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## HIV Integrated Biological and Behavioural Study (IBBS)

Hoedspruit Commercial Farming Area  
Republic of South Africa



March 2009  
Executive Summary



## INTRODUCTION

This Integrated Biological and Behavioural Study (IBBS) was undertaken in an effort to better understand the vulnerability of migrant farm workers to HIV infection and AIDS in the commercial farming area of Hoedspruit, within the Mopani Health District of Limpopo Province, South Africa. The study is also intended to provide employers and employees with a more accurate appreciation of the epidemic in their community, and a deeper understanding of the various factors that may exacerbate the risk of HIV infection.

The study was carried out over a five-day period at the height of the mango processing season, from January 21-25, 2008, on the following ten farms in and around Hoedspruit: Abram Joubert, Bavaria Estate, Chris Huddle, Grovedale, Johannes Joubert, New Dawn, Olifants River Estate, Richmond Estate, Schonwald, and Unifrutti. The study was conducted among 1,486 farm workers, or 38% of the total work force, on the farms.

Researchers adopted an all-inclusive community-based sampling method (involving female and male, seasonal and permanent workers of all ages) to estimate the prevalence of HIV infection among the employees of the participating farms. HIV prevalence was then linked to a social and behavioural questionnaire, completed by participants on a voluntary basis, to understand the relationship between social, economic, migration, behavioural aspects, and the risk of HIV infection. This baseline data will be used to measure and appraise future prevention and education efforts.

South Africa's commercial agriculture sector is diverse, and areas of speciality vary by province (i.e. fruit, dairy, maize, etc.). The commercial agriculture sector in Limpopo is generally characterized by small and medium-sized farms, each of which employs on average 10 permanent employees and often large numbers of seasonal workers during the harvest season. Even though farm managers are cognizant of the economic and social impact of HIV and AIDS on their farms, organized responses to HIV in the workplace have been generally absent or inadequate, usually because farm managers are uncertain about how to respond to the crisis.

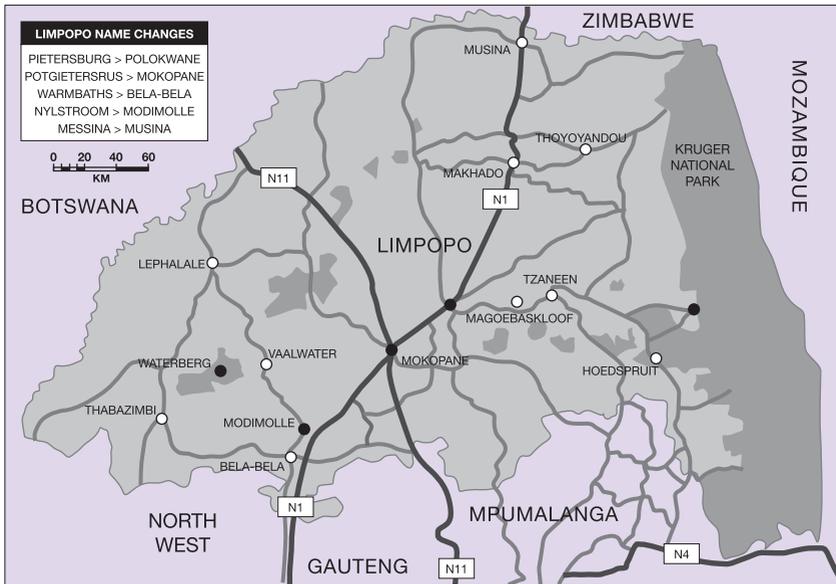
Since 2006 IOM has been working with the Hlokomela Project to try to reduce farm workers vulnerability to HIV through the implementation of a comprehensive social change approach<sup>1</sup>. The Hlokomela Project coordinates various health and educational development initiatives for 38 local agricultural businesses associated with the Hoedspruit Training Trust, which is a Not-for-Profit Organization (NPO) that seeks to empower farm workers and their families with a greater sense of responsibility for their personal health, spiritual, and educational development. The present study attempts to provide the project, government and other stakeholders with pertinent information concerning the HIV vulnerability of farm workers in the Hoedspruit area.

