WORLD GOLD COUNCIL

SAFEGUARDING WORKPLACE AND COMMUNITY HEALTH

How gold mining companies are fighting HIV/AIDS, tuberculosis and malaria

Author: Maureen Upton

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gold

About the author

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Section 1
Introduction

It is difficult to overstate the global threat of HIV/AIDS, tuberculosis (TB) and malaria. Every second, someone in the world becomes newly infected with TB, and the disease claims 1.7 million lives annually. Every day, 7,000 people become infected with HIV, and more die of AIDS each day than died in the September 11, 2001 attacks on New York and Washington. More than three billion people are at risk from malaria, with 94 million currently ill with the disease, and 440 dying daily – 85% of them children.

The purpose of this report, *Safeguarding workplace and community health: How gold mining companies are fighting HIV/AIDS, Tuberculosis and Malaria*, is to take the groundbreaking work of the International Council on Mining and Metals, *Good Practice Guidance on HIV/AIDS, Tuberculosis and Malaria,* published in June 2008, and investigate its application in the global gold mining industry. The companies profiled represent the world's four largest producers of gold. As a result, they have both the greatest impact on, and opportunity to address, the management of these major disease threats within the industry. These companies share a common commitment with all World Gold Council members to the principles of the International Council on Mining and Metals (ICMM), including its Sustainable Development Framework. The 20th World AIDS Day represents the most appropriate publication date for the report.

These three diseases are particularly challenging for the gold mining industry. Gold mining operations frequently take place in regions which are among the hardest-hit by these diseases, such as the countries profiled in this report: Ghana, Tanzania, South Africa and Indonesia. In these locations, gold producers can face soaring costs of employee healthcare and training, as well as elevated rates of absenteeism, against a backdrop of a lower quality of life in surrounding communities. Also, mining operations themselves can have the unintended consequence of exacerbating the spread of disease due to a number of social, environmental and industrial factors.

Major gold producers operating in high-risk areas are responding to the disease threats with targeted on-the-ground programs. Some of these have become models for disease prevention, such as AngloGold Ashanti's malaria control program in Ghana, which is being rolled out to additional sites within Ghana and elsewhere in Africa.

Despite the billions of public sector dollars spent each year on combating the diseases, there are cases where national responses do not match national needs – for example, where the majority of funding goes toward treatment in a country where low disease prevalence means money would be better spent on prevention. Major gold producers have avoided such mistakes through baseline studies into the needs and conditions prevailing in their areas of operation and designing specific programs accordingly, with ongoing monitoring and community input.

The challenges faced by the companies profiled are formidable, as they operate in countries with world-class disease epidemics and prevailing social and environmental factors that complicate attempts to halt the spread of disease. An estimated 30% of all gold mining employees in South Africa are HIV-positive. More than 30% of all Ghanaians are sick with malaria, and Indonesia has now moved up to third place in Asia's HIV epidemic.

However, the scourge of HIV/AIDS is by no means limited to developing countries. In the United States, the Centers for Disease Control and Prevention found in September 2008 that the disease is spreading 40% more quickly than previously thought, with over 56,000 new infections in 2006. African-Americans, who make up 12% of the population, account for more than 45% of new infections. In New York City, the disease is spreading three times faster than the national rate.

Just as poor public health impedes the economic development of nations, so threats to public health damage companies' performance. At the policymaking level, the WHO's Commission on Macroeconomics and Health claims that leaders reap the most benefits from scarce resources when they invest concurrently in economic development and health. Other public health experts consider public health

to be an essential metric of economic development rather than a separate field. The International Finance Corporation's (IFC's) Performance Standard 4 on Community Health, Safety and Security addresses the need to manage each project's health impacts on surrounding communities, a responsibility embraced by major gold producers.

International organizations such as the ICMM and the IFC have conducted groundbreaking work on collecting and developing a set of best practices to help mining companies deal with employee and community health, particularly around HIV/AIDS, TB and malaria. These practices – adapted appropriately to the unique challenges of each location – are in place at each of the major gold producer sites studied in Ghana, South Africa, Tanzania and Indonesia. In Ghana, community outreach and education plays an essential role in dispelling longstanding myths, such as that witchcraft causes malaria. In South Africa, extremely high prevalence rates for both HIV and TB, exacerbated by a steady influx of migrant workers, complicate the planning and delivery of employee healthcare. Tanzania has only one doctor for every 25,000 people, making building healthcare capacity an urgent need. Raising awareness of HIV is complicated in the predominantly Muslim community of Indonesia's West Sumbawa province, where open discussion of sexual practices is normally frowned upon. Furthermore, condom distribution is hampered in the local community since local authorities conduct sweeps of prostitutions centers, arresting women with condoms in their possession and putting them in "rehabilitation" centers.

Despite such challenges, gold miners have achieved great successes in some areas, while continuing to struggle with disease threats in others. However, the successes do not mean that the associated programs are scaled back; sustainable improvements to employee and community health require sustained efforts. Due to the finite life of any mining operation, the legacy of an effective, community-owned and locally-driven healthcare system is precisely what the gold companies are attempting to leave behind.

Scope of report

This report studies the efforts by major gold producing companies to combat key infectious diseases which are among the greatest challenges to the future development and quality of life in regions where they operate. The companies studied are AngloGold Ashanti, Barrick Gold Corporation, Gold Fields Limited and Newmont Mining Corporation, and the diseases surveyed are HIV/AIDS, TB and malaria. The scale and importance of the problem is illustrated by examining the various disease threats in terms of global, national and regional prevalence and trend data from international public health institutions and governments, as well as expenditures on disease programs from international and domestic sources.

The operations surveyed are located in South Africa, Tanzania, Ghana and Indonesia, although the companies conduct significant disease prevention programs in additional countries as well. The report discusses

Courtesy of Newmont Mining Corporation

Mustamir AK, Head of Ai Kangkung Village near Newmont's Batu Hijau operation.

"In the past, we had to leave our shovels in the graveyard, because too many people died. Malaria was known as the 'satanic' disease, because it had taken many lives. People died every single day. Now, malaria has practically been eradicated by the integrated and sustainable control program conducted by Newmont and International SOS."

Mr. Mustamir AK, 53 years old; Head of Ai Kangkung Village.

"At first I thought malaria was caused by witchcraft, but with the advent of the program, and listening to the people who talked to us, I'm now convinced that it is caused by the female mosquito. I'm now sure to clean my surroundings and gutters regularly. My family and friends sleep soundly and do not go to the doctor with malaria like we used to."

Miss Vida Boakye of New Estate, Obuasi, near AngloGold Ashanti's Ghana operations.

the unique factors affecting each site and region, and international best practices in combating the diseases as outlined by the ICMM are considered. The role of partnerships in successful health strategy and administration is explored, including those with non-governmental organizations (NGOs), national and local governments, and multilateral institutions. The report assesses the programs' results against several indicators, including uptake of counseling and testing services, employee and public outreach, changes in prevalence rates, and time lost due to illness. The potential of mining operations themselves to exacerbate the spread of infectious disease is addressed, as is the avoidance of common pitfalls in international aid efforts. The report concludes with a look at future goals and aspirations of the organizations surveyed.

While the best practices for mining companies in dealing with this triple disease threat serve as a foundation and reference point to the company programs studied, this report is not a checklist which attempts to map each best practice to corresponding company programs. Every community has its own unique public health factors, just as each individual's health is unique. Against this background, the companies in the report are combating disease in accordance with best practices, as appropriate for the specific location and socio-environmental conditions.

Acknowledgements
World Gold Council member companies AngloGold Ashanti, Barrick Gold Corporation, Gold Fields Limited, and Newmont Mining Corporation contributed extensively to the report, both in the form of written materials and through interviews with staff onsite, at headquarters and in regional offices.
In addition, individuals from partner organizations generously made time for interviews: Alanna Rondi of AMREF Canada, Dr. Soebchan Rahim of International SOS in Indonesia, Sabine Durier of the IFC (IFC Against AIDS program) in Washington and her Johannesburg-based colleagues Noleen Dube and Tish Enslin. A full list of sources used for the report is shown in the References section, and includes significant reliance on the ICMM's recent *Good Practice Guidance on HIV/AIDS, Tuberculosis and Malaria,* as well as data from the World Health Organization and UNAIDS, the Joint United Nations Programme on HIV/AIDS.

The role of gold itself in the battle against infectious disease:
Using gold science in the fight against HIV

Gold, in both metallic and chemical form, has a long medical history as a therapeutic agent. Used for over 100 years in the treatment of arthritis, research laboratories are now investigating whether gold can be used in the fight against HIV/AIDS.

Researchers from AuTEK Biomed, a South African public-private partnership based at Science council Mintek, are investigating new ways of combating the HIV pandemic by creating a gold-based antiretroviral drug. This program involves using rational drug design principles to synthesize novel gold-based candidates for use against the virus. These candidates then undergo biological screening for potential anti-HIV activity to identify compounds for further evaluation and development. While still in its early stages, this African-based research may one day have a practical impact in the region.

Another research group, based at North Carolina State University and the University of Colorado, USA, has shown that gold nanoparticles have real potential in the fight against HIV-AIDS. The researchers have taken a previously promising anti-HIV compound called TAK-779, which was first proposed in 1996. TAK-779 proved effective at preventing the virus from infiltrating the body's immune system, but had to be abandoned because it contained ammonium salt molecules that triggered undesirable side effects.

This year the researchers reported in the *Journal of the American Chemical Society* that gold nanoparticles may provide a benign replacement performing the same function as the ammonium salt molecules. Research is continuing to assess whether HIV's ability to mutate will block the progress of this research.

Dr. Richard Holliday, Head, Industrial Sector, World Gold Council.

Section 2
Disease threats

A global challenge

In its annual *International Health Report*, the WHO studies issues that "threaten the collective health of people internationally" such as infectious disease epidemics, pandemics and other acute health events. Taken together, HIV/AIDS, TB and malaria present perhaps the most formidable threat to our collective health on a global scale.

HIV

The global HIV epidemic has stabilized, although at a high level, after more than a decade of alarming growth, with an estimated 33 million people currently living with HIV – more than two-thirds of them in Sub-Saharan Africa. A likely 2.5 million people became infected with HIV in 2007, equivalent to about 7,000 people every day. An estimated 2.1 million people died from AIDS during the year. This means far more people die every day from AIDS than died in the September 11, 2001 attacks on New York and Washington.

Tuberculosis

Tuberculosis is a major cause of illness and death on a global level – someone in the world is newly infected with TB every second. Nevertheless the disease has declined noticeably in recent years, and if this trend is sustained then Millennium Development Goal 6, to have halted and begun to reverse the incidence of TB, will be achieved well ahead of the targeted 2015. Nevertheless, its lethality rivals that of malaria, with some 9.2 million new cases and 1.7 million deaths from TB in 2006. TB's strong links with HIV are demonstrated by the fact that TB is the leading cause of death for people with AIDS.

Malaria

Far less publicized but of much greater scope than HIV is the global threat posed by malaria. Some 40% of the world population is at risk from malaria. Each year, 500 million people become severely ill with malaria, and more than one million die from it. The WHO points out that a child dies of malaria every 30 seconds. In 2006 91% of malaria deaths were in Africa and 85% of them were children. Alongside this astronomical human cost, the disease has a highly detrimental economic impact. In some of the most-affected countries malaria can account for up to 40% of public health expenditures, 30% to 50% of inpatient admissions and 60% of outpatient visits.

National crises

HIV/AIDS has been a somewhat less severe problem in **Ghana**, with a relatively low national prevalence of 2.6%. However, Ghana is one of the WHO's 30 high-burden countries for malaria, with 7.2 million of its 23 million population sick with the disease in 2006. The epidemic has shown no signs of abating since 2001, with a steady level of cases and an increase in deaths each year since 2004, reaching 4,622 fatalities in 2007. In 2007, TB cases reported were 57 out of 100,000.

South Africa is home to the world's largest HIV epidemic, as its overall prevalence of 18.8% corresponds to 5.7 million people living with the virus in 2007. The nation also leads the world in HIV-positive TB cases and is fourth in the world (behind India, China and Indonesia) for the absolute number of TB cases, at 454,000 – some 44% of which are HIV-positive. Malaria saw 32,530 cases and 146 deaths in 2006.

In **Tanzania**, malaria ranks as the nation's leading illness and killer, with 16 million cases and 100,000 deaths each year, mostly of children under five and pregnant women. Malaria, with 20-30% of all deaths, is the

William Mbatha: a blind man saving lives at the Tau Tona Mine

By Buti Kulwane, AngloGold Ashanti HIV/AIDS Workplace Manager

Courtesy of AngloGold Ashanti

William Mbatha, Assistant HR Officer, Tau Tona Mine, AngloGold Ashanti.

William Mbatha is originally from Piet Retief in the province of Mpumalanga in South Africa. He joined AngloGold Ashanti in July 2001, and serves as Assistant Human Resources Officer at the Tau Tona Mine. His interest in HIV prevention developed between 2002 and 2003 when the HIV/AIDS Coordinator of Tau Tona informally trained him to conduct induction presentations for new employees and those returning from leave. When the Coordinator went on leave there was no one else to conduct these presentations.

William's commitment and passion grew when he realized that he could have saved the lives of friends and relatives who earlier died of AIDS-related diseases. The questions asked by fellow employees in induction sessions compelled him to seek more information on the subject. He also participated in discussions outside the workplace, and many of his peers recognized him as highly knowledgeable on HIV/AIDS.

In June 2005 he received formal training as an AIDS peer educator. After the six-day training he was asked by the HIV/AIDS workplace manager to assist in the recruitment of more peer educators at the Tau Tona Mine. Tau Tona was then lagging behind other business units in the formal training of peer educators, having only managed to train 14 peer educators in 2005, while each of the other three larger business units trained an average of 23. William was asked to recruit during the induction sessions, and his recruitment method enabled Tau Tona to train 45 AIDS peer educators in 2006 and 31 in 2007. At the end of the third quarter of 2008 Tau Tona had 95 trained peer educators, or one per every 39 employees, exceeding the target of 1:50.

William's popularity among the mine overseers and other line supervisors also grew, and they invited him to address their safety meetings. All the safety and induction meetings were followed by counseling and testing of many employees. Mine overseers were the first to volunteer for testing, motivating their subordinates to also volunteer.

