7

Treatment and Support Strategies
Living with rather than dying of HIV/AIDS

Allan Ronald, MD

Introduction

Highly active antiretroviral therapy (HAART) has markedly altered the course of Human Immunodeficiency Virus (HIV) infection in approximately 1.5 million people since it became widely available and prescribed in 1996. However, more than 85 per cent of individuals who are on treatment today reside in the industrialized countries of the world, where less than 10 per cent of the HIV-infected individuals make their home. In sub-Saharan Africa (SSA) in Jan 2005, less than 250,000 individuals were being treated with antiretrovirals (ARVs) in an HIV-infected population of about 30 million. This is probably less than four per cent of people who would meet western criteria for ARV treatment, most of whom face death within one to two years in the absence of access to ARVs. Until recently, enhanced care with widespread access to ARVs has not been a priority for the governments of most of the resource-limited world and the emphasis of most AIDS care providers has been low-cost homecare, palliation and preparation for a "good" death. The religious communities have made major contributions to care in this context but perhaps it is now time to consider how we can enable HIV-infected persons to live with this illness and accept a changing paradigm.

This article explores the debate about ARV access in Africa, advocates for a rapid introduction of HAART and encourages widespread involvement of community groups as well as governments to make this possible.

The remarkable efficacy of HARRT has been identified in numerous publications. Many treatment options are available which can be tailored to the individual's lifestyle, concurrent medication, and side-effect profile. New agents have been introduced during the past four years with improved pharmacokinetics, better patient tolerance, and enhanced effectiveness for resistant isolates. Additional options and simpler regimens are making a major difference in the ease of day-by-day care of patients in the industrialized world as well as substantially prolonging symptom-free life. Coformulation of drugs has made it possible to develop a one pill once-a-day regimen and it will probably be in routine use within one to two years. Sophisticated, sensitive laboratory techniques enable the patient and the caregiver to track the response to therapy with satisfactory precision. New therapeutic targets and modalities are being identified by biotechnology and

© Copyright 2005

pharmaceutical companies and many new agents and several new classes are expected to enter clinical trials over the next five years.

The remarkable improvements in health seen in individuals at death's doorstep has unleashed a torrent of purpose and hope. Treatment transforms everything and stigma begins to evaporate. Individuals begin to seek out testing and counselling. Christians can share in this excitement as individuals and their families living in the shadow of expected death enjoy new hope.

However, even in the industrialized world, patients die from HIV and its consequences remain substantive. In a recent review of 13 prospective studies in western countries, 344 patients died during 24,310 person-years of follow-up(2). Almost half the deaths were due to neoplasms that continue to occur at a reduced rate in HIV-infected patients despite treatment. However, ARVs have a profound effect on both morbidity and mortality, reducing hospitalizations by over 90 per cent in developed countries and, for the individual who can be treated consistently and continuously, has reduced mortality by almost 90 per cent over the time frame of the past 8 years.

The arguments for massive scaling up of ARV therapy for resource-limited countries are obvious. On the other hand, important leaders, particularly those committed to HIV prevention and the broader public health agenda, express reservations about programs that primarily focus on HIV care and fail to recognize the difficulties inherent in massive program expansion.

Until recently the religious communities in most countries have largely been silent or uninvited within many of the discussions led by international and multilateral agencies including WHO, UNAIDS, and US AID. Individuals in leadership have not been mobilized effectively to provide direction in prevention education or support for care. Rather, controversies about sexual and reproductive health, condoms, and sex education programs have been played out in the media and elsewhere without any significant measured impact on the spreading HIV epidemic. The science of HIV prevention and faith-based values have been seen to be in conflict and few efforts have been made to learn from each other or establish fora for interaction. Fortunately in Uganda these conflicting roles have been less evident and as noted later, the role of faith-based institutions is probably critical to the success of the Ugandan story.

The "YES" advocates for widespread AIDS care including access to antiretrovirals

The argument rests on first-order principles. Universal human rights require that all of us give value to health and the well-being of the individual regardless of race, economic status, gender, religion, or geography. We can predict that at least 15 million of the estimated 30 million individuals currently infected with HIV in SSA will die by 2012 if ARV treatment is not available. The consequences have been dramatically presented. These people wish to live out their lives, raise their children and be productive citizens. We cannot let the epidemic simply run its course.

