Evidence-Based HIV Interventions with special reference to Africa

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In many areas of medical and health issues new thinking has transformed the robustness with which medical interventions are assessed and their scientific basis examined. These have been grouped under the title: "Evidence-Based-Medicine". Much of the early thinking in this area was pioneered by Archie Cochrane who courageously questioned many of the assumptions of the medical establishment and asked that their assumptions be submitted to the same rigorous scrutiny that is standard in the more exact sciences. He maintained that much of the credit for clinical improvement after treatment should go to the body's capacity for self-healing with care and support and not to other therapy. His estimate was that 80% of diseases that make a patient seek medical care are self-healing provided that care and support are given during the illness.

Of course this is not the case with HIV infection. However it is equally important in this disease to submit possible interventions in HIV/AIDS work including preventive measures, to scientific scrutiny. The levels of evidence are as follows:

Level	**Type of Evidence**
Ia	Evidence obtained from meta-analysis of randomized controlled trials
Ib	Evidence obtained from at least one randomized controlled trial
IIa	Evidence obtained from at least one well-designed controlled study without randomization.
I**Ib**	Evidence obtained from at least one other type of well-designed quasi- experimental study.
III	Evidence obtained from well-designed non-experimental descriptive studies, such as comparative studies, correlation studies and case control studies.
IV	Evidence obtained from expert committee reports or opinions and/or clinical experiences of respected authorities.

The Cochrane reviews try to come to one of 5 conclusions with resultant recommendations based on the scientific level of the evidence for the claimed efficacy of an intervention:

1. Beneficial forms of care. Clear evidence from controlled trials.
2. Forms of care likely to be beneficial. Evidence not yet firm.
3. Forms of care with a trade-off between beneficial and adverse effects.

4. Forms of care of unknown effectiveness.
5. Forms of care unlikely to be beneficial.

Prior to looking at the evidence there is value in looking at what were the probable factors that related to the rapid spread of HIV in certain areas in Africa south of the Sahara. These 8 factors have been identified not by rigorous scientific studies but through numerous evaluations of HIV/AIDS programmes in many of the high prevalence countries of Eastern and Southern Africa.

Why has HIV spread so rapidly in Africa?

1. At the time of Independence for many countries in Africa there were rapid social changes including quick urbanization. Zambia illustrates this well. At Independence in 1964 25% of the population lived in the cities. 10 years later this figure was 50%. Large numbers of people moved from the countryside where tribal culture had fairly strict controls over sexual behaviour through peer pressure and the training that was part of the initiation ceremonies at the time of puberty. In the cities this control mechanism disappeared and was replaced by a "free love" style of behaviour especially after the sexual revolution starting in 1968.
The initiation teaching in most tribal cultures in Africa have a ***profertility*** and ***prosexuality*** emphasis but within strictly defined limits. If the limits are removed there is a high risk situation. This became the norm for many young people in cities.

2. Anthropologists have identified the phenomenon of "clustering" as very important in the early stages of HIV spread. This is defined by the anthropologists as "people with a specific behaviour who gather in a specific geographic area". The specific behaviour as related to HIV spread is that of having extremely high numbers of sexual partners, often termed ”core groups”. It was possible to see this phenomenon in certain defined areas of Los Angeles, San Fransisco, Nairobi, Lusaka, Moshi, Mumbai, Dacca and many other cities where clustering was a major co-factor in the early stages of the HIV epidemic.

3. The existence of a high prevalence of untreated sexually transmitted infections (STIs) co-existing with HIV infection. Of all the STIs the single most important as a co-factor for HIV spread have been chancroid and Herpes. By improving the diagnosis and treatment of STIs the transmission of HIV was reduced by 38% (Mwanza region, Tanzania)

4. Poverty was seen as an important co-factor in women who moved to the cities hoping for a better life. Many found that employment was almost impossible to find and the only method for survival was through prostitution or through brewing beer. A very sinister phenomenon that has grown up is the appearance of "Sugar daddies" whereby older men, afraid of the new epidemic, offer to pay school costs and give presents to younger girls (often young teenagers) in exchange for sexual services. There is equivalent behaviour amongst well-off women where they are called “sugar mummies.”
Amongst men, riches (at least in the early part of the epidemic) was a risk factor with higher prevalence amongst the better paid in many firms than among the poorer paid.

5. There was a serious delay in information and launching of anti-AIDS campaigns due to political sensitivity over the hypotheses of the origin of HIV/AIDS as coming from Africa. The original green monkey hypothesis as launched by Robert Gallo and Max Essex turned out to be groundless as far as HIV1 is concerned. It was based on pure speculation. For many years AIDS information

was suppressed in such countries as Zimbabwe and South Africa because of this sensitivity.

6. There is evidence that circumcision in men reduces the risk of HIV infection by up to 60%. This may explain some of the enormous differences between certain neighbouring countries in Africa and even regional differences within countries e.g. the difference between the low spread amongst the Lunda, Ndembu and Lovale tribes in Zambia where circumcision of men is the norm and the more rapid spread in the neighbouring Kaonde, Lamba and Lenje tribes which do not have this tradition.

7. Certain cultural practices in certain tribes may increase the risk. One such example is the custom of "ritual cleansing". In Zambia this is practised by the Tonga and Lenje tribes. This is the custom whereby the surviving spouse has to be cleansed from the death of their partner. Over the years this cleansing has come to be mainly by sexual intercourse with a sibling of the one who died, before the survivor can remarry. If the person who died was HIV-infected and the survivor is also infected, this might lead to HIV-infection of the sibling and his/her family as well as the new partner when the bereaved one remarries.
Another cultural practice has been identified in many cities in South and Central Africa. This is the preference for "dry sex" whereby the mucous membranes of the vagina are dried by the use of herbs or chemicals (or even sand) so as to increase the friction during intercourse in order, supposedly, to increase sexual pleasure for the man. This increases the risk of abrasions and mucosal damage with decreased mucosal immune defences and thereby increases risk of HIV transmission. This seems to be a fairly recent practice from commercial sex workers intially which has now spread to many others.

8. Max Essex at Harvard presented evidence of the various clades (sub-varieties) of the major HIV-1 virus (8 have been identified to date) which spread in different ways.
Thus the clade that is predominant in N. America and Europe (clade B) spreads mainly by blood and blood products, and is therefore more likely when intercourse causes some bleeding (more likely in anal than vaginal intercourse) or among intra-venous drug abusers.
The clade that is now dominant in Africa (clade C) spreads well across mucous membranes (and from mother to child) and does not need bleeding in order to spread. It is especially attracted by the Langehans cells in the mucous membrane (thus spread is easier in heterosexual intercourse).This is also the dominant type in India. Clade A was common earlier in Africa and is still found in certain countries.
In Thailand type E dominates and has similar characteristics to clade C. At the beginning of the epidemic clade B dominated amongst homosexual men. Women are 3 times more at risk of spread of clade E having a greater area of mucous membranes and being exposed to the high virus load of seminal fluid.

We still don't understand certain anomalies in the epidemiology of the epidemic:
e.g. Why has the spread of HIV stabilized at a low level in the Democratic Republic of Congo with many of the menacing features described above? HIV prevalence there in adults is 4.35% compared with 25.5% in Botswana or 19.07% in Zambia.
Why should Kinshasa which has all the features of social instability, poverty among women, prominent presence of the military, border crossings from the other Congo etc stabilize at an HIV prevalence of under 5% actually dropping from 1987 to 1993.
Why should the pedicle of Congo which sticks down into Zambia have such a low incidence

whereas across the border in Zambia in the Copperbelt the incidence is high? It is the same tribe on the two sides of the border and there is much border-crossing.
We don't know the answers to these anomalies. Some of them may be explained by the protective effect of male circumcision but many other unknown factors probably play a role that we don't yet understand.