At the end of 2007 Tau Tona had the highest number of HIV repeat tests at 167%, showing that fear of HIV testing was giving way to a culture of "knowing one's HIV status". At the end of the third quarter of 2008 Tau Tona was only one percent short of achieving the annual VCT target of 80%. The death rate per 1,000 employees, excluding injuries on duty, has dropped from 15.1 in 2004 to about 5.4 at the end of the third quarter of 2008, and Tau Tona also had the lowest sick leave profile. When asked to explain Tau Tona's success in the HIV/AIDS program, Mr Philip Alexander, the HIV/AIDS Coordinator, said employees are testing for the right reasons because William Mbatha and other peer educators provide them with the necessary education.

second biggest cause of death among the adult population after HIV/AIDS and TB. In the adult population, HIV/AIDS and HIV-related TB are the leading causes of death. The national HIV/AIDS prevalence rate in the adult population is approximately 12%, but this rises sharply in high-risk populations. The HIV/AIDS epidemic is associated with an approximate 60% increase in active TB in Tanzania. The HIV infection rate among adult TB patients is estimated at 44%.

Indonesia has the third-highest number of TB cases in the world behind India and China, with 578,000 cases in 2006 in a population of almost 229 million. It also hosts one of the fastest-growing HIV epidemics in Asia, with 270,000 adults living with HIV and 8,700 deaths in 2007. Malaria is endemic, with 2.5 million cases and 3,480 deaths in 2006.

Gold mining sites

Data collection is neither standardized nor straightforward at mining operations and surrounding communities, due to differing health data collection methods and the continual influx of new migrants. However, anecdotal data suggests that gold producers face major challenges from one or more of the three diseases.

AngloGold Ashanti reports that 30% of its employees in South Africa are HIV-positive, in line with the rest of the industry in South Africa. Given the country's status as fourth in the world for the number of TB cases, the company suggests that South African gold miners may have the world's highest TB prevalence.

Gold Fields in Ghana, while struggling with the country's malaria epidemic, has achieved encouraging results with its recent HIV testing, with prevalence rates under 1% both in its workforce and in seven catchment communities. When AngloGold Ashanti in Ghana launched its highly successful malaria control program in 2005, it had 20% of its workforce absent due to malaria at any given time. It has managed to reduce the number of cases by 73%.

Barrick in Tanzania reports HIV prevalence rates in North Mara of 2.5% among male community members, and almost three times higher among female community members, at 7%. Prevalence among mineworkers is 10%, and nearly 15% among female bar and guesthouse workers. In Tanzania, malaria is the single largest reason for absenteeism among mining employees, about five times more than any other cause.

Newmont in Indonesia faced a substantial challenge with malaria, with an incidence rate in its workforce, based on visits to its drop-in clinic, of 53 per 1000 employees in 1998. Through the company's malaria control program, this was reduced to 5 per 1000 in 2007. Community schoolchildren had been affected most harshly, suffering a 47.3% prevalence rate in February of 1999 during the wet season. This dropped to 1.5% in the same period of 2007.

Mining's potential side-effects

As gold mining companies formulate their strategies and programs to tackle the disease threats facing their workforces and communities, they are aware that mining

Courtesy of Newmont Mining Corporation

Muhammad Jabir, Tongo Village Chief.

"Each rainy season, there was always a casualty of malaria. We called it 'satanic illness' because we had no idea what caused it and how to cure it. What we did was we brought torches around the kampong and said prayers to scare the satans. Now things have become really different. Health programs make things clear on malaria. Precautionary efforts have been carried out through mosquito spraying, as the malaria vector control and sanitary efforts have improved through the collective work of the local people. The number of malaria cases has really decreased."

Mr. Muhammad Jabir, Tongo Village Chief, near Newmont's Batu Hijau operation in Indonesia.

operations can create environmental, social and economic impacts with the unfortunate and unintended side-effect of contributing to the prevalence of the diseases studied in this report.

Many such factors can lead to increased HIV prevalence. One of the most significant is in-migration, with workers and supplies traveling long distances to reach mines located in remote areas. This movement alone is a contributory factor, as interstate and international shipping corridors have been shown to match the transmission vectors of HIV. The resulting demographic is then a large concentration of workers, usually men, living together away from their spouses, families and communities. This lends itself to a higher frequency of casual sexual relations, including men having sex with men and with commercial sex workers. Many mines are also located in regions of high poverty and unemployment, so the relatively high salaries from mining jobs attract predominantly male workers, both miners and those conducting mining-related businesses, from other regions or countries. This concentration of relatively well-paid workers also stimulates the development of a commercial sex industry.

A further complication is the sometimes underdeveloped national and regional healthcare infrastructure, making preventing and treating disease harder than in wealthier countries.

The risk of HIV at mining sites is related to – and exacerbates – the incidence of TB. Aside from this linkage, several standalone factors can cause TB, primarily the inhalation of silica dust in underground mines. TB risk is increased by dense housing at camps or mine site accommodations, and in-migration is frequently accompanied by informal housing development with overcrowding and poor overall living conditions.

The incidence of malaria is heightened by the standing bodies of water that can result from mining activities, and from the clearing of vegetation for roads and other engineering projects. Standing water provides breeding areas for the malaria-carrying Anopheles mosquito.

Section 3
Best practices in disease prevention and treatment

The ICMM *Good Practice Guidance on HIV/AIDS, Tuberculosis and Malaria,* published in 2008, represents the current industry standard on best practices for mining companies dealing with these three diseases in areas where they operate. Incorporating the work of academics, policymakers and practitioners, it is the most thorough development of good practice in this area today. Some of its key recommendations are summarized or referenced in this section, and many are further illustrated in the company program profiles in Section 4.

Overall recommendations

Company policy and alignment with national and international protocols
Mining companies need to have a policy on the management of all three of the diseases where they impact company activities. In developing a policy which lays out company priorities and goals, management can refer to a host of local, regional, national and international organizations dedicated to combating these diseases. On an international level, these include the WHO, ILO, Global Business Coalition, IFC, UNAIDS (the Joint United Nations Programme on HIV/AIDS) and its 10 component organizations. National governments often have their own agencies to fight disease, including national-level commissions. By aligning their policies and strategies with these programs, mining companies can avoid "reinventing the wheel", duplicating efforts, or even working at cross-purposes with existing programs.

Partnerships
It is both unwise and unnecessary for companies to "go it alone" in pursuing workplace and community public health programs. Planning and implementing programs in cooperation with partner organizations is both easier and more effective, and has a better chance of creating sustainable improvements. Partner organizations can include local or international NGOs, local and national government health authorities, multilateral financing institutions, specialized healthcare contractors and even other mining companies. Examples from the company cases discussed in Section 4 include those shown in Figure 3.1.

As the IFC discussed in its 2004 *HIV/AIDS Resource Guide for the Mining Sector*, in a partnership, mining companies and their partners can pool their resources in terms of funding, staff time, expertise, local knowledge and technical equipment, and share their unique perspectives.
The strengths that mining companies can bring to the table include management, governance structures and planning skills, logistics expertise and capacity, communications tools, and information technology. Partners can increase the company's credibility in the community, provide a more open, reliable communication channel between management and community members, and leverage specialist healthcare expertise.

Figure 3.1

Company	Country	Partners
Newmont	Indonesia	International SOS
Barrick	Tanzania	AMREF, Tanzania Medical Students Association
Gold Fields	Ghana	Ghana Mine Workers Union, ILO, AngloGold Ashanti
Newmont	Ghana	IFC Against AIDS, ILO
AngloGold Ashanti	South Africa	South African Business Coalition on HIV/AIDS, National Union of Mineworkers, Stellenbosch University
AngloGold Ashanti	Ghana	Ghana Chamber of Mines, Gold Fields

The results can be synergistic increases in program reach and response, a maximization of each organization's core competencies, improved access to local communities, and improved support and services for those affected by disease. Perhaps most importantly, partnerships can build capacity within partner organizations and communities to create sustainable improvements in public health.

Sustainability in community health

Sustainability is one of the greatest challenges for mining companies as they plan and implement all their economic development and community engagement programs. The finite life of a mine is a particular challenge for community health programs. After a number of years the mine will cease operations and close down. Many of its interventions will stop at this point, and if the necessary skills, practices and structures have not been internalized into the community, those who rely on these programs will suffer.

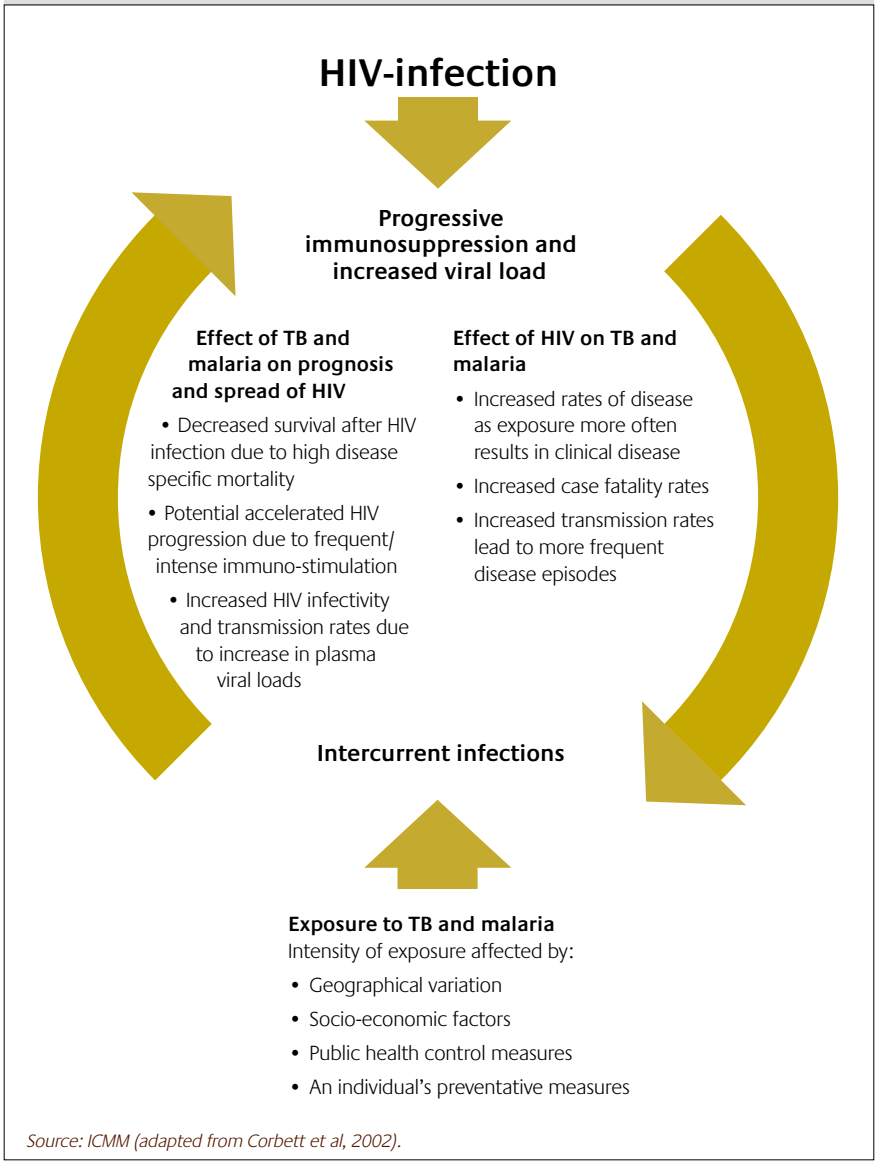
The social and behavioral change required to address HIV/AIDS in particular means a sustained effort on many levels is necessary. If the planning and delivery of health programs is undertaken in partnership and includes a strong role for local communities, they have the best chance of boosting the long-term quality of life for communities.

Integrated disease management

In areas where more than one of the diseases is prevalent, it is recommended to integrate the control of the diseases. This involves collaboration between the disease-specific programs for detection and treatment, as well as community and workforce outreach and education.

TB and HIV/AIDS are more closely linked with one another than with malaria. For this reason, integrated programs focus predominantly on these two diseases. The effect and linkages between TB and malaria are more tenuous, but the linkages between HIV and malaria are better known. (See Figure 3.2)

Figure 3.2: Potential interactions between HIV, TB and Malaria



Source: ICMM (adapted from Corbett et al, 2002).

Disease-specific programs

HIV/AIDS

The human immunodeficiency virus, or HIV, attacks the immune system by targeting CD4 cells which protect against illness. It is transmitted through direct contact of a mucous membrane or bloodstream with a bodily fluid containing HIV. The acquired immune deficiency syndrome, or AIDS, is a set of symptoms that occur when HIV has sufficiently damaged an infected person's immune system. Untreated AIDS results in death within two years.

The components of an HIV/AIDS program fall under prevention and treatment, though many elements work in both areas, such as voluntary counseling and testing (VCT) and community outreach.

Prevention activities include providing verbal and written information and communicating with target groups such as employees, community members and, within these, high-risk subgroups such as commercial sex workers and men who have sex with men. VCT must be available and strongly encouraged, with a guarantee that the results are kept confidential. Other elements include promoting circumcision, distributing condoms, training managers and supervisors, preventing mother-to-child transmission, and encouraging everyone to know their HIV status.

It is essential for programs to reach well beyond the boundaries of the mining property, since the workforce and community are highly interrelated – so high disease prevalence "outside the fence" will quickly translate to high rates in the workplace, and vice versa.

Peer education

Peer education is a widely-used and effective tool both for imparting health education and encouraging good health practices. Peer educators are volunteers, from both the mine workforce and the community, who are trained in disease facts, prevention and management and then interact with their co-workers, friends and families to share their knowledge of disease threats and the resources available to manage them. They often also act as a conduit to the company for community health needs and concerns. Because they are known and trusted by the people they interact with, they are more effective than company or health department officials.

VCT

A major challenge in the global fight against HIV is the fact that a high percentage of people infected with HIV are unaware that they are infected. People unaware of their HIV-positive status will not know or be counseled in the behaviors needed to prevent further transmission and will not pursue treatment. For this reason, a key goal of an effective HIV program is for all employees to know their HIV status.

VCT acts as both a prevention and treatment tool. It promotes prevention among those who test negative, and demonstrates to the person's peers that knowing one's status has positive health impacts. For those who test positive, VCT helps to channel patients into treatment programs including post-test clubs providing mutual support and care.