Second, the global consequences of HIV in resource-constrained countries have been well characterized by various organizations and political leaders who have assessed the risks to security, global economic growth, migration, and poverty alleviation. With over

© Copyright 2005

7,000 deaths/day and a new orphan every 14 seconds, HIV is having a global impact and this will increase rapidly if we fail to address the epidemic at all levels of prevention and care.

Third, we are being challenged by spokespersons who identify our apathy, possible racism, and bureaucracy that has prevented access to drugs for most individuals dying of HIV. All of us with positions of responsibility in organizations, politics, health, and other sectors, need to identify our role as individuals and as organizational leaders to prevent these tragic scenarios.

Fourth, the obstacles noted later are minimized by the advocates for "immediate" global access to ARVs. The level of expertise for caregivers may be set too high. Concerns about the logistics of ARV distribution and the urgent priority of more research are projected as artificial roadblocks. Issues around intellectual property, patents, and profits are trashed as inconsequential in light of the need for ARVs. Generic drugs are presented as the "immediate saviour" of the world's infected people. These are compelling arguments.

The "No Not Yet" argument for rapidly increasing resources for care

Leaders in public health, some donors, government ministers, and some individual scientists have expressed dismay with the massive mobilization of human and fiscal resources as well as the "grandiose" plans to treat HIV patients throughout the developing world. Their concerns are based on their personal experiences as well as a foreboding worry that failure could be catastrophic and lead to a precipitous increase in the "index of global despair" for impoverished societies in Africa and elsewhere. Disillusionment will occur not only for HIV prevention and care programs but also for the wider range of health and development initiatives. These forecasters of potential disaster have credibility and share our concern about suffering and premature death in the developing world. Their angst must be carefully articulated and each issue addressed in a shared effort to mitigate any downside potential as we attempt to rapidly expand our commitment to HIV care.

The challenges are addressed individually but it should be recognized that they are often linked to very real perceptions, cultural milieus, and infrastructure inadequacies. Although dogmatic statements will be made, they are intended to further the debate and to move the agenda forward, rather than an absolutist approach to HIV care.

Is there sustained commitment from country leadership to care?

Political and administrative leadership in most of the world with a few exceptions, has given limited direction to the issues of HIV. Brazil and Uganda are notable exceptions. President Musevani of Uganda has been eloquent and effective in his organizational leadership of HIV prevention in Uganda and the results are apparent. ARV care for infected individuals has received less evident support. However President Nelson Mandela in 2000 at the International Aids conference, Stephen Lewis, the U.N. Special

© Copyright 2005

Representative for AIDS in Africa, and most recently Presidents Clinton and Bush have eloquently argued for widespread access to care and each has used every opportunity to convince governments and philanthropists throughout the world that this can be achieved.

However an argument from religious organizations/institutions for access to care had not been well articulated and implemented by church leadership, until the past year. Many in political leadership have tended to use the crisis of HIV as a security issue, and activists have used it as an issue to confront the wealthy nations regarding their lack of concern.

Yet prior to 2003, there was limited significant revisions of national budgets or priorities or any serious preparation within most governments, universities, or healthcare institutions of resource-limited societies to prepare themselves to address the massive resources necessary for even limited HIV care programs. The Joint Clinical Research Centre in Uganda established in 1990 by President Musevani, as a shared initiative between several ministries, is an exception to this, but its care capacity is limited. Also this institution has not been replicated elsewhere in Africa. A commitment is required from leaders in all countries with high prevalence to identify HIV/AIDS care to be a top national priority. This is essential if substantial resources are to flow through government coffers and if care programs are to be rapidly and dramatically scaled up.

