that ANC surveillance may actually be an underestimate: single men may have a higher prevalence of HIV if they are engaging in multiple sexual partnerships, women who are using some form of birth control or having abortions for unwanted pregnancy will not attend antenatal clinics (and this may include single women, sex workers and others who engage in risky sex) and the presence of underlying or untreated STIs may lead many women to be infertile.

Besides young people, information is lacking and reliable data does not exist about those groups that are generally thought to be the most important transmitters in generalised epidemics, without or without foci of increased transmission: for example, sex workers and their clients, MSMs, or discordant couples. The only prevalence data on sex workers and their clients in South Sudan comes from a study conducted over fifteen years ago<sup>129</sup> and more recent studies were behavioural and did not take samples for prevalence testing<sup>130</sup>. It is hoped that the ongoing study of sex workers conducted by the International HIV/AIDS Alliance will shed some light on the situation of sex workers in Southern Sudan.

There is barely any information about other most-at-risk populations in South Sudan, such as long-distance truck drivers, MSMs or IDUs. Whether or not IDUs exist in South Sudan is debatable, but evidence being gathered elsewhere in the region in recent years has demonstrated that contrary to previous opinion, there are populations of MSMs in most locations, that they are engaging in high-risk sex, sometimes in exchange for money or services, and that when they are tested, their HIV prevalence levels are higher than the surrounding population. A conclusion to be drawn from this analysis is that **more research is urgently needed to determine the numbers and prevalence of HIV in those populations in South Sudan that are considered to be most at-risk: sex workers and their clients, MSMs, and long-distance truck drivers.**

- **Detailed studies on STI prevalence in the general population in the country, as well as in higher-risk groups, is needed, along with strengthening the care and treatment guidelines of STIs among the health profession and service providers.**

The ANC surveillance revealed an extremely high prevalence of positive tests for syphilis in the sampled population. There may be a question as to whether these results as true indicators of active syphilis, but assuming they are real, one can also assume that syphilis is just one of the STIs that are circulating in the population, and that secondary infertility consequent to STIs is a

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<sup>129</sup> McCarthy MC, Khalid IO, El Tigani A (1995) **HIV-1 infection in Juba, southern Sudan**. J Med Virol 46: 18-20., quoted in Abu-Raddad et al

<sup>130</sup> ACCORD (2005) **Socio Economic Research on HIV/AIDS Prevention among Informal Sex Workers**. Agency for Co-operation and Research in Development. Federal Ministry of Health, Sudan National AIDS Control Program, and the World Health Organization, quoted in Abu-Raddad et al

major reproductive health problem in the country<sup>131</sup>. Unfortunately, other than syphilis, there is little data on other STIs in South Sudan, or case studies of congenital or tertiary syphilis that would lend credence to the ANC results. .

- **Sexual activity in South Sudan begins at an early age for both young men and young women with low use of condoms, multiple partnerships, early pregnancy, and sex outside of marriage.**

Besides STIs, another HIV risk factor that the antenatal surveillance as well as Household Surveys reflects is the early age of initiation of sexual activity in South Sudan. The Behavioural Monitoring Survey of 2008<sup>132</sup> reported that a large proportion of adolescents were sexually active by their mid-teens, and this is also demonstrated in the ANC results, with a 2.3% HIV and a 6.4% syphilis prevalence amongst the respondents aged 15-19. As well, the single women in the sample (presumably a large proportion being 15-19 years) had a 3.7% prevalence. The early initiation of sexual activity seems to occur in both boys and girls (it is not strictly a case of young girls having sex with older men which is popularly believed to be a major risk factor for younger women), and while it is difficult in most societies for adults (especially parents) to deal objectively with issues of adolescent sexuality, it would seem paramount that **HIV prevention programs in South Sudan need to include realistic HIV interventions aimed at youth, including information on availability and use of condoms, partner reduction, prevention of STIs and reproductive health messages.**

What behavioural studies have been conducted amongst men in South Sudan have revealed a number of factors that would be contributing to increased HIV transmission, including:

- Early age of sexual initiation
- High rate of multiple partnerships among both single and married men
- High utilisation of sex workers and other transactional sex relationships
- Low rate of condom usage, both with sex workers and regular partners

This, combined with the very low rate of circumcision, and a presumed high rate of STIs<sup>133</sup>, means that the potential is there for a high rate of HIV transmission in South Sudan now that the virus has entered the general population. Given the low level of knowledge and other pressing issues in the country, it would be premature to recommend that the Ministry of Health or SSAC take on male circumcision as a priority intervention, but **issues of male circumcision need to be addressed in the coming years as part of the evolving HIV prevention strategy in the country.**

- **There is a low level of knowledge in both men and women about HIV transmission, means of prevention, where to access condoms, and other essential health knowledge**

