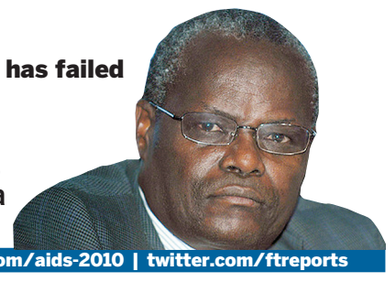
COMBATING AIDS

FINANCIAL TIMES **SPECIAL REPORT** | Wednesday December 1 2010

On FT.com

The 'War on Drugs' has failed
Policies should be based on science and human rights, says **Elly Katabira**



www.ft.com/aids-2010 | twitter.com/ftreports

Austerity threatens treatment advances

Andrew Jack says great strides have been made in the past 10 years but outdated attitudes and a slowdown in funding risk restricting more advances

The Vatican provided an early birthday present for World Aids Day last month, when the Pope offered an unexpected endorsement of condoms to prevent HIV. It was a rare positive development at a time of concern over slowing efforts to tackle the epidemic.

A decade after new approaches and funding began to spark a revolution in treatment and prevention around the world, outdated attitudes and a slowdown in funding risk restricting further advances. Greater faith, hope and charity are now all required.

The latest report from UNAids stresses achievements since the start of the millennium. More than 5m people now receive life-saving drugs, and prevention measures have reduced the rate of new infections each year by a fifth from its peak in 1997.

"We have broken the trajectory of the Aids epidemic," says Michel Sidibé, the agency's executive director. "We are closing the gap between prevention and treatment."

Optimists point to clinical trials offering distant hopes for an HIV vaccine, and therapies that could allow long-term suppression of the virus.

Very recent studies support much expanded "treatment as prevention", with greater use of medicines both by those with HIV to reduce their infectivity, and as prophylaxis in others to prevent initial replication of the virus immediately after transmission.

"You could look forward to a day in five or 10 years' time when we could have a pretty good armatorium for prevention," says Mark Dybul, former head of Pepfar, the US government's programme to fight Aids in the developing world.

In the meantime, the burden of HIV remains heavy, with an estimated 33.3m living with the virus, 1.8m dying from complications and 2.6m new infections each year. Even on the most optimistic estimates, there could still be 1m new cases annually 20 years from now, and an ever-larger number on long-term treatment.

Yet progress has slowed in some countries and there has been backsliding in others. Without a "magic bullet" to cure or prevent transmission, the field is becoming more crowded with a series of incremental interventions that raise hopes but add to short-term costs and complexity.

Moreover, further growth in the relatively large sums channelled to fighting Aids is threatened by austerity measures imposed since the 2008 financial crisis.

In October, donors pledged just under $12bn over the next three years to the UN-backed Global Fund to Fight Aids, TB and Malaria. That is more than the agency has ever received, but still short of the lowest of its three target scenarios of $13bn-$20bn.

Michel Kazatchkine, the Fund's director, says: "We are seeing major advances and successes despite the financial climate. But this [level of funding] means countries will slow down scale-up of access to treatment and prevention programmes and will not get us on target."

UNAids calculations suggest $16bn in total was spent last year, $10bn less than required. Funding is already being squeezed, including to the agency itself which, to make best use of its $250m annual budget, has frozen posts and cut staff and travel.

To critics, the axe could fall more aggressively still. Former US President Bill Clinton, whose foundation has helped reduce treatment costs, and Bill Gates, the founder of Microsoft, whose philanthropy has supported much work in the field, both chose efficiency as their theme at the biennial Aids conference last summer.

UNAids proposals include "Treatment 2.0", a package of new approaches, including longer-lasting medicines with fewer side-effects that are cheaper and easier to take, combined with more use of simpler diagnostics and community health workers to ease the burden on more costly medical staff.

Unitaid, another multilateral agency, has funded a "patent pool", which is trying to stimulate development of better and cheaper drug combinations, while lobbying for funding generated in innovative ways including via a financial transactions tax.

Better value for money is also the main recommendation of a report by aids2031, a think-tank, which highlights the need for improvement, as well as greater emphasis on funding targeted approaches for prevention, long the poor relation of treatment.

While much progress has been

Continued on Page 2

Inside this issue

On FT.com

Yusef Azad of the UK National Aids Trust on NHS and HIV services

Praise be: a woman outside a church in Angola. The Vatican now says condom use is justified for those with HIV Getty

Combating Aids

Austerity threatens treatment advances

Continued from Page 1

made in preventing mothers from transmitting HIV to children, for instance, coverage could be considerably higher and efficacy boosted through the use of better drug combinations given over longer periods.

Nicholas Hellmann, executive vice-president at the Elizabeth Glaser Pediatric Aids Foundation, says: "Our challenge is not only to reach the other half of women in need, but also to make sure all have access to combination prophylaxis or treatment regimens."

Circumcision is now being offered to men in sub-Saharan Africa, but implementation is slow.

President Yoweri Museveni of Uganda, an early champion of HIV prevention, has been reluctant to encourage the practice, according to Musa Bungudu, the local UNAids representative. "There is a general complacency, with gradual decline in commitment and support from the leadership."

Yusef Azad, director of policy and campaigns at the National Aids Trust in London, also sees the need for reinvigoration, in an era when widespread drug treatment has eased the fear of death. In the UK, that means finding new ways to tackle HIV infection in gay men. "When normal gay life is put forward as going clubbing every weekend with drugs and alcohol, we're doing everything we can to make it as difficult as possible to use condoms," he says.