Although western countries can be faulted for their apathy towards HIV care, global leadership is now occurring with accompanying resources. President Jacques Chirac, in 1997 in Abidjan, committed France to provide leadership for HIV care programs. More recently, individual countries and the world as a whole have found resources for the Global Fund for AIDS, Tuberculosis and Malaria. Countries are rapidly increasing their long-term commitment to addressing HIV care programs. The recent announcement by President Bush committing the U.S. government to $15 billion over five years (the PEPFAR program) will enable programs to proceed with substantial long-term commitment.

Fiscal resources are frequently identified as the major block to widespread care programming. Although this is “politically correct,” finances in most countries in 2005 are not the primary obstacle to enhanced care. Monies are often not spent because of a lack of visionary leadership, inadequate human resources, poorly developed business plans, or multi-tiered bureaucracy. Most countries in a sincere effort to avoid mis-allocation of funds have established criteria and processes that are challenging to navigate efficiently. As a result, introduction of care programs and their scaling up takes years instead of months. These very substantial obstacles to improve care need to be addressed by the individuals in leadership positions throughout the developing world within national educational and health care structures. Business as usual, demonstrated over the past decade, will not suffice if we wish to provide HIV care to even one-quarter of the people who will need it between now and 2010.

In particular, mobilization of churches and faith-based health institutions in care programs has not been a priority of governments. Many of these organizations could make a huge contribution to care at multiple levels. Leaders have generally failed to see their potential and the results have been ongoing fragmentation of any coordinated effort. Faith-based organizations are in contact through their congregations with 70-80 per cent

© Copyright 2005

of the population who participate weekly in church activities in many areas of Africa. In the past, Christians within congregations have fulfilled major roles in support for illness, particularly AIDS. Now the opportunity presents itself to support a return to health with renewed hope. It can happen.

Change is difficult in resource-limited countries. Reasons include the lack of resources to initiate and create change, and an absence of leadership that insists on change. However, a primary reason why change does not occur may relate to the lack of external review, accreditation processes, and standards. In much of the western world, change is driven by continuous program review with ongoing disruption due to program closures, budget revisions and downsizing, and critical review of programming outcomes and impacts. Critical peer review and accreditation processes are only now being introduced in many resource-limited societies. Unfortunately, Christian organizations are also often inexperienced in responding to the need for review and change in order to create new frameworks while they carry out their mission. This may be particularly true of many resource-limited societies. Tradition, culture and external norms rather than biblical principles may dictate the response to a challenge like AIDS.

Summary

Governments, both in the West and in resource-constrained societies, need to boldly declare that resource allocation for HIV care receive a higher priority than monies for weapons and armies. Leader,s including those within the church in resource-limited countries as well as in the West, must seriously address obstacles to HIV care if resources are to be mobilized and made available to the masses of humanity who will otherwise die. Most of the other strategies to be subsequently discussed can only occur within renewed organizational structures and sustained serious commitment of the national and institutional leadership including the faith-based community to rapid deployment of human and fiscal resources.

Why is there not more activism and advocacy in developing countries?

HIV prevention and care has been revolutionized by activists in western societies. Much of this has occurred with some unpleasantness but almost certainly it has resulted in more accountability of policies and practices to patient care needs and human rights. In most resource-constrained societies, patients infected with HIV do not have the support or the skill set to be advocates for care programming or activists within their own societies. Outside South Africa, there is almost no significant activist movement in Africa. Political leaders and healthcare professionals, particularly doctors, are placed on pedestals by the wider society and are seldom challenged to change the status quo. The self-interests of healthcare professionals and individuals within government institutional structures, including politicians, must not be prioritized ahead of the populations they serve.

© Copyright 2005

Prepared and informed church leaders should be a voice for sick and dying individuals and could act as effective advocates for improved access to care for the poor, ill, marginalized, and disenfranchised of society.

Summary

HIV activism needs to be supported and organized to challenge the status quo. Christians should take the lead in this role.

Where is the commitment to developing the human resources essential for the task?

