




HIV/AIDS and Malaria

Contents

1. Business principle - AngloGold Ashanti as an employer – our labour practices	HM2
2. Key indicators	HM3
– HIV/AIDS 	HM3
– Malaria	HM3
3. Milestones 2004	HM4
4. Review 2004	HM5
5. Reporting in line with GRI	HM12
6. Scorecard	HM13
7. Case studies	HM14
Ghana	
7.1 A scientific approach to malaria control at Obuasi	HM14
South Africa	
7.2 Success reported with ART implementation, although uptake still slow	HM16
7.3 Wellness Clinic at West Vaal Hospital	HM18
7.4 Living with HIV/AIDS – an employee's story	HM19
Tanzania	
7.5 Peer education at AngloGold Ashanti in 2004	HM20
7.6 Geita gold mine and AMREF: Working together to address HIV/AIDS	HM21
7.7 Malaria vector survey and insecticide susceptibility assay on mosquito populations at Geita mine in Tanzania	HM22

HM2 | 1 Business principle: AngloGold Ashanti as an employer – our labour practices

- AngloGold Ashanti is committed to upholding the Fundamental Rights Conventions of the ILO. Accordingly, we seek to ensure the implementation of fair employment practices by prohibiting forced, compulsory or child labour.
- AngloGold Ashanti is committed to creating workplaces free of harassment and unfair discrimination.
- As an international company, we face different challenges in different countries with regard to, for example, offering opportunities to citizens who may not have enjoyed equal opportunities in the past. In such cases, the company is committed to addressing the challenge in a manner appropriate to the local circumstances.
- We will seek to understand the different cultural dynamics in host communities and adapt work practices to accommodate this where doing so is possible and compatible with the principles expressed in this document.
- The company will promote the development of a work force that reflects the international and local diversity of the organisation.
- The company will provide all employees with the opportunity to participate in training that will improve their workplace competency.
- The company is committed to ensuring that every employee has the opportunity to become numerate and functionally literate in the language of the workplace.
- The company is committed to developing motivated, competent and experienced teams of employees through appropriate recruitment, retention and development initiatives. An emphasis is placed on the identification of potential talent, mentoring and personal development planning.
- Remuneration systems will reward both individual and team effort in a meaningful way.
- Guided by local circumstances, we shall continue to work together with stakeholders to ensure minimum standards for company-provided accommodation.
- The company assures access to affordable health care for employees and where possible, for their families.
- **We are committed to prompt and supportive action in response to any major health threats in the regions in which we operate.**



2 Key indicators

Information pertaining to HIV/AIDS and malaria – the primary public health threats facing the company – is relevant to the Africa operations only. While HIV/AIDS is a significant challenge in South Africa, it is less so in the other African operations, as the East and West African general populations have far lower prevalence levels than in southern Africa. The labour intensive nature of mining in South Africa is another reason why this pandemic is critical to South African mining operations. It is for this reason that the focus of the HIV/AIDS programme has been South Africa. The statistics and information reported in this section relate primarily to the South Africa region. Where information pertains to other regions, this has been specifically stated.

The threat of malaria is one that has the greatest impact in the Ghana, Mali, Guinea and Tanzania regions. No consolidated information is available as many of these programmes, and particularly the gathering of information, are in their infancy.

HIV/AIDS

- Based on best available information, including surveys, antenatal data, and extrapolation from comparable reference groups, AngloGold Ashanti estimates a 2004 HIV prevalence rate of 30.24% amongst its **South African** workforce. In 2003, this was estimated to be 29.95%.
- 4,248 cases of Sexually Transmitted Infections (STIs) were treated by AngloGold Health Service (AHS) during the year, a decrease of 23% on the number recorded in 2003. STI rates can be used as a proxy for unprotected sex.
- 4,071 visits were recorded at AngloGold Ashanti's voluntary counselling and testing (VCT) centres in 2004, an increase of 25% on those recorded in 2003.
- 935 employees registered for the first time with the AngloGold Ashanti wellness programme during 2004, compared with 834 in 2003.
- 315 employees were enrolled in the anti-retroviral therapy (ART) programme in 2004, a decrease of 41% from 2003, bringing the cumulative total of employees started on ART to 849.
- Expenditure related to chronic disease management of HIV-infected employees (including the provision of ART), voluntary counselling and testing, home-based care for terminally ill ex-employees, the personnel managing the company HIV-programme, and some programme-related research, monitoring and evaluation, amounted to \$2.28 million or R14.62 million in 2004.*


* This excludes awareness campaigns and peer education conducted on-mine, or the HIV-component of mine-based induction programmes and excludes hospitalisation costs for AIDS-related illnesses.

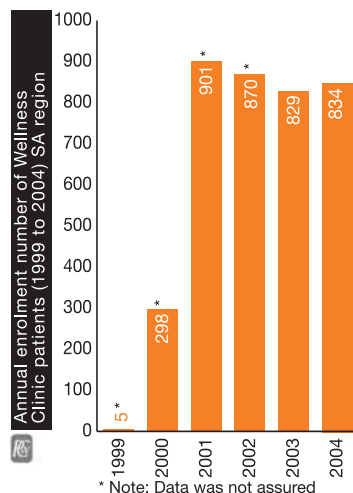
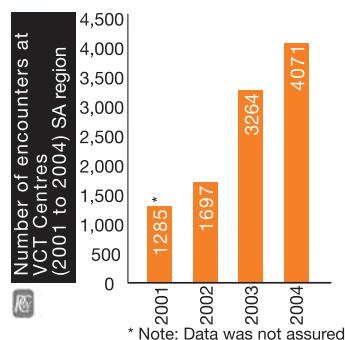
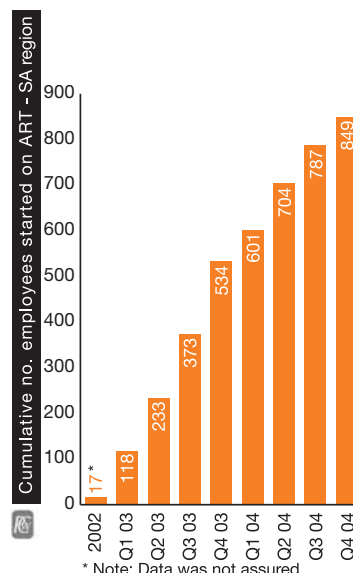
Malaria

- Malaria remains the most significant public health threat for AngloGold Ashanti's operations in **Ghana, Mali, Guinea and Tanzania**. A means of measuring the impact of malaria on the group has been introduced, namely a Malaria Lost Time Injury Frequency Rate (MLTIFR). Measured per million man hours, this is similar to the safety and health indicators of Lost Time Injury Frequency Rate. At Geita, the MLTIFR is estimated at 130 per million man hours, and at Morila in Mali, it is estimated at 167. The data for the Sadiola/Yatela operations is incomplete and cannot be represented as an MLTIFR figure.



Our opinion is based on a test of the reliability of the selected data by way of:

- In relation to selected data marked with  on which we have provided reasonable assurance:
- conducting interviews and holding discussions with management, key personnel and/or stakeholders of AngloGold Ashanti limited and assessing data trends;
 - obtaining an understanding of the systems used to generate, aggregate and report the selected data;
 - conducting site visits to test systems and data and inspecting premises where necessary;
 - assessing the completeness and accuracy of the selected data; and
 - reviewing and analysing collected information and effecting re-calculations where considered appropriate.