VCT has been an area where partnerships are particularly effective. Many development organizations, NGOs and other potential partners have trained counselors among their staff, and VCT can act as a venue for increased interaction and trust to develop between the company and government entities or NGOs which offer the service.

De-stigmatizing the disease

In many cases employees or community members hesitate to take an HIV test due to fear of various repercussions from being found HIV-positive, such as loss of employment or being ostracized from community, and the lack of known resources for treatment of HIV/AIDS. For employees, perhaps the most significant risk is discrimination in the workplace. However, companies have a unique opportunity to confront this discrimination by helping to dispel myths and communicating that there is no need to fear people living with HIV and/or AIDS. This is more effective when reinforced by workplace-based anti-discrimination policies and programs that demonstrate that people can live and work with HIV/AIDS, often for many years. Encouraging the formation of post-test clubs or other support groups for HIV-positive employees is important, as are awareness activities introducing people living with HIV/AIDS to the workforce.

Treatment and care of those living with HIV and/or AIDS involves several elements. Wellness programs involve the promotion

of good nutrition with appropriate vitamin supplements and healthy lifestyles, and the adherence to drug regimens and medical monitoring activities. Anti-retroviral therapy (ART) is commonly used in company HIV programs, though it must be managed carefully to prevent the development of ART-resistant strains of the virus.
A 95%-100% level of adherence to ART is critical to the treatment's success, far higher than the 80% required for many other chronic diseases. This required level is a particular challenge for patients under financial, psychological or social constraints. For this reason, the program must address the required adherence with patients before the treatment starts, since those new to the regime are most likely to mismanage their medications, possibly leading to drug-resistant mutations.
Used correctly, however, ART has been found to improve the quality of life and extend the life expectancy of HIV-positive patients.

Those in the later stages of HIV infection also face the threat of opportunistic infections and cancers, but timely treatment can help prevent these.
In some cases, patients with opportunistic infections need to be evacuated to medical clinics. Terminal AIDS patients require hospice or home-based care, often provided in partnership with NGOs or post-test clubs. Some companies support home-based care programs for these patients, including family support and even job-training for family members so the family does not lose the essential income of the dying patient.

Tuberculosis

Tuberculosis is caused by a bacillus called *Mycobacterium tuberculosis*. It is spread when people with the active disease cough and spread droplets of the bacilli which are then inhaled by others. However, a person inhaling the bacilli and thereby having a latent infection may not become ill with active TB if they are otherwise healthy. In fact, people with latent infections have only a 10% chance of becoming ill with active TB over their lifetime, with the greatest risk in the first two years after infection, or if the infected person had suffered previous damage to the lungs or immune system.

TB is particularly problematic in mining communities since the risk of the disease is increased by workplace hazards such as silica inhalation as well as tobacco smoking and HIV infection. The most common symptoms of active TB are chronic cough, weight loss and night fevers with heavy sweating. Many people with active TB become infectious before showing any symptoms, so undiagnosed TB cases are a major source of new infections.

Prevention

TB prevention occurs at two points in the disease cycle: first, by preventing the passage of the bacillus from an infected person to those who are not yet infected; and second, by preventing those with latent infection from developing active TB. The first point of prevention involves identifying and treating infectious cases. Education of the workforce on TB is essential, encouraging employees to seek medical care as soon as they have any symptoms and ensuring that policies to protect job security and confidentiality after diagnosis are in place and known by the workforce.

For those diagnosed with TB, the recommended framework for treatment is the WHO-supported directly-observed therapy, short course (DOTS) program.
The concept of DOTS is that each dose of medicine is seen to be swallowed. At the second point, in order to prevent those with latent infection from developing the active disease, the focus in the mining context is on controlling two powerful risk factors for active TB – silicosis and HIV infection.

Measures effective in preventing TB in the mining industry include the reduction of silica dust exposure at operations, and TB- and HIV-related health education covering the importance of controlling occupational exposure to dust and the risks of smoking and heavy alcohol intake. Adequate housing lessens the likelihood of cross-infection, and a sound nutrition program of company-provided meals boost overall health.

Screening of employees

'Active' screening of employees means regularly screening all current and prospective employees at risk of TB, whereas 'passive' screening involves people presenting themselves if they have TB symptoms. Active screening is recommended in high-prevalence areas.
At least half the active TB cases in such areas follow TB infection acquired within the previous two years, and undiagnosed cases in the community are the driving force for ongoing TB transmission.

Protecting healthcare staff from TB infection

To prevent healthcare workers from getting infected with TB, a number of measures should be put in place at healthcare facilities. These include ongoing medical surveillance of staff with symptom checks and appropriate testing, separate gathering areas for known or suspected infectious TB cases, improved ventilation in waiting rooms and wards, and education of health care staff about early TB symptoms and modes of transmission. Finally, isolation wards and special procedures for handling MDR-TB or XDR-TB (see Figure 3.3) cases are recommended.

Figure 3.3

MDR-TB and XDR-TB

Multi-Drug Resistant TB (MDR-TB) and Extensively (or Extremely) Drug resistant TB (XDR-TB) are not new diseases. MDR-TB occurs when the TB organism demonstrates resistance to at least Isoniazid and Rifampicin, two of the most effective first line anti-TB drugs available, while XDR-TB is diagnosed when the TB organism demonstrates resistance to one of the second line injectable drugs (Kanamycin, Amikacin, or Capreomycin) and to the Fluoroquinolones.

MDR-TB occurs in 102 of the 109 countries that report TB statistics to the WHO. The WHO estimates that 424,203 MDR-TB cases were detected in 2004, representing 4.3% of all new and previously treated TB cases. More than half of these were in China and India, while the highest estimated prevalence was in countries of the former Soviet Union and certain provinces of China. This represents a 55% increase over the estimates for 2000.

Resistance to the two first line drugs has been around ever since these medicines were first used as treatment for TB and reflects the ability of the organism to develop resistance to antibiotics. Cases of chronic non-responsive tuberculosis were identified in the 1980s and MDR-TB had been classified by 1988. Similarly, cases of XDR-TB have also been identified in the past 20 years as resistance developed to the second line drugs. AGA Health diagnosed its first case of XDR-TB in 1988 and labelled it chronic non-responsive tuberculosis but it has only been classified in the past four years or so and was only described in terms of the current definition by the WHO in October 2006. The recent rise to prominence of MDR-TB and XDR-TB is a result of the significant increases in such cases, largely as a result firstly of drug-sensitivity testing which has allowed the medical fraternity to identify them, and also as a consequence of the HIV epidemic which promotes the rapid spread of TB.

Source: AngloGold Ashanti – Report to Society 2007.

Detection

Detection of TB first involves the choice of tests for active case detection. The appropriate tests depend on site-specific factors such as the prevalence of undiagnosed TB, HIV prevalence, prior TB prevalence, age distribution and the extent to which the population is unscreened. Screening tests include symptom checks, periodic weight measurements, chest radiographs, microscopic examination and laboratory culture of sputum.

Malaria

Malaria is caused by the *Plasmodium* parasite and is transmitted solely by the female *Anopheles* mosquito – known as the transmission vector. The *Plasmodium* has four different species causing disease in humans: *P. falciparum* which causes severe "cerebral" malaria, *P. vivax, P. malariae* and *P. ovale*. The *Anopheles* mosquito becomes infected after biting an infected human, and then infects other humans by biting them. The symptoms of the disease include flu-like symptoms such as fever, aches, fatigue and gastrointestinal symptoms.

Prevention

Malaria is prevented through environmental and chemical measures, and also by personal protective measures.

Environmental management involves avoiding the creation of the standing water conditions where mosquitoes breed. Such breeding sites can be inadvertently created at mining sites through excavation, leaking water pipes and engineering projects that interfere with natural water drainage. Fixing these errors through correction of engineering designs, chemical management and management of medical emergencies is typically more expensive than preventing them in the first place. This can be done through appropriate site selection and mosquito source reduction. Worker accommodation should be located away and upwind from known mosquito breeding areas. A one-mile (1.6 kilometer) buffer zone is recommended from vector breeding areas and villages with endemic malaria.

Source reduction involves reducing or eliminating breeding habitats, either through environmental modification or manipulation. Modification includes land

Courtesy of Newmont Mining Corporation

Boby, Senior Paramedic at Maluk Clinic, near Newmont's Batu Hijau operation.

"In the past, some 4-5 patients with malaria from Benete and Maluk used to come to us every day, even in the night. It was really scary. If the patients had got fever and tremble, we could do nothing. Now, we very rarely find such situation."

Boby; Senior Paramedic at Maluk Clinic and local paramedic for more than 10 years (Newmont Indonesia).

filling and leveling or drainage designs to limit bodies of standing water. Manipulation includes creating unfavorable conditions for mosquito breeding such as changing water salinity, periodic flushing, or introducing predator fish and other species.

Trained staff can also manage malaria vectors safely and effectively with appropriate chemical measures. Chemical management consists of larval and adult mosquito control. Larval control targets natural or man-made areas retaining water for long enough (usually 6–10 days) for mosquitoes to propagate. Chemicals are an important means of control in situations where larval habitats cannot be permanently modified or eliminated, and a variety of products can target various types of water safely and effectively. These include target-specific bacterial toxins, insect growth regulators, and specially-formulated, non-residual light oils applied either in water or on the surface.

Approaches for adult mosquito control include indoor residual spraying (IRS), space spraying and insecticide-treated bed-nets. IRS reduces mosquito-human contact, and involves spraying a residual insecticide onto surfaces such as interior walls. When mosquitoes land on the surface, they are killed or irritated to disrupt their feeding routine, thereby reducing bites and infection. It is particularly effective when used in combination with bed nets.

Space spraying is normally used for temporary control of a large number of mosquitoes or as a short-term measure to prevent a malaria outbreak, since it provides only brief protection, must be repeated often and entails considerable expense. It involves dispersing insecticides into the air, killing mosquitoes that come in contact with its microscopic droplets. Methods range from individual spray cans and mosquito coils to truck-mounted 'fogging' machines covering large areas.

One of the most common malaria prevention measures used by mining companies is long-lasting insecticide-treated bed-nets (LLITNs). These nets, which repel adult mosquitoes, can remain effective for three to five years without retreatment. Although their acceptance varies, mining companies can act as role models in communities and can distribute LLITNs at no or low cost to residents. They are a key element in the WHO Roll Back Malaria program.

Effective personal protective measures against malaria include educating the workforce and community on the causes, risks, and means of preventing malaria, screening windows and doors on housing and offices, and chemical management measures.

Diagnosis and treatment

Prompt and accurate diagnosis of infection is an important factor in preventing malaria from spreading. This requires trained healthcare workers, effective anti-malarial drugs and access to healthcare facilities. Diagnostic tests include rapid tests similar to home pregnancy tests, and blood smears examined under a microscope. A common effective treatment is a short-acting drug based on the Chinese plant *Artemisia annua* along with the long-acting artemisinin combination therapy (ACT).

Pitfalls to avoid

As well as seeking to follow the best practice principles described above, gold mining companies need to avoid a number of pitfalls and shortcomings that public health practitioners, policy makers and academics have identified in the global fight against killer diseases. These shortcomings have arisen despite the significant financial resources committed to the fight against these infectious diseases around the world, as discussed in Section 5.

Stovepipes

One of these, termed "stovepiping" by Laurie Garrett, Senior Fellow for Global Health at the Council on Foreign Relations, refers to the channeling of aid into narrowly-defined, single-disease programs. This can result in governments receiving earmarked aid for one aspect of a disease, but having no means to distribute it. Garrett gives the example of an ART distribution program for mothers and children, where the government lacks the financial resources to support basic maternal and infant health programs. The result is that HIV-positive mothers receive drugs to hold their infection at bay and prevent transmission to their babies, but cannot get rudimentary obstetric and gynecological care, or infant immunizations. Integrated disease management helps to avoid this stovepiping.

The phenomenon is acknowledged by Alanna Rondi, Executive Director of AMREF Canada (Barrick's community health partner in Tanzania), who describes her organization's 'people-centered' versus 'disease-centered' approach. Rondi says disease management has to be people-centered, otherwise "people end up having to travel two days to get to a clinic to test for one disease, wait for the results, and then get sent to another for a different disease. They frequently don't have the resources for this, so just give up."

Exclusion and neglect of the local healthcare system

As discussed in this Section and Section 4, building capacity within local healthcare systems is vital for the sustainability of community health. One example is Barrick's involvement of Tanzanian medical students in its community health initiatives; another is the inclusion of local caregivers and institutions in all the company programs profiled. The opposite of this is where international aid agencies actually deplete the local healthcare infrastructure by hiring away already scarce trained professionals. Garrett mentions a 2002 survey of Ghana's healthcare facilities that found that lack of personnel meant 72% of all clinics and hospitals were unable to provide the full range of expected services. Healthcare workers also face the risk of contracting infectious disease: the International Labor Organization estimates that between 18% and 41% of the healthcare labor force in Africa is infected with HIV. Without strong and sustainable healthcare systems and infrastructure, no amount of financial aid will yield lasting improvements in community health.

Short-term results oriented programs

In order to measure the effectiveness of public health programs, organizations must set goals for the improvement along chosen metrics. In this, they must be aware of the limitations of short-term numerical targets such as VCT uptake, condom distribution, or ART provision, bed-nets distributed or peer educators recruited. While valuable accomplishments in themselves, such standalone measures do not necessarily reflect an improvement in overall community health, which can take generations and sustained efforts. The producer programs detailed in Section 4 indicate a strong sense of the importance of overall, sustainable community health.

Courtesy of AngloGold Ashanti

Mr. Sampson Owusu Ansah, Chief Municipal Environmental Health Officer for Obuasi, near AngloGold Ashanti's Ghana operations.

"In my opinion, the malaria program has enlightened the populace. People were superstitious about malaria, but since the inception of the program they know it is caused by the female anopheles mosquito. They also understand that choked gutters, weedy surroundings, stagnant pools of water and dirty environments are some of the major causes by breeding mosquitoes. As a result of awareness about prevention and the spraying of houses, malaria cases have been reduced in the various hospitals in the municipality. It has also come to the relief of the people at the right time and they are most grateful to AngloGold Ashanti."

Mr. Sampson Owusu Ansah, Chief Municipal Environmental Health Officer for Obuasi.