A change in approach by many more governments could ensure limited resources are better spent. Eastern Europe and Central Asia are causing particular concern, with prospects for treatment – an essential precursor to persuading people to be tested for HIV – often lower than in Africa.

By neglecting needle exchange programmes, victimising drug users and forbidding methadone substitution for heroin addicts, Russia and some of its neighbours have spurned the most effective strategies for "harm reduction" among injecting drug users, the greatest contributors to their epidemics.

"The criminalisation of drug users undermines public health efforts by driving them underground and away from prevention and care services," says Elly Katabira, president of the International Aids Society.

A resurgence in laws to criminalise homosexuality and intentional infection with HIV – an issue highlighted by the recent trial in Germany of the singer Nadja Benaissa – are having a similar effect.

Joseph Amon, health and human rights director at Human Rights Watch, is equally concerned about the impact of the misappropriation of donor funds, including recent cases in Uganda and Zambia.

He also criticises countries for using scarce donor money when they could contribute more. "China seems to have no problem with bilateral funding and investment in Africa, but gives a very pathetic amount" to the Global Fund, he says.

That makes the choices all the more painful for countries such as South Africa, which has shown strong leadership on HIV in recent months, but will need substantial extra support to fund new policies.

The next stage in tackling Aids demands acceptance of shared responsibility by donors, recipients and individuals.

Contributors

Andrew Jack
Pharmaceuticals Correspondent

Clive Cookson
Science Editor

Tim Johnston
Bangkok Correspondent

Isabel Gorst
Caspian and Central Asian Correspondent

Sarah Murray
FT Contributor

Ursula Milton
Commissioning Editor

Steven Bird
Designer

Andy Mears
Picture Editor

Prevention and education are grave blind spots

Russia

The treatment budget is rising rapidly but funds are lacking to stop new infections, reports **Isabel Gorst**

Infectious Diseases Hospital No 2, located in a garden on the industrial outskirts of Moscow, seems like an oasis of calm.

But for Vadim Pokrovsky, the head of Russia's Federal Aids Center, it is an ideological battleground over measures to contain the spread of HIV.

Russia has become the epicentre of the global HIV pandemic, even as infection rates plateau in the rest of the world.

The Kremlin has mobilised funds to combat the virus, citing Aids as a threat to national security. But while the budget for treatment is rising rapidly, there is no state support for prevention of the disease.

"We are taking a lopsided approach to HIV," says Dr Pokrovsky. "Why spend a lot of money on medicine if there are no funds to control the epidemic?"

Official statistics put the number of cases in Russia at 565,000 out of a total population of about 142m. But independent experts estimate the real figure is twice as high. Last year alone, there were more than 58,000 new infections, raising fears that the epidemic could spin out of control.

"The figures are very chilling," says Denis Broun, regional director for Europe and Central Asia at UNAids.

More than two-thirds of HIV patients in Russia are intravenous drug users – testimony to a surge in heroin addiction since the collapse of the Soviet Union. Reported cases are clustered in areas overlapping routes followed by drug traffickers carrying heroin from Afghanistan to Europe. HIV has also taken hold in affluent Russian cities and oil regions, as the virus spreads into the wider community.

After years of official denial, Aids appeared on the Kremlin's public agenda for the first time in 2003, when Vladimir Putin, then the president, warned that the epidemic risked hastening population decline.

Dmitry Medvedev, who succeeded Mr Putin in 2008, has also acknowledged the threat posed by HIV, offering support for a campaign by Bono, the lead singer of rock band U2, to fight the global pandemic.

But, while Mr Medvedev has set a goal to raise health standards in Russia, government support for HIV prevention has faded during his presidency.

"There is zero money in the federal budget to fund focused HIV prevention and education," says Anya Sarang, president of the Andrey Rylkov Foundation for Health and Social Justice, a non-governmental organisation that advocates harm reduction programmes.

Russia has poured funds into testing and treatment, allocating larger sums for imports of antiretroviral drugs each year. HIV patients have complained that medication is inefficiently distributed, but the programme has had success in some areas. Transmission of HIV from pregnant mothers to unborn children has been reduced to almost zero.

Meanwhile the government has faced down international pressure to sanction opiate substitution that has proved effective in reducing the spread of HIV among drug users in the west.

Speaking at a UN conference, Viktor Ivanov, the head of the Russian federal narcotics control agency, denied there was scientific evidence to prove that opiate substitution worked. "We will not ban it, but there will be no federal support for methadone substitution," he said.

Programmes sponsored by the UN-backed Global Fund to Fight Aids, Tuberculosis and Malaria focused on sex education and needle exchanges are regarded as excessively progressive in Russia, but have helped kickstart HIV prevention campaigns in some regions.

However, even this limited effort is now under threat, as the Global Fund winds down its operations in Russia to comply with its mandate to work only in countries considered poor.

Hopes that the government would step in to fill the gap were dashed this year when the health ministry said the Global Fund measures were ineffective and that the HIV epidemic was under control.

Russia has entered a second phase of denial about HIV, says the Andrey Rylkov Foundation. "The Ministry of Health is manipulating virtual percentages and pseudoscientific facts. And in the meantime, real people are continuing to get infected and die," it said in a letter to Vladimir Putin, the prime minister, this month.

Dr Pokrovsky says government officials and agencies disagree over how to tackle HIV. "One group is convinced harm reduction [related to drug use] could reduce the risk of infection, but others have ruled it out on scientific grounds," he says. "They are against substitution therapy but cannot propose anything more effective."