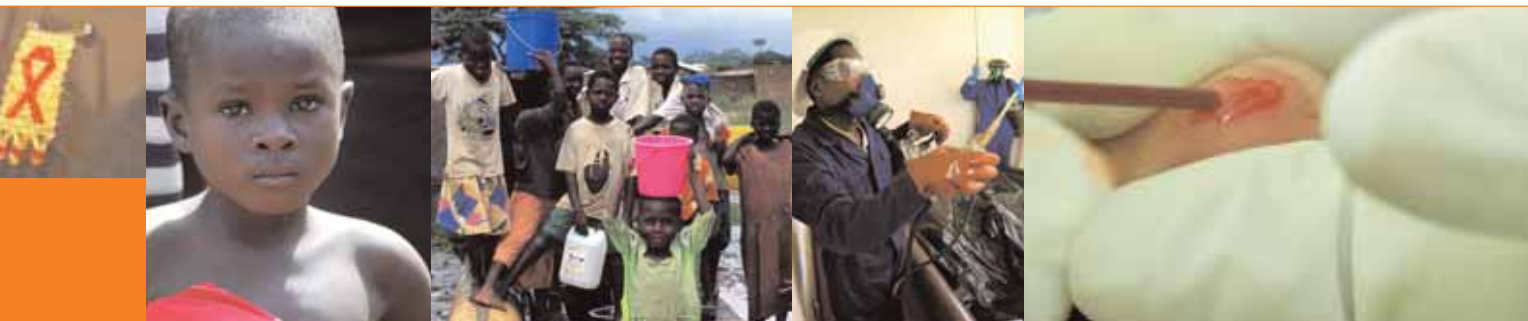
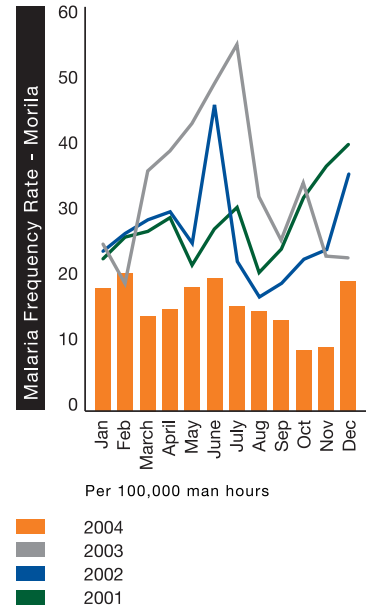
HM4 | 3 Milestones 2004

HIV/AIDS

- An internal auditing process was implemented in the **South Africa** region, based on a comprehensive risk assessment which focuses on both the health service's wellness programme and workplace prevention programmes.
- AHS became more involved in the management of HIV/AIDS in the **African** operations, outside of South Africa, and more detailed data collection is being targeted for 2005.
- The provision of anti-retroviral therapy at Geita hospital (by the State and supported by the mine) in **Tanzania** for Geita mine's employees and dependents began in November 2004.
- The annual Geita gold mine Kilimanjaro challenge undertaken to raise funds for HIV/AIDS programmes raised \$150,000 in 2004.
- ART roll-out for employees at the Navachab mine in **Namibia** commenced in April 2004, to support the VCT and wellness programme already in place.

Malaria:

- A scientific, \$1.6 million malaria campaign has been proposed at Obuasi in **Ghana**.
- At Geita in **Tanzania**, resident mosquito species identification and insecticide-resistance profiling was completed in 2004, in preparation for the development of an integrated malaria programme.
- An integrated malaria control programme, introduced at Morila in **Mali** in 2003, has reduced the incidence of malaria significantly. (See graph.)



4 Review 2004

Note that the information relating to HIV/AIDS is for the group's South Africa operations only, which accounts for 69% of the workforce and is the region in which HIV/AIDS is the most significant regional health threat. Where this report has been extended to cover the other regions in which AngloGold Ashanti operates, this is specifically indicated.

HIV/AIDS policy and agreement

AngloGold Ashanti's HIV/AIDS policy is contained in an agreement signed with all recognised trade unions in July 2002. Embodied within this agreement are the principles of:

- non-discrimination
- confidentiality and non-disclosure
- benefits applicable, and
- rules governing ill-health retirement.

While the provision of anti-retroviral therapy (ART) was not part of the original agreement, trade unions participated in the ART programme from inception through the project's steering committee and ethics forum.

Efforts have been made to engage with the primary union, the National Union of Mineworkers (NUM) to undertake an HIV-prevalence survey amongst employees, linked to a behavioural study. This information would be used to plan for and implement appropriate changes to the current programme. No progress has been made in this regard as the company has been unable to convince the NUM that this will be to the benefit of the company and employees alike.

Governance and structure

AngloGold Ashanti's HIV/AIDS programme is managed at both a clinical and operational level, and overseen by a joint management/union committee. (See diagram below.)

The clinical expertise, resources and oversight is provided by AHS. AHS provides a comprehensive medical service at on-mine clinics, occupational health centres, and two world-class hospitals. These services are complemented by the research undertaken by Aurum Health, a subsidiary of AHS. Included as part of the AHS service is the company's voluntary counselling and testing (VCT) and wellness programme which includes the provision of ART. Since the health care service is managed independently of the mining operations, this promotes the confidentiality of the medical programme.

In addition to centralised education, training and management initiatives undertaken under the auspices of AHS, each operation has a joint management/union HIV/AIDS committee that oversees the implementation of mine-based programmes, and raises any issues of concern.

Make-up of the HIV/AIDS committee at Ergo:

The joint management/union committee meets regularly and consists of both senior and middle management, all representative unions and associations (NUM, Uasa, SAEWA), the Medical Centre, contractors and peer educators. The medical centre is also part of the East Rand hospital initiative outreach to the community.

Induction training

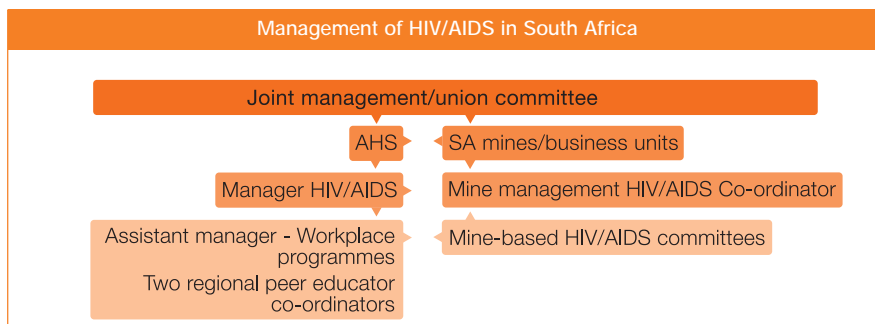
HIV/AIDS training is provided to all employees at induction. The induction programmes at the West Wits Metallurgical operations (which is fairly typical) comprises:

- understanding and implementing the AngloGold Ashanti HIV/AIDS framework;
- understanding and implementing the AngloGold Ashanti HIV/AIDS policy and union agreement;
- understanding basic facts about HIV/AIDS;
- understanding employees' rights as entrenched in legislation;
- precautions against occupational exposure to HIV and how to deal with accidental exposure; and
- AngloGold Ashanti VCT, Wellness and ART services and other support.

Supervisory training

Supervisory HIV/AIDS training at the West Wits Metallurgical operations (which is fairly typical) comprises:

- basic facts – HIV/AIDS
- HIV/AIDS framework
- HIV/AIDS Policy
- indicators and causes of declining performance
- psychological reactions
- counselling process
- legal framework
- referral sources.



Prevalence levels

An anonymous unlinked survey undertaken in 1999 indicated an HIV prevalence level amongst AngloGold Ashanti employees of 24%. (See *Report to Society 2003*.) This was followed up by a second survey in 2000/2001 undertaken in collaboration with the London School of Hygiene and Tropical Medicine which indicated a prevalence level of 29%. Based on these surveys, provincial antenatal data and extrapolation from comparable reference groups, AngloGold Ashanti's current best estimate of prevalence levels amongst employees is 30.24%. Through actuarial modelling, the company is able to project prevalence levels going forward. In terms of this model (see graph), prevalence levels are thought to have peaked in 2004. However, without a scientifically-based survey, these numbers cannot be confirmed. Based on the current stance of the NUM on anonymous testing, such a survey is not likely to be conducted within the foreseeable future.

The AngloGold Ashanti HIV/AIDS programme

The AngloGold Ashanti HIV/AIDS programme comprises five parts: education and training; voluntary counselling and testing (VCT); a wellness programme (including ART); ill-health retirement for employees who become AIDS-ill; and home-based and community-based programmes.

Education and training

Education and training is conducted at mine-level and is aimed at informing and changing behaviour. Issues dealt with include prevention of infection, the benefits of the VCT and wellness programmes (including ART) and ill-health retirement. Education and training is aimed at those who are HIV positive, those who are not, and those in supervisory and management positions who deal with the ill-health consequences of the epidemic in the workplace.

A wide variety of communication media are used, including peer education and industrial theatre. Education and training is supported by condom distribution and STI management in the workplace and in the community, particularly amongst women at high risk.

Voluntary counselling and testing (VCT)

Free and confidential VCT has been offered to all employees since March 2001 at 19 VCT centres across the group. VCT usage has steadily increased over the years and is now also offered to dependents. In total, 4,071 tests were undertaken in 2004 at the AHS centres, bringing the cumulative total number of tests undertaken by AHS to 10,317 at year-end.