The lack of strategic planning for human resources within resource-constrained societies is a cause for concern. The marketplace cannot function as the sole determinant for these resources. Every move to expand access to care is compromised by lack of human capacity. Thousands of healthcare professionals are immigrating each year to the West for a wide variety of reasons including economics, lack of resources to provide care, fear of acquiring infections, lack of appreciation in the healthcare system, and a limited future. There is also a serious lack of individuals throughout much of the developing world who can provide organizational leadership, training, or management of large-scale program implementation for HIV care. As a result, external leadership will be necessary to assist in building the human resources needed at all levels from academic infrastructures within educational institutions to frontline primary caregivers. In a recent needs analysis, only one of 12 countries in Africa had a human resource strategy or ongoing planning for HIV/AIDS despite an epidemic that is undermining each country's future. As a result, there is a dependence on expensive, sometimes inappropriately experienced, expatriate personnel, not only in areas of program design and implementation, but also in areas of training, supervision, and care delivery.

Churches and church institutions including mission hospitals, seminaries and post-secondary institutions should be engaging the human resource crisis strategically and politically. Seminaries and Bible colleges should ensure that their graduates are equipped to counsel and deal with psychological and spiritual issues of HIV as a common, preventable infection in their parishioners. Hospitals should be continually preparing their staff for change and improving their skills. Churches need to build bridges to caregivers in their congregations to support them and work alongside them in their effort to provide hope and care. Community-based workers can be an extension of the healthcare system, reaching out from the church and ensuring that health needs as well as spiritual and psychosocial needs are addressed in a holistic manner.

Summary

Universities and all professional educational institutions including religious institutions should be collaborating closely with each other and government to ensure that human resources for HIV/AIDS as well as other needs are met through the scope and size of the educational and training programs within these institutions. Additional

© Copyright 2005

measures are needed to maintain and increase enthusiasm and expertise for HIV care competence as well as ensure that incentives and career pathways are available in order to retain individuals in their own country. Christians need to determine how they can have a significant role in this process.

Can care be scaled up without altering the priority of prevention?

The funding of prevention initiatives, including strengthening public health systems, is continually at odds in all societies with monies allocated to care. In most western societies, a hugely disproportionate amount of resources are provided for care services that often do little more than temporarily delay death. Meanwhile public health activities have been severely under-funded by government. Will this occur as monies get committed to care in Africa, where prevention programs are already markedly under-resourced?

In several countries, notably Thailand and Uganda, prevention has been remarkably successful and enables these countries to show reductions in HIV incidence with the longer term expectation that the burden of illness and death will be substantially reduced over the next decade. This is an outcome to be valued. Can it survive with the emphasis shifting from prevention to care in many of these countries over the next five years? The experience in western countries is depressing. Prevention efforts have not been sustained within the communities at risk or within governments. As a result, substantive increases in HIV incidence has occurred.

Prevention outcomes in populations are still not well understood, including those that have characterized the success achieved in Uganda. Western agencies have tended to rely on condom promotion and accessibility as their primary intervention, with a general assumption that deferring sex through abstinence and remaining faithful to one partner cannot be expected to be widely applied. However a sustained presidential-led effort with widespread support from the church has changed sexual behaviours significantly in Uganda and also reduced stigma. HIV/AIDS is discussed openly and widely in Uganda and patients with HIV die of AIDS, not mysterious diseases.

The contribution of the church to this success needs to be further studied. However, sexual norms are shaped by complex interplays within society and the supportive social processes that empower people to make healthy safe choices are not understood. Change probably has to occur at the societal as well as the individual level. The church should be at the centre of this process, providing children and adolescents with biblical material on healthy sexuality in Sunday schools and young people's camps, ensuring that appropriate role models are celebrated, assisting with parenting and changing norms. Supporting marriage wholeness and faithfulness is also an important church priority. Well-delivered messages on sexuality should also be a part of every pastor's annual sermon planning. The church has a critical role in HIV prevention. It must find the leadership and resources to fulfill it.

Christ was repeatedly accused of associating with prostitutes. Few churches have ministries that reach out to this tragic segment of humankind that is responsible for 10-30

© Copyright 2005

per cent of new HIV infections in most societies. The cost of preventing an HIV infection with prostitute programs has been estimated to be approximately $12-$50 per case.