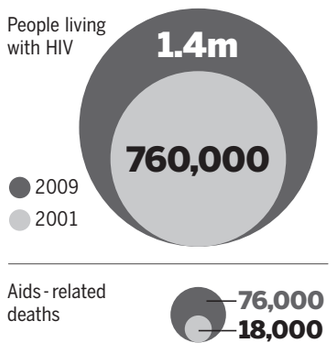
Conservative attitudes are also an obstacle. Talk of sex is taboo and drug users are regarded as pariahs. The Russian Orthodox Church opposes sex education and condoms on moral grounds and paints illness as retribution for sin.

Dr Pokrovsky says opposition by the religious lobby to sex education would hasten the spread of HIV beyond drug users to the wider community.

"It is happening slowly, but in 10 years the results will be very noticeable," he says.

"HIV will develop like in Africa. In one or two years, it will be too late to halt it."

Eastern Europe and central Asia: largest regional HIV increase



Source: UNAids Global Report 2010

The Russian Federation and Ukraine account for almost
90%
of newly reported diagnoses

The interplay between sex work and injecting drug use is accelerating the spread of HIV
30%
of sex workers in the Russian Federation have injected drugs

Success of drug regime boosts hopes for a cure

Treatment

But **Clive Cookson** says this would require overcoming the issue of 'persistence' because of HIV infection 'reservoirs' in the body

Next year marks the 30th anniversary of the identification of Aids as a disease and the 15th of the introduction of combination antiretroviral therapy – sometimes known simply as ART and sometimes as highly active antiretroviral therapy or HAART.

No scientific advance has done more to stem the advancing tide of Aids than ART, which uses a drug cocktail to prevent HIV replicating in human cells. The notorious genetic changeability of the virus can only be overcome if the patient takes at least three drugs at the same time.

While ART is far from painless – the patient still faces a gruelling regime of pill-taking and risks unpleasant side-effects – it does enable people to live almost normal lives for many years after infection.

From the public health point of view, ART is important, too, because it greatly reduces the amount of HIV circulating in the patient's blood and present in body fluids (by a factor of 1,000 to 10,000). This means people on ART are much less likely to transmit the virus, even if they engage in risky behaviour such as unprotected sex. A study of couples where only one partner was infected, published in the Lancet medical journal this year, showed that ART cut transmission between partners by 92 per cent.

With the continued failure to develop an effective HIV vaccine (*see panel*), some public health experts see ART as an alternative way to prevent infection spreading. Brian Williams, based in Geneva and affiliated with the South African Centre for Epidemiological Modelling and Analysis, has been very active this year in promoting "treatment as prevention", with presentations at the annual meeting of the American Association for the Advancement of Science and the Congress on Drug Therapy in HIV Infection.

Modelling studies suggest that HIV transmission could be eliminated within 10 years through a huge expansion of ART, according to Dr Williams. The strategy requires everyone in the target population to be tested for HIV and, if found to be infected, put on treatment immediately, whether or not he or she shows any sign of disease.

Although small-scale trials of treatment as prevention are being organised in North America and South Africa, there would be huge practical, financial and ethical obstacles to overcome before the strategy could be rolled out globally.

Meanwhile the success of ART is encouraging others to dream of going further than merely suppressing HIV – which requires a life-long drug regime – and actually curing Aids by eradicating the virus from patients. This would mean overcoming the issue of "HIV persistence" by tackling the "HIV reservoirs" in which the virus lurks in several places around the body.

Aids 2010, this year's biggest international conference on the disease, heard several ideas for how to attack these reservoirs. "The science in this area is evolving rapidly, but HIV persistence remains a daunting challenge," says Françoise Barré-Sinoussi, president elect of the International Aids Society.

She adds: "There is a strong need for continued investment in research to better understand why and how HIV infection persists under therapy. Solving these mysteries is critical for developing therapeutic strategies that will not depend on life-long therapy."

Orvacs, a French Aids research foundation, is testing one approach in a phase II clinical study just getting under way in four European countries.

It combines two powerful antiretroviral drugs that work in different ways – the integrase inhibitor raltegravir from Merck and CCR5 inhibitor maraviroc from ViiV Healthcare (a joint venture of GlaxoSmithKline and Pfizer) – with an experimental drug that modulates the immune system, from Cytheris, a French biotechnology company.