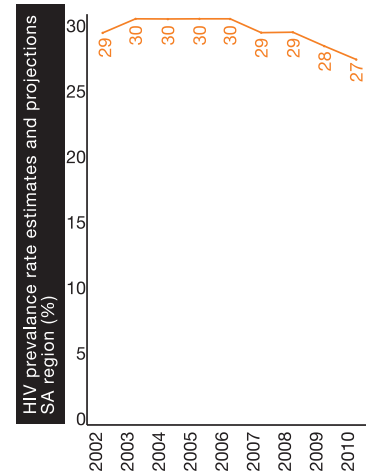
Wellness programme

A comprehensive Wellness programme was introduced in 1999, and since November 2002, this has included ART for those employees who are HIV positive and whose clinical condition meets the World Health Organization's medical guidelines for starting ART. (See *case study: Success reported with ART implementation, although uptake still slow on page HM16*.)

The aim of the programme is to extend the productive life of the employee as long as possible. (See *case study: Wellness Clinic at West Vaal Hospital on page HM18*.) Treatment is undertaken on an out-patient basis as is customary for other chronic diseases. Opportunistic infections are managed through early detection as well as the prescription of prophylaxis (against TB for example). All employees have unlimited hospitalisation benefits. Nutritional and lifestyle counselling and psychosocial support is also provided to the employee and his or her family as part of the Wellness programme. 935 employees enrolled in the Wellness programme in 2004; 849 employees were treated with ART as at the end of December 2004.

It must be stated that the extent of take-up of ART by prospective patients is lower than anticipated at the start of the programme. Estimations are that, more than two years after the launch of ART at AngloGold Ashanti in South Africa, no more than a quarter of employees for whom ART would be medically indicated have taken up the treatment. In most cases, these employees have not come forward for VCT and participation in the Wellness programme.

This is a trend apparent in other large scale ART programmes, such as, for example those in the broader Anglo American group and the South African government's programme which is also failing to meet planned levels.



HIV/AIDS awareness and training at Mponeng in 2004

- Awareness campaigns included the marketing of VCT, STI awareness, visits to the visiting wives centres, handing out of condoms and pamphlets, interaction with local sex workers and peer education. Quarterly safety campaigns have been combined with HIV/AIDS awareness campaigns.
- Supervisors receive training as part of induction.
- All new employees are also trained at their initial induction; employees returning from leave receive refresher training once a year.
- The mine has 21 active peer educators operating in the workplace. The majority of interaction currently takes place in the hostel environment, but plans are being implemented to take this into the workplace.

There are likely a multiplicity of causes, some of these inter-related, including the phenomena of stigma and denial, shortcomings in community and political leadership, and less than optimal communication and education efforts on the part of AngloGold Ashanti. Whatever the reasons may be, it remains a major challenge for this company and for society as a whole.

Ill-health retirements

A medical incapacitation process may be initiated by the employee, fellow workers or supervisors, medical or human resources practitioners. This process is exactly the same for any chronic illness that has permanently impaired an employee from carrying out his/her normal work duties. It seeks to find an alternative job placement within the employee's limitations, failing which the employee is ill health retired. The number of ill-health retirements* continued to rise during the year to 22.7 per 1,000 employees (15.2 in 2003). The untested assumption is that increasingly, employees with HIV infection are progressing to AIDS-illness and debilitation, but remain reluctant to acknowledge their status and seek treatment. Of those employees who were ill-health retired in 2004 due to a terminal illness, 71.6% were known to be terminally ill as a consequence of AIDS**.

The number of deaths*** per 1,000 employees has decreased marginally at 12.5 per 1,000 in 2004 (12.9 per 1,000 employees in 2003).****

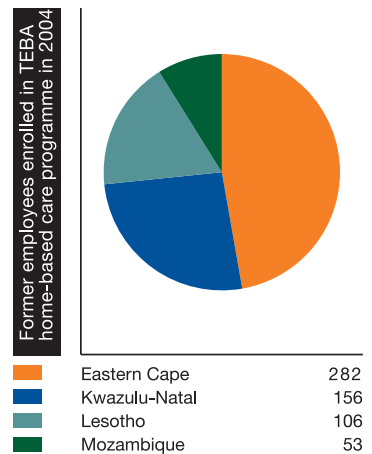
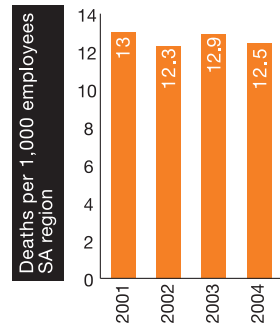
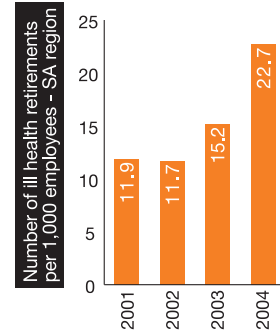
- * Includes all employees separated from the company due to medical incapacitation, except those due to occupational injury.
- ** The remainder were either HIV negative or had an unknown HIV status.
- *** Includes all deaths in service except those due to occupational injury.
- **** All data is based on South Africa region employees, excluding contractors.

Community-based programmes and home-based care

Community-based prevention interventions target high-risk populations in the two regions surrounding AngloGold Ashanti mines. AngloGold Ashanti provides home-based care for employees with AIDS through a wide range of partnerships, both in the communities surrounding its operations and the traditional labour sending areas. The latter is done particularly through TEBA, which provides both palliative care to the terminally ill and support for the bereaved families, assisting them in accessing financial and welfare support.

Community and home-based care organisations supported by AngloGold Ashanti in 2004

Name of NGO	Service Rendered
Carletonville Home & Community-based care	Palliative care of terminally ill; support groups for people with AIDS; orphan care
Mothusimpilo	Sexual health care of commercial sex workers; peer education in Merafong communities in the West Wits area
Bambisanani	Palliative and orphan home based care in the Eastern Cape
Siyakhula	Sexual health care and peer education of commercial sex workers in Kerksdorp/Orkney area
Heartbeat Centre for Community Development	Situational analysis of home based and orphan care need in the Kerksdorp/Orkney area
Rudo Home-based care	Palliative and orphan home based care in the West Wits area
TEBA Home-based care	Palliative care of terminally ill ex-AngloGold Ashanti employees in the Eastern Cape, Kwazulu-Natal, Lesotho and Mozambique



Taking care of orphaned and vulnerable children

Taking care of orphans and children left vulnerable as a result of the toll of the HIV/AIDS pandemic is an ever-increasing challenge. A recent publication by UNAIDS and UNICEF estimated that 14% of all South African children (2.5 million) will be orphans by 2005. Given the numbers involved, it is widely acknowledged that institutional care is not a viable solution and that community-based support systems are required to care for and support these children.

Early in 2004, AngloGold Ashanti recognised the Klerksdorp-Orkney-Stilfontein-Hartebeestfontein (KOSH) area in the North West Province, where four of its operations are located, as one without an adequate centralised oversight structure which could effectively coordinate the AIDS-related activities in the region. This was despite the fact that there were indeed numerous organisations in this area. It was this need that led to the involvement of Heartbeat, a community development organisation with a track record for delivery, particularly in addressing the needs of orphans and vulnerable children.

Heartbeat Centre for Community Development was initiated in 2000 by Rev Dr Sunette Pienaar to address the rights and needs of children orphaned mainly as a result of HIV/AIDS. Based on its extensive experience in Khutsong, near Carletonville, Heartbeat has developed a renowned model of care for orphans and vulnerable children, which is now being replicated across the country. This was done in conjunction with Carletonville Home and Community-Based Care, a project supported by AngloGold Ashanti. As a result of this intervention, all the children identified were registered for school, had school uniforms and stationery, accessed free water and electricity, gained government grants where applicable, and access to medical care. They all receive food parcels. The overall aim was to ensure they became just like other children in the community.

Heartbeat's proposal was to do a situational analysis of the area, including:

- a geographical analysis;
- identifying the number of orphaned and vulnerable children through schools so as to scope the problem;
- identifying existing organisations dealing with orphan care, income generation and palliative care in the areas; and
- identifying the gaps in service delivery by these organisations.

HIV/AIDS programmes at the Africa operations (outside of South Africa)

While the prevalence of HIV/AIDS is not as high in countries such as **Ghana, Mali, Tanzania** and **Namibia**, the disease has had – and continues to have – an impact on both AngloGold Ashanti employees and their families in these areas. While AHS is becoming increasingly involved in directing these HIV/AIDS programmes, strategic direction and service delivery is managed on-mine, frequently involving other partners.