Voluntary counselling and testing enables HIV-positive patients to take precautions, therefore preventing another HIV case, for an investment of $250-$500 per case. Everyone should be encouraged to be confidentially tested and individuals entering marriage should be tested. Churches need planned support programs for those found to be positive. Unfortunately, the triumph and sense of accomplishment that should accompany a prevented case does not occur and prevention must be given the resources and emphasis that ensures its primacy.

In no society are all prevention activities adequately deployed. Strategically every country and perhaps every community must annually review and evaluate its prevention activities, scale up and improve those that are lagging, introduce new proven prevention interventions, and be accountable to the wider society for the efficiency of the interventions underway.

Surveillance is a major infrastructure requirement for prevention. These programs are inadequate in most societies, particularly in resource-limited countries. This includes an ability to identify prevalence and incidence continuously in selected populations throughout the country, identify "hot spots," recognize trends, respond to outbreaks, and report back to the population being surveyed. Effective national surveillance has to be a priority with careful real time analysis and reporting back through the media and through frequent communication from a leadership with accountability. Goals and objectives have to be set and achieved in order for this accountability to occur. Very few countries anywhere have established the priority that surveillance requires, if it is to have a significant role in HIV prevention.

All countries should also be able to cost out the dollars allocated to prevention and ensure that these are continually being increased as new resources become available. Perhaps national leaders throughout the world should give at least an annual address on the effectiveness of prevention programs within their nation and the changes undertaken to ensure that society has measures in place that will reduce HIV incidence and prevalence.

Prevention and care have been connected theoretically and there is evidence that they can be mutually dependent. However, more research is needed to understand how awareness of HIV status, reduced stigma, and the mainstreaming of HIV through care programs can enhance prevention. This is an area in which there has been considerable talk with too little prospective evidence. Presumably if couples are discordant, treatment of the infected spouse will reduce the probability of the partner becoming infected. Vulnerable individuals with multiple partners such as sex workers, their clients and others, may have a reduced likelihood of infecting sex partners if they are on treatment. ARVs have been shown to significantly reduce the transmission from mothers to their infants. All these interventions make biological sense. More research is needed to link care and prevention and to ensure that they strengthen each other within the scientific context of both behavioural and biologically-based interventions. A recent study from Taiwan found a substantial reduction in new HIV cases that seemed to follow the introduction of ARVs for infected individuals.

© Copyright 2005

Summary

The emphasis on prevention must remain and evidence to ensure this priority must be gathered prospectively within every society as care programs are introduced. The Church should encourage open discussions and take responsibility for promoting biblical principles of sexual behaviour within all contexts.

Can healthcare systems currently unable to meet many of the primary care needs of ill individuals be expected to address the needs of a complex, chronic, incurable disease?

HIV care has many levels of complexity from straightforward regimens for basic care with prophylaxis in the context of social support and counselling through the convoluted, experience-based, decision making that involves ARV choices in patients with serious adverse reactions or drug failure. In resource-constrained countries as elsewhere, levels of care need to be established and expertise developed appropriate to the care function expected. At present, due to inadequate human and financial resources as well as limited supervision, care is irregular and unstandardized within most major African cities where it has been examined.

The following factors contribute to care difficulties at the point of patient entry to the healthcare system:

- Patient numbers overwhelm the available care resources. For instance, in Mulago Teaching Hospital in Kampala, 40 to 70 patients present themselves in each 24-hour period to the Department of Medicine for emergency care. About two-thirds of these patients are HIV-infected.
- The diagnostic and treatment resources for patients are limited. Secondary and tertiary care have been given a low priority within many African healthcare systems, often due to pressure from donors to limit support to public health and primary care programs. As a result, resources for acute care institutions are inadequate by any standard.
- Many caregivers are inadequately supported regarding their own needs. Salaries are poor and often late, team building and organizational support are lacking, morale is poor and many caregivers are chronically discouraged by the unsatisfactory outcomes for their patients. The hospital death rate among HIV patients is a daily tragic reminder of the terrible ravages of AIDS.
- Distribution programs for drugs, diagnostics, and other material to care for patients is often deficient, unreliable, and compromised by product diversion.