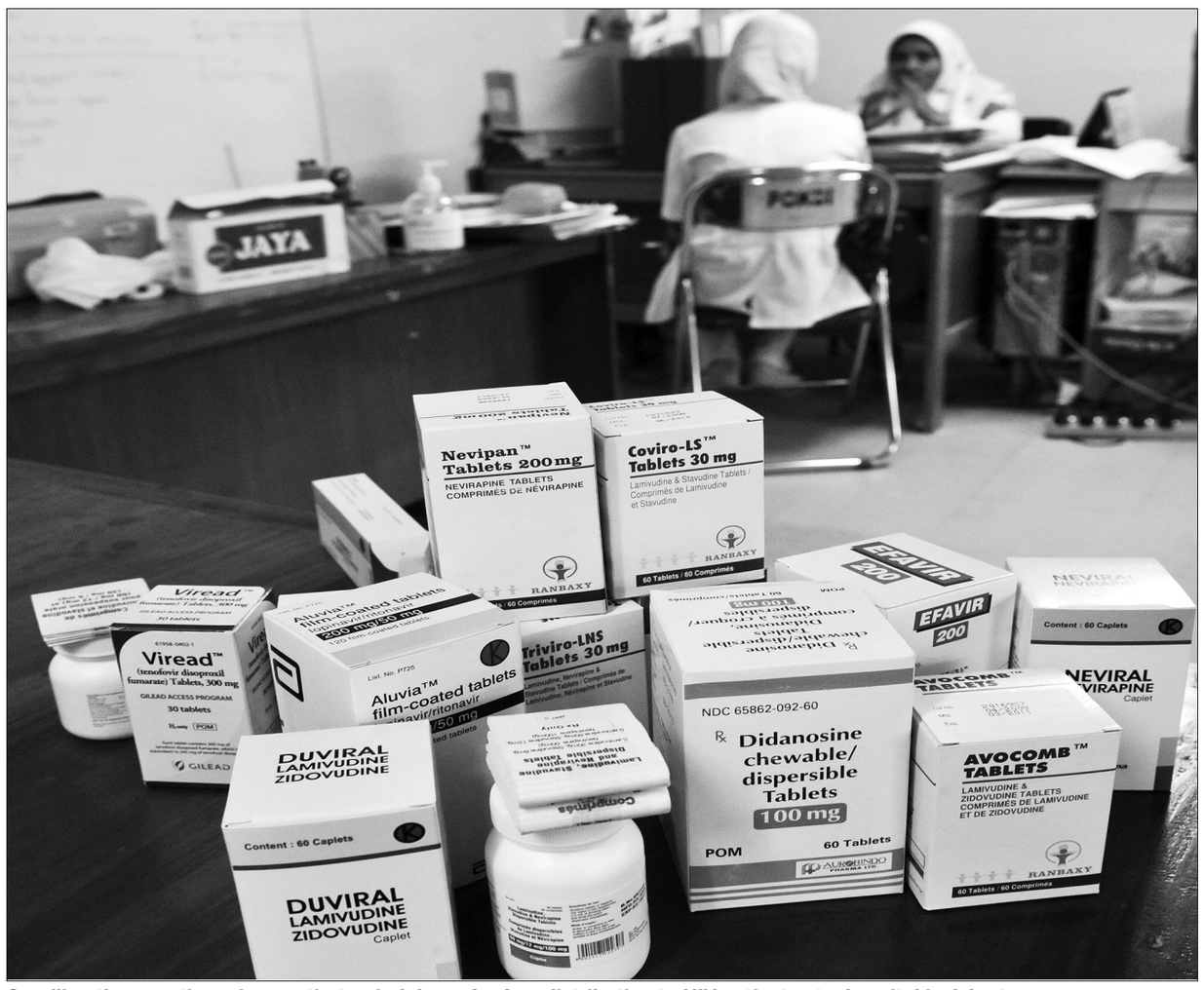
The almost paradoxical strategy of the Orvacs trial is to use interleukin-7, Cytheris's immune modulating agent, to reactivate the cells that carry latent infection. The two antiviral drugs should then inhibit viral replication while the patient's strengthened immune system attacks and eliminates the infected cells.

At the same time, researchers continue to learn more about the way HIV enters human cells and attacks their DNA – information that may in time lead to better ways of removing the virus from its cellular reservoirs.

For example, researchers from Imperial College London recently used X-ray beams at Diamond Light Source, the UK's national synchrotron, to show how retroviruses such as HIV use the enzyme integrase to insert their own genetic material into the DNA of a human cell.

"Only 18 months ago we had a sketchy understanding of retroviral integration," says Peter Cherepanov, lead researcher on the project. "Now we have obtained snapshots depicting the whole process in atomic detail . . . It has truly been a breathtaking ride."

Even after three decades of intensive research, costing tens of billions of dollars and engaging some of the best minds in biomedical science, there is still much to learn about the disease.



Gruelling therapeutic regime: antiretroviral drugs for free distribution to HIV patients at a hospital in Jakarta Getty

Vaccines The search takes a hopeful turn

After a quarter century of frustration, the search for an effective HIV vaccine that could prevent new infections has taken a more hopeful turn over the past year or so, reports **Clive Cookson**.

The headline event that renewed optimism was the first success in history of a large-scale HIV vaccine trial, reported in September 2009. The efficacy in Thailand was much too modest for a commercial vaccine – 51 people in the vaccinated group and 74 in the placebo group became infected – but researchers took it as a positive signal that a vaccine could in principle be developed.

"Even though the effect was modest and barely reached statistical significance, it showed it was possible to prevent HIV infection in people – and that was a game changer," says Gary Nabel, director of the Vaccine Research Center at the US National Institutes of Health. "Until then, some people thought we might never be able to prevent infection."

Since the Thai trial announcement, scientists have been encouraged by the discovery of a dozen "broadly neutralising antibodies" which act against the vast majority of HIV strains.

These antibodies are produced naturally by between 10 and 25 per cent of people infected with HIV – those whose immune system mounts an unusually strong defence against the virus. Scientists have extracted the antibodies from the blood of HIV-positive volunteers and found they prevent more than 90 per cent of known HIV strains infecting human cells in lab tests.

Researchers are analysing how these antibodies attach to parts of the virus that remain fairly constant as HIV mutates. One of the biggest problems in vaccine development is that HIV is more changeable and variable than almost any other virus – even flu.

The challenge now is to produce a viable vaccine that will stimulate the human immune system to produce such broadly neutralising antibodies before it encounters HIV, in a way that will prevent infection in most people.

Even optimists recognise it will take a long time to build on recent progress to develop a vaccine that is safe and effective to give to everyone at risk of infection.

"I would be very surprised if we see such a vaccine [licensed for commercial use] in less than 10 years from now," says Dr Nabel. "Clinical development moves slowly."

Long-term strategy must focus on the local

Guest Column
PETER PIOT, HEIDI LARSON and STEFANO BERTOZZI

Next year the Aids epidemic will enter its third decade.

The global response has been one of big failures but also of measurable achievements.

In spite of the progress, Aids has not gone away.