1 See [www.iom.org.za](http://www.iom.org.za) and [www.htt.org.za](http://www.htt.org.za)

## BACKGROUND

### HIV AND AIDS IN SOUTHERN AFRICA

The 2007 National HIV and Syphilis Prevalence Survey, undertaken by the South Africa's Department of Health, calculated the national HIV prevalence to be 28%.<sup>1</sup> It is estimated that 5.7 million people are living with HIV in South Africa;<sup>2</sup> and AIDS is the single biggest cause of death in the country, taking almost 1000 lives per day.<sup>3</sup> The survey established HIV prevalence in Limpopo Province at 18.5%;<sup>4</sup> and the prevalence rate in the Mopani District, Limpopo Province, is estimated at 23.8%.<sup>5</sup>



### FARM WORKERS, MIGRATION, AND HIV

Over the past few decades, South Africa has witnessed a number of dramatic political, economic, social and demographic changes, such as increased levels of urbanization, population displacement, and migration. Studies show that migrant farm workers, who move on a regular basis due to the seasonal or short-term basis of their employment, are at increased risk to HIV infection.<sup>6</sup> Commercial farms in South Africa employ a significant number of migrant workers, including workers from within South Africa as well as from other southern Africa countries. Particularly, commercial farms in Mpumalanga, Limpopo, and the Free State provinces, employ migrant workers from Mozambique, Zimbabwe, and Lesotho.<sup>7</sup>

In South Africa, people who live and work on commercial farms have been identified as a highly mobile, vulnerable group, with little or no access to HIV and AIDS information, care, support, or treatment. Surveys conducted by IOM in 2004 on the HIV vulnerability of migrant farm workers in two farming districts in the provinces of Mpumalanga and Limpopo identified three different categories of migrant workers: permanent; seasonal; and temporary. These broad categories encompass farm workers who either live and work on farms and have security of tenure and workers who live on farms but do not have security of tenure and commute home on a monthly basis; daily commuters who travel between farms and nearby villages; and foreign cross-border migrant workers who retain a close connection with their home countries. Farm workers are often confronted with difficult living and working conditions that create a hand-to-mouth existence with little hope for the future. These conditions might include poor pay and exploitation, overcrowded accommodation facilities, poor sanitation, long absences away from home that cause family instability, and boredom coupled with limited recreational opportunities. Migrant farm workers seem to view these conditions as immediate problems, and therefore tend to regard the possibility of HIV infection as a more distant threat.<sup>8</sup>

The 2004 IOM Survey also revealed that migrant farm workers generally lack access to information about HIV and AIDS, and hold a number of misconceptions about HIV and AIDS, including a widespread belief that there is a cure for the disease. Workers reported high levels of risky sexual behaviour, such as multiple concurrent sexual partnerships and transactional sex. Female workers seem especially vulnerable to HIV infection. A large proportion of female farm workers showed poor knowledge and attitudes on the subject of HIV and AIDS, and reported much higher levels of unsafe sexual practices than their male counterparts. Foreign labour migrants were also found to be particularly vulnerable to HIV infection. Resulting from their insecure legal status, high mobility and short stays on farms, they are rarely able to access health services and are not reached by the infrequent HIV and AIDS information campaigns targeted at farm workers.<sup>9</sup>

## **METHODOLOGY**

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### **OBJECTIVES OF THE STUDY**

The IBBS aims to achieve the following two objectives: (1) to determine the current HIV prevalence among permanent and non-permanent employees from a selection of mango and citrus farms in the Hoedspruit agricultural community; and (2) to disaggregate HIV prevalence according to various demographic parameters, such as job category, age band, and gender.

### **CONSULTATIVE PROCESS**

IOM representatives, AMS (the study consultants), and HTT held several meetings with farm owners and management, employee representatives, and other relevant stakeholders in the Hoedspruit study area prior to the commencement of the study to gain general agreement and buy-in for the study. Farm employees were subsequently informed about the proposed study and invited to participate on a voluntary basis.