Section 4
Selected gold producer programs

Empowering peer education: Newmont in Ghana

Among the principal lessons that Newmont has learned during its public health program in Ghana is the importance of empowering the community and workforce to participate in the fight against infectious disease. When the program began in July 2005, the program managers identified employees and community members to serve as peer educators. However, it became clear that both workers and community members were more open to sharing their confidential questions and concerns with individuals that they themselves identified and trusted as peer educators. Using this peer-nomination process instead, Newmont has seen encouraging results.

Newmont began construction of its Ahafo mine in Ghana in December 2003, and the mine commenced operations in January 2006. Its second project in Ghana, Akyem, is currently in the construction phase. Currently, the company's workforce in Ghana numbers 2,000. In July 2005 the company hired a full-time HIV/AIDS Coordinator, Maud Ofori-Nyaney, and began its HIV/AIDS prevention program for all employees and contractors in Ahafo, Akyem and the Accra office, with specific goals:

- To prevent the spread of sexually transmitted infections (STIs) including HIV/AIDS among the workforce, their families and communities
- To reduce the stigma and discrimination associated with HIV/AIDS
- To mitigate the impact of HIV/AIDS by providing care and support for workers infected and affected
- To strengthen the capacity of the district health directorates and other non-governmental organizations in the management of STIs/HIV/AIDS

The program includes peer education, prevention through behavior-changing communication activities, induction and safety meeting and annual refresher training, condom promotion and distribution, counseling and testing services, and treatment, care and support.

Some 70 peer educators actively engage with co-workers and community members, providing information about disease prevention and treatment, including educational materials and condoms. Working with Newmont's health service provider, International SOS, patients with STIs are referred to peer educators for counseling services. New infections have declined from an average of four per month during the construction of Ahafo between 2005-2006 to two per month between January and September 2008, with condom uptake reaching 8,000 per month.

Peer educators' activities and progress are monitored and supported by the district health staff. At monthly review meetings, activities are reviewed and planned for the coming month, and peer educators' knowledge and skills are updated. The district health staff and coordinator provide supervision and monitoring visits to community volunteers.

Mobile VCT services were launched in November 2007 and are provided to employees and contractors every six months. As of August of 2008, some 500 workers have taken the opportunity to know their HIV status. Between testing sessions, employees are offered counseling to be tested at the clinic or are referred to the nearest testing facility.

Outreach Metrics for Ahafo/Ghana from January to August, 2008	
Workers reached with education	10,100
Condoms distributed	30,250
VCT Uptake	230

Source: Newmont Mining Corporation/International SOS.

TB is also included in Newmont Ghana's public health education programs. Candidates for employment at the mine undergo pre-employment screening for TB, and those found ill are sent for treatment. Information about the disease is distributed to employees. To tackle HIV/AIDS and TB at the community level, Newmont partners with the district health directorates of Asutifi and Tano North to select and train community-based volunteers as peer educators on STIs, HIV/AIDS and TB.

Malaria

In the first half of 2008, Newmont has seen a 44% reduction in malaria cases in the control zone compared to the same period in 2007. Camp A, one of the largest employee residential areas, has seen a 70% drop. The company attributes this to improved environmental controls such as the installation of screens around accommodation and recreation areas, larviciding of mosquito breeding sites, and engineering controls to reduce breeding sites. Employees are also given long-lasting insecticide-treated bed nets and mosquito repellents.

Clinical management of malaria at the facility has also helped reduce the number of cases. The facility follows WHO-recommended protocols, with almost 100% of cases confirmed on microscopy or rapid diagnostic tests. The clinic has recorded an overall 24% decrease in cases in the workforce between the first half of 2007 and the same period of 2008, even though 90% of residents in the local villages outside the control program still suffer from malaria.

Courtesy of Newmont Mining Corporation

Community members in Ahafo queue up to vote for peer educators to be trained in the prevention of HIV/AIDS, STIs and TB.

Courtesy of Newmont Mining Corporation

Peer educators during a training session in Ahafo.

Courtesy of Newmont Mining Corporation

Newmont Ghana's Workplace/Community Health Coordinator, Maud Ofori-Nyaney.

"During the community entry and mobilization process, chiefs and elders, opinion leaders and a cross-section of community members gathered to develop their own criteria to select and vote for their representatives as volunteers. Community members pledged their support to the volunteers. They said they would organize communal labor to occasionally help them on their farms. They would also help in mobilizing groups for the volunteers' education."

Maud Ofori-Nyaney, Workplace/Community Health Coordinator.

Partnerships

When Newmont launched its community health program, one of the first elements was the Community Health and Well Being Initiative (CHeWBI). A partnership between Newmont Ghana and the Ghana Health Service, the District Assemblies, and non-governmental organizations, the initiative works broadly towards improving the health of communities.

Under CHeWBI, Newmont collaborated with Project Cure to supply over $300,000 in medical equipment to health facilities in the district; undertook a $35,000 bed-net insecticide re-treatment exercise with the NGO NetMark and distributed over 2,000 long-lasting insecticide treatment bed nets to community members, especially pregnant women and children under five. Newmont also partnered with local District Health Directorates and NetMark to train health service staff and volunteers in treating bed nets with long-lasting chemicals. In addition, the company contributed $75,000 to the Asutifi District health management team for construction of three Community Based Planning and Health Services (CHPS) Centers. The first CHPS compound was opened in June 2007, and the other two in August 2008.

Newmont Ghana Gold signed a Memorandum of Understanding with IFC Against AIDS in March of 2007 for $81,500 of technical assistance and financial support over two years. In addition, Newmont began working with the IFC Linkages program in 2008 to roll out its public health program to small and medium-scale enterprises (SME) in the Ahafo area.

Newmont is a member of the Global Business Coalition on HIV/AIDS, Tuberculosis and Malaria, and the Ghana Business Coalition Against AIDS.

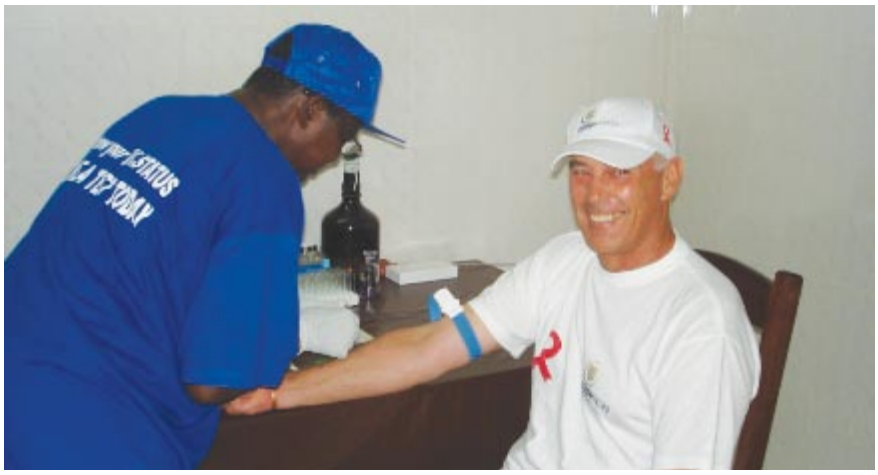
Gold Fields at Tarkwa, Ghana

Gold Fields has tackled HIV in Ghana through a combined program of employee and community outreach. A total of 120 volunteer Peer Educators have been trained to work with employees, and an additional 30 trained to work in the communities surrounding the Tarkwa operation. The Peer Educators hold discussions on safe sex practices and promote the VCT offered by the company. A dedicated HIV Coordinator, Charity Tuffour-Kwarteng, joined in August 2004 and oversees the program, which has a separate budget from operations.

Tackling the stigma

Realizing that the stigma accompanying HIV/AIDS exacerbates the spread of disease, since people avoid being tested, Gold Fields has attempted to educate the workplace and community about the realities of the virus, including campaigns where people living with AIDS give testimonies. Senior management set out to lead by example, having the general manager, department heads and their spouses undergo testing and have their photographs displayed on notice boards, encouraging all to undergo testing.

Before the launch of the program, a baseline survey revealed that 65% of company employees did not see a need to get tested. All employees are provided with the Gold Fields Ghana HIV policy which spells out the company's commitment to preventing transmission of HIV, and to ensuring that HIV-positive employees are cared for and not discriminated against. Those tested are given t-shirts listing the benefits of counseling and testing.



Courtesy of Gold Fields Ghana

Tarkwa General Manager Johan Botha being tested for HIV.

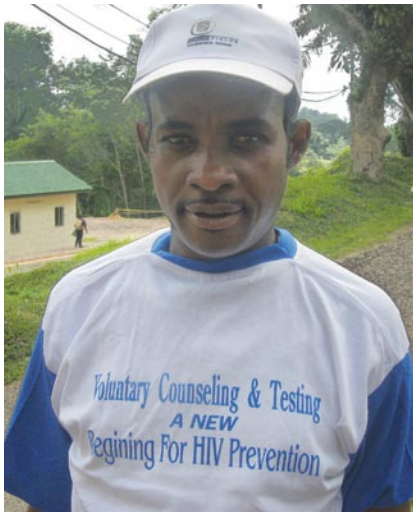
Since the inception of this testing promotion, the number of employees getting tested has increased from 13% in 2005 to 60% in 2007. To date 88% of employees and 30% of contract workers have undergone counseling and testing. Voluntary Counseling and Testing are now routine for most employees before they go on annual leave. Of the 1,403 employees tested to date, only 12 employees have been HIV-positive – a prevalence rate under 1%.

The Gold Fields program has incorporated mass media, instituting a weekly radio program. The catchment and surrounding areas tune in to the "Bo Woho Ban" (protect yourself) broadcast, featuring discussions about community health topics with listener call-ins. Some 16 Community Health Facilitators were armed with radios and formed listening groups in their communities. According to Mr. Blin Kasi Paul, the Community Health Facilitator for Huniso:

"People in the community have been tuning in and this has gone a long way to help with my work as a CHF because the program has broadened the people's knowledge on certain health issues. The community members now have a fair idea about the causes of certain ailments such as malaria, diarrhea, tuberculosis, HIV and others. It's now easier for me to give educational talks on sanitation and other health issues."

Broadcast beyond the immediate surrounding communities, the program has become a household name in Ghana's Western Region. Community Affairs staffers report that residents have become "so

Courtesy of Gold Fields Ghana



Gold Fields employee Francis Odoom wearing his t-shirt after being tested.

addicted to the program that they are always glued to their radio sets" during broadcasts.

Condoms are made available through peer educators and condom dispensers placed in washrooms and change houses. Previously there was no condom distribution at the workplace and employees felt shy about buying condoms in pharmacy shops. The program has seen a resulting increase in condom uptake, from 32,000 in 2005 to 76,000 in 2007.

Businesses and schools in the surrounding communities have also sought out the educational services of the Gold Fields community health program. Aside from the weekly radio broadcast, the company offers workshops to community groups. "Small-scale miners, dress makers, religious leaders – all of them call us for courses," explains Tuffour-Kwarteng. In area schools, an Adolescent Reproductive Health program has been in place since October of 2005. "Since the inception of this program we have not experienced any girls dropping out of school, unlike previous years where girls either dropped out or came to the examination hall pregnant," reported teacher Martha Kyi Armah at Kyekyewere Junior High School.

Gold Fields also promotes testing during pregnancy to prevent mother-to-child transmission of HIV, offering voluntary counseling and testing, short-course antiretroviral therapy and counseling on breastfeeding.

The commercial sex industry is a key contributor to the spread of HIV, so the inclusion of CSWs in HIV outreach efforts is important. The Community HIV/AIDS program partners with the Hope for All Foundation, a local NGO, to train sex workers and encourage them to use condoms. Some sex workers have been trained as Peer Educators to supply their peers with condoms, provide referrals to the STI clinic and encourage monthly check-ups at the clinic.

Multi-stakeholder involvement and partnerships

Both at the oversight and implementation levels, the Gold Fields program has relied on involvement and partnership with community groups, labor union officials and NGOs. In November 2004 the company signed a Memorandum of Cooperation with the International Labor Organization for joint implementation of an HIV/AIDS program based on ILO Code of practice. The ILO commended Gold Fields Ghana in its 2006 annual report, noting the success of the Community HIV/AIDS program of its "major project partner." A Strategy and Policy Task Team of mid-level managers, mine supervisors and union representatives was inaugurated in January 2005 to ensure effective planning and implementation of an HIV/AIDS work plan and monitor progress. Then, in November of 2005 Gold Fields was the first mining company in Ghana to jointly develop and sign a pact with the Ghana Mine Workers union and Officials Association. Gold Fields is a member of the Ghana Business Coalition Against AIDS and works in partnership with the Ghana Health Service, Education Service, other mining companies, and local NGOs. Gold Fields and AngloGold Ashanti jointly financed a $53,000 STI and VCT center for the Tarkwa Government Hospital to serve the populace including mine workers.

Caring for the sick

For those who test positive for HIV, the company provides psychological and social support services. HIV-positive patients are counseled on the benefits of joining the Association of PLWA and introduced to an individual who has been receiving treatment and living positively with the virus. The infected person explains the treatment regimen, its side effects, and how to live well with the virus.

Courtesy of Gold Fields Ghana

Panelist in the recording studio interview during "Bo Woho Ban" radio program.

Voices from the front lines: Charity Tuffour-Kwarteng, HIV/AIDS Program Coordinator, Gold Fields Ghana

Courtesy of Gold Fields Ghana

Gold Fields HIV Coordinator Charity Tuffour-Kwarteng addressing an induction meeting for new employees.

"My work as an HIV/AIDS advocate dates back to 1998 when I was recruited as a Quality of Care Advisor by CARE International, but the biggest challenge I have faced in my career is when I was appointed as the HIV/AIDS Program Coordinator for Gold Fields Ghana.

The first thing which came to mind when I was given the offer was how to hold discussions on safer sex practice in a mining company where employees are predominantly men.

I was sent to South Africa for two weeks to under-study the HIV program they had in place, and then drafted a five-year work plan for my immediate supervisor, who sought audience for me with the Managing Director and the General Mines Manager. I then did another presentation to all the Heads of Departments, after which they expressed their commitment to the program.

The next step was to get the workforce to accept the program. I realized the employees were scared of me because of comments made by some of them. I overheard them saying, "What is this woman coming here for? Is she going to test us and report to management so that we will be sacked in case we test positive?"

I attended a meeting organized by the Ghana Chamber of Mines for human resource practitioners from the mining companies, and heard a presentation from the International Labor Organization, to get companies to sign on to their work place HIV/AIDS program. I then sold the idea to our Managing Director.