Recent successes in HIV prevention in Africa

A decade ago there was widespread international pessimism about HIV prevention in Africa. This was reflected in 2000 in the very modest target of Goal 6 of the Millenium Development Goals that pertains to HIV. The late Jonathan Mann who headed the Global Programme on AIDS at WHO for many years made this assessment in the late 1980's: "The AIDS epidemic is out of control in the whole world .... I cannot identify anything in any governments' politic that shows a commitment to rapidly stopping or slowing down the spread of the disease". " I cannot find any evidence of any behaviour change as a result of our international campaigns".

WHO came to realize the extreme limitations of any "top-down" intervention which unfortunately were characteristic of many early programmes including those from WHO. Many "Bottom-up" approaches have shown impressive effectiveness.

All interventions need to be based on a Public Health approach as with other epidemics. In the context of HIV this combines ***health promotion*** (i.e. behaviour change with reduction in the number of partners, increased faithfulness and delaying the age of first intercourse), ***disease prevention*** (i.e. use of condoms both male and female and in due course effective vaginal microbiocides), ***illness management*** (i.e. treatment of other STI's using if appropriate the syndromic approach, prophylaxis and treatment of opportunistic infections in those who are already HIV-infected, especially TB, and, where available, combination anti-retroviral therapy when indicated) and ***disability rehabilitation*** (in HIV/AIDS the greatest disability is stigmatization but there are many physical causes of disability).

There is a powerful synergism in combining ***care*** and ***preventive*** interventions. It is doubtful if prevention campaigns without a care element will ever succeed in Africa.

Recent studies in a number of countries in Africa and Asia show a "glimmer of hope" that prevention does work provided it is embraced by all levels of society and provided the community themselves are allowed to be the decision makers about behaviour change based on sound advice from enlightened health workers:

A. In Uganda the incidence of HIV in people below 25 years of age went down by 2/3 over a period of 5 years in certain cohorts that were followed carefully in a number of cities. Nationally HIV prevalence peaked in 1991 at about 21% and then declined to about 6% in 2002 . Amongst pregnant women in Kampala, in 1990 31% were HIV positive; by 1998 14% were HIV positive. In those less than 20 years the decline was from 28% to 6%. In the same group outside Kampala the decline was from 21% to 8%. The Ugandan campaign focusses on promoting delayed sexual debut, fewer partners with more faithfulness and condom use especially amongst those with high risk. **Fewer partners and more faithfulness seem to be by far the most significant of these 3.** Uganda reduced the share of men having 3 or more partners from 15% to 3% during the early 1990's and thereby reduced HIV prevalence from 21% to 6%.

A study that compares HIV prevalence in two areas separated by the border between Uganda and Kenya shows striking differences in all figures relating to HIV spread to the favour of Uganda. The same tribe is to be found on both sides of the border.

B. In Zambia the incidence has gone down by 50% in the age group 15-24 yrs. in certain cohorts studied and there has been a decrease also in some population-wide studies. Outside of the major urban areas in those pregnant women under 20 years HIV positivity declined from 14% in 1994 to 6% in 1998. In Lusaka the decline in the same group was from 28% in 1993 to 17% in 1996. However the national prevalence is still high at 15.2%.

C. In the UNAIDS report from June 1998 there was quoted the dramatic reduction in prevalence of HIV in the Kagera region of Tanzania both in the city of Bukoba and in the surrounding countryside. In women aged 15-24 in the urban area of Bukoba prevalence fell from 28% in 1987 to 11% in 1993. In the surrounding rural area prevalence among women in the same age group fell from almost 10% in 1987 to 3% in 1996. The principal interventions were the same as in Uganda.

Between 2001 and 2012 progress has been impressive in HIV prevention in Africa:

Malawi reduced HIV incidence by 73%
Botswana reduced by 71%
Namibia reduced by 68%
Zambia reduced by 58%
Zimbabwe reduced by 50%
South Africa reduced by 41%
Swaziland reduced by 37%

There would be great value in weighing the scientific evidence for each claimed intervention and of placing the preventive strategy into one of these 5 categories of recommendation espoused in the Cochrane reviews. This at present is not possible.

Relative risks of Behaviour related to HIV infection

The relative risks of certain behaviours and the efficacy of preventive interventions have been assessed in richer countries and here is a brief summary of their findings.
Ref. The Sanford guide to HIV/AIDS therapy. Sanford J.P. et al 6th Ed 1997 Antimicrobial Therapy Inc. Vienna, VA USA
Assessment of HIV infection risk
A. Sexual behaviour
1. Sexual partner; risk increased by sexual contact with:
- HIV-infected partner
- Partners who are at risk but have not yet been HIV tested
- Multiple partners
- Presence of mucosal ulceration or other STI in either partner (CID 23:449, 1996)

2. Sexual practices
a. High infection risk
- Male/male Unprotected anal receptive intercourse
- Female/male Unprotected vaginal receptive intercourse

b. Infection risk documented

- Female/male Unprotected oral receptive intercourse (An I Med125:257 1996)
- Male/male Unprotected anal insertive intercourse
- Male/female Unprotected vaginal insertive intercourse (?higher during menstruation)
- Male/female Unprotected oral insertive intercourse

c. Lower infection risk

- Any of above with latex/vinyl condom (vaginal or penile) protection.

A number of studies have been done to assess effectiveness of condoms in preventing HIV transmission.
Based on contraceptive efficacy (97%) and defect rate (0.04%) effectiveness calculated as 8-27%/year (J Sex Marital Therapy 15:5 1989).
In 343 HIV-negative women partners of HIV+ men seroconversion for those who used condoms with every encounter was 1.1/100 person years while those who used condoms intermittently or not at all rate was 7.2/100 person years (J. AIDS 6:497 1993).
In Thailand aggressive condom campaign reduced seroprevalence from 7.2 to 3.8 in military conscripts.

A consensus of the best studies gives an overall preventive efficacy of condoms for HIV at 80-85% HIV has a much lower infective rate than e.g. highly infectious gonorrhoea

- Cunnilingus especially with rubber dam, or other water-impervious barrier.
- Circumcision decreases risk to the male (CID 23:449 1996).

d. Safer

- Deep kissing
- Protected sex with HIV test negative partner
- Mutual monogamy
- Mutual masturbation
- Masturbation or massage

e. Safest

- Abstinence

3. Conditions that facilitate HIV Sexual transmission (CID 23:449 1996, NEJM 336:1072 1997)

Male-to-female Transmission	**Relative risk reported**
a. Oral contraceptives	2.5-4.5
b. Gonococcal cervicitis	1.8-4.5
c. Candida vaginitis	3.3-3.6
d. Genital ulcers	2.0-4.0
e. Vitamin A deficiency	2.8-12.9
f. CD4 count <200	6.1-17.6

Female to male transmission	**Relative risk reported**
a. Lack of circumcision	5.4-8.2

✒ b. Genital ulcers	2.6-4.7
✒ c. Sex during menses	3.4

Titres of viral DNA in secretions	**Relative risk reported**
✒ a. With low CD4 count <200 vs >500	9.6
✒ b. Vitamin A deficiency	2.6
✒ c. Presence of cervical mucopus	2.1

Titres of viral DNA in semen	
✒ a. Gonococcal urethritis	3.2

Acronyms
CID: Current Infectious Diseases
An I Med: Annals of Internal Medicine
NEJM: New England Journal of Medicine
J AIDS: Journal of AIDS
J Sex Marital Therapy: Journal of Sex and Marital Therapy

A structure for examining the areas that need to be studied in Africa

It is well known that at present the evidence is weak for many of these interventions that follow even though they seem logical and some studies show their value.