## SELECTION AND SAMPLING OF PARTICIPANTS

Ten out of a total of 28 farm estates were selected for the study. The various farms were selected for reasons of their location (within hour travelling distance from HTT), respective sizes (bigger farms could access more farm workers) and the profile of their employees (to guarantee a selection of common and typical farm workers). A random selection of 1,500 employees was initially favoured, but due to the very sensitive nature of HIV in the workplace and confounding issues related to job insecurity, a random selection proved infeasible. Instead, employees were approached either on their way to or at their various work sites and encouraged to participate. Employees participated anonymously and on a voluntary basis. Approximately 1,500 employees participated in the study, 750 of whom were randomly invited to complete a questionnaire linked to the HIV prevalence findings.

## SALIVA-BASED HIV ANTIBODY TESTS

A laboratory-based HIV Elisa saliva test was used to determine the HIV status of each tested employee. (The Vironostika HIV Uni-Form II assay detects HIV-1, HIV-2 and HIV-1 group O antibodies.) This test uses a few millilitres of saliva collected from each of the participants. A recent study conducted by Dr Evian and the Harvard Botswana Partnership of 3,300 dual saliva and blood tests revealed a very high correlation and specificity (99%) and sensitivity (95%) between the results of the saliva tests and the blood tests.<sup>2</sup> This indicates that the saliva test is highly accurate and suitable for surveillance purposes.

## ANONYMOUS TESTING LINKED TO BAR CODES

Employees participated in the study on a completely anonymous and voluntary basis. The questionnaire was linked to the specimen result by a matched bar code. Employees were given the option of taking the matched bar code linked to the employee specimen to the Voluntary Counselling and Testing (VCT) centre to get their HIV test result. A second rapid test was used to confirm the initial saliva-based tests. All result scanning and provision was done at the Hlokomela Wellness Centre where counselling was offered to participants upon request.

## DEMOGRAPHIC DETAILS

Basic demographic questions were asked to all those that participated in the study and included:

- Age
- Job category i.e. management, supervisor or general worker
- Gender
- Contract status (permanent or non-permanent)

2 Evian, Dr. Clive. "HIV epidemiology and trends in a workforce in a large national manufacturing company in South Africa 2001-2006." AIDS Management and Support. Available at <http://www.wbs.ac.za/files/hivaids/Paper%20Dr%20Clive%20Evian%20-%20HIV%20Aids%20trends.pdf>.

## BEHAVIOURAL QUESTIONNAIRE

The additional questionnaire comprising fourteen questions was completed by 750 randomly selected study participants and linked to the HIV prevalence findings. These questions addressed issues relating to:

- Marital status;
- Place of employee residence during employment;
- Place of residence of employee's family;
- Travel time to and from work;
- Frequency of family visits;
- Frequency of seeing regular partners;
- Knowledge of employee's own HIV status;
- Whether employees are worried they may have HIV;
- Time of last HIV test;
- Place where HIV test was taken;
- Trust in the confidentiality of their farm management and the Hlokomela health care services;
- Belief in the value of anti-retroviral therapy (ART);
- Preferred choice of medical care provider;
- Condom use;
- Symptoms of STI in the past year;
- Male circumcision; and
- Income.

## STUDY LIMITATIONS

**Incomplete Sampling Frames:** Voluntary participation may introduce various biases into the study, especially if employees choose not to participate because they know their HIV status. However, most employees do not know their HIV status and therefore probably participated in the study. Therefore due to the possibility of an incomplete sampling frame, a random selection of employees (which is the favoured statistical method) was not possible.

**Reporting Bias:** The accuracy of the answers to the demographic questions and the behavioural surveillance questions is unknown. Employees voluntarily disclosed personal information and it is not possible to independently verify the information that they provided. It is possible that some employees may have given false information due to the sensitivity of HIV in the workplace. Many efforts were made to limit this bias: interviews were conducted in private, all responses were anonymous, and respondents were encouraged to respond accurately. Despite these efforts, it is believed that some indicators are likely to be conservative estimates, especially those associated with social stigma, such as condom use or the number of multiple concurrent sexual partners. In addition some of the study questions were, in retrospect, unclear and may have resulted in incomplete information.

**Study Conditions:** The study is limited by the number of workers who participated and by the indicators selected. More research could be conducted to analyse a broader spectrum of farm employees using an increased number of indicators.