A Memorandum of Understanding was signed on 17th November, 2004. The first thing I did was to come up with a Strategy and Policy Task Team to assist with the planning and program implementation. Our first task was to come up with an HIV/AIDS policy for the Company. After that, I did a baseline audit and knowledge, attitude, behavior and practice survey to identify gaps and priority areas.

The HIV/AIDS policy was signed with the Chairman of the Ghana Mine Workers Union, and was disseminated to all employees through induction, safety meetings, posted on the intranet and copies made available to employees. Stigma-reduction campaigns were launched featuring people living with HIV/AIDS. Management and Task Team members got tested. All these measures have contributed immensely to the success the program has demonstrated.

Gold Fields HIV/AIDS program is showcased as a best practice nationally and internationally. I was selected by UNAIDS to join a team on a study tour to Kenya and Senegal before the establishment of the Ghana Business Coalition Against AIDS. I was also nominated by UNAIDS from Ghana to be part of a team of experts to discuss and design a process of leadership development in prevention.

I am very satisfied with the program. It started with a lot of questions surrounding it from employees, but now has been embraced by all employees. They no longer see me as a threat but rather as a savior. Eighty-eight percent of employees have undergone testing and are now bringing their spouses and other dependants for testing. Employees who have enrolled in the wellness program have bounced back to life. Community members and employees from other companies have gained confidence in Gold Fields HIV/AIDS program and visit the office for counseling and testing."

Courtesy of Gold Fields Ghana

Teacher Martha Kyi Armah addresses the Abstinence Club at Kyekyewere Junior High School.

Gold Fields provides ART for HIV-positive employees and their dependents, and works with the local hospital to share the objectives, strategy and policy of its community HIV program. A technical team meets every other week to assess clients who are on the wellness program and review program implementation. Family Health International provided training for the technical team at the hospital and refurbished and equipped the hospital laboratories, helping the site to obtain ART accreditation in November 2006 by the National AIDS Control program which enables it to offer ART to employees and community members.

In 2007 this collaboration continued in the form of the launch of mobile VCT services to seven catchment communities by Gold Fields, Family Health International and the Hope for All Foundation. Some 1,500 people were tested, and the eight who tested HIV-positive were referred to the hospital. Clients who test positive at the workplace are registered on the wellness program, monitored monthly, and given food aid and medications for opportunistic infections.

As of September of 2008, a total of 12 people were enrolled in the wellness program, with 5 on ART. All participants continue to work, and none have exhibited drug resistance. No AIDS deaths have been recorded since the wellness program inception in June 2005. Three AIDS patients in terminal stages passed away just before the program began, partly due to the lack of access to ART at that time.

Voices from the front lines:
The story of a 47-year old, HIV-positive Gold Fields Ghana employee

"I took the HIV test at the work site when the Coordinator and her team came around. Initially I was a bit hesitant because I thought that in case my test results turn out positive, people will hear about it and stigmatize me. I was also scared that I would be sacked. A lot of questions were raised during the counseling process but I was assured of confidentiality and the benefits I would receive from knowing my status.

From the education going on at the workplace, I was always scared that I may be having the infection because I was growing lean and my health was going down. My result turned out to be positive. I was very scared and confused but the counselor told me to master courage and come over to her office. I went there for further counseling and was referred to the hospital for further management.

When I visited the hospital, I went to the doctor and handed over the referral note to him. The next thing he told me after reading the note was that I should go and see a counselor at the hospital for counseling and confirmation of results. After going through a series of tests, I was referred to the pharmacist for some medication. I was counseled on three occasions and was asked to come with someone who would monitor me when they put me on treatment. I was annoyed because I was eager to go on treatment and I thought I was being denied my right. I brought my sister to the pharmacist after three days. She was counseled and I was issued the drugs.

I visited the hospital every month for drugs and food aid. I now visit the hospital every two months. They check my blood again every six months.

I now feel very fit and I am going about my activities normally. I weighed 76kg initially but was down to 30kg when my weight was checked at the hospital during my first visit. At my last visit I weighed 80kg.

I have now understood that HIV is not a curse. I have seen the magic the AIDS drugs can do. The HIV coordinator calls me to find out how I am doing all the time. I thank her very much for the good work she is doing.

I know that there are people who are in the same situation as I am but nobody has heard about it. This has made me to develop trust in the Gold Fields HIV program as a whole."

Partnering to promote community health: Barrick in Tanzania

Barrick Gold Corporation has teamed up with public and private sector groups to expand its impact and create sustainable improvement in community health in its areas of operation. The company has been partnering with the African Medical Research Foundation (AMREF) in Tanzania since 1999 to administer its peer education and voluntary counseling and testing services as part of an integrated employee and community health program.

North Mara

In partnership with AMREF, Barrick's program at its North Mara mine was based on an initial baseline health survey, and was designed to:

- Promote healthy behaviors with respect to HIV/AIDS, STIs, TB and malaria transmission
- Facilitate community participation in prevention and care of those already infected
- Implement focused interventions targeting high-risk women by promoting safer sex practices and condom use
- To establish sustainable VCT center as entry point for prevention, treatment and care
- Support district health facilities to strengthen capacity in provision of health services.

Most North Mara employees live in the surrounding community, so the inclusion of the community in Barrick's efforts is essential. HIV prevalence rates in North Mara are 2.6% among male community members, and 7% among females. Prevalence among mineworkers is 10%, and nearly 15% among female bar and guesthouse workers.

AMREF conducts weekly HIV testing at North Mara, and runs the Voluntary Counseling and Testing Centre in Nyamongo that provides confidential HIV counseling and testing, STI management, family planning, and distributes condoms. At the VCT Center, employees who require antiretroviral therapy (ART) are referred to local specialists. An HIV Information Centre was also established in Nyamongo. Through a network of

Courtesy of Barrick Gold Corporation

George Julius Marwa, a project officer with the Barrick - AMREF community health project in North Mara.

community peer health educators trained by AMREF, sensitization and awareness campaigns are conducted in the villages around the mine. In addition, community leaders and school heads are also sensitized on healthy behavior to serve as community advocates. To encourage community members to take HIV tests, raffles are held and post-test clubs have been established to reinforce prevention and provide support to HIV-positive members. To prevent malaria, bed nets are distributed under the AMREF program and prevention advocacy carried out by peer health educators.

The AMREF program at North Mara has made significant progress in its first three years. Mineworkers now meet with some 60 peer educators, and the community is supported by over 100 peer educators. The peer educators have reached 1,450 mine employees and over 340,000 community members with discussions on AIDS, malaria, family planning, sexually transmitted infections and TB. In a survey, 42% of miners and 70% of community members reported receiving information from a peer health educator. Since opening, the VCT Center has seen an average of 400 clients from the community each month, for a total of 6,880. In addition, 865 from the mine have

Courtesy of Beyond Borders, Barrick Gold Corporation

Barrick Chief Medical Officer Rob Barbour (right) talks to Dr Pastory Sekule, Manager, AMREF Tanzania Workplace HIV/AIDS Intervention, at the AMREF HIV/AIDS Voluntary Counseling and Testing Centre in Nyamongo village, just outside the North Mara mine.

"Barrick's health programs in Tanzania aim to eliminate the transmission of these diseases and minimize their prevalence within the community," said Dr. Rob Barbour, Barrick's Chief Medical Officer, who manages the company's health programs and services globally. "Our approach is to form strategic partnerships with the public and private sector, harnessing various competencies to have a greater impact and improve community health in a sustainable way."

Courtesy of Barrick Gold Corporation

Barrick's Community Health Coordinator for Tanzania, Stephen Kisakye, hands out t-shirt with the slogan "I am fighting TB – join me."

visited. Some 800 mine workers and 3,805 community members have been tested for HIV, and over 60,000 condoms distributed since the project's inception. In addition, a national campaign for VCT has been launched in Tanzania, and the Nyamongo center has been selected as a national testing site.

Malaria

Addressing malaria is one of Barrick's top priorities in Tanzania. Aiming to eliminate malaria transmission and minimize the disease's prevalence, the company's malaria program entails:

- Eliminating mosquito breeding sites, by clearing foliage around mine sites and in nearby communities. This also involves seasonal fogging and spraying and treating water with parricides
- Providing insecticide-treated bed nets to employees and their families
- Taking blood samples from employees and community members to monitor and track changes in prevalence and other useful indicators
- Providing access to rapid diagnosis and quality treatment
- Educating people about behaviors that will protect them from malaria and providing other tools, information and resources
- Sensitizing employees about the importance of malaria control and prevention, as well as signs, symptoms and the benefits of early treatment.

Bulyanhulu

Barrick has been working to strengthen Tanzania's healthcare infrastructure to foster sustainable community health.
At the Barrick medical clinic at its Bulyanhulu mine, the company opened a new wing in 2006 which specializes in treating patients with HIV/AIDS. Barrick has applied for clinic accreditation in order to be able to distribute HIV/AIDS drugs to the community. The company is working with the Ministry of Health to meet quality criteria on HIV/AIDS care and treatment.

Courtesy of Barrick Gold Corporation

The HIV/AIDS wing of the Bulyanhulu clinic was officially opened in November, 2006 by Dr. Donnan Mmbando, Director of Policy and Planning, Tanzanian Commission for AIDS.

Building healthcare capacity: Providing services to remote communities while helping train tomorrow's doctors

Tanzania has a severe shortage of doctors, with one for every 25,000 people. Training

Voices from the front lines:
Justus Nkwabi, AMREF Peer Health Educator

(reprinted from *Beyond Borders*, A Barrick Gold Quarterly Report on Responsible Mining, March 2008)

Courtesy of Beyond Borders, Barrick Gold Corporation

Justus Nkwabi receives a Safety Champion award from Barrick Chief Operating Officer Peter Kinver (left) and his supervisor (right) Jim Chapman for his work as a peer health educator at the North Mara mine.

"I work at Barrick's North Mara mine in Tanzania as a Peer Health Educator, a program facilitated by the African Medical & Research Foundation (AMREF).

In September 2004, I was trained for this role and learned about health problems affecting mine workers and the community, with an emphasis on HIV/AIDS, sexually transmitted infections and malaria. Today, every department at the mine has more than three trained health educators, who meet regularly with a specialist from AMREF to discuss our work.

I live in the local community and I'm very familiar with the social and economic circumstances. Many people are eager to get employment at the mine, not just from the local community but from surrounding areas. This influx means the community is very densely populated. Public health education and promotion is very important.

My work includes educating my colleagues about major health problems. We encourage the use of condoms to protect against the risk of STIs and HIV. I encourage my co-workers to go for HIV testing and regular checkups for STIs and to use nets and masks at work. One of my challenges is finding the right moment to talk to mine workers, which is most often on breaks or in group sessions.

Some local women resort to prostitution to escape poverty. They know they can sell unsafe sex at higher prices than protected sex. This increases the risk of transmission of HIV or other STIs. We work to educate people about the risks they are exposing themselves and others to, and to change attitudes.

The mine health program is having a significant impact on the health of employees and the wider community. Mine workers now see the importance of knowing their HIV status through voluntary counseling and testing, which is provided by AMREF on the mine site. I am proud of our work. Mine workers are now openly discussing the importance of practicing safe sex and leading healthier lives."

tomorrow's doctors is a pressing need, and Barrick recently teamed up with the Tanzania Medical Students Association to conduct a two-week health intervention which targeted 10 remote villages near the company's Bulyanhulu mine in Tanzania. Barrick funded a team of 25 medical students from the Muhimbili University of Health and Allied Sciences (MUHAS) to conduct an intensive health campaign focusing on HIV/AIDS, malaria and tuberculosis.

The program enabled the students, who travelled from the capital, Dar es Salaam, to interact with underserved, isolated communities and act as mentors to local health workers. Their goal was to empower groups at risk of infection, including youth, pregnant women, commercial sex workers, intravenous drug users and vulnerable children. The students were able to apply their medical training in a rural context and advance health strategies that took into account poverty, discrimination and gender inequality. Working with 4,000 people, the students distributed a total of 450 bed nets, while sharing the latest information about diagnosis and treatment with area health workers.

Aside from its cooperation with AMREF and with the Tanzanian Medical Students Association, Barrick is an active partner with the Tanzania Ministry of Health and Social Welfare, the Tanzania Commission on AIDS and local organizations.

Courtesy of Barrick Gold Corporation

Medical students provide a bed net to a senior citizen near Bulyanhulu.

Courtesy of AMREF

An AMREF worker in Tanzania dips mosquito netting in insect repellent as part of a program to control the spread of malaria.

A model for malaria control: AngloGold Ashanti at Obuasi, Ghana

[this case study originally appeared in AGA Report to Society 2005-2007]

Careful evaluation of the situation at its Obuasi mine in Ghana, and a thorough, scientifically-derived strategy, are the keys to the success of AngloGold Ashanti's award-winning control program for malaria – the gravest public health threat to AngloGold's operations in West Africa. When the program was launched in January 2005, the company set an ambitious target of a 50% reduction in malaria incidence in two years. By September 2007, it had achieved a 73% reduction.

Courtesy of AngloGold Ashanti

AngloGold Ashanti Obuasi spray operators participate in the World Malaria Day parade in Accra.

In developing the anti-malaria campaign in 2004, AngloGold Ashanti brought in a world authority in insecticide resistance, Professor Richard Hunt of the National Institute of Communicable Diseases in South Africa, to identify both the mosquito species which were the main malaria vectors in the area and their degree of resistance to insecticides. The findings presented a new challenge: the dominant species identified showed complete or partial resistance to three of the standard insecticides endorsed by the WHO. However, both species were found to be susceptible to a different class of insecticides, organophosphates. The company took an integrated approach, since none of the standard malaria control measures used in isolation would be effective in Obuasi. The company then contracted with the Noguchi Research Institute in Accra to conduct a baseline community parasite prevalence study for use in follow-up studies to assess the success of malaria control program.

Before the program, 20% of the company's workforce was absent due to malaria at any given time. With similar infection rates in the larger Obuasi community of some 150,000 residents, the strain on the region was formidable. The local Edwin Cade Hospital saw more than 79,000 malaria cases in 2005.