Blood Safety

(a) Reducing the risks with blood transfusion

1. Reducing the unnecessary use of blood transfusions in order to reduce the risk of transferring HIV by this route (even tested blood may have risk in the ″window period″ although the latest tests have shortened this risk period markedly)
This was first shown to be feasible in Zaire (today DRCongo) in 1986.

2. Improving the safety of all blood that is planned for transfusion by adequate testing for HIV antibody. This is undoubtedly a valuable intervention.
HIV testing prior to transfusion was first started in 1985 and shortly thereafter introduced by the blood transfusion service in Zimbabwe in July 1985. This was the first country in Africa and the third country in the world to start using these tests. This practice is now standard in many countries

3. Assessing the efficacy of bed-nets and other measures to reduce malaria risk and thereby the risks of anaemia and the need for blood transfusions especially in young children.
Better protection against malaria in high risk areas reduces the need for blood transfusions for the severe anaemia of malaria.

4. Assessing the efficacy of the use of safety-belts in reduction of severe injury and thereby reduction in the need for blood transfusion. This would appear logical.
Introduction of compulsory use of safety belts in vehicles has been shown to reduce the risk of severe injury in the event of road traffic accidents and thereby almost certainly reduces the need for blood transfusions.

5. Introducing tougher laws on alcohol abuse by drivers in order to reduce the number of road traffic accidents where blood transfusions might be needed.
Sweden was an early country introducing tough laws on alcohol and driving with significant benefits in reducing accidents and presumably the need for blood transfusions.

6. Improving maternal health care/delivery care to reduce anaemia during pregnancy and if possible avoiding haemorrhage around delivery or reducing its severity in order to obviate the need for blood transfusions (esp. post-partum). This would appear logical.

(b) Other risks of transfer by blood spread
1. Avoiding unnecessary use of injections in health care (especially in groups with a known high HIV frequency such as TB patients) and even within alternative therapy (including traditional health practices).

2. Where injections are unavoidable making them as safe as possible by use of disposable needles where resources are adequate or strict sterilization procedures where reuse is inevitable. Critical instructions are: "Never re-cap a disposable needle but place it directly into a sharps cannister" Where needles/syringes have to be re-used follow such instructions as: "Dispose of needles and syringes immediately after an injection into virucidal antiseptic followed by cleaning of the needle and syringe with water and then autoclave in one of the "pressure cookers" specifically designed for neeedle/syringe sterilization".

3. Examining the role of traditional practices where blood spread is possible e.g. scarification, circumcision etc.
These may not play a large role but use of new razor blades or adequately sterilized blades is to be encouraged. It may be possible to identify alternative traditional practices without the use of sharp instruments that could replace risky procedures.

4. Assessing ways of reducing the risk in communities with intravenous drug use
Interventions here include better control of the abuse and improving the underlying social conditions. In some areas needle exchange programmes have reduced HIV spread but on their own these may be only a short-lived improvement unless the other elements of reducing the overall IVDU problem are dealt with.

Vertical transmisson from mother to child
1. Assessing the efficacy and feasibility of using **anti-retroviral treatment** in the later stages of pregnancy to reduce vertical spread.
Studies in 1994 showed clearly that administration of AZT during the pregnancy, from weeks 14 to 34, reduced HIV transmission by two thirds. Further studies with reduced number of doses in Thailand, Côte d'Ivoire and Burkina Faso have shown impressive reductions.
Research from Uganda shows that a single dose of nevirapine during labour and a single dose to the child can prevent vertical transmission at a low cost. This will change thinking about the best way of preventing infants from being infected. This costs US$4. Give Nevirapine one dose 200 mg to the mother during delivery and one dose 2mg/kg to the new born baby between 8-72 hours after the birth. This brings about a 47% reduction in the vertical transmission of HIV from mother to baby. **NB. However nevirapine has a resistance risk which reduces its efficacy in the long-term.**
The more modern way in high income-countries is to give triple therapy during the last trimester to

the mother and then AZT to the baby after birth. To those who deliver without ante-natal care ideally a single combined triple therapy given as a single dose to the mother during delivery and a single dose to the baby could give protection and avoid the risks of resistance developing.

2. Replacing Vitamin-A in communities with Vitamin-A deficiency.
In Malawi HIV transmission was reduced in communities with Vitamin-A deficiency by replacement of Vitamin-A. Other studies have challenged this finding and suggest that the main benefit is only in reducing the general risks of infancy and not specifically HIV-transmission.

3. Attempting to reduce the viral load in the birth canal by use of **virucidal antiseptics**.
Since 65% of vertical transmission occurs during delivery, attempts have been made to reduce the viral load in the birth canal by use of antiseptics. However first studies in Malawi with chlorhexidine showed disappointing results except in certain sub-groups.A theoretical benefit of iodine-containing antiseptics such as povidone iodine needs assessment and studies are underway of new anti-viral antiseptics to be used vaginally. It is known that keeping the foetal membranes intact as long as possible during delivery has a positive effect in reducing the baby's risk of HIV.

4. Assessing interventions to **reduce the risk of HIV spread by breast-feeding.** Breast-feeding is known to increase the risk of vertical transmission. However the risks of not breast-feeding in poorer communities may be greater than HIV risks. Likewise the economic implications of replacing breast-milk in such communities may be so harsh that in communities with an infant mortality of over 50/1000 it may be safer for the baby to breast-feed despite the increased risk of HIV transmission.

Studies from South Africa (Coutsoudis et al) show that, **with a very strict definition of exclusive breast feeding, transmission rates of HIV from mother to child were actually lower in those exclusively breast-fed from birth than in those who had never breast fed at all up to 6 months of age** even though strict exclusive breast feeding was only for 3 months. However infants who were breast-fed and concomitantly had water, tea, juice, milk, solids or other things in addition to breast milk had the highest rates of HIV transmission from the mother. Replacing human breast milk with cows' milk in any form enormously increases the intrinsic bacteria-enhancing properties of the milk which is of benefit to calves but of danger to human babies. Human breast milk is not only sterile but powerfully antagonistic to bacterial growth in the gut. Any mastitis or cracked nipple problem may increase risk of HIV transmission. Training in better technique of breast feeding may reduce these risks.

Sexual transmission

Recent overviews of all the best research studies about the efficacy of various interventions to reduce the risks of HIV transmission by sexual means show that the most effective change is reduction in the number of sexual partners. Uganda reduced the share of men having 3 or more partners from 15% to 3% during the early 1990's and thereby reduced HIV prevalence from 21% to 6%. Less effective but still of significance is delaying sexual debut especially for girls because of their biological vulnerability. The third change that reduces risk has had only minimal effectiveness in Africa. This is consistent and correct use of condoms in all extra-marital sexual contacts. This has value for the individual with high risk behaviour but has not been shown to reduce the spread of the epidemic in a general population **(see especially the first 7 references)**. The main benefit of condom use is within peoples' movements of those with high risk behaviour who have come to a

consensus to give peer support to those within their group to use condoms consistently and correctly in intercourse.
It seems that **people's movements in dialogue with health workers** but with control of all decisions about behaviour change remaining with the community are essential for success.

Here are areas that need to be studied more carefully:
1. Improving the diagnosis and treatment of STIs.
Use of the syndromic approach in the Mwanza region of Tanzania reduced HIV transmission rate by 42% in 1995. However conflicting results have come from Uganda.