The latest UN Aids estimates found 2.6m new infections last year and 1.8m deaths, with the disease remaining the top cause of death in sub-Saharan Africa.

Global averages also mask local problems, such as second waves of HIV infection in Uganda and elsewhere in Africa, and among gay men in western Europe, continuing HIV transmission among injecting drug users in the former Soviet republics, and explosive epidemics among men who have sex with men throughout Asia.

In many societies HIV infection is now endemic. Thanks to the growing availability of antiretroviral therapy, Aids has become a chronic disease for those who are fortunate to have access to such treatment. But, in 2009, only 36 per cent of those needing treatment had access to the life-saving drugs.

In the absence of a cure and a vaccine, it is increasingly obvious Aids will be with us for many decades.

This implies that we need to replace the reactive, short-term response with proactive, long-term measures. Especially in a prolonged crisis, it is important to consider the long-term implications of short-term budget decisions.

A report, *Aids: Taking a Long Term View,* soon to be released by the aids2031 initative – a multi disciplinary think-tank – makes a number of recommendations.*

First, adapt the strategy. Prevention must be re-emphasised to reduce new infections. Resources should be concentrated on the most effective interventions where they make the most impact: which is where most new infections occur.

This also means customising prevention, based on up-to-date local epidemiological and behavioural data.

Thus, a strategy for the long term means moving from a predominantly global approach to national and local agendas.

At the same time, prevention cannot be effective if legal and societal obstacles prevent it from reaching those at risk.

This implies that anti-discrimination campaigns, decriminalisation of same-sex relationships and of harm-reduction approaches for prevention of HIV among those injecting drugs should be an integral part of anti-Aids efforts.

Second, increase efficiency. We need to be more effective with available resources – from optimising treatment to ensuring more efficient programme management.

Business practices should be employed for rapid feedback on performance at local levels, so that every prevention or treatment effort is better than the previous one.

Third, lengthen budget cycles. We cannot continue to address a long-term problem and life-long treatment with annual funding cycles. Budget cycles should move to 10-15 years, while programme performance indicators should change to measure long- term impact, such as new infections and deaths, rather than just short-term process gains.

Fourth, continue to innovate. It is critical to invest in science and technology. Yet, while we maintain focus on innovation, delivery needs equal attention – evaluating what is working and why or why not.

Last, renew leadership. We are concerned leadership on Aids is waning. It has made a critical difference at multiple levels and is still needed.

While funding will remain a big issue, that needs leadership commitment. In some countries – such as expanding economies in Asia – policy leadership rather than money may be the biggest issue. The real challenge will be for leaders to put policies in place to prevent the most infections possible and save the most lives.

As we mark World Aids Day, it is crucial to remind ourselves, Aids remains one of the greatest health crises of our time, having killed nearly 30m people since 1981. There is an urgent need to take a long-term view and make bold changes so millions more do not die needlessly.

Peter Piot is director and Heidi Larson senior lecturer at the London School of Hygiene & Tropical Medicine.
Stefano Bertozzi is Director, HIV and TB at the Bill & Melinda Gates Foundation

**To be published by FT Press on December 13 2010*

Partnerships make for successful projects

Corporate aid

Sarah Murray notes the scale of the epidemic calls for joint working

Education for villagers in South Africa via a Standard Chartered partnership. The bank aimed to help teach 1m people about HIV by 2010

For anyone joining the battle against HIV, the word "partnership" has moved from a buzzword to an essential requirement for success.

However, as businesses working with non-governmental organisations (NGOs) and governments point out, this does not mean partnering is easy. Careful plans must be made to ensure good intentions turn into results.

Today, few companies would go it alone in the battle against the spread of HIV. From banks to oil companies, the corporate sector now works with a range of partners, from government agencies to civil society groups and NGOs – including activist groups that might once have considered business the enemy.

In rolling out a prevention-focused education programme called Living with HIV, for example, Standard Chartered, the bank, has formed partnerships with dozens of organisations.

These range from the International Aids Vaccine Initiative in the US to the Korea Federation for Aids Prevention, as well as ministries of health in countries such as Nigeria, Brunei and Taiwan.

To achieve the ambitious goal it set itself in 2006 – of educating 1m people about HIV by 2010 – Standard Chartered realised it could only do this by forming partnerships, says Vanessa Green, head of community investment at the bank.

Moreover, given the scale of the global epidemic, companies and healthcare experts argue that no one organisation or sector can make substantial progress alone.

"The needs are so great that it's important to scale up and pool resources," says Rhonda Zygocki, Chevron's vice-president for policy, government and public affairs.

The US oil company has partnerships with NGOs and government agencies in countries such as Nigeria, Indonesia, South Africa, Angola and Thailand. And, like many companies, it establishes alliances with local communities and grassroots organisations through the UN-backed Global Fund to Fight Aids, Tuberculosis and Malaria.

In Thailand, for example, Chevron works with Program for Appropriate Technology in Health – a sub-recipient of the company's grant to the Global Fund – on a project to raise awareness of HIV among young vehicle and motorcycle drivers by providing information on testing and treatment facilities in Bangkok.

Chevron does this by distributing brochures and condoms at its Caltex fuel stations.

"Even the Global Fund, with its extraordinary capacity, doesn't have the grassroots reach that we do with our retail operations," says Ms Zygocki. "So we need each other."

As the Chevron partnership in Thailand demonstrates, in cross-sectoral partnerships, the corporate sector brings more than money to the table. Its local and national distribution channels can also be made use of.

This is something Pfizer has found in Washington DC, where the pharmaceuticals company's sales representatives help promote HIV testing by talking to doctors and distributing educational materials as part of regular sales visits.