Source: AngloGold Ashanti Obuasi Limited

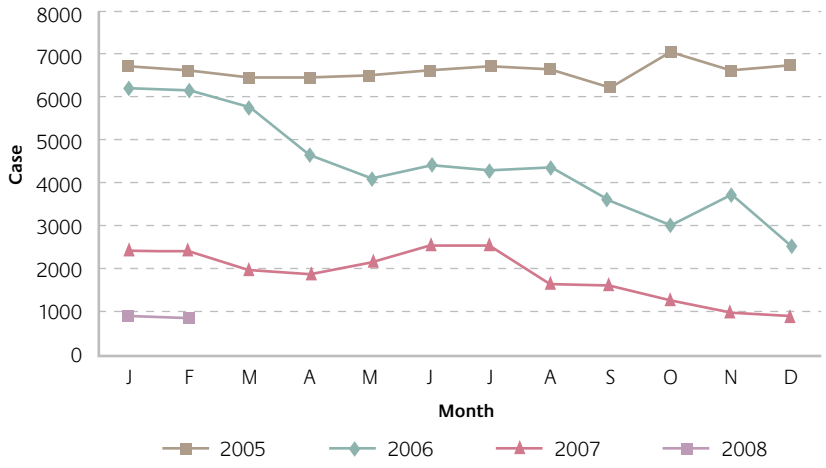
Laboratory technician takes blood for a malaria smear and rapid test at Edwin Cade Hospital.

While proper planning was essential, so was the program's execution. Community involvement, though always required in successful public health programs, was particularly important given the layout of the mine. Concerning the community's involvement, Malaria Control Manager Steve Knowles comments, "This was particularly relevant at Obuasi: the mine's various shafts are over a mile apart, with the town interspersed between them, making the mine and community an integrated entity."

In addition, community support for the program was needed since some 35,000 dwellings were covered in the indoor residual spraying (IRS) for the entire Obuasi Municipal Assembly area.

AngloGold's community interaction comprises regular committee meetings, social gatherings, media articles, a weekly slot on local radio and one-on-one interaction between company staff and community leaders. Member of the Obuasi Community

Figure 4.1: Total Malaria Cases 2005 – 2008 at Edwin Cade Hospital



Source: AngloGold Ashanti Obuasi Limited

Chief of the Zongo Community at Obuasi, Alhaji Jibreel, with residents.

"Chief Alhaji Jibreel, at a Friday sermon at the Central Mosque, entreated his people to embrace the malaria program. He said whereas before people could not sit on the veranda as mosquitoes came to invade them, now since the inception of the program one can relax and have a chat with the family. He told them that he can see the people are not getting malaria any more, and that is good. He therefore implored his people to embrace the program as malaria is not respecter of persons."

Resident of Obuasi, Ghana, of AngloGold Ashanti malaria control program.

Source: AngloGold Ashanti Obuasi Limited

Spray operators discuss malaria program with community members.

Volunteer Advocate corps, formed in 2007, provide a conduit between community members and the company. Volunteers receive regular training in the causes and prevention of malaria, as well as updates on new developments, from the AngloGold Ashanti Malaria Control Programme staff, and are paid a quarterly allowance.

Training of qualified staff to conduct the spraying was another important element. "IRS had been in use for some years when we developed the project, but its effectiveness had declined over the years for a number of reasons, including the inappropriate use of insecticide, a lack of infrastructure and a shortage of trained personnel," says Knowles.

Not only did the program create permanent jobs, but the recruits were screened to ensure their fitness for the work and trained to handle the program equipment. At the end of 2007, 98% of the targeted area of intervention had been sprayed, and larviciding of water bodies is ongoing.

Where prevention efforts fail, the company's disease management methodology relies on standard treatment protocols: rapid, early detection and diagnosis of malaria are in place at the hospital and health facilities of the Obuasi Mine Medical Services. Drug treatments used are in line with the Ghanaian National Treatment Protocol, including the mandatory use of the new Artesunate drugs which are showing improved cure rates. The company implemented measures to monitor the diagnosis and treatment of malaria for consistency and effectiveness.

Source: AngloGold Ashanti Obuasi Limited

Schoolchildren in Obuasi receiving a malaria awareness talk.

Regional outreach

At its opening in April 2006, the Obuasi Malaria Control Centre was dedicated to Ghana and West Africa. It serves as the headquarters for the Obuasi program, but is also a training center for malaria control at other AngloGold Ashanti operations, as well as a satellite research centre for academic and government agencies. The Obuasi program served as a model for a similar program developed at the company's Geita Mine in Tanzania, with rollout to Siguiri Mine in Guinea in October of 2008. Spray personnel have also been trained on behalf of Newmont. Plans for 2009 include a malaria control joint venture with the Ghana Chamber of Mines, with participation from AngloGold Ashanti's Iduapriem mine in Ghana, Gold Fields, and other mining companies, using the Tarkwa area as a pilot site.

The Obuasi program has received international recognition, including a commendation from the Global Business Coalition on HIV/AIDS, Tuberculosis and Malaria as an example of global excellence, and – in conjunction with AngloGold Ashanti's work on HIV/AIDS and tuberculosis – won three awards at the ABSA Healthcare Initiative Awards in association with the Pan African Healthcare Congress.

Source: AngloGold Ashanti Obuasi Limited

Spray Operator Lawrence Boakye discusses spraying with residents in the community.

"The spraying program has provided employment for me so that I'm now the breadwinner for my family. I've been able to send my children to institutions of higher learning, and have earned a certain amount of respect within the community since I'm seen as someone who cares for them. Malaria is on the decline, unlike before when the hospitals were choked with patients suffering from malaria especially on the children's wards. We've proved all the doubting Thomases wrong as they thought the program was rather going to create armed robbery in the community. It's gratifying to know that much of the credit goes to the spray men for a good job done."

Lawrence Boakye, Spray Operator.

Newmont at Batu Hijau, Indonesia

Newmont's public health program at its Batu Hijau mine in the remote region of West Sumbawa, Indonesia, faced cultural challenges in this predominantly Muslim community. Discussions of sexual behavior are regarded as appropriate only within married couples, so outreach programs on topics such as STIs and HIV needed the cooperation of the local mosque and community leaders. In 1998, early in the construction phase at Batu Hijau, Newmont contracted with International SOS to operate a culturally-sensitive, broad-based health service for the mine and surrounding communities.

The approach involved quarterly meetings with key individuals in the community including religious leaders. Newmont is working to develop an HIV/AIDS module for the district religion office to equip educators to distribute information during Friday prayer at the local mosque, and the company's 2009 plan incorporates a cooperative program with USAID and the Asian Moslem Action Network Indonesia to develop an HIV/AIDS action plan for the district religion office.

Malaria

Malaria was a major threat to public health in the Batu Hijau area when the program was launched in 2000. The prevalence rate was 47.3% among schoolchildren in February 1999 during the wet season, and fell to 1.5% in the same period of 2007 across all the villages surveyed, with some 2,105 children tested (Figure 4.2).

In addition, the malaria incidence rate in the mine workforce at the facility clinic dropped from 53 per 1000 employees in 1998 to 5 per 1000 in 2007 (Figure 4.3).

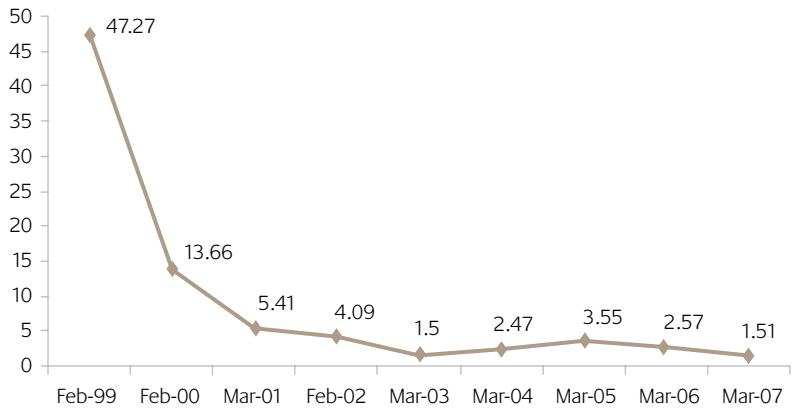
The integrated malaria management plan targeted both prevention and treatment, on and off the mine site. The main vectors identified were *Anopheles* mosquitoes breeding in partly saline lagoons along the coast. The program also covered the *Aedes* mosquitoes responsible for dengue fever.

Courtesy of International SOS

Newmont health educator talks to kindergarten children at Maluk beach on World TB Day.

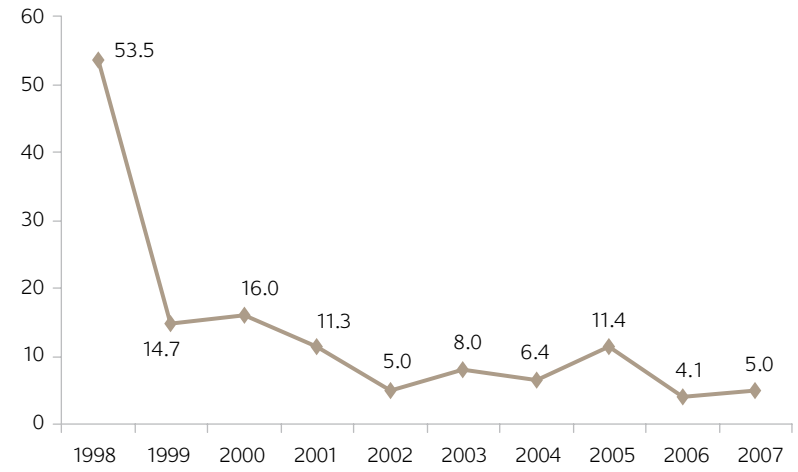
The malaria program incorporated numerous tactics. Vegetation around mosquito breeding sites was cleared and sprayed with larvicide, houses were sprayed with insecticides, and bed nets distributed. Community volunteers were trained to detect cases. The volunteers were provided with malaria treatment from the government, community primary school children in villages in the mine's direct influence area were given

Figure 4.2: Malaria prevalence rate – Community children



Source: Newmont Mining Corporation.

Figure 4.3: Malaria Incidence Rate at Mine, per 1000 Employees



Source: Newmont Mining Corporation.

biannual screenings for malaria and treated if positive, and military personnel were screened before entering the control zone.

Newmont supported the government's microscopy services and provided technical support and training for the government lab, helping to transfer skills and technology to local health centers. A case management system was instituted both at the facility clinic and first aid posts, supported by a medical evacuation service. According to Dr. Dave Knight, Medical Consultant to International SOS, the program's foundations were strong management support, accurate and detailed monitoring and evaluation both internally and externally, workforce and community education, and stakeholder engagement.

HIV/AIDS and TB

The threats of HIV and TB were identified at the beginning of the project due to in-migration of labor and to the linked phenomena of economic growth and commercial sex worker populations.

Worker exposure to silica dust and their accommodation in barracks in an area of high TB prevalence increased risks at the site. The WHO ranked Indonesia in the top ten countries for TB incidence in the world, with a rate of new cases of 284 out of 100,000 in 2007. TB and HIV program activities were implemented as part of a broader public health agenda, with three main objectives: an early focus on prevention; building community capacity;

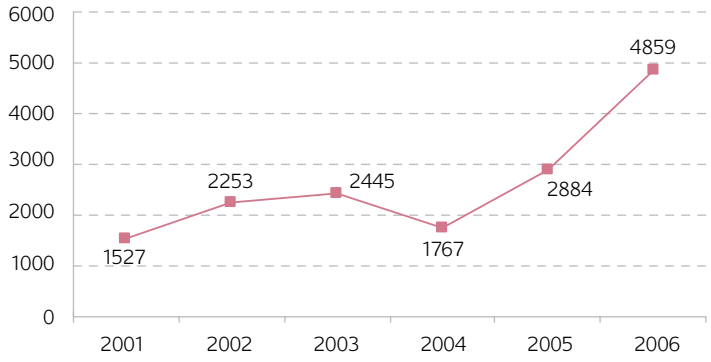
Courtesy of Newmont Mining Corporation

Mamik Caturyati, HIV Senior International SOS Educator.

"Those who came to the prostitution complex had no idea about HIV. Now that the HIV program has passed five years, there have been clear changes. People have a clear concept of the disease. This program has been much helped by increased knowledge, attitude and practices among the people and the commercial sex workers."

Mamik Caturyati, HIV Senior International SOS educator for 9 years.

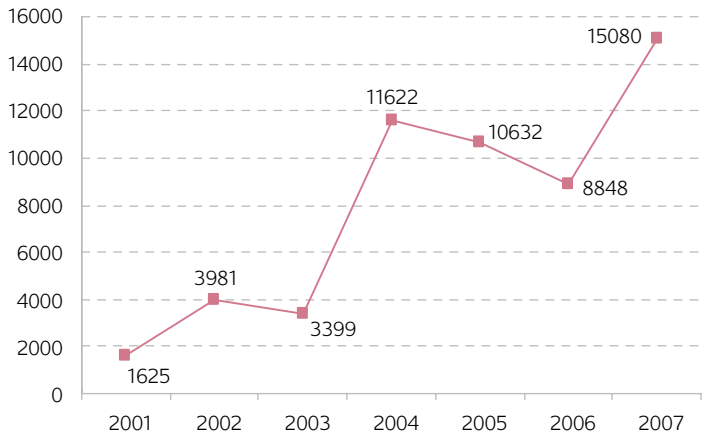
Figure 4.4: Total Visits to Drop-In Center, 2001-2006



Source: Newmont Mining Corporation.

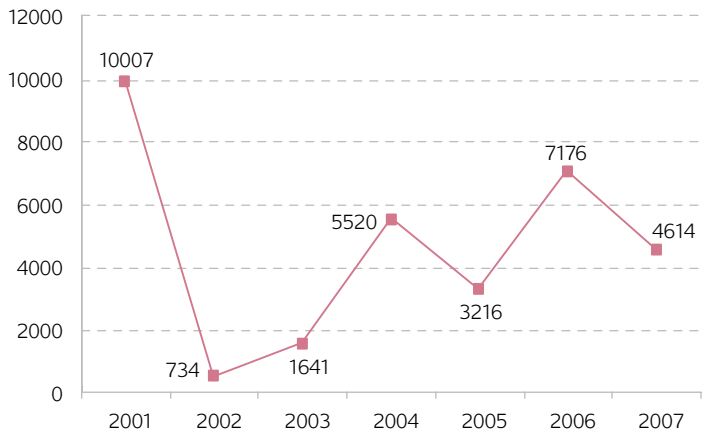
and building workplace programs for treatment in line with government policy. Once again, these programs could only succeed through strong mine management support. Newmont implemented an HIV policy based on ILO principles and provided significant program funding. A Newmont public health office was set up to deliver program activities both onsite and offsite. The program was underpinned by monitoring, evaluation and research.