2. Targetting programmes among groups with high risk behaviour with safer sex messages.
Interventions among commercial sex workers in Nairobi 1988 and truck drivers in Tanzania in the 1990's showed that peer education was associated with increased and more consistent use of condoms and in the latter group reduced number of partners. These also demanded prostitute-free hotels at all truck depots, termed ”hotel without.”

3. Assessing the impact of community counselling.
Community counselling as an integral part of a cascade of counselling (affected individual/ family/village/community) has led to community identification of high risk behaviour and consensus decisions in communities about behaviour change with reduction of numbers of partners and thereby risk of HIV infection (Chikankata, Zambia 1987-1990).

4. Assessing the efficacy of grass-roots movements amongst youth groups such as the anti-AIDS club movement in Zambia.
The Anti-AIDS club movement in Zambia started in 1987 and was shown to stimulate behaviour change through peer support.This movement spread to 2000 schools throughout the country and led to lower levels of pregnancies in schools with such a club and lower HIV positivity levels in the same schools compared with schools without such a club (unpublished reports). If such clubs do not have active support from the teaching staff they may tend to dwindle and die after a few years. However even in 2000 there were still some 1760 clubs active in Zambia with 60 000 members

5. Assessing the efficacy of youth friendly services.
Youth friendly health services have been shown in Sweden to lead to improved identification and treatment of STIs especially amongst girls.

6. Assessing the value of linking care and prevention in such interventions as home-based-care.
Linking up community counselling with home-based care of HIV affected persons and a wider programme of community development has shown that the three approaches have a synergistic effect upon one another (Uganda, Masaka district's programme pioneered by Redd Barna, 1997). This approach uses the Participatory Rapid Appraisal methods to help communities to identify their priorities and goes on to enable them to identify the most vulnerable in the community and the way of planning interventions including income-generating projects to alleviate the impact of HIV in the community. A description of one aspect of the general method is given in the document “Stepping Stones”.

Studies in Uganda by Edward C. Green and his co-workers from Harvard as well as Ugandan research colleagues suggest that behaviour change with marked reduction of partners, delaying

sexual debut, abstinence prior to marriage and so-called "Zero Grazing" (a local term to describe absolute faithfulness within mariage) explains 98% of the decline in HIV spread in Uganda. Inceased use of condoms in casual sexual encounters was responsible for 2% of the decline. This research endorses results of earlier research carried out by WHO and in studies by the Demographic Health Survey of sexual behaviour in Uganda and changes in behaviour in response to the HIV epidemic. Studies by Stoneburner and Low-Beer showed similar findings in Uganda. Several other studies in the Kagera region of Tanzania, Eastern Zimbabwe and Zambia show the same impact.

7. Assessing the effectiveness of male circumcision in HIV-prevention.
Male circumcision has been shown to have a significant effect on HIV spread reducing the risk by about two thirds in some studies (1989 Caldwell, Nairobi). Recent studies published in Lancet have confirmed these findings with WHO citing 60% protection against HIV infection. Thus in communites where this is a tradition the custom should be encouraged. In some countries even other tribes who have not had male circumcision are being encouraged to introduce this practice.

7. Assessing the effectiveness of antiretroviral treatment in HIV-prevention.
Recent studies show clearly that those on effective antiretroviral treatment have very low risk of infecting others. However this does not lower the infectivity risks of recently HIV-infected persons who as yet do not know their HIV status. Their viral load is at high levels with intercourse being hazardous for the receiver. Likewise those with a multi-resistant HIV may be on treatment but this is not effective in lowering the viral load. Another group who are likely to spread the virus are HIV-positive who have not reached the stage where antiretroviral treatment is to be started.

8. Assessing the impact of health education at the work place.
Health education at the work place has been shown to have an impact on knowledge, attitudes and even to a limited extent on practice with increased use of condoms and some reduction in number of partners e.g. David Whitehead Textiles in Zimbabwe, Barclays Bank in Zambia.

9. Assessing the efficacy of use of the female condom.
There is some optimism about the efficacy and long-term impact of a general encouragement for using female condoms as launched in Zimbabwe.

10. Assessing the efficacy of general recommendations on use of condoms in a top-down untargetted way.
General recommendations about use of condoms in the community have shown lower impact than targetted programmes. Ten studies in nine countries analyzed in a meta-analysis by WHO suggest a significant difference between *method* and *use* effectiveness of male condoms. Their use in ordinary life situations is associated with only a 60% reduction in HIV spread (and a 50% reduction in STI spread) amongst those who claim to use them consistently. Concurrent use of alcohol was often an associated confounding factor as were embarrassment and using wrong technique.
A recent standard textbook on STI's summarizes the protective effect of condoms: ***Properly and consistently used good quality condoms reduce the spread of most STI's by at least the following figures: chlamydia by 40%, gonorrhoea by 49%, trichomonas by 60% and HIV by around 80-85%. Herpes genitalis may be reduced in females but no evidence of reduction in males. There is conflicting evidence in papilloma with possible protection in males.*** **(see Oxford Handbook of Genitourinary Medicine, HIV and AIDS by Richard Pattman et al).**

Hearst and Chen conducted a review of condom effectiveness studies for UNAIDS. Among their findings were that: "Inconsistent condom use does not protect against HIV infection" (Hearst and Chen, 2003). Unfortunately most condom use in Africa and elsewhere is inconsistent. Another of their findings is: "There are no definite examples yet of generalized epidemics that have been turned back by prevention programs based primarily on condom promotion."

11. Assessing when they become available the efficacy of use of vaginal microbiocides and vaccines against HIV.

These future methods are still being developed. The first microbiocides launched were disappointing in their effectiveness (because their anti-viral effect was counteracted by an inflammatory effect) but the hope is to give women whose husbands or partners are unfaithful an opportunity to reduce their risk without the negotiation that is often a barrier with condom use.

12. Assessing the impact of programmes to delay sexual debut

Delaying the time of first intercourse has many theoretical advantages especially for girls since their mucous membranes are less vulnerable to HIV penetration as they move later in their development.

Protection of young girls from sexual exploitation by strengthening the Child Convention and encouraging the establishment of grass-roots movements such as Anti-AIDS Clubs may empower girls to withstand pressures against sexual abuse and may increase understanding amongst boys of their role in respecting individual freedom of girls to make choices without pressure.

A specific problem relates to teachers abusing their position in relation to pupils and using favours including better exam marks to obtain sexual services. Peer education at teacher training colleges may play a vital role in reducing this problem as can anti-AIDS clubs.

13. Assessing the impact of community responses to alcohol abuse.

This was one of the biggest health interventions in the late 19th century in Sweden and was a result of the synergy between many different people's movements. Facilitating the development of community responses to alcohol abuse may be one of the most important strategies for reducing HIV spread. Abuse negatively affects behaviour but also decreases the local immune response of mucous membranes making HIV transmission easier. It also has a negative impact on the clinical course of an HIV affected individual speeding up the decline of CD4 cells and progress of the disease towards AIDS.

Illustrative examples of good HIV/AIDS programmes

Chikankata and Home-based-care and Counselling cascade

This grew out of a pioneer approach started by a Salvation Army hospital at Chikankata in Zambia. When the AIDS epidemic reached them in the middle of the 1980´s, they quickly realized that hospital-based care for the growing number of patients was against the wishes of the patients and their families as well as being unrealistic in a situation of limited resources. Once the diagnosis of AIDS or an HIV-related disease had been made, most patients wanted to go home and continue health care there if there was a network of support available. This Home-Based-Care initiative became a major new approach with many advantages for patients their families and even for the health sector. The key facilitators for this process were Dr. Ian Campbell an Australian physician and Ms Thebis Chaava a Zambian social worker and counsellor.