These issues are not readily addressed and will require bold new approaches. Some possibilities include the following:

- Repatriation of generations of healthcare professionals that have emigrated to other

© Copyright 2005

countries. These individuals will have to be wooed back to their country of origin where they understand culture and language and be given the opportunity to provide leadership and direction.

- Faith-based institutions have largely been ignored in planning activities and funding. Most of these institutions have an excellent record of delivering efficient, dependable services to populations who are otherwise difficult to access including rural and remote communities, the very poor, and the chronically ill. In most countries in Africa, faith-based institutions provide 15-60 per cent of the total health care. They must be seen by government and funders as a key resource that can be a dependable partner for HIV care.
- Accountability must occur throughout the healthcare system with appropriate rewards and penalties for failure to perform to minimum standards.
- The private sector needs to be involved. Distribution systems do not require new technologies. For the past 50 years, large companies have been getting non-essential products through a complex distribution system from manufacturing sites in other parts of the world, to a point of contact where the consumer can make purchases. Healthcare products including drugs should be distributed by the most efficient systems possible, not by ineffective bureaucratic government systems. This becomes mandatory if ARVs are to be made available consistently and correctly within communities close to the patients who need them.
- Assistance will be required from the global community and this will need to include not only dollars but systems experts who can train and advise to ensure the creation of new efficient public/private partnerships that enable the delivery of services. The ultimate goal is that all services improve. A new vertical HIV service is probably not sustainable and may only divert resources from a system in desperate need of overall support.

Summary

Healthcare services and systems need to be extensively revamped in order to provide adequate care for the large numbers of patients with HIV. This will only be possible if governments, universities, mission hospitals and NGOs work together.

Will programs for AIDS care increase the inequities already present in society?

Issues around equity must be addressed within programs to deliver care. Wealthy, influential men will receive a disproportionate amount of HIV care resources unless measures are taken to ensure that the needs of the poor, the rural and disadvantaged, and women and children are given their share of resources. Christians should be in the forefront of arguing for the good of the most vulnerable. Without protection and oversight, AIDS care will increase disparities.

© Copyright 2005

Summary

Equity must be addressed in planning the introduction of ARVs into all societies.

How can ARVs and the other costs of enhanced care be funded in resource-constrained societies?

ARV costs can be further reduced. They remain substantial despite price reductions achieved through the UN access programs in several countries and the introduction of generic drugs in others. Treatment regimens that cost over $8,000 per year if prescribed in North America are now available for $250 per year from generic manufacturers in India. However, for a number of reasons, the generics may not in all instances be the only answer. The use of generics avoids issues of strict western standards for good manufacturing practices, patent infringement and intellectual property, and the absolute necessity of ongoing pharmaceutical research to ensure new products.

On the other hand, the argument for brand-name companies to develop multiple tier differential pricing systems is persuasive. Presumably the brand-name companies can efficiently and rapidly scale up their production of additional product. It can be clearly labelled to differentiate it from the product manufactured for wealthy countries. It will require that western countries accept high prices with some accountability and that resource-constrained countries agree to establish controls so that products sold at lower prices are not diverted to the West.

The Brazil experience is relevant to all countries Although further economic analysis is required, it appears that the reduction of between 70 and 90 per cent in the price of drugs in Brazil enabled more than 100,000 individuals to access therapy and reduce hospital use for AIDS by more than 70 per cent. Some spokespersons have stated that Brazil has saved more than a billion dollars in healthcare costs and economic productivity through the introduction of ARVs.

Healthcare funding systems must be flexible. Currently in most African countries, health costs have been distorted by the costs of HIV illness. These expenditures can be markedly reduced with HAART. This has been shown in the West and now in Brazil. Systems to ensure that monies can be transferred from acute care budgets to drug budgets need to be developed and tested.

Employers must develop employee programs that address both HIV prevention and care. Fortunately many companies are now beginning to realize that their employees are their most important resource and individuals who become ill with HIV need support including assistance for the purchase of ARVs. These programs should be able to rapidly expand over the next three to five years and perhaps as many as 1 million individuals should be eligible for enhanced care through workplace support programs. In particular, governments including the military need to address this issue with health benefits for civil servants that enable stable, productive, motivated workforces.