At Geita, in **Tanzania**, HIV and STI management has long been provided in collaboration between Geita and the African Medical and Research Foundation (AMREF) (*See case study on page HM21 on Geita gold mine and AMREF: Working together to address HIV/AIDS*). A significant development during the year was the roll-out of ART at Geita, thanks to the intervention of the partners with Government. (See box on page HM9). In preparation for this, Aurum conducted a four-day course on HIV management for all clinic doctors, nurses, AMREF staff and Geita hospital staff.

Geita's awareness and training programme is extensive: Its 27 on-mine peer health educators meet on a monthly basis to discuss issues faced during the previous month. A new topic for the month ahead is discussed, fact sheets are developed and demonstrations are held. All employees are exposed to the AIDS education at induction and as part of the monthly hazard identification training.

About 50 active peer health educators provide education and training to three local villages and plans are in place to extend this to two further villages in 2005.

At the VCT centre operated in Geita Town by AMREF, both employees and members of the local community are equally entitled to make use of these services. The centre offers free STI testing and treatment and free family planning services. HIV tests are charged at a rate of \$0.95. (*See case study HM21.*)

Useful websites

www.amref.org
www.heartbeat.org.za

At Morila in **Mali**, an HIV prevention programme is in place, and focuses on prevention rather than treatment, owing to relatively low prevalence rates. The mine enjoys good collaboration with local NGOs in respect of HIV education and infection prevention: the mine distributed some 45,000 condoms during the year.

At the Sadiola and Yatela operations in **Mali**, peer educator training was implemented during the year. In addition, extensive community health education was provided by the mine to more than 13,000 community members during the year.

The Navachab mine in **Namibia** commenced the roll-out of its ART programme for employees in April 2004. The mine's comprehensive HIV prevention campaign is supported by VCT and a wellness programme.

At Obuasi in **Ghana**, VCT is offered free of charge at the Edwin Cade hospital. Medical care for HIV-positive employees is also provided by the hospital. The company has developed links with both NGOs (such as Care International) and government authorities (such as the Municipal Assembly, the Ministry of Health) in educating communities regarding reproductive health (including HIV/AIDS).

HIV/AIDS spending at Geita

In 2004, Geita mine spent some \$80,000 on various HIV/AIDS initiatives, excluding the \$150,000 raised through the Kilimanjaro Challenge. Most of the funding is provided to AMREF which oversees project implementation on behalf of the mine. Included in the projects/initiatives funded are:

- ongoing HIV/STI primary awareness programme
- mineworkers' peer health educator programme
- community peer health educator programme
- distribution of male and female condoms
- information, education and communication materials
- management of the VCT centre
- patient counselling
- focused interventions for high-risk groups, such as the handing out of tokens for free HIV tests at the Geita Town VCT Centre, and
- capacity-building for district hospital staff.

Climbing Kilimanjaro to conquer AIDS

In 2004, Geita Gold mine led the third Geita Kilimanjaro Challenge – a sponsored climb up Africa's highest peak – to demonstrate its commitment to eradicating HIV/AIDS and to generate funds for various AIDS related beneficiaries. The main aims of the Geita Kilimanjaro Challenge are to:

- raise awareness of the HIV/AIDS pandemic in Tanzania through media coverage
- make a significant financial contribution in support of HIV/AIDS initiatives in Tanzania. The Kilimanjaro climb has contributed \$290,000 over the last three years.
- align the challenge with existing government HIV/AIDS initiatives and programmes. The Tanzanian Commission for AIDS (TACAIDS), the national AIDS body in Tanzania, is a proud supporter of Geita Gold Mine's initiative.

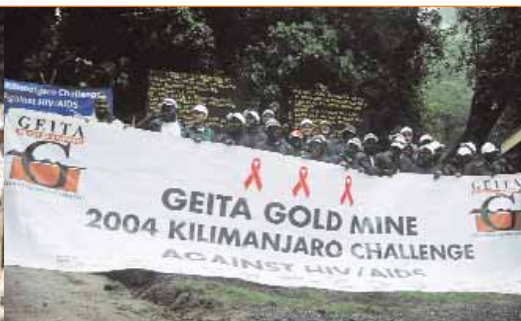
Roll-out of ART advanced at Geita, thanks to intervention

Recently the mine health project collaboration has brought forward the introduction of anti-retroviral therapy (ART) at Geita, after a concern that Geita may be excluded from the national ART roll-out until the 3rd year in 2006. Since the VCT programme has alerted people to their status, Geita was considered by all parties (GGM, AMREF and Geita District) to be a high priority site for ART.

Following a plea by these parties to the Tanzanian Commission for AIDS (TACAIDS), Geita has now been advanced to the first year of national ART roll-out. Provision has been made for 300 patients in the first year in compliance with government treatment regimes and the first patient treatment began in November 2004.

HIV/AIDS awareness and training at Sadiola in Mali

HIV/AIDS awareness campaigns are provided for by the mine, but undertaken by local NGO PSI Mali. Communications media include a mobile video unit on display in Sadiola village as well as extensive awareness campaigns on site using posters and slogans on electronic noticeboards. About 15,000 condoms are distributed by the mine each month and in a recent development 24 peer educators were trained to take the messages into the community.



Malaria programmes

Malaria remains the most significant public health threat for AngloGold Ashanti's operations in **Ghana, Mali, Tanzania and Guinea**. Not only does the disease have a significant impact on the productivity of employees, but also on the functioning of entire communities in these regions.

The group aims to implement integrated malaria control programmes in each of these regions. While good progress has been made at some operations, for example Morila, further work remains necessary at others.

Such an integrated malaria control programme comprises four elements, namely:

- Vector control. Two elements of vector control need to be undertaken:
 - First, there needs to be some degree of understanding of the problem that is being dealt with, thus mosquito identification and insecticide susceptibility tests need to be undertaken.
 - Second, indoor residual house-spraying, house-screening and the provision of insecticide impregnated bed nets (ITNs) is an important component of the programme.
- Disease management. Effective diagnosis and treatment underpin a successful intervention campaign, leading to a limitation of the pool of infected people at any one time.
- Surveillance and monitoring. Ongoing monitoring of both the vectors and parasites (for drug resistance) and the compilation of accurate records and reports are an integral part of the programme.
- Information, education, communication (IEC) and health promotion. Ultimately, some of the burden of the programme falls on the community and the better informed and educated they are about malaria prevention, the more likely it is that such a programme will succeed.

At the Obuasi mine in Ghana the mine hospital was reporting an average 6,000 malaria cases per month (2,000 of whom were employees) at the time of the merger. An average of about 20% of the workforce is believed to be afflicted with malaria at any one time and the average time off work for this condition is between two and three days. If these trends are extrapolated to the broader Obuasi community of 180,000 people, the problem can be seen to be immense.

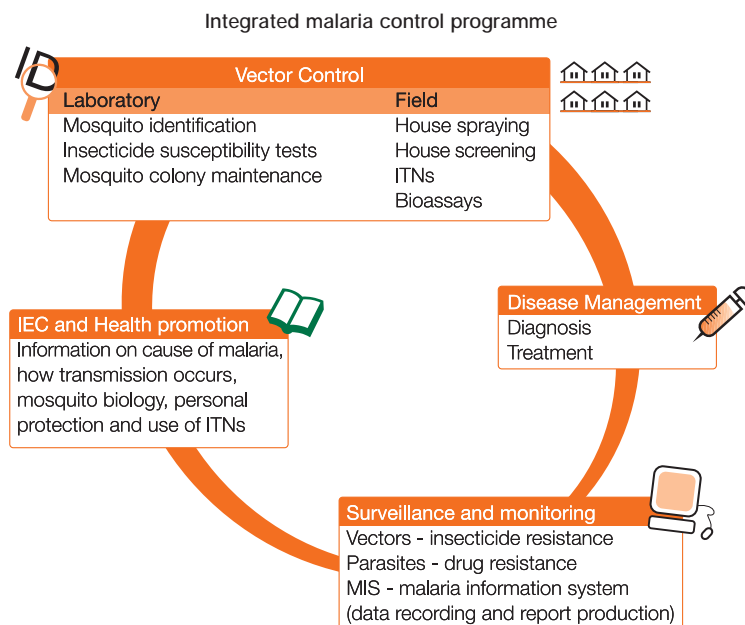
AngloGold Ashanti is embarking on a major malaria control programme at Obuasi and, following on from this, the lessons learnt and experience gained will be used to manage the disease at other operations in Ghana (Iduapriem and Bibiani) and Guinea (Siguiriri).