A counselling "cascade" was established whereby ***first the patient was counselled alone*** about the

diagnosis and its implications for the future. Pastoral and counselling care was available for all who wished to have an open dialogue with a pastor/counsellor about the deeper dimensions of this crisis. Then with the patient´s permission ***the whole extended family*** were counselled as a group. The counsellor showed the family what the diagnosis would mean for them as a family, how they could feel safe in normal social contact with the patient, and most significantly how they could protect themselves from being infected in other contacts. At the time for going home, with the family´s permission, ***the whole village was counselled*** about the crisis that had befallen one of their number.

This occasion turned out to be an unparalleled opportunity for a group discussion about how to give support to the patient, removal of stigma, and what behaviour changes that might be necessary for them to remain uninfected including reducing number of partners and increased faithfulness..

Often the village counselling led to an even ***wider community counselling*** whereby several villages would come together to make decisions about changing major cultural patterns of behaviour. An example of this is a custom that is prominent in the local tribe, termed "Ritual Cleansing". When a person dies, the spouse has to be "cleansed" after the death by having sexual intercourse with a sibling of the deceased before there is any possibility of remarriage. After community counselling a number of groups made the decision that "ritual cleansing" by sexual means would henceforth be prohibited and alternative methods of "cleansing" by non-sexual means would be recommended. These methods were fully acceptable in the old culture but had hardly been practised in the recent past.

The end-result of this AIDS campaign was shown by two indicators: a decreased rate of pregnancies in school-girls in the area affected, and a decreased rate of cases relating to adultery coming before the local courts.

Besides strengthening family relationships the community counselling has sometimes had the effect of uniting communities that were previously divided. The programme was supported by NORAD and Sida.

This model of home-based-care was effective but expensive. Monze hospital in Zambia introduced a more integrated model of Home-based-care where the patient was linked up with the nearest rural-health-centre (RHC) and the closest community health worker (CHW). This was more sustainable but rather less effective since staff at the RHCs and CHWs were busy with so many other things that they saw their AIDS patients sometimes as a low priority. Also their resources for giving support were limited.

A model of Home-based-care in an urban slum context was successfully launched in townships around Ndola, Zambia by the Catholic churches there. The key facilitators here were Essaya Bukanga, a Zambian theatre promoter and Dr. Piet Reijer, a Dutch physician.

Anti-AIDS club movement in Zambia

This movement started 1987 in a secondary school in Lusaka, Zambia when a group of male students in a boy's school were discussing the AIDS epidemic and suddenly came to the realization that every one of them had a close relative who was either dying or had died of AIDS. The threat became so tangible that it led to them starting an anti-AIDS club. They decided that in order to become a member a student had to make three promises:

1. I will avoid HIV infection and AIDS by avoiding sex before marriage or outside marriage.

2. I will help my friends and relatives to protect themselves by telling them about HIV and AIDS.
3. I will help people with HIV infection and people with AIDS as much as possible.

This movement has interesting parallels with the promises characteristic of the temperance movement in Sweden in the last century. In both movements grass-roots people´s organizations, both secular and religious, have been prominent.

The anti-AIDS club movement spread like wild-fire in the late 80's such that 2000 schools in the country established clubs. They were linked by a magazine and a local general practitioner, Dr. Kristi Baker became a central resource person in helping to produce excellent pamphlets for the movement for use by Primary, Secondary and post-secondary students. A wealth of promotional materials (games, T-shirts, posters and stickers) have been produced. Plays have been written and produced, songs have been composed, lectures, discussion-groups, marches and many other activities have been organized to raise the level of awareness and to promote a no-risk life-style. There are still in the year 2000 some 1760 clubs active in Zambia with 60 000 members. The movement has had a significant effect on the behaviour and attitudes of boys showing more respect towards girls and listening to their wishes and feelings. It has also given many girls empowerment with group support to withstand the demands of "sugar daddies" including teachers abusing their power over classes to get sexual services.
Evidence of the impact of this movement shows in a decreased rate of pregnancies in schoolgirls where the school has a club, and in lower HIV-seropositivity in blood donors from these schools. The programme was supported by NORAD.
This movement is now under the umbrella Zambian organization Family Health Trust.

Lutheran Churches and health centres in Kagera region of Tanzania

This HIV/AIDS programme originated from the Lutheran churches in North-West Tanzania where an extremely energetic church-related campaign has made an impact in some of the worst affected areas. The message is absolutely clear: only a life-style consistent with stable family relationships will reduce the level of spread of the virus. Morality is presented in an open, positive way without the negative, destructive "moralism" that has often closed the minds of those most needing to hear the message. Its main impact has been among young people up to the age of 25 yrs. Support to those affected by HIV/AIDS was also central.
Evidence of the impact of this movement has shown itself in decreasing incidence of HIV amongst especially younger people, decreased levels of HIV-positivity in blood donors at the hospitals in the areas involved, decreased levels of HIV in couples coming for pre-marriage testing, and decreased levels in patients presenting to hospital with illnesses where HIV infection could be suspected. This programme together with many others in the area has recently been linked to clear reductions in HIV positivity in the community at large. Some other sexually transmitted diseases have decreased significantly in frequency.

Copperbelt Health Education Project

This started out of a need of reaching out-of-school youth and unemployed youth. The key facilitator here was Dr. Chandra Mouli, an Indian physician. The idea was to make a point of contact with the youth through offering "Survival skills" training. This was to teach trades and simple income-generating activities to young people in a relaxed informal setting where they could easily join in. During the training they took part in deep discussion groups about how to survive

without getting infected with HIV. There was even involvement of police as teachers to the groups who were taught about how to keep within the law. The programme was supported by NORAD. The movement also gave support to anti-AIDS clubs in schools in the area.

Tasinta (means "I have changed")
This is a grass-roots movement among commercial sex workers in Lusaka, Zambia which began in 1993 with informal contacts with prostitutes. The idea was to promote a safer life-style within their work using condoms and ultimately to train them in alternative skills so that they could earn their living away from the streets. Many of those who were thus changed became key facilitators for peer education among their former colleagues. Some 500 women had joined the movement within 2 years. Examples of the skills taught were sewing and dress-making, hair-dressing, beauty salon workers, musicians etc. The main enthusiast behind this movement was Professor. Luo, a Zambian pathologist. The programme was supported by NORAD. This movement is still active in August 2011 with Beatrice Chanda, a former prostitute, who has had hundreds of sex partners over 7 years now happily married with children and a role model for the organization. Her story is typical of that of many. Doubly orphaned she was forced into prostitution aged 13 years.

Redd Barna's HIV/AIDS programme in the Masaka district, Uganda
This started in 1990 as a relief undertaking to try to help AIDS orphans in one of the most affected districts in the world. It began as a "top-down" programme with many Norwegian staff establishing orphanages and even flying out wooden houses from Norway to be used in these orphanages. It soon came unstuck because of the way it had been implemented. There was jealousy from orphans who were not eligible because their parents had died in the previous civil war. Those who were in the orphanages were becoming estranged from their communities. The whole process was unsustainable and not owned by the people. Finally after four years it was abandoned and replaced by a community-based development programme.

The new approach adopted in 1994 by Redd Barna was to support vulnerable children and groups through community development. This "bottom-up" approach was geared towards empowering communities to be able to identify and address their needs/ problems. Inbuilt in this approach was the issue of sustainablity of the structures and programmes initiated by Redd Barna. Virtually all the staff involved in the new approach were Ugandans.