Figure 4.5: Onsite condom distribution 2001-2007



Source: Newmont Mining Corporation.

Figure 4.6: Offsite condom distribution 2001-2007



Source: Newmont Mining Corporation.

Source: International SOS

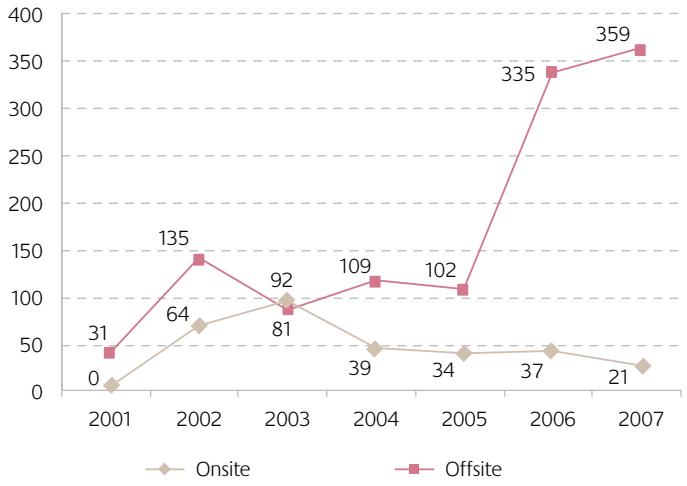
Regular CSW meetings include informational sessions and voluntary testing.

Newmont's HIV prevention activities showed positive results in 2007, with condom distribution significantly increased at the mine site (see Figure 4.5). Offsite, the gains made in 2006 were not sustained in 2007 (see Figure 4.6). When local authorities conduct sweeps of prostitution centers and massage parlors, women with condoms are arrested and placed in rehabilitation centers where they receive skills training in sewing, cooking and writing, as well as religious education. This prospect makes the sex workers less willing to carry condoms. The Newmont-International SOS team continues to engage with local government agencies to address this problem. Voluntary counseling and testing services showed strong gains offsite, but a decrease in the number of health educators has forced the onsite clinic to reduce its operating hours, hampering uptake levels.

Outreach programs identified a number of high risk groups for HIV. Specific preventative activities were targeted at these high risk groups in addition to work with community women's groups and school-age youth using a wide range of meetings and media.

High-risk groups were targeted with a vaccination/treatment program for commercial sex workers (CSW) and men who have sex with men (MSM) in conjunction with the government health

Figure 4.7: VCT Uptake Numbers, 2001-2006



Source: Newmont Mining Corporation.

Courtesy of Newmont Mining Corporation

Dr. Soebchan Rahim, Public Health Manager, International SOS.

service. Both these groups were vaccinated against Hepatitis B and treated for syphilis and sexually transmitted infections (STIs) and were offered counseling and testing (VCT) for HIV. To support sustainable interventions in the community the mine funded an education coordinator and voluntary community cadres were enlisted to work in the areas of HIV and TB prevention and active TB case detection.

Courtesy of International SOS

Health educator makes weekly calls to residents at risk for TB in Batu Hijau's surrounding communities. Community health volunteers promote visits to the TB educator among community members, increasing turnout.

As male mine workers were identified as potentially being at high risk for HIV and TB, mine employees were educated at induction about HIV, TB and sexually transmitted infections (STIs). This was reinforced by regular employee knowledge, attitude and behavior surveys on HIV. Employee drop-in centers were provided at the port and the mine for information gathering and confidential testing. Symptom screening was performed at induction and during occupational health medical examinations, and a workplace Directly Observed Therapy – Short Course (DOTS) program was initiated. Nearly 4,000 employees were educated at induction in 2006 and 10 new cases of TB in employees were detected onsite. The WHO estimates that each active case of TB can infect 10 to 15 people. Facility workers at risk of occupational exposure to blood borne pathogens were entered into a program guided by Newmont's blood borne pathogen policy.

As Newmont moves towards divestment in the Batu Hijau project under its contract, the importance of creating sustainable value in the area's community health becomes more immediate. Dr. Soebchan Rahim, Public Health Malaria Control Manager for the project, says that his team has to ensure that the fight against HIV, TB and malaria will continue after Newmont has left. He adds that 'regular advocacy and communication with the district health office and technical assistance in terms of skills and knowledge transfer' plus 'strengthening of health promotion in the community' are more likely to result in sustainable health programs.

Management support for Peer Education and VCT: AngloGold Ashanti, at Great Noligwa, South Africa

[this case study originally appeared in AGA Report to Society 2007]

To meet its targets for recruiting peer educators at the Great Noligwa mine in South Africa, AngloGold Ashanti employed a number of techniques. The target at all AngloGold Ashanti's South African operations is one peer educator per 50 employees. By the end of 2007 this had almost been achieved, with one peer educator per 54 employees.

In 2005, Great Noligwa Mine in the Vaal River area was the least successful in meeting this target, recruiting only 19 peer educators, for a ratio of 1:300. At the end of November 2007, the number of peer educators was just one short of the targeted 110.

Great Noligwa's HIV/AIDS Coordinator Douw Steyn attributes this improvement to a number of critical success factors, with commitment from senior mine management one of the most important. Volunteer peer educators are now able to dedicate one full day per month to their outreach activities. Previously, they were expected to carry out their duties on a purely voluntary basis. Now, with mine management approval, their peer education duties are built into their work responsibilities. VCT targets are also now included in department heads' performance targets.

After a fatal accident at the mine in March 2007, the mine launched a safety intervention known as Lungisa (meaning 'fix up'). "Every section was taken off production for a full shift," says Steyn. "VCT was incorporated into the program for the day, and there was an excellent uptake."

"Obtaining the co-operation of organized labor was also critical, and I am glad to say that the union leadership at Great Noligwa fully supports our VCT campaign and wellness program," says Human Resources Manager Marius Steenkamp.

Interventions to increase recruitment of peer educators included door-to-door campaigns at mine offices and the Great Noligwa Mine Residence. As peer educators were recruited, they were in turn encouraged to recruit others.

The Great Noligwa peer educator group is divided into teams of eight, with each encouraged to choose a team name and captain. Steenkamp reports that competition has developed between teams, with each determined to achieve the most referrals to VCT. Another benefit of the team system has been more focused, structured communication between the group and mine management.

Not only has the recruitment of peer educators improved significantly, but so have the metrics of their progress. In 2007,

Courtesy of AngloGold Ashanti

Themba Matafeni, a peer educator at Great Noligwa, talks with a mine worker.

101% of employees at Great Noligwa had come forward for VCT (assuming one test per person, so that repeat tests can drive the figure over 100%). This compared with 40% in 2006.

Uptake of other HIV/AIDS services also increased: 10% more people attended the wellness center, and 54% more Great Noligwa employees were on anti-retroviral therapy (ART). Absenteeism due to illness also declined: in a cohort study conducted by AngloGold Ashanti Health at Great Noligwa on a group of 20 employees taking ART, the average number of days' sick leave declined from 11 in August of 2006 to two in September 2007. There are of course a number of factors involved in these improvements, not all of which are directly attributable to the peer educators' efforts. However, the peer educators are an important link between employees and the resources of the HIV/AIDS management program.

The company is working to extend the HIV prevention program to the mine's 200 contract employees, who are encouraged during induction to know their HIV status.

Best practices in TB control: AngloGold Ashanti Health in South Africa

[this case study originally appeared in AGA Report to Society 2007]

South Africa has the world's highest prevalence rate for HIV and seventh-highest TB burden. The country's gold mining industry has an approximate HIV prevalence of 30%, and the combination of links between HIV and TB with exposure to silica dust means the industry may have the world's highest known incidence of TB. So an effective TB control program is crucial, and AngloGold Ashanti Health (AGA Health) has responded with a program recognized nationally and internationally for its effectiveness and sustainability.

Courtesy of AngloGold Ashanti

Dr. Alistar Calver attending a TB patient at West Vaal Hospital.

AGA Health's TB program is built upon the WHO recommendations, the South African National TB Control Programme guidelines, and the Guidelines for TB Control Programmes in the Mining Industry issued by the South African Department of Mineral and Energy Affairs. It also complies with South Africa occupational health legislation.

TB control programs in high incidence settings have a number of essential elements. These include rapidly identifying and diagnosing infectious cases, access to rapid bacteriological methods for culture, identification and drug sensitivity testing for TB bacteria, and the rapid institution of appropriate therapy with quality drugs. Other essential elements are the isolation of infectious cases, the administration of treatment via directly-observed supervision, and the confirmation of a bacteriological cure at the end of treatment. Quality assurance and a program audit trail are required to assess the program's success. Lastly, with high-HIV prevalence, a successful TB control program depends upon an equally effective HIV program that includes ART.

The AGA Health TB program has all these elements. All employees working underground and in other areas with exposure to dust are screened twice a year. Digital x-ray technology at the Occupational Health Centre and two mobile digital x-ray units have improved the early detection of pulmonary disease. Patients are screened for TB symptoms at every healthcare contact.

At the company's Vaal River operation, AGA Health has a modern TB laboratory at the West Vaal Hospital. At the lab, sputum microscopy and culture are processed to confirm diagnosis. Combination drug therapy is started as soon as diagnosis is confirmed, and patients are educated about their condition and the need to take their treatment properly for the duration of the treatment.

A Directly Observed Therapy (DOT) strategy is used for the TB treatment, with every daily dose of medication seen to be swallowed, either at a healthcare facility or by a treatment supervisor. Using combination-drug therapy ensures that the patient receives all four drugs required for optimal therapy in one tablet. After treatment is completed, the lab confirms that Pulmonary TB cases have been cured.

The program's performance is audited and optimized through regular quality assurance, quarterly data analysis, and annual audits of the standard operating procedures. Since 2001, the AGA Health TB control program has met or exceeded the benchmarking standards for TB control program of both the WHO and the South African National TB Control Programme, on a quarter-by-quarter basis for both case-finding and successful outcomes.

Courtesy of AngloGold Ashanti

Attending to a patient at West Vaal Hospital.

It is especially important for TB patients to know their HIV status, since in combination the conditions have an aggravating effect. TB patients who are co-infected with HIV require proper assessment and the timely use of ART. Treating both conditions results in reduced mortality, faster return to health and earlier return to work. Nevertheless, many TB patients are reluctant to be tested for HIV, thereby missing out on the benefits of synergistic treatment.

Patients who have completed their TB therapy receive a compensation medical examination six months later. Patients suffering from disability as a result of TB infection are referred to the Medical Bureau for Occupational Diseases (MBOD) for assessment of compensation.

In even the most successful TB programs, some patients develop multi-drug resistant TB (MDR-TB). Approximately 4% of the total AGA Health TB cohort develops MDR-TB, evenly split between new TB cases and re-treatment cases. To reduce the risk of MDR-TB being spread from one patient to another, a MDR-TB unit was established at the West Vaal Hospital in late 2003, where up to 25 patients are housed in an airborne infection isolation unit. As MDR-TB carries a higher mortality and is more difficult

Courtesy of AngloGold Ashanti

Digital x-ray equipment at the Occupational Health Centre.

and costly to treat, these patients spend an average of more than six months in the hospital.

Unfortunately some patients do not improve despite the use of MDR-TB treatment, as the TB bacteria develop progressive resistance to the MDR-TB drugs. This results in the development of extremely drug resistant TB (XDR-TB). XDR-TB carries a very high mortality and has been diagnosed within the AGA Health MDR-TB cohort over the past decade, and has long been recognized as a challenge within the program. Research into the genetic mechanisms of TB resistance is under way with the Division of Molecular Biology and Human Genetics at the University of Stellenbosch, and AngloGold Ashanti is collaborating with the university on a study of MDR.

Both the AGA Health TB and HIV wellness programs in South Africa, and the malaria program for West and East Africa, were recognized in September 2007 at the ABSA Health Care Initiative Awards, part of the Pan African Health Care Congress. Both programs were winners in the category 'Listed Company/Multinational Organisation/ Hospital Group', with AngloGold Ashanti also receiving the 'Most Sustainable Project and the Project with the Biggest Impact'.

Section 5
Financing the battle against disease

International aid

Funding for the fight against infectious disease has increased dramatically in recent years. International aid from individual governments, multilateral and intergovernmental organizations provides the majority *(see Figure 5.1)*. In 2007, the United States provided one-fifth of global AIDS financing from all sources — governments, international aid groups and the private sector.

In 2003, the US Congress approved the initial President's Emergency Plan for AIDS Relief (PEPFAR), which pledged $15 billion over five years to fight HIV/AIDS, TB, and malaria, targeted at 16 nations. Its goals included placing two million people on ART and ten million more in some form of care by early 2008. PEPFAR was re-authorized and broadened by Congress in July of 2008, approving a five-year, $48 billion plan which sets aside $5 billion for malaria and $4 billion for tuberculosis. In addition to the prevention, treatment and care activities covered in the original bill, the new legislation also addresses the social drivers of the disease and strengthens healthcare systems.

The US is of course not alone in this increased funding for global public health: each of the OECD nations greatly increased their overseas development assistance for health issues between 2001 and 2005. A new funding mechanism was established in 2002, independent of any government and of the United Nations, to fight disease: the Global Fund to Fight AIDS, Tuberculosis, and Malaria, which is financially supported by governments, philanthropy, and a variety of corporate-donation programs. By 2007 the Fund had approved $6.6 billion in proposals and dispersed $2.9 billion, now providing 20% of total global support for HIV/AIDS programs and a full 66% of

Figure 5.1: Examples of external funders

Organizational type	Examples of donor agencies
International development agencies	World Bank and regional development banks (e.g., European Bank for Reconstruction and Development, Inter-American Development Bank, African Development Bank, Asian Development Bank)
Multilateral agencies	European Union; United Nations Development Programme; Global Fund to Fight HIV/AIDS, Malaria and TB; World Bank Group; International Finance Corporation; United Nations; European Commission External Aid Program; OPEC Fund; African Development Bank; Asian Development Bank
Bilateral agencies	United States Agency for International Development, UK Department for International Development
Non-governmental organizations (local and international)	United Nations Children's Fund, Oxfam, Red Cross, Hope International, CARE, Family Health International
Private foundations Host-country governments (national or local)	Bill and Melinda Gates Foundation, Henry J. Kaiser Foundation, Rockefeller Foundation Departments of Health, Community Development/Social Services; Lotteries Board
Private companies/corporations	Companies that do business with your company (such as suppliers, service providers and contractors); other companies from the same or another sector

Source: ICMM

funding to combat TB and malaria. The new US PEPFAR bill provides for a $2 billion infusion into the Global Fund in 2009, and a meeting of donor countries in September of 2008 resulted in a $97 million replenishment of the Fund for the next three years.