Malaria – a deadly disease

This life-threatening parasitic disease is transmitted from person-to-person via the female Anopheles mosquito, which requires blood to nurture her eggs. Although this disease was once widespread, it was successfully eliminated from many countries with temperate climates during the mid-20th century. Today, the vast majority of malaria deaths occur in Africa, south of the Sahara.

It is estimated that more than one million deaths result and about 90% of these are in Africa. It is the leading cause of under-five mortality on the continent.



AngloGold Ashanti has committed itself to the implementation of an integrated malaria campaign at Obuasi and, in anticipation of this, Professor Richard Hunt of the National Institute of Communicable Diseases in South Africa, a world authority on insecticide resistance, was contracted to perform a study that would inform the way in which the malaria control programme is structured.

The \$1.6 million proposed programme is set to begin in mid-2005. (See case study: *A scientific approach to malaria control proposed at Obuasi on page HM14*).

At Geita in **Tanzania**, resident mosquito species were identified and insecticide resistance profiling was completed in 2004, in preparation for the development of an integrated malaria programme. (See case study: *Malaria vector survey and insecticide susceptibility assay on mosquito populations at Geita mine in Tanzania on page HM22*.) It is estimated that presently 10% of the workforce is afflicted by malaria every month. More comprehensive, standardised reporting on the incidence of malaria (including contractor incidence) is being implemented.

An integrated malaria control programme, introduced at Morila in **Mali** in 2003, has significantly reduced the incidence of malaria. The current incidence of malaria within the workforce per month is 4.7%, down from 9% three years ago. Ongoing mosquito species identification and research relating to insecticide resistance patterns are planned for 2005.

Malaria remains a significant health cost and cause of absenteeism at the Sadiola and Yatela operations in Mali. The current incidence level within the workforce per month is estimated at 10%.



HM12 | 5 Reporting in line with GRI

Social performance indicators:	
Labour practices and decent work	
Core indicators	Additional indicators
Health and safety	
LA8 Description of policies or programmes (for the workplace and beyond) on HIV/AIDS.	
See discussion on pages HM1 to HM11.	

* Note that the balance of the indicators discussed in this section of GRI are covered in the section on occupational safety and health

6 Scorecard

HIV/AIDS		
Objectives for 2004	Performance in 2004	Objectives for 2005
Ensure that all AngloGold Ashanti operations susceptible to a higher HIV/AIDS risk adhere to best practice and common reporting standards	All operations implementing HIV programmes relevant to their risk in consultation with the company's HIV management team	Ensure that all AngloGold Ashanti operations susceptible to a higher HIV/AIDS risk adhere to best practice and common reporting standards
Renew prevention education efforts to pre-empt treatment complacency, evaluate behaviour change communication methods to ensure they are appropriate and effective, and maintain a ratio of one active peer educator per 100 employees	Objectives not achieved due to: – Lack of funding and support for communication project and its evaluation – Loss of peer education trainer, and delay in appointment of her successor	Reinforce prevention education efforts through more rigorous interaction between business units and HIV management team; increase ratio of peer educators to employees to 1:80
Increase VCT uptake by 200%, increase uptake on wellness programme by 150%, and increase ART enrolment by 100%	Only a fraction of the target was achieved for all three indicators. Attributable to persistent fear of disclosure and perceived stigma, and to stalled peer education programme	Increase numbers of VCT visits by 100% increase wellness clinic patients by 80%; increase patient numbers on ART by 80%
Extend provision of home-based care to more of its ill-health retired employees by expanding existing programmes	Ongoing collaboration with and operational support of home-based care services ensured continued uptake of ill-health retired employees in a palliative support programme	Consolidate the provision of supportive care to the company's ill-health retired employees as well as the communities in which AngloGold Ashanti operates
Pursue HIV sero-prevalence testing linked to a behavioural study, in partnership with recognised trade unions, some of which were reluctant to consent to such a survey in 2003	Based on the stance of NUM such a survey was not possible and is not likely to be conducted within the foreseeable future	

Malaria	
Objectives for 2005	
<ul style="list-style-type: none"> Roll-out of malaria control programme at Obuasi. It is envisaged that the programme developed here would be rolled out elsewhere in the group 	

HM14 | 7.1 A scientific approach to malaria control at Obuasi

AngloGold Ashanti is poised to implement a multi-million dollar malaria control campaign in Ghana, following initial valuable research to understand the nature of the disease in the region.

Says Dr Piet van Wyk, (AngloGold Health service manager: Africa region), "Malaria is the single most important disease to impact on AngloGold Ashanti's operations in East and West Africa. The burden of malaria is reflected in increased morbidity, mortality and absenteeism in the workforce, as well as in decreased productivity and morale. The effect of malaria on surrounding non-mine communities is profound, with children and pregnant women being most severely compromised by this life-threatening parasitic disease."

The situation at Obuasi in the Ashanti region of West Ghana is no different and at the time of the business combination with Ashanti in April 2004, upwards of 6,000 malaria cases per month were being reported by the mine medical service. At any one point in time, 20% of the workforce had malaria and the average time off work for this condition was between two and three days. If these trends are extrapolated to the broader Obuasi community of 150,000 people, the full impact of the epidemic in this region can be appreciated.

As a starting point, the group needed to establish a scientific foundation on which to approach the problem, so a baseline study was initiated to identify resident mosquito vector species and possible insecticide resistance patterns in these populations. Professor Richard Hunt of the National Institute of Communicable Diseases in South Africa, a world authority on insecticide resistance, was contracted to perform the study.

The outcome of the study is now informing the way in which the malaria control programme is being structured: two dominant *Anopheles* mosquito species were identified, namely *funestus* and *gambiae*. Both of these species are effective in transmitting malaria and subsequent laboratory investigations in Johannesburg confirmed significant infection in both vectors with the malaria parasite, *Plasmodium falciparum*.

The insecticide resistance patterns in both species proved to be complex with complete, or partial resistance to three of the standard insecticides endorsed by the World Health Organization (WHO) for use in malaria control. However, both mosquito vectors were found to be susceptible to the organophosphate class of insecticides. Based on this knowledge an integrated malaria control approach was required as none of the recognised malaria control measures used in isolation would be effective in the Obuasi setting.

Says Dr Van Wyk, "Prior to implementing the full control programme, a baseline community parasite prevalence study will be performed by the Noguchi Research Institute in Accra. The baseline parasite prevalence rate will be used in follow-up studies to assess the success of local control initiatives.

"In conjunction with the prevalence study, a community knowledge, attitudes and practices survey will be conducted in Obuasi to inform a programme intended to disseminate information on malaria prevention and treatment as well as to market the the control programme. Periodic surveillance of mosquito species and insecticide resistance patterns will enable us to adapt our programmes in response to changes in any of the baseline parameters. A malaria laboratory will be established at Obuasi for this purpose in addition to maintaining captive mosquito colonies for use in quality assurance bioassays of insecticide efficacy."



"We aim to reduce the number of malaria cases in the community by 50% one year after the implementation of residual house spraying, scheduled to start in September 2005. We also aim to reduce the number of working days lost due to malaria from the current 3,600 per month to less than 1,000 days per month among the 6,500 employees at Obuasi.

"An effective malaria control programme at Obuasi will hold benefits not only for employees in Obuasi, but for society at large. It will have a positive impact on the health status, treatment costs, school attendance and productivity within the community."

Malaria programme at Obuasi

When fully implemented by 2005, the integrated malaria control programme will consist of the following activities:

Vector control

Indoor residual house spraying with an organophosphate insecticide, in the first instance, will form the main thrust of the programme and to be effective, all of the estimated 40,000 houses in Obuasi need to be sprayed. This represents a major logistical challenge. In addition to house spraying, window and door screens need to be installed. The use of insecticide impregnated bednets (ITNs) will be promoted and subsidies to make bednets affordable to the community will be investigated. Environmental control efforts such as focused larvicidal spraying and engineering controls to ensure the reduction of open water bodies in the Obuasi district will augment the residual spraying campaign.