The entry point for RB was the districts. They consulted and involved the district officials in their plans and in the implementation of programmes in their areas of operation. Many of district officials were trained in various community based approaches to enable them to work with the communities effectively. RB has worked and facilitated the district to develop its own five year development plan.
Further at the subcounty level RB, has worked closely with the local officials and facilitated the development of the subcounty plans. The officials have been sensitised about children's issues and the importance of the social sector in community development. Subcounty action plans for children have also been developed by various sub-counties and others are in the process of developing and adopting them.
At the community level, sensitisation about children and development issues was done. The Participatory Rapid Appraisal process of planning at village level was effected in many villages. The whole process of participatory planning equipped the communities with skills to identify and

prioritise their problems and seek ways of solving them from their own resources. The process was allowed to take time with 5 steps along the way. Some resources were needed from outside during this process for training and making communities aware of what was possible.
Grassroots communities were strengthened by construction and renovation of school buildings. This was done in collaboration with the individual schools, parents and teachers. Schools are now able to attract more children due to reduced fees as a result of RB interventions. Schools were supported with loans to initiate income generation activities. The funds from these activities were used to assist vulnerable children out of school and also support the needy children in school who could not afford some basics like books, uniforms other scholastic materials.
Support and training in income generation was extended to groups (mainly women) in various communities. As a result the women were able to support their families.
The RB plans included the launching of a crucial Micro-Credit Development Trust, an initiative which was based on the ideas from the Grameen Bank in Bangladesh where the whole credit system is geared to the needs of poor women. If their plans come to fruition it will finally result in poor women themselves having shares in the bank and owning it. This may be one of the most important long term plans in the whole of RB work in Uganda. It will however not directly reach the very poorest and most marginalized but will indirectly benefit them as general community development improves the situation in peripheral areas. The programme was supported by NORAD.

TASO (The Aids Support Organization) Uganda
This outstanding NGO was born out of a family tragedy when the husband of Noerine Kaleeba developed symptoms of AIDS while undertaking higher studies in Britain. He returned to Uganda in October 1986 and the family were united in wanting to be open about the diagnosis. This was very unusual at that time and the idea was born of a support organization centred on HIV positive people. It was launched in 1987 and has developed into an organization which covers most parts of the country. Its main focus is on counselling and training HIV positive people and their families and friends in becoming "behaviour change agents" in the community reaching schools, youth clubs, sports groups, employers, trade unions and other community groups. They are trained in how to start income generating activities, child support projects, how especially to empower women to negotiate for safer sex. They also provide some basic medical services and supplement what is available through the normal health channels. They build up close ties with hospitals and rural health centres. In the early years they did not have programmes trying to reach commercial sex workers or truck drivers. They try to arrange for the possibility of HIV testing of those who are anxious to know their HIV status. They sponsor school fees for AIDS orphans and through this scheme many are able to go further than just primary school. Because TASO has been so successful in reaching out to HIV infected people and into the community it has been well supported by international donors and this has may risk some negative effects such as taking away or reducing the initial strong idealism and making it a little more like a commercial organization. The programme was supported by NORAD, Sida and many other donors.

Prolus (Projet de Lutte contre le Sida) in Eastern Congo-Kinshasa
At the end of the 4-year HIV/AIDS project PROLUS was evaluated. This project is funded by PMU with support from Sida in South Kivu, Democratic Republic of Congo and more specifically in two pilot areas, Bukavu, and Uvira. It has had its focus on 3 groups that were assessed to be the key to

stimulating the formation of people's movements. Similar movements have been the key to Health Promotion and Prevention of HIV-spread in many countries in Africa. These groups were:
1. Groups of Prostitutes who were willing to break free from prostitution in order to get training for a new life with fresh risk-free work. 5 such groups have formed in Bukavu area and 4 such groups in the Uvira area. In the Bukavu area 215 prostitutes received training and then a microcredit loan with a whole group taking responsibility for its repayment.
2. Groups of students in secondary school with encouragement to establish Anti-AIDS clubs in the schools (12 created in the Bukavu area and 12 in the Uvira area). These are similar to those that made such an impact on young people's thinking in Zambia and other countries. There were already impressive effects of some of these clubs showing a positive impact on sexual behaviour and engagement in community contacts
3. Study and discussion groups of religious leaders of all different backgrounds to see if they could be encouraged to move their congregations, churches, mosques, meeting places towards creating Study Groups. The aim was to encourage a new perspective about sexuality, morality and above all encouraging a life risk-free from HIV. Likewise these groups would see the value of support for those who have been affected and infected by HIV / AIDS without discrimination. In the long-term it is hoped that these study groups could act a change agents to stimulate discussions within their communities about a new attitude to sexuality, morality and the positive living that could reduce HIV-risk. Such study and discussion groups have formed in both Uvira and Bukavu with an impressive array of various religious leaders taking part with great commitment.

It was seen as essential that all three groups be allowed to make their own decisions about any new venture in a true "bottom-up" approach. This would be preceded by group discussions in dialogue with the health workers in PROLUS.

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Moving Toward Evidence-Based AIDS Prevention. Edward C. Green

Most HIV is transmitted through sexual intercourse. Having multiple sexual partners drives AIDS epidemics. If people did not have multiple sexual partners, epidemics would not develop. Or if they developed, they could not be sustained. If an infected person does not, on average, infect more than one other person, an epidemic cannot grow. This is reflected in the concept from epidemiology known as the reproductive rate of infection.Yet in spite of this, AIDS prevention programs do not address the problem of people having multiple partners, except perhaps in oblique ways.

Another way to state the problem is that there are two basic ways to prevent disease: risk avoidance

or risk reduction. To use an analogy from cigarette smoking, risk avoidance would be not starting to smoke in the first place, or stopping smoking if one has already started. Risk reduction would be smoking filtered cigarettes only or those with low tar or nicotine levels, or cutting down the number of cigarettes per day. In AIDS, risk avoidance includes abstinence or mutual faithfulness with an uninfected partner. Risk reduction would be using condoms or treating the curable STIs with antibiotics.

Astounding as it may seem to the nonspecialist, virtually all AIDS prevention resources to date have gone to risk reduction rather than to risk avoidance efforts. It's as if billions of dollars were going into a global program of combating lung cancer, but without the option of advising people not to smoke.

The sexual transmission of HIV can be prevented in three basic ways: 1) avoiding the exposure to risk; 2) reducing the risk of exposure; and 3) blocking the efficiency of transmission risk. The genius of the ABC strategy is that each of these means of prevention is addressed. These three means of prevention are also the proximate determinants of HIV transmission, meaning they are the immediate causes of infection. There are other, "distal" causes of HIV transmission such as political leadership, reducing stigma, raising the status of women, addressing poverty and the like. But there could be changes of this sort without necessarily having corresponding changes in rates of HIV infection. To impact the latter, something has to occur at the level of sexual intercourse: A, B or C behaviors.

Uganda did not invent the ABC approach. It may have actually been invented by an obscure health educator from Ohio in about 1985. It seems that the WHO spread this idea around in places where it was advising governments, including in Uganda. What makes ABC different in Uganda is that they were serious about the A and B components there.

The model of AIDS prevention that is supported by major bilateral and multilateral organizations everywhere is a model that was developed in the United States for a different type of epidemic than that of Uganda. In the United States in the early 1980s, HIV infections were found among gay men and injecting drug users. It was believed that drug users were incapable of changing their behavior, and that if attempts were made to change behavior among gay men, this would just drive away the very people that prevention programs were trying to reach. So prevention became a matter of providing condoms, treating STIs, and (where legal) provision of clean syringes (or at least advice about sterilizing syringes). The resulting model of risk-reduction-only (or harm reduction) was exported to Africa and to the rest of the world with little real modification to either local cultures or even epidemiological patterns.