## **SUMMARY OF KEY FINDINGS**

### **HIV PREVALENCE**

The Hoedspruit farming community comprises a predominantly seasonal (71%), female (65%), and young workforce (77% in 18-39 year age bands) of mainly unskilled general workers (97%) who are very low income earners.

The study found that workers in the Hoedspruit farming community are highly vulnerable to HIV infection, with 28.5% of all employees currently infected with the virus. HIV prevalence is highest in the 30-34 year age band (36.9%), but prevalence is high in all age bands, suggesting that the epidemic is at a mature level. Among seasonal employees in the 30-34 year age band, the prevalence rate is extraordinarily high at 40.9%.

The research showed no difference in HIV prevalence between permanent and seasonal employees, which suggests that the two populations are subject to similar social pressures and economic conditions. This may not be surprising, considering that permanent employees are often former seasonal workers and seasonal workers are more or less permanently employed.

### *Gender*

The HIV prevalence among female workers is 32.5%, in comparison to 20.9% for their male counterparts. This is significantly higher than the prevalence rate in the Mopani Health District (23.8%) established by the Department of Health in 2007. This difference is particularly conspicuous in the 18-24 year age band, where there are three times as many HIV-positive women than men (23.3% and 7.6% respectively). However, in the 40-44 year age band, there is a higher prevalence among males (41.3%) than among females (28.4%). Inter-generational sex is one possible explanation for this occurrence.

### *Mobility and Migration*

The study found that 32% of the female employees who live away from the workplace are HIV-positive which is significantly higher than their male counterparts (17.9%). A high proportion of employees do not live with their families (40% females and 54% males). Women living away from their families appear to be at higher risk of HIV infection than men, with prevalence rates of 35% and 25.7% respectively. Whether or not male employees live with their families does not seem to impact this group's vulnerability to HIV infection.

The study found that a high proportion of employees travel more than one hour to get to their homes, and that employees who spend a longer time travelling to their place of residence are at greater risk of HIV

infection. Females travelling longer than one hour between work and home are more vulnerable to HIV infection than males who travel a comparable distance (33.3% and 24.3% respectively). It is, however, important to note that these statistics can be confounded by other factors. It may be that HIV prevalence is related to a combination of travel distance and poverty levels, and further research is required to clarify this issue.

### *Sexually Transmitted Infections (STIs)*

The prevalence of STIs appears to be an important determinant in the prevalence of HIV infection, as a high proportion of employees (19%) who reported having an STI in the past year have a significantly higher prevalence of HIV than employees who did not report an STI event. Although many more male workers than female workers reported an STI event, female workers with a STI have a higher HIV prevalence than their male counterparts.

### *Marital and Relationship Status*

Seventy-seven percent (77%) of all employees are married or in a long-term relationship. The study shows that marriage and long-term relationships have an impact on HIV risk. Males who are married or in a long-term relationship were found to have a higher HIV prevalence than males who are unmarried or not in a long-term relationship (28.8% and 12.8% respectively). Alternatively, females who are not married or in a long-term relationship have a higher HIV prevalence than females who are (43.5% and 26.9% respectively). Single females have a significantly higher HIV prevalence than single males (43.5% and 12.8% respectively). These findings may strengthen the belief that there is a significant level of inter-generational sexual activity between young single women and older married men. Further research is needed, however, to clarify the extent of inter-generational sexual activity and to determine its impact on HIV vulnerability.

### *Knowledge of HIV Status*

The study found that employees who know their status have a higher HIV prevalence than those who do not. Only 44% of the HIV-positive employees know their status, which indicates that there is a significant number of HIV-positive people who do not know their status. The study also shows that untested female employees have a significantly higher HIV prevalence than untested males. Males who know their status have a higher prevalence than their female counterparts, which may suggest that males tend to get tested for HIV if they have symptoms of HIV-related illnesses, whereas women tend to wait or find out in an indirect way, usually by going to the clinic for antenatal care.

### *Concern about HIV*

The study suggests that employees' concern about contracting HIV does not appear to be associated with either an increased or a decreased risk of HIV infection. More female employees are concerned about their HIV status than males. Almost half of all employees are not worried that they may have HIV or may contract the disease in the future. This is worrying since 25.8% of these people are already infected with HIV and comprise 40% of all HIV-positive employees.