Disease management

Effective treatment protocols, which comply with national guidelines, have been introduced at the AngloGold Ashanti's William Cade Hospital (the local hospital at Obuasi) as chloroquine is no longer an effective drug in the treatment of malaria due to the development of significant drug resistance by the Plasmodium parasite. In addition to ensuring acceptable cure rates for malaria, effective drug treatment will reduce the pool of infected individuals in the community thereby impacting on the transmission cycle of malaria. Stricter criteria for the clinical diagnosis of malaria have been introduced which will improve the quality of case reporting and enable the health service to accurately track malaria incidence trends over time.

Surveillance and monitoring

A malaria information system will measure programme outcomes in the light of established standards and will consist of a database containing information on, for instance, insecticide resistance, larval surveys, bioassays, drug resistance, case detection, house spraying coverage, insecticide usage, bednet distribution and usage, breeding sites, disease outbreak foci, house screening and geographic information systems. The computerised system to be underpinned by field documentation will ensure that all the relevant data is captured at source.

Information, education and communication

Spray teams and medical staff have been trained to provide health information to the general population on aspects of malaria prevention, diagnosis and treatment.

This will be augmented by the provision of educational material such as pamphlets, posters and videos on malaria. Personal protective measures against malaria will also be promoted.

HM16 | 7.2 Success reported with ART implementation, although uptake still slow

In April 2003, following a six-month pilot study, AngloGold Ashanti introduced its anti-retroviral therapy (ART) programme for those South African based employees infected with the HI virus and for whom ART was clinically indicated. (See Report to Society 2003.) This also followed extensive consultation and an eight-month implementation project to develop an understanding of and to find solutions to the challenges inherent in the provision of ART in the mining industry, particularly around supporting patient adherence to the drug regimen.

The delivery of ART is overseen by AngloGold Health Service, a subsidiary of AngloGold Ashanti. To date, uptake among employees has been slow. On the positive side the company has seen good progress among those employees who have taken up the treatment, says Dr Petra Kruger, formerly HIV/AIDS manager at AngloGold Ashanti and now a consultant to the company.

ART becomes medically indicated when a patient's CD4 count falls below 250 or if he or she has suffered an AIDS-defining illness. It is estimated that 20%, or about 2,400 of AngloGold Ashanti's South African-based HIV-infected employees (about 12,000 people), meet these medical eligibility criteria. Yet only 606 individuals are currently part of this programme.

In total 930 employees have been offered ART. Of these, 86% started the treatment; 10% declined to participate; in the case of 4%, a decision was taken along with their doctors not to embark on the treatment. In cases where the doctor was responsible for delaying the start of treatment it was because the patient was acutely ill and needed to recover before ART could be reconsidered. In a few cases it would have been because the patient was not, in the doctor's opinion, psychologically ready and would need more intensive counselling or even rehabilitation for substance abuse.

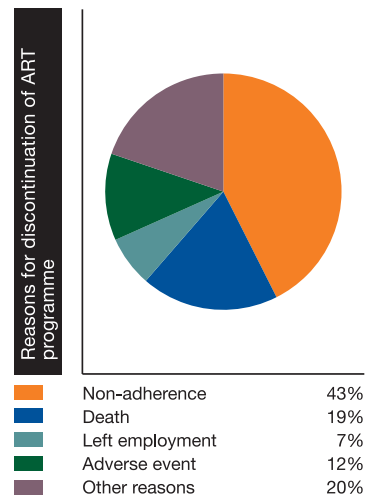
Of the 781 patients who started the treatment, 175 had dropped out for reasons ranging from non-adherence (43%), death (19%), adverse events (12%), leaving employment (7%) and other reasons (20%).

Of concern is the fact that the majority of employees (more than 70%) do not know their own HIV status because they choose not to be tested. The number of employees who chose to participate in the Voluntary Counselling and Testing (VCT) programme has been maintained year on year, at 3,264 people in 2003, and 4,071 in 2004. The reasons for this are varied, but are largely believed to be associated with the stigma of the disease and the resulting fear of discrimination. Other reasons cited are:

- concerns that clinic visits would mean lost shifts, affecting production bonuses;
- a lack of knowledge of ART and concern about its side-effects;
- the fact that some individuals are still feeling well and do not have any AIDS-related symptoms;
- insufficient evidence of individuals on ART who are visibly well or recovering, and who are willing to disclose their status and treatment; and
- concerns about their families and their well-being.

On the whole, patients who are on treatment return to work and show clinical improvement as evidenced by recovering CD4 counts and diminishing viral loads.

Says Dr Kruger, "We have fared well, particularly when looking at adherence rates, improvements in biological markers and return to work when on treatment. We can attribute this to very good counselling and education, a lesson that we can learn from and apply across the entire spectrum of chronic disease."



HIV/AIDS AND MALARIA

Case studies - South Africa - HIV/AIDS

HM17

Reasons for not entering treatment

Reason	No of people	%
Afraid of breach of confidentiality	1	1
Fear of stigma	4	4
Afraid of side-effects of drugs	5	5
Not willing to have blood taken	4	4
Not willing to accept HIV status	18	19
Not convinced of benefits of taking treatment	15	16
Other/no reason	47	49

What is ART and how is it delivered?

Anti-retrovirals are drugs that act against viruses such as HIV and are used in anti-retroviral therapy (ART), a programme of treatment. Highly active anti-retroviral therapy (HAART) refers to a cocktail of three or more drugs, which in combination are strong enough to reduce viral loads to very low levels.

When an individual contracts HIV, the HI virus enters the cells of the body's immune (or defence) system where it multiplies before killing those cells and moving on to infect other cells. The most important cell that the virus enters is known as the CD4 cell.

As the virus destroys increasing numbers of CD4 cells, the individual reaches a point where his or her defence systems are no longer capable of withstanding attack from other diseases. At this point he or she becomes susceptible to certain infections and cancers against which the immune system would ordinarily have guarded the body – in other words, the HIV-infected person becomes AIDS-ill. These opportunistic illnesses – including TB – become more frequent and more severe and, in most cases, eventually lead to death.

ART works by stopping the virus from entering or multiplying itself in the immune cells of the body. Many people with HIV who have taken these drugs have been able to lead longer, healthier lives. While these drugs cannot cure HIV, they do interrupt the progression of the disease allowing employees to remain productive and to enjoy a vastly improved quality of life.

Eligible employees are invited to participate in the ART programme. They are given detailed information about the programme and the nature of the treatment, including the possible side-effects, the patient's own obligations while receiving the medication and the extent of the company's commitment. Each person is then given two weeks to consider his or her participation.



HIV/AIDS AND MALARIA

Case studies - South Africa - HIV/AIDS

HM18 | 7.3 Wellness Clinic at West Vaal Hospital

When Joseph Mohlakoana was asked if he would like to work with people living with HIV/AIDS, he had no hesitation. At the time he was working as a professional nurse in the casualty department of AngloGold Health Service's West Vaal Hospital at West Wits. He was delighted at the challenge of setting up AngloGold Ashanti's first Wellness Clinic from scratch. He also felt strongly that HIV/AIDS was not being accorded the priority it deserved.

Starting out initially as a wellness programme in October 2000, under the auspices of Aurum Health Research in the Free State, the centre evolved into the Wellness Clinic a year later. Looking to Aurum for guidance on how to run a clinic, Mohlakoana started off with five counsellors, two professional nurses (including himself), one medical officer, one enrolled nurse and a data capturer. Today, Mohlakoana is in the position of unit manager, overseeing a staff of 24 which includes nine professional nurses and an equal number of counsellors.

As his staff complement grew, so have his "clients", as Mohlakoana respectfully refers to HIV/AIDS people attending the clinic. In the early days, about 30 to 40 clients trickled through the clinic monthly; now there are up to 400 visits a month, comprising first-time appointments and follow-ups. All AngloGold Ashanti employees are eligible for treatment – also their spouses and dependents, provided they are on a medical aid.

The clinic offers HIV/AIDS awareness and education, voluntary counselling and testing (VCT) and preventative treatment for TB. Anti-retroviral therapy (ART), which controls the viral load and supports the body's defence mechanism against opportunistic illnesses, was introduced in 2002.