The skills of its executives in areas such as strategy and planning help community-based organisations scale up their programmes.

However, while businesses have much to contribute, they rely on the expertise of their partners in other areas.

"We don't profess to be healthcare professionals," says Standard Chartered's Ms Green.

NGOs, civil society organisations and local governments also have the kinds of relationships with local communities and demographic groups that large companies might not be able to develop alone.

This was something Standard Chartered acknowledged when establishing its Living with HIV initiative. To roll out the programme, one of the partnerships it formed was with AIESEC International, the global student organisation that facilitates exchanges and internships.

"Because our focus is prevention – and 40 per cent of new HIV infections are in young people, which is not our demographic as a bank – we needed to partner with someone else," explains Ms Green.

However, joining forces with an NGO or government ministry will not guarantee success. Cultural differences between the corporate and non-profit or public sectors, such as variations in the speed of decision-making and execution, can be challenging.

"One of the biggest frustrations is that corporations do things very quickly and typically governments and NGOs tend not to," says Ms Green. "They have much flatter hierarchies and lots of different approvals and authorities."

> 'Even the Global Fund, with its extraordinary capacity, doesn't have the reach that we do with our retail operations'

Even so, those well versed in the art of partnership argue that these obstacles can be overcome if all parties can settle on shared goals, while agreeing to differ in other areas.

"Partnerships will only really work with the recognition that the parties might have different objectives," says Ros Tennyson, director of the Partnering Initiative, which offers courses on broking and creating alliances between business, governments and non-profit organisations.

Ms Green agrees. "It's about finding a common goal and building on that."

Phones Now a critical weapon

From awareness campaigns to improved drug adherence through text message reminders, mobile technology is moving to the heart of efforts to prevent the spread of HIV, **writes Sarah Murray.**

Behind the impact of the mobile phone as a healthcare tool is the rapid uptake of mobile technology in many developing countries – particularly those most severely affected by HIV.

In African countries, for example, mobile phone subscriptions rose 49 per cent a year between 2002 and 2007 (compared with an annual 17 per cent during the same period in Europe) and these countries now have 10 times as many mobile phones as landlines.

Moreover, the technology itself does not need to be particularly advanced to have an impact. The SMS or text message is the mobile's most powerful technology when it comes to combating disease.

And because young people are particularly vulnerable to HIV – making up more than half of new infections – the high level of mobile phone ownership among young people makes it a very effective channel for information and education.

With this in mind, companies, governments and non-governmental organisations have launched campaigns that target at-risk populations.

In South Africa and Uganda, Project Masiluleke and Text to Change use text messages to provide education and information on HIV, as well as to encourage people to undergo testing.

Some services are evolving into sophisticated media outlets. South Africa-based Young Africa Live, an entertainment-led mobile portal, uses celebrity gossip and news stories as a way of stimulating discussion about the disease and disseminating information.

YAL believes that, rather than lecturing to young people, lively texts and blog discussions between peers are more effective in raising awareness, disseminating information about access to antiretroviral drugs and helping sufferers overcome the stigma associated with being HIV-positive.

Mobile technology has benefits beyond education, however. The ability of health workers to send patients reminders to take their medication has led to striking improvements in drug compliance rates.

And, armed with phones, health workers in remote areas can send and receive information to make diagnoses and informed decisions that could otherwise only be made at a healthcare centre.

For more on this topic go to: www.ft.com/aids-2010

Specialists remain cautious on prophylaxis

Prevention

Giving drugs to the healthy is costly and can foster resistance, writes **Andrew Jack**

Just as weight watchers are often lured to the apparently easier solution of slimming pills, so researchers are being drawn to medicines as a form of HIV prevention to complement "behaviour change".

Since its approval by regulators at the start of the millennium, tenofovir disoproxil fumarate has become ever more important in treating patients, used in combination with other drugs as a backbone of first line therapy.

Gilead, its US developer, estimates 1.6m people receive the drug.

That figure is set to grow rapidly, as poorer countries with donor support offer treatment to a greater proportion of patients and recent changes in international guidelines are urging earlier use of drugs.

Studies this year have also shown that medicines could play an important role in prevention, supplementing the HIV medicines already used to limit the risk of the virus in two specialist groups: children born to infected mothers, and healthcare workers exposed to "needle stick" injuries.

A vaccine remains elusive, although researchers' morale has been boosted by tentative positive findings last year in a trial in Thailand showing a reduction of 31 per cent in recipients of a vaccine.

More positive news came last summer from the Caprisa study, showing that women using a vaginal microbicide gel containing tenofovir experienced 39 per cent fewer infections.

And late last month, the iPrEx study conducted in men who were gay or transsexual taking a daily long-term cocktail of tenofovir and emtricitabine reduced their risk of infection by 44 per cent.

Add to that the growing discussion about whether more widespread and early use of drugs reduces the risk of uninfected people contracting the virus, and "treatment as prevention" in a wide variety of forms is becoming a new mantra.

Yet specialists remain cautious – including the research group led by Robert Grant at the University of California San Francisco who co-ordinated the iPrEx study – and warn that the reduction in infection was less than hypothesised.

The use of medicines as a prevention tool could foster resistance, undermining their value in treatment.

IPrEx identified resistance to emtricitabine in participants who were later found to have been infected but whose HIV had not been detected at the start of the trial.

It also demonstrated relatively poor levels of compliance, reflecting the monotony of daily pill-popping for healthy participants, for whom benefits are abstract but side-effects real.

"The results are exciting and there is clearly an ongoing need for prevention tools," says Howard Jaffe, president of the Gilead Foundation. But he concedes: "The development of resistance is a concern."