Perhaps it should be no surprise that prevention efforts to date in the developing world (or for that matter, anywhere) have not been very successful. Recall that in Africa, most HIV is found in the general population, not in special high-risk populations, as is the case in the United States. This difference in epidemiological pattern alone calls for different approaches to AIDS in America and in Africa. What might be called the standard package of AIDS prevention today, in Africa and everywhere, still consists of condom promotion and provision (especially through the approach known as social marketing), VCT, treatment of STIs, and if funds are available, PMTCT (based on the drug Nevirapine). Risk avoidance interventions (the A and B of ABC) are largely ignored or left to religious groups, who have to work without funds from the major donor groups. Most AIDS

experts, especially from the wealthier countries, simply do not believe that A and B interventions work. Before looking at evidence to the contrary, it is useful to note several important recent studies that demonstrate the failure of prevention based only on risk reduction.

Hearst and Chen conducted a review of condom effectiveness studies for UNAIDS. Among their findings were that: "Inconsistent condom use does not protect against HIV infection" (Hearst and Chen, 2003). And unfortunately most condom use in Africa and everywhere is just that, inconsistent. Another of their findings is: "There are no definite examples yet of generalized epidemics that have been turned back by prevention programs based primarily on condom promotion." This latter is also the main conclusion of a year-long study supported by USAID and implemented by the organization that conducts demographic and health surveys. Bessinger et al 2003 reached the same conclusion, i.e., that there has been no decline of national HIV infection rates through condoms alone. It is necessary to have A and B behavior changes.

Then there is the well-known UNAIDS multi-site study which sought to identify the factors that explain widely differing rates of infection in four African countries. Levels of condom use were not found be a determining factor. In the first round of analysis, the only behavioral factor that seemed determining was a pattern of young girls having sex with older men. One biological factor, male circumcision, proved to be very determining in explaining widely different prevalence rates, so it seemed worthwhile to reanalyze the data controlling for this factor. When this was done, a second behavioral factor emerged as highly significant: the lifetime number of sexual partners. Moreover, the most recent meta-analysis of condom effectiveness (Weller and Davis 2002) suggests that when condoms are used consistently, they provide only an 80% reduction in HIV infection rate (not 98% or 99%, as is widely believed and quoted).

And as a final example, Shelton and Johnston (2001), determined the average number of condoms available per male, age 15-49, per year. By 2000 there were only 4 condoms per Ugandan male available that year. We also see in this table that 20 years into the pandemic, condom availability in Africa is still very low (largely because of low demand). Yet there are differences in availability. Some countries like Zimbabwe Botswana and South Africa have higher rates of condom use, but unfortunately those countries have higher, not lower, rates of HIV infection. There may be no causal connection between the availability of condoms and levels of HIV infection, but what we can conclude from this and the other studies just outlined, is that 20 years into the pandemic, there is no evidence at the national level in Africa that more condoms have resulted in less AIDS. In fact, there are at least 8 or 9 studies showing a relationship between inconsistent condom use (which is the norm rather than the exception) and being HIV infected.

We now turn to Uganda. I first went there in 1993. It was clear that something different was going on in this country. In fact, something was occurring that was considered impossible at the time: HIV prevalence was going down, as were infection rates for standard STIs. I might add that there was a great deal of skepticism on the part of outside experts, and as a result, sentinel surveillance in Uganda was subjected to a great deal scrutiny by outside experts. The national prevalence peaked in 1991 at about 21% and then declined to about 6% in 2002. The emphasis of Uganda's national response to AIDS was in primary behavior change, which in Uganda at the time primarily referred to delay of sexual debut and partner faithfulness. There was little emphasis on condoms. National response began in 1986, with bold leadership from President Museveni. The period 1986-91 is important, since HIV incidence and prevalence peaked in this period. Condom social marketing

didn't take off until mid-1990s. There was some condom promotion from the beginning, but this approach was not favored by the President. As President Museveni said in a 1991 speech:

"Just as we were offered the "magic bullet" in the early 1940s, we are now being offered the condom for "safe sex." We are being told that only a thin piece of rubber stands between us and the death of our continent. I feel that condoms have a role to play as a means of protection, especially in couples who are HIV-positive, but they cannot become the main means of stemming the tide of AIDS
… In countries like ours, where a mother often has to walk twenty miles to get an aspirin for her sick child, or five miles to get any water at all, the question of getting a constant supply of condoms may never be resolved". [Museveni 2000:252]

Uganda's approach between 1986-91 was to get the message out through all means possible and to attempt nothing less than changing peoples' sexual behavior. President Museveni put emphasis on persuading youth to delay sex until they were married, and those already sexually active were urged to be faithful to one partner only (sometimes called "zero-grazing"). President Museveni recalled these days in a recent BBC interview saying, "When I had a chance, I would shout at them," [I used to say] 'you are going to die if you don't stop this. You are going to die!" (He was referring to risky sexual behavior). This is an important yet overlooked point about Uganda's early program: there was a deliberate strategy of fear arousal. Fear was the weapon used to break through denial. But after arousing fear, people were given clear options for avoiding the feared outcome: A, B, or C. The message was that "you really have to go out looking for AIDS, it is not all that infectious. It is not caused by witchcraft or by God's will. You have to almost seek it deliberately through promiscuity."

In the Western or global model of prevention, we do not deliberately arouse fear, we would never use a word like promiscuity, and we do really address sexual behavior, let alone preach abstinence of faithfulness. Other distinguishing features of Uganda's response to AIDS in its early period were as follows:

AIDS preventive education in primary schools, reaching children before they are sexually active;
Involvement of religious leaders;
Involvement of PLWHAs in AIDS prevention;
Fear arousal, meant to engender risk perception and behavioral change;
Face-to-face, open discussion about AIDS, community involvement;
Major involvement and "advancement" of women and youth;
Fight against AIDS-associated Stigma (all beginning 1986-7)

It's useful to mention a few representative AIDS education posters used in the period 1986-91. The first shows a skull and crossbones and proclaims the message: "My quick pleasure led to a slow, painful death." (Can you imagine using such a poster in America?)
Contrary to widespread belief among AIDS experts and professionals, fear is a good motivator of behavior change. The most recent meta-analysis exploring the role of fear arousal in behavioral change shows that Uganda was on the right track. Witte and Allen (2000:608) conclude, "It appears that strong fear appeals and high-efficacy messages produce the greatest behavior change, whereas

strong fear appeals with low-efficacy messages produce the greatest levels of defensive responses."

We can compare messages re. Premarital sex from a USAID program in Zambia:
The tag line of radio and TV spots are: "Its not worth the trouble"
And: "Stay focused" (on schoolwork)
We can compare this with what was said in Uganda:
"Practice ABC or you will D-for Die!"
and: "Change your behavior or you're going to die!" (Uganda, early period)

There was a pattern of sexual behaviour found by the UNAIDS Multi-Site Study to be significant in spreading HIV, namely "cross-generational sex," or the sugar daddy phenomenon. Many posters showed a long-distance truck driver pulling out of a roadside stop. A couple of young ladies are running after him. In any other country, the caption would have something to do with not leaving home without your condoms. In Uganda, the caption was, "I am driving straight home to my wife." Such a poster illustrates that even those at high risk, usually thought to be beyond the reach of a Be faithful message, are capable of changing their sexual behavior.
What impact on sexual behavior did Uganda's unique approach to AIDS prevention actually have? There are tables that summarize a lot of the behavioral data from two WHO surveys, one in 1989 and the other in 2000.