In both men and women, young people and adults, there seems to be a broad awareness of HIV and AIDS, but several studies have revealed a low level of accurate knowledge about the modes of transmission and methods to prevent it. A number of agencies are working on increasing HIV and AIDS awareness in the country, but it seems evident that **HIV Education and Prevention programs need to be scaled-up, as well as more accurately monitored to provide information on successful models of intervention. A increased effort needs to be made to make condoms accessible to the larger community.**

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<sup>131</sup> This possibility is suggested in Orero S, Oyaya CO, Odiyo FO; **Situational Analysis of Reproductive Health and Adolescent Sexual and Reproductive Health in South Sudan**; UNFPA 2007

<sup>132</sup> Kitingulu B, Tegang SP, Suji O, Jervase A; **Behavioral Monitoring Survey for HIV/STI/FP/Malaria/GBV in Juba, Morobo and Rumbek, Southern Sudan**; FHI/USAID/MOH: 2009

<sup>133</sup> If women have a high rate of STIs, it stands to reason that men would be similarly infected

- **There is hardly any information about discordant couples and HIV risks within stable relationships**

Other studies of the modes of transmission in a generalised epidemic (such as the studies in Kenya and Ethiopia cited earlier, as well as a similar study in Uganda)<sup>134</sup> demonstrated that perhaps 45-50% of the transmission was occurring in stable relationships – so-called discordant couples – and that in the majority of these couples, partners did not know each other's status. These couples are extremely difficult to identify and treat, and women who discover that they are HIV positive run the risk of encountering a violent reaction from their husbands when they try to raise the subject or suggest that the husbands also submit to testing. The fact that more than half the women surveyed in the BMS study had suffered some form of gender violence and one woman in five had suffered sexual abuse underscores the problems that might be encountered. Nonetheless, an important area for HIV intervention would be missed if the MOH and local stakeholders did not **investigate methods for approaching, surveying and intervening with discordant couples**, especially in the zones of higher HIV prevalence.

- **The scale-up of the HIV response needs to be conducted as part of a larger overall strengthening of the health systems capacities**

The response to HIV in Southern Sudan has been notable in the last two-three years by a marked increase in the number of sites offering VCT, ART and PMTCT interventions. However, it can be easily recognised that the number of sites, especially for VCT and PMTCT is still inadequate to handle the necessary caseload: given the size of the country, a handful of sites per state is not beginning to scratch the surface of the population that should be reached, or to provide any sort of comprehensive coverage. The same could be said about the volume of condom distribution, educational materials being distributed, or establishment of local PLHIV organisations.

The reasons for the lack of implementation of these services are probably many, and perhaps it is still early days to cast a judgement. Over the past few years, policies have been established, offices for the HIV Directorate and SSAC have been established at the State level, and some sites have become operational. Funds appear to exist for the scale-up of HIV and AIDS prevention, education, care and treatment, but they have not as-yet been utilised to reach the primary health centre or local CBO level. The reasons cited for this slow scale-up range include hold-ups in the bureaucracy, slow release of funds from the Ministry of Finance, local resistance to implementation, lack of qualified human resources, problems with staff morale and remuneration, lack of supplies and equipment, problems with procurement, weaknesses in the overall health infrastructure, and the generally weak infrastructure in the country.

There are many indications that there is an increased will, at least at the higher levels, to overcome these impediments, and a number of agencies are supporting efforts to scale-up, modernise and expand the HIV/AIDS response in the country.

However, the overarching priority for Sudan needs to be increasing the capacity of the health system to respond to HIV/AIDS as only one of a number of pressing health issues, expand the cadre of trained personnel, improve the information and reporting systems, and implement proper systems of monitoring and supervision to track the progress of the epidemic response.

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<sup>134</sup> Berhane Y et al **HIV/AIDS in Ethiopia: An Epidemiological Synthesis**; and Gelmon LJ et al **Kenya – HIV Prevention Response and Modes of Transmission Analysis**; op cit

## **APPENDIX ONE - PEOPLE MET**

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Lul P. Riek, Director-General for Administration and Finance, Ministry of Health, GOSS

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## **APPENDIX TWO - DOCUMENTS REVIEWED**

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**Southern Sudan AIDS Monitoring and Evaluation Framework and Operational Plan**, Draft 2008

**Southern Sudan ANC Sentinel Surveillance Report, Cumulative to August 2007**; CDC, MOH and SSAC

**Southern Sudan ANC Sentinel Surveillance Report, 2009**; Draft; MOH HIV/AIDS/STI Directorate

**Southern Sudan Comprehensive National Condom Strategy**; SSAC, UNFPA, 2010

**Southern Sudan Household Health Survey**; Govt. of Southern Sudan; 2006

**Household Health Survey**, draft document , Govt of Southern Sudan. 2010

**Southern Sudan HIV/AIDS Policy 2008**, Govt of Southern Sudan

**Southern Sudan HIV & AIDS Strategic Framework (SSHASF 2008 -2012)**, Govt of Southern Sudan, 2009

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