One fear is of "disco dosing", when people take the drugs preventively but infrequently ahead of a likely risk.

This potentially gives less protection than daily dosing over long periods. Patients may also undermine their treatment by sharing medicine with family and friends.

More generally, "pre-exposure prophylaxis" (Prep) may be limited by affordability, notably for poorer countries already struggling to provide drugs.

"Prep is not just a pill," cautions Mitchell Warren, executive director of Avac, an HIV prevention advocacy group. He argues the provision of prophylactic tenofovir to those without the virus would require initial testing and regular monitoring.

"The challenge of how to allocate funding is a significant one, both across treatment and potential prevention initiatives," adds Mr Jaffe. He stresses that Gilead has licensed tenofovir to a series of low cost generic drug companies.

Prevention pills alone have significant limitations.

But combined with condoms, circumcision and less risky behaviour, they are offering fresh prospects in the struggle to limit HIV.

Combating Aids

Punitive laws on sex workers and drugs hamper progress

Asia

Tim Johnston finds national epidemics have been halted but making further inroads will be hard

The tide has turned in the fight against HIV in Asia, but the UN and activists are warning that it is going to become harder to maintain progress.

"As a minimum, most national Aids epidemics have been halted, stabilised and reversed," says Steven Kraus, the UNAids regional director for Asia and the Pacific.

The number of Asians living with Aids has remained stable at some 4.9m for the past five years, and the number of new infections in countries as diverse as India, Nepal and Thailand has fallen by 25 per cent over the past nine years.

But Mr Kraus warns that preserving that momentum is becoming more challenging.

In many ways, such groups as UNAids are victims of their own success: they are starting to hit the law of diminishing returns. Progress so far has not been easy, but making further inroads against the epidemic is going to become ever harder.

The key vectors of the Asian epidemic are well known: commercial sex, intravenous drug use, and what the industry refers to as MSM – men who have sex with men.

It is MSM that is proving the most difficult segment to reach.

"We have underestimated the MSM issue," says Mr Kraus. "We've done inadequate programming in this area."

But that is starting to change.

Nung spent years as a transgender sex-worker on the streets of the Thai capital Bangkok. Now she works for Swing, an organisation that promotes education for other sex workers, particularly in the MSM market.

"We have to educate them about HIV, but we have to make it enjoyable," she says, describing going into clubs and massage parlours to find out the date of the owner's birthday before returning with gifts to turn a birthday party into an education session.

Nung says that Swing addresses not just the medical needs of sex workers – condoms, lubricants and regular health checks – but also issues of self-esteem. "It is a low-class occupation; everyone looks down on sex workers," says Nung. She says lack of self-esteem makes it more difficult for prostitutes to resist pressure from clients who do not want to use a condom.

There has been significant progress in the broader heterosexual sex industry, particularly in places such as Thailand, where there was a very public education programme.

It even spawned its own restaurant, "Cabbages and Condoms", which is popular with ordinary tourists, many of whom like to pose for a picture with the larger-than-life statue of a Santa Claus made of gaily coloured condoms.

> 'These laws do not create supportive environments where community groups can access key populations'

Aids workers say projects with commercial sex workers are still vital, and more funding is needed, but the techniques are known and effective.

The anti-HIV message has also been reaching intravenous drug users, although the picture is more mixed. Among the success stories has been Malaysia.

"Malaysia had a draconian view of drug use, and has done a 180 degree turn. It used to have mandatory detention for drug users but now it has closed all the detention centres and reopened them as voluntary support centres. The authorities don't see drug use as a law and order issue but as a personal and public health issue," says Mr Kraus. The new approach has led to some startling improvements. In 2007, just 28 per cent of Malaysia's injecting drug users said they had used sterile equipment: in 2009, that had risen to 83 per cent.

And there are some surprising outliers. Burma, not known for its progressive policies in other spheres, has supported an intervention programme of needle exchanges and clinics provided by international aid organisations. The UNAids 2010 global report shows 81 per cent of intravenous drug users using sterile equipment.

Aids workers say much of problem now lies in the legal framework. In some countries, laws drive sex workers and drug users so far underground that they become hard to reach. In others, unconnected legislation against trafficking and illegal migration are changing the dynamics of the sectors of society worst affected by Aids.

In its Global Report, UNAids estimates that 90 per cent of countries in Asia have laws that obstruct the rights of those living with HIV.

"Punitive laws that prevent us reaching key sectors of the population are a danger," says Mr Kraus. "They do not build partnerships and they don't create supportive environments, where community groups can access these key populations."

These are significant problems, but they could be overcome by lobbying governments to change laws and modify the ways those that remain are implemented. The cultural challenges to controlling the MSM aspect of the HIV epidemic are much more difficult to solve.

"Culture matters," says Mr Kraus. "How societies view same-sex relations affects our ability to promote good programming. Until the culture changes, it is always going to be a problem getting to MSM."

The figures bear him out. In a 2007 survey, 88 per cent of Thai respondents who had anal sex with a male partner said they had used a condom: in Malaysia the number was 21 per cent.

Mr Kraus says that although almost all the governments in the region report that they are addressing the stigma attached to men who have sex with men, less than half have budgets. This, he says, gives a clearer indication of the real situation.

"If it doesn't get budgeted, it doesn't get addressed."

Believers are less likely to see the light about prevention

Brazil

Despite progressive government policy, religious tensions and taboos remain significant barriers, says **Andrew Jack**

In the conflict zone between the territories of two feuding drug gangs in Rio de Janeiro's shanty towns, Sonia Regina Gonçalves da Silva faces a greater challenge than the young boys drawn to violence: churches.