### *Condom Use*

Reported condom use was found to be low; of all employees, a quarter reported never using a condom, and 22% of these people are HIV-positive. Of all the HIV-positive employees, 35% did not report using condoms (18% reported never using condoms and 17% did not respond). A high proportion (25%) of HIV-positive employees who know their status reported never using a condom (compared to 38% of HIV-negative employees). It appears that those who do not use condoms have a lower prevalence of HIV than those who do, possibly because those who know that they are HIV-positive use condoms more often.

### *Male Circumcision*

Almost 80% of the male employees reported to have been circumcised, 51% as a child and 28% as an adult. The HIV prevalence of those who were never circumcised is 37%, while 19% of those circumcised as a child and 31% of those circumcised as an adult are HIV positive. The study therefore supports the contention that male circumcision provides some protection against HIV transmission, but only for those who were circumcised as a child. There was no significant protective effect for those circumcised as an adult.

### *Preference for Service Provider*

57% of employees favoured government hospitals and clinics over the Hlokomela Wellness Centre (29.5%) for the provision of medical care and VCT. This preference was not associated with HIV prevalence. A high proportion of employees (78%) trust that Hlokomela and their staff maintain confidentiality when they access their services. Employees who do not trust the Hlokomela service were more likely to use government services. The study also found that a quarter of all HIV-positive employees do not trust Hlokomela and the Nompilos (meaning "Mother of Life" also referred to as change agents or peer educators) to maintain confidentiality. On the other hand, HIV-negative workers, especially female employees, have much more faith in the services provided by Hlokomela and the Nompilos.

## **HIV RISK FACTORS**

In summary, increased HIV prevalence was associated with:

- Being female;
- 25-44 year age bands compared to other age bands;
- Permanently employed females, especially in the 18-39 year age band compared to older age bands;
- Seasonal employed females, especially in the 18-44 year bands compared to males;
- Employees who are not married or in permanent relationships;
- Single females compared to single males;
- Married males compared to single males;
- Females who live away from the workplace compared to males;
- Females whose families do not live near the workplace compared to males;
- Females whose families do not live near the workplace compared to females who live near the workplace;
- Longer time taken to travel home, especially in females;

- Females without a regular partner compared to males;
- Employees who know their HIV status compared to those who do not;
- Females who do not know their HIV status compared to males who do not;
- Males who know their HIV status compared to females;
- Males who know their HIV status compared to males who do not;
- Worried female employees compared to males;
- Employees who have ever been tested compared to those never tested;
- Employees who do not trust in the confidentiality of the Hlokomela/Nompilo services;
- Employees who use condoms compared to those who never do;
- Employees who report having had an STI in the past year;
- Females who have had an STI event compared to females who have not;
- Females who have had an STI event compared to males;
- Uncircumcised males compared to circumcised males;
- Males circumcised as an adult compared to males circumcised as a child;
- Females earning ZAR1000 or less compared to males; and
- Employees earning ZAR500 or less compared to those earning ZAR500-1000 per month.

## **CONCLUSIONS AND RECOMMENDATIONS**

### **STATE OF THE EPIDEMIC IN THE HOEDSPRUIT FARMING COMMUNITY**

The HIV epidemic has reached a very high and mature level in the Hoedspruit Farming Community. The high level of population mobility has exacerbated the spread of the epidemic, necessitating increased HIV testing and care and support services for the population of the region. This study shows that structural and environmental factors impact on HIV vulnerability. Even though a significant amount of work is already being done to raise awareness to facilitate individual behaviour change, more work is needed to address the broader socio-economic factors driving the epidemic.

Prevention, treatment, care and support programmes should therefore be designed to target not only the individual drivers of the epidemic, but also the complex structural and environmental dynamic that adversely effect individuals' behaviour such as addressing gender inequalities, living and working conditions, transport options etc.

### **HIV RISK AMONG YOUNG WOMEN**

Young women in the Hoedspruit farming community are highly vulnerable to HIV infection. The highest priority, and the key to the long-term control of the epidemic, is the development and implementation of strategies that can have an effect on young women in the region. Teenage girls and young unmarried women should be specifically targeted, because they appear to be contracting HIV more often and at a younger

age than their male counterparts. Inter-generational sex may be a factor that needs to be addressed. Addressing this phenomenon will have a major impact on the future spread and size of the epidemic.