Philanthropy has been largely untapped. Many individuals on ARVs are dependent on family members who provide resources. However, with the reduced cost of ARVs, individuals from wealthy countries may be able to financially support drug purchase for

© Copyright 2005

infected patients. This model is only now being developed but potentially could find resources for an additional several hundred thousand patients. Currently a donation of $150 semi-annually would support someone on ARVs in Uganda.

Many people can afford to purchase drugs from their income or their assets. In Uganda the cost of generic drugs is about three times the monthly cost of a mobile phone. Although further studies are needed, it appears that individuals earning an equivalent of $150 US may be able to afford as much as 20 per cent of their salary or $30 US monthly to purchase drugs. Between 10 per cent and 15 per cent of infected individuals in urban regions of Africa may be able to make these purchases and most will presumably continue to be healthy and productive.

Finally multilateral and bilateral monies are now arriving in most African countries for enhanced HIV care, including purchase of ARVs.

Overall the World Health Organization projects that at least three million individuals will be on HAART by the end of 2005 through these multiple funding routes. All are important to enable substantial numbers of patients, who otherwise would have died, to survive and be well.

Summary

Large numbers of individuals will be able to afford and access ARVs within most low income countries over the next 3-5 years through a variety of funding mechanisms. Less expensive drugs, cost sharing for populations between government and western sources, employer plans, philanthropy, and personal purchases will enable millions to initiate therapy. Although price remains an obstacle, it can be effectively addressed.

Will adherence not be a major problem with rapid emergence of drug resistance and lead to treatment failure in the short term?

Few studies have been done in resource-constrained societies. If ARVs are taken intermittently or haphazardly, viral resistance ensues and clinical failure follows. This is now being seen with some frequency in Uganda, particularly among individuals depending on out-of-country resources that may not be dependable. However, in observational studies, most individuals who purchase their medication appear to have excellent compliance. Educational support is necessary and further research is needed to identify what factors will interfere with the levels of adherence necessary (about 95 per cent) to ensure excellent laboratory and clinical outcomes. Using the lessons learned from directly observed treatment (DOT) of tuberculosis, perhaps community and family support systems for AIDS care can be developed with high levels of compliance. The church community may be able to have a role in support systems.

Individuals who have had a “near death” experience from their illness and who have a satisfactory response to treatment may be particularly adherent. More than 90 per cent of patients taking fluconazole for suppression of *Cryptococcus neoformans* are compliant with daily fluconazole in the Mulago HIV Clinic.

© Copyright 2005

Summary

Although more studies are needed, individuals provided with ARVs in developing countries may be more compliant than in western countries. However, sequential monitoring for resistance with well-planned studies is essential.

Can large enhanced care programs be initiated without additional research, particularly operational research and large clinical trials of various regimens?

Research is an urgent priority and needs to be scaled up rapidly. The traditional approaches to research funding used in the West are not working. Little research is occurring in Africa to improve the care of patients with opportunistic infections. Studies to determine how ARVs can be optimally deployed are needed. As a result, models of disease prevention and care are being imported from industrialized societies that may be inappropriate in Africa.

The following interventions need to be considered to ensure that research can be carried out efficiently in Africa and throughout the developing world:

- Scientists, particularly clinicians with expertise in conducting clinical trials need to be trained in large numbers and given academic appointments. Critical masses of individuals are needed at a number of academic centres. At least 300 clinician scientists are needed for Africa by 2008 with at least 12 centres in which 10 or more individuals work together in a wide range of areas, from laboratory-based expertise with pharmacokinetics and pharmacogenomics through to the disciplines that resource bioethics, behavioural sciences, clinical trials, and operational research. These individuals require long-term commitments and academic positions with adequate stipends to enable them to pursue their scientific and academic roles rather than private practice.
- Health research councils with dollars, presumably largely from the West, need to be developed outside the political system with excellent peer review to ensure resources, both salaries and grants, to African investigators. At least $500 million for HIV research will be needed to fund good African science annually within five years.
- Large multi-site clinical trials modeled after the ACTGs in the United States need to be urgently developed. These should enter thousands of patients, ask important questions relevant to Africa, and train a range of care providers including nurses, pharmacists, counsellors, laboratory technicians and physicians in both the art and the science of clinical trials. At least 10 multi-site trials entering 1,000-5,000 people should be underway within five years.
- HIV research information needs to be provided much more effectively to African caregivers and investigators. Multiple strategies are essential to ensure that information flow occurs as readily as it does in the West.
- Some mission hospitals need to be involved with research either in collaboration with academic centres or in networks of their own.