"They call this the Gaza Strip," she says, pointing out a high wall capped with broken glass that inhabitants of Morro do Urubu built to limit the regular gun battles between rival crack dealers.

But the nearby street is lined with the premises of Christian cults, luring adherents who, she says, dismiss at their peril her message about the importance of using condoms to prevent HIV.

Young drug dealers may consider the risk of infection too abstract a concept, and demonstrate a certain indifference towards a disease that has become less threatening in Brazil, long a champion of prevention and widespread access to treatment.

They are also reluctant to fraternise with people from the rival zone, or enter it, for fear of reprisals.

But Ms Gonçalves da Silva says at least they want condoms because they are keen to avoid their girlfriends becoming pregnant.

"Religious people are more difficult because they believe in only having one sexual partner and say if they use a condom they will be seen as unfaithful," she says.

"I remind them of the risk if their partner meets other people. Others come to me and take one, but ask 'don't tell my wife'."

> 'We need more prevention. There has been complacency. We need a new national campaign'

For more than a decade, she has been volunteering as head of Amamu, a local women's association that operates from a bakery abandoned by the owner a decade ago because of the frequent gun battles.

Every day she walks her neighbourhood, pausing frequently to chat with residents about the lack of garbage collection or limited recreation facilities for the children.

But much of her time is spent discussing safe sex, with help from posters and stomach-churning photos showing the impact of sexually transmitted diseases.

She distributes condoms in the street, in cafés, via rubbish collectors and minibus drivers, and leaves them in boxes for more dangerous gang members she does not want to approach.

Until heavy rains damaged her office last April and temporarily closed the computer workshop it runs, condoms sat on the desks in jars: raising awareness of biological viruses as people learnt about their electronic equivalents.

She describes her job as that "of an ant", struggling against the vast task of fighting HIV, but she sees progress.

"People used to be afraid of me, saying I was some promiscuous old lady wanting sex with anyone. Now they realise I am taking care of the community."

One hopeful sign is growing interest from older people. Widespread use of erectile dysfunction drugs – among the top-selling medicines across Brazil – has boosted the proportion of sexually active older men.

She says, "older women going with younger men" has also become more widespread, as females – often heads of households after their husbands have died or left – experience better quality of life and improved rights.

"They may no longer risk getting pregnant but they realise they could get HIV," she explains.

Wanda Guimaraes, who works with Cedaps, a non-governmental organisation that supports Amamu and similar community groups, also highlights tensions with religious beliefs, and the reluctance of schools to permit condom distribution or sex education.

Despite progressive government policy, religious tensions about HIV remain in a country where one of the most important issues in this year's presidential elections was abortion.

"We need more prevention," says Pedro Chequer, head of UNAids in Brazil.

"There has been complacency. We need a new national campaign, and more efforts to speed up testing."

He also highlights growing financial pressures related to the long-standing policy of aiming to provide universal access to treatment.

In 2007, Brazil issued a rare "compulsory licence" under World Trade Organisation rules to overturn the patent held by Merck on its pivotal HIV drug Efavirenz, so it could obtain it more cheaply from generic producers.

But with the inevitable development over time of resistance to such "first line" therapies, the rising cost of more expensive alternative drug cocktails is adding financial pressures on the health system.

Hope lies in being able to negotiate a different balance of power with pharmaceutical companies developing drugs for HIV and other diseases, as they eye Brazil with fresh interest as a fast-growing commercial market, while their traditional western markets stagnate.

"We need to build up national antiretroviral production," says Mr Chequer. "Otherwise I don't know what will happen later on."

But with new infections continuing, the long-term dedication of prevention volunteers like Ms Gonçalves da Silva will remain indispensable for the foreseeable future.

Truck stop: transport union members give HIV information to a driver in São Paulo ITWF

ON FT.COM FROM SATURDAY

Dr Sophie Harrison, FT Weekend medical columnist on the challenges of managing patients' hopes
www.ft.com/uk/magazine

Condoms There are logistical and cultural obstacles to use in the Amazon

After many years of discussion, and resistance from international funders, a product with the potential to help the rainforest and its inhabitants is beginning to find a market: sustainably produced Amazonian condoms.

Made from local rubber and appropriately packaged in green, the *Vista se*, which means "dress up", condoms are produced by a factory in Xapuri and supported by the local administration – the World Bank refused to provide a loan.

The UN in Brazil is among those gearing up to place orders for distribution to its staff in the country.

One challenge is whether the factory will generate sufficient orders against intense competition from lower priced alternative suppliers in India and China.

Stimulating local demand is also difficult.

Adele de Benzaken, head of the Alfredo da Matta Foundation, a public health body in Manaus, says indigenous people are suspicious of condoms, stressing the cultural importance of large families as they struggle to maintain their numbers.

Raw material: harvesting rubber in Brazil

She oversees a pioneering programme to bring rapid HIV and syphilis test kits to tribes in the remotest parts of the Amazon. This often requires days of travel by expensive flights, car and boat.

While HIV rates appear relatively low, they are higher in tribal areas closer to towns, mines or military sites, including those of FARC Colombian guerrillas close to the border with that country.

Still higher syphilis rates – well above the national average – suggest HIV could spread, as indigenous groups become more integrated with the outside world.

Logistics and cultural attitudes are only part of the problem.

Dr de Benzaken sees a need for more intensive training of health workers to interpret test results. Prejudice against those infected – and notably against gay men – fosters a reluctance to be tested.

And while syphilis can be treated with a penicillin injection, more sophisticated equipment to monitor HIV patients is lacking from most of the Amazon.

Andrew Jack