A significant part of the prevention effort could be driven by local schools and youth associations, but because the farming community comprises such a high proportion of young female employees, it is incumbent upon the members of this community to work together in prevention efforts. Additional research is required to more thoroughly understand the HIV risk determinants of younger female workers and to identify the steps to be taken to mitigate these factors.

#### **FAMILY, PERSONAL STABILITY AND MOBILITY**

Many farm workers are employed seasonally and migrate to the Hoedspruit region for the harvesting season, leaving their families or partners behind, often for weeks or months at a time. These workers are often subject to overcrowded accommodation, poor sanitation, boredom, lack of recreational activities, low salary, gender exploitation, and other conditions that contribute to the spread of HIV. On the other hand, a significant number of employees, both seasonal and permanent, live away from the farms they work on and must therefore commute to work on a daily basis, sometimes over very great distances. This group, too, is highly vulnerable to HIV infection. The study suggests that HIV prevalence is not contingent on the frequency of the employee's visits to their spouse or regular partner, but on the distance it takes to travel to them. Especially women who must travel long distances to their families are at high risk of HIV infection.

These findings seem to suggest that women and girls are more likely to engage in transactional sex to finance or otherwise arrange their journeys. HIV prevention and care programmes should not only engage migrant farm workers who live away from home or away from their place of work, but should also seek to reach the partners of these employees.

#### **PREVENTION AND TREATMENT**

HIV prevalence is higher among employees reporting an STI event over the past year. Programmes should therefore support and encourage testing and treatment for STIs, which may help to reduce new infections. HIV prevention and treatment should always be linked to STI prevention and treatment strategies.

The study suggests that male circumcision reduces vulnerability to HIV infection, though only significant amongst men who have been circumcised when they were still a child. The risk of HIV infection was not significantly diminished in men who had been circumcised as adults. Vigorous promotion of male circumcision in childhood may prove an effective HIV prevention strategy.

As much as a quarter of all employees reported never using a condom, while those who do use condoms use them inconsistently. Of the employees surveyed, 30% reported using condoms only with their spouses to protect them from HIV infection, which does not rule out the possibility that they may engage in unprotected sex with other partners. Of the quarter of all employees who never use condoms, 22% are HIV-positive. A general condom distribution campaign should be launched to improve access to condoms on the farms as part of a broader awareness campaign aimed at advocating the benefits of consistent condom use in combating the transmission of HIV.

The findings of the study suggest that it is important to emphasise that Antiretrovirals (ARVs) prolong life and that the provision of ARVs is beneficial to both HIV-positive workers and their employers. Further ARV education may help to persuade HIV-positive employees to enter HIV care and treatment programmes.

Employees should be encouraged to access VCT services and “know your status” campaigns should be implemented. The study showed how few farm workers are actually aware of their HIV status, which may further increase unsafe sex taking place.

#### **WORKERS’ PERCEPTION OF HLOKOMELA AND NOMPILO SERVICES**

It is necessary to improve the workers’ perception of Hlokomela services. 22% of all employees do not trust or are unsure about the confidentiality of Hlokomela, compelling them to revert to more distant government hospitals and clinics. This group of workers have an extremely high HIV prevalence (42.6%). Gaining the trust of the farm workers will be crucial in getting them to use the Hlokomela farm services for VCT and to persuade more of the HIV-positive workers’ to access the care programme.

#### **POVERTY**

Poverty, defined as income of less than ZAR500 per month, exacerbates workers’ vulnerability to HIV infection; the poorer the workers are, the less likely they are to worry about protecting themselves from contracting HIV. Indeed a certain amount of “fatalism” seems endemic among farm workers (“I can be replaced anytime”). Poverty also compels employees, most of whom are women, to engage in risky behaviour such as transactional sex. Furthermore, the financial burden imposed by HIV medical care (transport costs, clinic costs, etc.) is problematic for low income workers. To alleviate this burden it may be necessary to improve the visibility and trust in the Hlokomela services provided directly at the farm, including the provision of free ARVs.

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