What Mohlakoana enjoys most about his involvement in the clinic is his interaction with clients at a personal level. He knows two-thirds by name – important, he says, in breaking down barriers and destigmatising the disease. Although there have been inroads in removing the stigma, Mohlakoana is disappointed that it has not gone as far as he expected, and he still has to deal with cases of discrimination from clients' peers and management. He goes as far as to say that attitudes are "sometimes appalling" with clients labelled as malingerers and sometimes reprimanded when they are absent due to treatment – ironic, he adds, since those critics belong to a company that is not only at the forefront of HIV/AIDS programmes, but is also 'committed to creating workplaces free of harassment and unfair discrimination'. In an attempt to change attitudes, Mohlakoana holds awareness days to dispel some of the myths around the disease. "I use a very different approach," he says, which includes speaking in the vernacular and making use of analogies relevant to the culture of the audience. He also makes a point of greeting clients each morning when they arrive at the clinic by bus, using the opportunity to give an informal talk on general health issues, not just HIV/AIDS.

Mohlakoana's down-to-earth approach rubs off on his colleagues, in whom he tries to instill his attitude of caring and compassion. Some of his counsellors already have those qualities, living as they do with HIV/AIDS. "Those are the types of counsellors you would wish for," enthuses Mohlakoana, without a hint of irony, because they understand and have empathy for clients. They are also proof that HIV/AIDS is not a death sentence and that people living with the disease can regain much of their health; even clients who arrive in a wheelchair are often able to return to work after treatment.

The centre has become a prototype for wellness clinics at other AngloGold Ashanti operations and, if Mohlakoana's vision for the future is realised, they should succeed in reducing the company's disease/ill health burden significantly in the years to come.



7.4 Living with HIV/AIDS – an employee’s story

Johanna Moleko knew that something was amiss when she started experiencing bad bouts of dizziness, leaving her unable to stand for more than five minutes at a time.

Putting her symptoms down to low blood pressure, she consulted her doctor who booked her into hospital for three days. But when her symptoms persisted, and she became aware of significant weight loss, her suspicions were aroused.

She had been for HIV/AIDS voluntary counselling and testing (VCT) in October 2002 at AngloGold Health Service’s (AHS) West Wits Wellness Clinic at Western Deep Levels Hospital, where the results were negative. But she wasn’t convinced. “I have a feeling that I’m HIV positive,” thought Moleko who went for a follow-up test in December 2002. Her fears were confirmed when a counsellor gave her the diagnosis. However, as a nurse working in the tuberculosis (TB) ward at the hospital, Moleko knew about HIV and AIDS and took the news more calmly than others might have.



On first meeting Moleko, one is immediately struck by her calm nature. She’s a deeply religious person who attributes her faith to pulling her through the worst crisis in her life. So instead of feeling sorry for herself and looking to apportion blame, she accepted her fate almost immediately. But not before making a pact with the virus, which she has personalised by naming it ‘House in Vereeniging’ – an acronym for HIV. “Let’s live together as friends,” she appealed to it. “You know I can’t kill you so I am accepting you.”

She decided to attend the West Wits Wellness Clinic on a regular basis, revealing her condition to a close family member and to a trusted friend, as well as to her Supervisor and to the Assistant Matron of the ward. Since TB is an opportunistic infection for people living with HIV/AIDS, Moleko was moved from the TB Ward, where she’d worked for 10 years, to the out-patients department. When her CD4 count dropped to 187 from 500 and her viral load increased to 1,986, she decided to undertake anti-retroviral therapy (ART) in April 2004. But not before finally sharing her condition with her children – a daughter of 21 and a son of 19. The thought of telling them had haunted her since she first received the diagnosis and it was a huge relief once they knew.

Since then, Moleko has publicly declared her status to colleagues on Aids Awareness Day, on 1 December 2004. Her reasoning is simple, “If we can be open, join hands and fight, there won’t be a stigma.” Moleko is one of a few employees at AngloGold Ashanti and AHS, who, by being outspoken about their status, are hoping to help destigmatise the disease and encourage acceptance by both HIV positive and negative people. As a role model, she continues to speak out.

She engages in informal counselling and has attended a peer educator course in line with best practice that favours ‘lifetime experience’ over ‘theoretical experience’ – i.e. those living with or affected by HIV/AIDS are best equipped to interact with others at an educational and emotional level. It is also reassuring that the diminutive Moleko, despite her condition, is healthy and sprightly – due to a combination of medication and attitude. She copes with a regular 07:00 to 15:30 nursing shift and, indeed, appears so normal that some question whether she really is HIV positive! After three months of ART her CD4 count picked up to 218 and her viral load dropped to below 50. “Accept the virus and live positively,” is her advice, along with “Be open to talk. Don’t be afraid even though it is painful.”

Moleko has now proposed setting up a support group for those infected and affected by HIV/AIDS which has the backing of both management and unions.



HIV/AIDS AND MALARIA

Case studies - South Africa - HIV/AIDS

HM20 | 7.5 Peer education at AngloGold Ashanti in 2004

As significant employers of largely unskilled employees, South Africa mining companies have found themselves at the forefront of programmes aimed at HIV/AIDS education and awareness.

Peer education was introduced in 2000 as a way of changing behaviour patterns to ensure safer sexual practices among employees and external groups (families and communities), through either formal or informal interaction with an educator they could feel comfortable with – for example, someone with whom they socialise, play sport, or share a room. It was felt that the peer educator approach would remove any feelings of imposition by management, and that employees were more likely to engage with educators from a similar lifestyle in a non-threatening environment. Buti Kulwane, assistant manager HIV/AIDS at AngloGold Health Service has been involved with peer education since the early 1990s, when it was really the only form of education – and informal at that.

“Over the years, however, companies recognised its effectiveness as a teaching tool and the mining industry, in particular, decided to include it as part of its formal education and awareness programmes, linked to government’s five-year HIV/AIDS strategic plan. As a result AngloGold Ashanti trained its first peer educators in 2001.”

Peer educators are trained in a variety of skills including presentation techniques; participatory facilitation; sexually transmitted infections (STIs), gender issues and TB; and how the immune system works (e.g. understanding the viral load and CD4 count). Education sessions are held either formally in weekly group meetings with employees or informally on a daily basis with individuals. Peer education also takes place as part of induction training (when employees return from leave and are reacquainted with mine safety procedures) or is promoted at quarterly business unit awareness campaigns.

Up until last year peer educators were trained by AngloGold Ashanti’s in-house peer educator trainer; 351 peer educators were trained between 2001 and 2003. However, during 2004 AngloGold Ashanti’s in-house trainer left the health service with the result that only 14 peer educators were trained in 2004. The company has now decided to engage the services of an external South African Qualifications Authority (SAQA) accredited training vendor, and courses were scheduled to commence at the end of March 2005. As training is to become an external function, individual mines will now be responsible for the logistics of peer educator training and payment thereof.

Two regional co-coordinators were appointed at the end of 2004 to ensure effective peer education through monitoring, mentoring and motivating, the key pillars of peer education sustainability. The training vendor will also be responsible for skills and knowledge transfer in these three spheres. Key performance areas in the newly established regional co-ordinator positions are training provision; leadership and control; and liaison and communication.

Philip Alexander, Savuka’s senior human resources officer, has been involved with his mine’s peer education programme for the last three years. Savuka is unique in that it has an HIV/AIDS information centre as well as a full-time peer educator, Jutas Rikhotso, a former driller underground. Rikhotso was inspired to become a part-time peer educator in 1999 because he wanted to know more about HIV/AIDS and to tell others about it, after realising that people generally weren’t educated about the disease. He assumed the role of full-time peer educator in 2003 and now conducts training sessions for employees at Savuka’s training centre. Since employees’ partners are also an important target group in changing sexual behaviour patterns, Rikhotso also educates groups of wives, girlfriends and sex workers at the visiting wives’ centre, accompanied by a female VCT counsellor.

Savuka also has 27 part-time peer educators but aims to have 37 by the end of 2005; this will reduce the ratio to one peer educator for 80 people. (Guidelines vary from 1:20 up to 1:100.) According to Alexander, incentives are important in motivating peer educators and encouraging on-going peer education commitment. Savuka awards peer educators with certificates of PE competence, and distributes AIDS-related goods (e.g. HIV/AIDS-awareness T-shirts) to identify peer educators, and educational resources (e.g. HIV/AIDS toolkits) to assist in education sessions; the mine also holds an annual function which recognises ‘Best peer educator of the year’.

The success of AngloGold Ashanti’s overall peer educator programme is currently difficult to gauge, since proper monitoring mechanisms are not yet in place. However, as from 2005 peer educators will be obliged to submit monthly progress reports to their respective regional co-ordinator, in an effort to establish the effectiveness of peer education.