© Copyright 2005

- Science needs to be better understood by the church community with an awareness of the significance of clinical trials, HIV effects on the immune system, and the importance of adherence to prevent emergence of resistance.

Summary

Research must inform HIV care in Africa and other countries as it already increasingly does in the West. The research must ensure evidence-based planning and service delivery as well as individual clinical decisions. However, widespread access to care cannot wait for the results of these research studies. They must proceed in parallel and both be seen as urgent priorities.

What laboratory studies are needed for initiation in monitoring of therapy in developing countries?

Laboratory tests in western countries, costing on average between $1,000-$2,000 annually, are used to provide serial CD4 counts, viral loads, occasional resistance tests, and other laboratory tests for initiating and monitoring HIV care. In many countries in Africa, few laboratory studies are available and most patients have no resources to pay for them. As a result, the majority are treated without western laboratory support.

Several initiatives need to be taken urgently. First, there needs to be critical studies to identify what clinical parameters can replace the surrogate laboratory results now used to initiate and monitor ARV treatment. Can the presence of mild or moderate opportunistic infections such as Thrush be used instead of CD4 counts to initiate therapy? Can these be useful indicators for continuing therapy? What errors are made when clinical markers are used for managing patients and how can these be substantially reduced? Are viral loads ever essential in a setting of limited resources? How should treatment failure be recognized and patients offered a second treatment option?

Another strategy currently under investigation depends upon simplification and much less expensive replacement of conventional technologies with reliable tests that will predict CD4 and perhaps viral load at reduced cost. These tests are currently in review and should become available within the next 24 months. Presumably if a CD4 evaluation can be done for $5 or less, it will be feasible for initiation and monitoring treatment.

Summary

Alternatives to current complex, expensive laboratory tests are needed and should be discovered, developed and deployed urgently.

All the above concerns are valid and must be addressed as we go forward**.** The Christian communities in much of Africa are often under-appreciated and under-utilized in the context of HIV prevention and care. Their armies of community care providers, pastors, and trained healthcare providers have largely been on the sidelines of the battle.

© Copyright 2005

It appears we are losing the prevention war in many countries. The challenge to keep millions alive with ARVs may be impossible to achieve with the human resource capacity for care in most African countries. Therefore this effort could also be a disaster. Bold leadership with new approaches is needed. We shouldn't wait to be asked.

Conclusions

The World Health Organization and other supporting UN agencies have identified the goal to ensure that at least three million HIV-infected individuals will be receiving antiretroviral therapy in developing countries by December 2005. This is an immense task and will only be possible if each of us in our individual roles within our societies become committed to the task and engage the process effectively to make it happen. The Christian community, both as individuals and as organizations, must become involved.

This goal also requires that research, human resource development, and other enabling strategies occur concurrently with a rapid increase in drug manufacturing, purchasing, and distribution throughout these societies. The usual decision-making processes with sequential obstacles that require months to years to resolve cannot be followed if the world is to become serious about preventing the death of millions of HIV-infected individuals. Fiscal resources are no longer the primary constraining problem. Rather it is our ability as societies and individuals to make it happen.

Dr. Allan Ronald is an AIDS specialist active in Uganda, and Professor Emeritus at the University of Manitoba. Dr. Ronald received the 2003 FNG Starr Award, the highest honour awarded by the Canadian Medical Association. He has authored or co-authored more than 400 publications.

© Copyright 2005