The World Bank began increasing its healthcare spending in 1993 to reach $3.4 billion in 2003, then decreasing to $2.1 billion in 2006, with $87 million of that spent on HIV/AIDS, TB, and malaria programs and $250 million on child and maternal health. In May of 2008, the Bank announced a new, five-year agenda for HIV/AIDS in Africa including $250 million per year for HIV/AIDS-related health, education and transportation initiatives.

The Bank, along with the International Monetary Fund (IMF), the OECD, and the G-8, has also recently forgiven the debts of several poor nations severely affected by AIDS and other diseases, with the requirement that the debtor governments allocate the funds which would have gone to debt service to key public services, including health.

The growth in charitable giving towards the infectious disease fight has seen similar growth. In its first six years the U.S.-based Bill and Melinda Gates Foundation had given away $6.6 billion for global health programs, almost $2 billion of which went to programs for TB, HIV/AIDS and other sexually transmitted diseases. Between 1995 and 2005, total giving by all U.S. charitable foundations tripled, and the portion of money dedicated to international projects soared 80%, with global health representing more than a third of that sum. Independent of their government, US citizens donated $22.4 billion for domestic and foreign health programs and research in 2005 alone.

National government expenditures

The funding by individual governments to fight their own battles against infectious disease varies widely. UNAIDS collects data on national funds spent by governments on HIV/AIDS from domestic sources – and this spending dwarfs that for TB and malaria. Among the countries studied in this report, South Africa ranked highest with $480.5 million spent in 2007 and $425.9 million a year earlier. Tanzania's spending both from domestic public and international sources was $323.5 million in 2006. In the same period, Indonesia and Ghana spent $15.1 million and $4.9 million respectively from domestic sources.

For tuberculosis, the WHO collects spending figures for 30 high-burden countries, which do not include Ghana. The 2008 national TB program budgets show enormous increases in recent years. South Africa's national TB program budget for 2008 was $352 million, more than four times its TB spending in 2002. Tanzania's national TB budget for 2008 was $52 million, or more than eight times its 2002 budget. Indonesia's 2008 budget was $57 million, a 66% increase over 2002.

Malaria, while a major health threat globally, is not a significant threat in every country. South Africa, for example, is not among the WHO's high-burden countries for malaria, so the Organization does not collect expenditure figures there. Ghana's national spending on malaria in 2006 was $24.8 million, and Indonesia spent $17.9 million in the period. Tanzania's contribution for 2006 was not reported.

Section 6
Future goals and conclusion

The overall objectives of gold producers in fighting the threats of HIV/AIDS, TB and malaria are common across the companies profiled in the report. For their areas of operation, they aim to:

- minimize or eradicate disease among their workforce and communities
- destigmatize people living with HIV/AIDS
- boost the sustainable development of local healthcare capacity.

Each company, depending on the unique characteristics of the communities where it operates and the disease factors in play, has its own strategy for moving toward these goals over the next several years.

AngloGold Ashanti at Obuasi, Ghana, plans to strengthen its partnerships, with a 2009 plan to create a joint venture with the Ghana Chamber of Mines, with participation from its Iduapriem mine in Ghana, with Gold Fields and other gold producers, using the Tarkwa area as a pilot site. Since implementing its Obuasi model for malaria control at the Siguiri mine in Guinea in October of 2008, AngloGold Ashanti plans to roll out the model at both the Geita mine in Tanzania and the Sadiola mine in Mali. In addition, the company will partner with other gold producers to replicate the program elsewhere in Ghana.

In South Africa, AngloGold Ashanti continues its fight against TB, helping to find a cure for the deadly, drug-resistant strains of TB by participating in research into the genetic mechanisms of TB resistance currently underway with the Division of Molecular Biology and Human Genetics at the University of Stellenbosch.

Gold Fields Ghana plans to incorporate additional elements into its existing programs to encourage employees to take a holistic approach to their health, encouraging routine testing for cholesterol, diabetes and hypertension. The company will step up its battle against the stigma of HIV/AIDS by launching a quarterly campaign to encourage acceptance of employees living with the disease in an atmosphere of openness and non-discrimination, also establishing a workplace support group. Employees will now be encouraged to be tested for HIV as part of their regular medical examinations.

In Ghana, Newmont's goals over the next five years include the training of commercial sex workers to act as peer educators, outreach to schools for the formation of abstinence clubs, and the launch of a weekly radio program.

Newmont in West Sumbawa, Indonesia, is committed to changing the paradigm of healthcare in the region so that local government agencies and authorities will learn the extent of the region's health issues and status and take on a proactive role in health management. The company's plans include the imparting of skills and knowledge to local healthcare personnel, as well as the empowerment of surrounding communities in health maintenance.

Through its partnership with AMREF, Barrick in the coming year will see the Nyamongo center become a test site for a national VCT campaign in Tanzania. Separately, the program will introduce mobile VCT services within the mine and will begin outreach to an additional 1,000 residents outside the neighboring Nyangoto Village. Further plans include the start of life skills training sessions for high-risk women such as recreational guesthouse workers, testing 1,000 mine workers and distributing 500 additional insecticide-treated bed nets. The company also plans to further integrate the AMREF project with the existing community-based organizations and support groups, in order to scale up coverage of the AMREF services and harness the core competencies of community groups. At North Mara, Barrick also plans to address the lack of AIDS treatment and care available in nearby Nyamongo.

A significant number of people decline HIV testing because they would have to travel considerable distances to Tarime town or other locations to receive treatment if they are HIV-positive.

Collective action

Progress toward shared goals in the fight against infectious disease can be accelerated through collective action among public- and private-sector groups. Barrick is spearheading the development of a cooperative community health program in conjunction with other private sector companies, government entities and NGOs. The Lake Zone of Tanzania is home to nine million people as well as a majority of the country's gold mining operations. The ambitious Lake Zone Health Initiative aims to leverage the presence and resources of the mining industry and the private sector to improve the health of the Lake Zone population.

The Initiative has identified a range of health challenges that persist in the Lake Zone, including:

- High HIV/AIDS and malaria prevalence rates (see Figure 6.1)
- Limited or no access to HIV/AIDS care and treatment clinics around mine sites
- Limited or no home-based care services for patient follow up and tracking
- Lack of basic primary health care services at dispensaries

Based on the concept that strategic private-public partnerships and collective action can best address these issues, the Initiative would foster the development of a comprehensive and sustainable health program for the Lake Zone Region to create lasting improvements in community health. The Initiative seeks to align the efforts of the mining sector, recognizing that individual mining companies have implemented malaria and HIV/AIDS care, treatment and prevention programs, water and sanitation initiatives, and have funded the construction of health facilities in underserviced communities.

Community benefits include improved access to health services particularly for vulnerable groups, maximized benefits from mining activity, and ownership of a high-quality, sustainable healthcare system. For governments and development partners, the Initiative offers an opportunity to work with the mining sector, rather than individual companies, leveraging the industry's resources and research to potentially enhance existing programs.

The Initiative has been endorsed by the Tanzania Chamber of Minerals and Energy. Barrick is engaged in productive discussions with government and health institutions, mining companies and potential private sector partners, NGOs, donor groups, academic institutions and other interested parties.

Figure 6.1: HIV and Malaria Prevalence in Lake Zone

	HIV	Malaria*
Kagera	3.4	41.1
Mara	5.3	30.3
Mwanza	5.0	31.4
Shinyanga	7.6	29.5

** Children of 6–59 months tested*
Source: Tanzania HIV/AIDS and Malaria Indicator Survey 07-08 (preliminary report)

Conclusion

Gold mining companies are particularly affected by the triple disease threat of HIV/AIDS, tuberculosis and malaria. It is difficult to think of what other industry faces a situation where in certain locations 30% of its employees are infected with a fatal disease such as HIV, or where a similar percentage of the surrounding community is likely to be infected with a serious illness such as malaria. As seen in the respective disease prevalence rates in Ghana, Tanzania, South Africa and Indonesia, the companies' areas of operation frequently overlap some of the regions in the world which are hardest-hit by these multiple epidemics. Furthermore, some of the unintended consequences of mining activities, such as increased commercial sex worker populations, exposure to silica dust and the creation of malarial breeding sites, can make the fight against disease an uphill battle.

Gold producers have the support of international organizations with considerable expertise in disease prevention and management, and among these, the ICMM *Good Practice Guidance on HIV/AIDS, Tuberculosis and Malaria* represents the most targeted and complete resource available for their unique circumstances and for the particular threats posed by the three diseases.

The four companies profiled in this report, in four different countries, have

tackled these diseases in line with internationally-recommended best practices including those of the ICMM, and continue to do so. They have seen great successes in many areas.

In Ghana, Newmont has seen new HIV infections decline from an average of four per month between 2005-2006 to two per month between January and September 2008, and a 40% reduction in the number of malaria infections in the past year. Gold Fields in Ghana sought to address the stigma of HIV and boost employee uptake of voluntary HIV testing, having the general manager, department heads and their spouses undergo testing and have their photographs displayed on notice boards. Now, some 88% of employees have undergone testing and the prevalence rate among employees has been measured at less than 1%, well below Ghana's national average.

Due to its success, Barrick's VCT center in Nyamongo near its North Mara operation, Tanzania has been selected as a national testing site for the country's new national VCT campaign. In the areas surrounding its Bulyanhulu operation, Barrick teamed up with the Tanzanian Medical Student Association to provide public health outreach and treatment to 4,000 people. This cooperation had the added benefit of helping to train doctors in Tanzania, where there is now only one doctor for every 25,000 people.

Careful evaluation of the situation at its Obuasi mine in Ghana, and a thorough, scientifically-derived strategy, have been the keys to the success of AngloGold Ashanti's award-winning control program for malaria – the gravest public health threat to AngloGold's operations in West Africa. When the program was launched in January 2005, the company set an ambitious target of a 50% reduction in malaria incidence in two years. By September 2007, it had achieved a 73% reduction. The program was commended by the Global Business Coalition on HIV/AIDS, Tuberculosis and Malaria as an example of global excellence, and also won recognition in the ABSA Healthcare Initiative Awards in association with the Pan African Healthcare Congress.

In Indonesia, Newmont tackled the major threat of malaria to public health in the Batu Hijau area, with some 47.3% of schoolchildren infected in February 1999 during the wet season. In the same period of 2007, the rate had fallen to 1.5%. The reduction among its workforce saw similar improvements, with malaria incidence rate in the mine workforce dropping from 53 per 1000 employees in 1998 to 5 per 1000 in 2007.

Senior management at AngloGold Ashanti's Great Noligwa mine in South Africa got behind the company's efforts to recruit new peer educators, to address the deficit of these important volunteers at the site in 2005. Now, volunteers have their peer education responsibilities built into their jobs, and the uptake of VCT and other HIV/AIDS services has correspondingly increased, with 100% of employees coming forward for testing in 2007 compared to 40% the prior year.

In South Africa, AngloGold Ashanti faces what could be one of the greatest TB epidemics in the world, given the country's high prevalence rate combined with the increased risk factors for TB at mining operations. The company developed a TB control program based on best practices from the WHO and national authorities, incorporating rapid identification of infectious cases, access to rapid bacteriological methods for culture, identification and drug sensitivity testing for TB bacteria, and the rapid institution of appropriate therapy with quality drugs. The program was also recognized in the ABSA Healthcare Initiative Awards, along with the company's Obuasi malaria control program.

International aid for HIV in particular has reached unprecedented levels in recent years, with the US government pledging $48 billion in 2008. While the funds are needed to provide preventative, care and treatment programs around the world, some public health experts have expressed alarm at the lack of resources being put toward the search for a cure. As the Council on Foreign Relations' Garrett points out,

"...it is troubling that formerly militant activists, United Nations agency leaders, government health officials, the American foreign policy establishment, religious leaders, scientists and physicians fail to see AIDS treatment for what it is: A stop-gap measure to tide humanity over until we can collectively reach what ought to be our real goal - stopping HIV's spread, entirely. On an individual basis living with AIDS is a proper goal; on a population basis it is catastrophic."

Certainly, individual companies cannot take up the responsibility for finding a cure for HIV, but the Global Fund and other organizations and networks can act as coordinators and fundraisers for this important aspect of the battle.

What gold companies can do is to continue to prevent new infections and treat disease among their workers and in surrounding communities. This is done through the various tactics outlined in the report which aim to minimize or eliminate the conditions that enable the spread of disease: voluntary counseling and testing for HIV, public health education and condom distribution, rapid diagnostic testing and treatment for tuberculosis, and the management of potential malarial mosquito breeding sites and spraying of homes and offices – many of these efforts in cooperation with qualified partner organizations. In addition, the companies are committed to continuing their treatment and care programs for those who are already suffering from the diseases. Each community and region has its own unique circumstances which require targeted programs and continual monitoring and program evaluation, and such monitoring is built into each of the programs considered.

Section 7
Glossary

AIDS	Acquired Immune Deficiency Syndrome
CD4	Cells which protect against illness
CSW	Commercial Sex Worker
DOTS	Directly-Observed Therapy, Short Course
GBC	Global Business Coalition on HIV/AIDS, Tuberculosis and Malaria
HIV	Human Immunodeficiency Virus
ICMM	International Council on Mining and Metals
IFC	International Finance Corporation
MDR-TB	Multi-Drug-Resistant TB
MSM	Men who have Sex with Men
STI	Sexually Transmitted Infection
TB	Tuberculosis
UNAIDS	Joint United Nations Programme on HIV/AIDS (comprised of UNHCR, UNICEF, WFP, UNDP, UNFPA, UNODC, ILO, UNESCO, WHO, World Bank)
USAID	United States Agency for International Development
VCT	Voluntary Counseling and Testing
WHO	World Health Organization
XDR-TB	Extremely-Drug Resistant TB

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