7.6 Geita gold mine and AMREF: Working together to address HIV/AIDS

The success of the HIV/STI programme at Geita gold mine in Tanzania is due in large part to the collaboration between Geita and African Medical and Research Foundation (AMREF) and the government of Tanzania. AMREF brings to the partnership a track record in the field of HIV research and HIV/STI programme implementation, specifically in Tanzania (see box); Geita contributed financially and in kind and is committed to ongoing HIV/AIDS prevention and control; and the state has contributed in its support for the programmes implemented and in the roll-out of anti-retroviral therapy (ART) in the region (see box).

Says Dr Gerald Baldrey, at Geita, "The Lake Victoria zone of Tanzania has a relatively high prevalence rate of HIV and sexually transmitted infections (STIs). Situated about 20 kilometres from Lake Victoria, Geita gold mine falls into this high-risk area. Aware of the pre-existing high HIV/STI incidence in the area and committed to fighting both, Geita joined forces with AMREF to establish HIV/STI programmes in the area a year after the mine was constructed in 2000. Geita provides funding to the AMREF mine health project, with support from Stanley Mining Services, African Mining Services, DTP Terrassement and other contractors.

To establish baseline health data in the Geita mining community, in January 2001 an initial health survey was conducted by AMREF in and around the mine, including Geita town where the incidence of HIV is known to be high. The findings emphasised the urgent need for a comprehensive community health programme focusing on HIV/STI prevention, as well as malaria and tuberculosis (TB) prevention. As a result the AMREF Mine Health Project (MHP) started at Geita in July 2001. The project, aimed at mineworkers, female bar/guest house workers, and the communities surrounding the mines targets the mine site, the community and district health facilities. Key objectives of the programme have been to:

- promote healthy behaviour with respect to HIV, STIs and malaria among the mine workforce through awareness workshops and the peer health educator (PHE) scheme;
- facilitate community participation in the prevention of HIV, STI, TB and malaria transmission as well as care of those already infected through training and supporting community health educators (CHE);
- implement focused interventions targeting female bar/guest house workers by promoting safe sex and treating STIs;
- manage a sustainable voluntary counselling and testing (VCT) service for mineworkers, their families and the community;
- support district health facilities in the provision of services; and
- measure the impact, and assess the effectiveness of this intervention.

In 2002, with funds provided by Geita, AMREF opened the HIV information centre at the former Geita bus station. The Geita HIV information centre, offering sexual and reproductive health services, and VCT, is one of the first stand-alone VCT centres in Tanzania. In 2004 some 5,185 clients presented at the centre, of whom 2,128 requested HIV testing and 1,889 were treated for STIs. The VCT centre, with six full-time staff, three part-time staff and volunteer staff, works in partnership with the Geita district municipality.

A progress survey was conducted in 2004 to determine changes in the prevalence of HIV, STI and malaria and in high-risk behaviour patterns, since the baseline survey of 2001. Results showed an improvement in sexual health knowledge among mineworkers and community members. Condom use had increased and HIV prevalence had not risen significantly. HIV prevalence amongst both female community members and bar/guest house workers had decreased, though not significantly. STI incidence had decreased as had the number of men and women paying for sex.

Roll-out of ART advanced at Geita, thanks to intervention

Recently the MHP collaboration has brought forward the introduction of anti-retroviral therapy (ART) at Geita, after a concern that Geita may be excluded from the national ART roll-out until the 3rd year in 2006. Since the VCT programme has alerted people to their status, Geita was considered by all parties (GGM, AMREF and Geita District) to be a high priority site for ART.

Following a plea by these parties to the Tanzanian Commission for AIDS (TACAIDS), Geita has now been advanced to the first year of national ART roll-out. Provision has been made for 300 patients in the first year in compliance with government treatment regimes and the first patient treatment began in November 2004.



History of project

In 1989 the African Medical and Research Foundation (AMREF), the London School of Hygiene and Tropical Medicine and the Tanzania National Institute for Medical Research collaborated on the development and evaluation of interventions for HIV and STI prevention in the Lake Victoria zone. The AMREF mine health project was established in 2000 to minimise the potential health risks posed to new mine recruits and members of the surrounding communities.

Putting the project in context: facts about Geita and HIV/AIDS

Geita town has an estimated population of 120,000 people. Geita gold mine was – until the merger of the two companies in April 2004 – jointly managed by AngloGold and Ashanti Goldfields Company.

Construction began at Geita in 1999 and production in 2000, so this is a relatively new operation. Open-pit mining is conducted with 648 employees (594 local and 54 expatriate) and 1,390 contractor employees.

AMREF completed a baseline STI/HIV/AIDS survey in Geita town and on the mine in January 2001. The survey confirmed a pre-existing local HIV epidemic, and specifically that:

- 16% of men and 18% of women in the local community were HIV positive; and
- 42% of local commercial sex workers were HIV positive.

Geita collaborated with and contracted AMREF to run various components of its HIV programme for three years (2001 – 2004). A notable feature of this programme is that the mine-based interventions are integrated with parallel interventions in the community, which are partially sponsored by the mine. The programme is continuing.

HM22 | 7.7 Malaria vector survey and insecticide susceptibility assay on mosquito populations at Geita mine in Tanzania

AngloGold Health Service engaged Professor Richard Hunt, South African National Institute of Medical Research, an acknowledged expert on the subject, to conduct a malaria vector survey and insecticide susceptibility assay on mosquito populations at the mine. This is in anticipation of an integrated malaria control programme being developed and implemented in the near future. The research was undertaken in late October/early November 2004.

According to Prof. Hunt, "The survey carried out was designed to answer two questions that form the starting point of any malaria vector control programme, namely, which species of the Anopheles mosquito are transmitting malaria in the area, and what is their response to insecticides approved for malaria control."

Species identification and parasite infectivity

Species identification was carried out using DNA analysis protocols that are designed to separate the individual species. Samples of mosquitoes were subjected to biochemical analysis to determine whether they contained the parasites in or near to the salivary glands and therefore were potential transmitters.

Insecticide resistance tests

Five different insecticides were tested: The results indicated a low level of DDT resistance in the Geita funestus population, but both species groups showed full susceptibility to the pyrethroids, carbamates and organophosphates.

The main findings of the research reported by Prof. Hunt was that the three major mosquito vectors are all present at Geita mine, and that the parasite infectivity rate in the three species is in line with historical records for these species in East and southern Africa, that is funestus is the major vector with 6.7% infectivity, gambiae the next best with 3.03% and arabiensis apparently playing no role in malaria transmission at Geita. He notes, however, that these figures will change when sampling is done at different times of the year because the density of the different mosquito populations is dependent on seasonal fluctuations. So, for example, during the drier months, arabiensis will be more predominant and may have a higher infectivity rate than gambiae. This needs to be confirmed by additional mosquito sampling.

Prof Hunt concludes that a malaria control programme is effective only if the vectors are controlled in addition to accurate diagnosis and treatment of the disease in humans. In addition, he notes that:

- The vector control operations must be targeted at those mosquitoes that are transmitting the parasites, in this case funestus and gambiae. These species are both highly anthropophilic (which means that they prefer feeding on humans) and prefer feeding and resting inside houses. This makes them amenable to control through indoor residual house spraying and through the use of insecticide treated bed nets if the community is willing to participate.
- Insecticide susceptibility tests indicate 100% mortality to the pyrethroid Deltamethrin and so the use of this insecticide is recommended for both house spraying and treated nets. Pyrethroids are recommended by the World Health Organization (WHO) because of their low mammalian toxicity and low impact on the environment. Screening of doors and windows of houses should be encouraged and these can be impregnated or treated with insecticides to make them more efficient.
- Larviciding and environmental management should be practised where appropriate, but these operations need to be carefully planned as they are expensive and not as effective on a broad scale as house spraying or treated bed nets.
- Implementation of the control programme needs to be accompanied by the collection of baseline information on malaria cases as this will be used as an indicator of success of the programme.



Species	No. identified	% parasite positive
funestus	151	6.7 (4/60)
gambiae	34	3.03 (1/33)
arabiensis	39	0 (0/38)

Mortality of funestus and gambiae groups exposed to various insecticides used in malaria control

Insecticide	Species group	Number tested	% Mortality
DDT	An. funestus	110	90.9
	An. gambiae	61	100
Deltamethrin	An. funestus	115	100
	An. gambiae	55	100
Bendiocarb	An. funestus	88	98.9
	An. gambiae	40	100
Fenitrothion	An. funestus	99	100
	An. gambiae	26	100
Dieldrin	An. funestus	48	100
	An. gambiae	64	90
Controls	An. funestus	73	98.6