The WHO surveys in 1989 and 1995 show that the proportion of young males age 15-24 reporting premarital sex decreased from 60% in 1989 to 23% in 1995. For females, the decline was from 53% to 16%. Looking at all age groups, 41% of males had more than one sex partner in 1989. This declined to 21% by 1995. For females, the decline was from 23% to 9%. Furthermore, the proportion of males reporting three or more sex partners fell from 15% to 3% between 1989 and 1995. One of the conclusions of the "ABC Study" is:

"Regarding the important "core transmitter" group of men reporting three or more non-regular partners in the previous year, there was a very large decline in Uganda (in the GPA surveys, from 15% in 1989 to 3% in 1995). This figure remained low (2%) at the end of the decade…"

These findings were confirmed from both 1995 and from 2000-2001. When Ugandans were asked, "Have you changed your behavior as a result of AIDS? If so, in what way?" the primary response for all age categories except 15-19 is "Restricted sex to one partner." Among never married people, most of whom are age 15-19, the first answer is abstinence or delay, closely followed by "restricting sex to one partner." These responses were paralleled in studies from from the Ugandan Ministry of Health where the two commonest categories that suggest monogamy were being faithful, or "sticking to one partner." These answers were by far the most common ones given to the so-called behavior change questions. Yet condoms are often given the credit for Uganda's success..
For example, in a Population Reports, we can read, " In Uganda condom use increased and HIV prevalence decreased following a national AIDS prevention and condom promotion effort."
There are a number of studies like this still appearing, such as one by UCSF in November 2003. Before what might be called the ABC movement of the last 2 years, these studies would give no credit to primary behavior change. More recently, defenders of the old paradigm give some credit to behavior change, but still try to give more credit to condoms than is due. For a fair measure of condom use in Uganda's general population, which is where most HIV is found, we can see that by 1995, about 6% of sexually active Ugandans used a condom with some regularity, according to the

Demographic and Health Survey. Meanwhile, 95% of Ugandans could be said to be exhibiting A or B behaviors in 1995. By 2000, condom use rose to 11% of sexually active Ugandans, or 8% of all Ugandans. However condom use has become quite high among those who need them most, namely those relatively few who are still having multiple partners (e.g. among CSW and clients, condom use is over 95%).

General Conclusions

We can reach some general conclusions about AIDS prevention in countries with generalized epidemics: all three ABC behavioral changes are probably optimal to impact HIV prevalence at national level. However, it's not realistic to expect high levels of condom use in the general population, in Africa or anywhere. It may be a waste of effort to try to achieve this and we might end up with the unanticipated downside of disinhibition. This refers to people feeling safer than they ought to when using condoms, and therefore engaging in higher risk behavior than they would if they were not using condoms at all. This phenomenon is also known as risk compensation (Richens, Imrie and Weiss 2003). Contrary to what most western experts believed until recently, people can change their sexual behavior. And they seem more likely to do this when A and B programs are implemented in the Uganda manner: that is, young people are reached with the abstinence or delay message before they become sexually active, and for those already sexually active, there is a clear, consistent, fear-arousal message that multi-partner sex leads to death from AIDS, while sticking to one partner (or zero grazing) prevents this outcome. We have examples from Senegal, Jamaica, the Dominican Republic, and Thailand that attempts to influence sexual behavior can lead to primary behavior change.

Promotion of abstinence and faithfulness seems not as difficult as many in the donor community think. Nothing mysterious, complicated or especially technical was found in programs that have successfully promoted interventions of this sort. Quite the contrary. In fact, "A and B" programs seem to enjoy certain advantages over condom programs. The main advantage is that abstinence and faithfulness are in accord with prevailing cultural and religious norms and ethics. We on the donor side sometimes forget that most Africans are rural, religious and traditional. If we would not send a pickup truck playing rock and roll into a small town in West Virginia, and have dancing girls toss condoms to teenagers, why do we think we can do this in an African village?

Need for Prevention is as Great As Ever, Or Greater

Everybody's interest nowadays is in ARVs. Indeed, it is truly wonderful that we can now bring life-saving drugs to the poor of Africa and the Caribbean. VCT is the entry point to treatment and it is also being promoted as an effective tool of prevention. Leading authorities are now proclaiming that we can't expect behavior change unless people know their sero-status. Yet there was a great deal of behavior change in Uganda and Senegal and elsewhere in the absence of VCT (and by 2000, only 10% of Ugandans have been tested for HIV). Moreover, there is no clear evidence that VCT leads to behavior change and HIV prevalence decline. Whereas such evidence exists for the ABC approach. In fact, experts in global AIDS (and domestic AIDS as well) have grown quite negative and defeatist about AIDS prevention, dismissing it as complicated, saying "it's very hard to change behavior." I suggest that the reason most experts have become defeatist about AIDS prevention is that we have not been doing prevention the right way. Yes, its hard to impact HIV infection levels if we are only promoting condoms. And if in the counseling part of VCT, we only promote condoms, we probably won't have much impact. But if we do AIDS prevention right, if we follow the Uganda ABC model, I think we have every reason to expect that we can achieve Uganda-like results in the 14 countries targeted by PEPFAR.

Finally, with HIV positive people living longer, and perhaps being disinhibited by availability of drugs, we actually need prevention now even more than before. And the name of effective prevention is ABC, not necessarily VCT.

Breaking News 2013

The scale of the epidemic is still extremely worrying: In 2010 the figures from UNAIDS (published Nov. 2011) were: Globally adults living with HIV / AIDS 34 million (SSA , children living with HIV / AIDS 2.5 million,; new infections 2.7 million; AIDS deaths 1.8 million (UNAIDS). Sub-Saharan Africa Total living with HIV / AIDS 22.5 million, Newly infected 1.8 million, Died 1.3 million. Since beginning of epidemic 30 million have died from AIDS.

Recent successes in HIV prevention in Africa

A decade ago there was widespread international pessimism about HIV prevention in Africa. This was reflected in 2000 in the very modest target of Goal 6 of the Millenium Development Goals that pertains to HIV.
Between 2001 and 2012 progress has been impressive in HIV prevention in Africa:

Malawi reduced HIV incidence by 73%
Botswana reduced by 71%
Namibia reduced by 68%
Zambia reduced by 58%
Zimbabwe reduced by 50%
South Africa reduced by 41%
Swaziland reduced by 37%

There has also been progress in diagnosis of HIV with shorter ”window period.” Likewise its treatment has improved and since 1995 Highly Active AntiRetroviral Treatment (HAART) has saved the lives of 14 million in Low and Middle income countries including 9 million in Sub Saharan Africa (SSA). The number of life-years saved by HAART in SSA has quadrupled in the last 4 years. But there is still a long and tough journey ahead as shown above with 34 million still carriers of HIV globally of whom 69% are in SSA. The challenge is still enormous and the motivation for action by the civil society in the most affected communities is powerful. Compassion and generosity are qualities which are worth gold in HIV / AIDS work. Every citizen needs to have a sensitive social conscience. He cannot turn a blind eye or a hard heart to human need in any form and this includes those affected by HIV / AIDS. The civil society is at its best when it sets a fine example of a caring community to the rest of society.

Breaking News 2015-07-18

The goal to get HIV treatment to 15 million people by the end of 2015 has already been met, says the United Nations Aids agency.
The landmark figure was reached in March - nine months ahead of schedule.
It follows decades of global efforts and investment to get antiretroviral drugs to those in need - such as people living in sub-Saharan Africa.

In 2000, when the UN first set goals to combat HIV, fewer than 700,000 people were receiving these vital medicines.
According to UN Aids, which has a report out today, the global response to HIV has averted 30 million new HIV infections and nearly eight million Aids-related deaths since the millennium.

Over the same time frame, **new HIV infections have fallen from 2.6 million per year to 1.8 million**, and **Aids-related deaths have gone down from 1.6 million to 1.2 million.**
Meanwhile, **global investment in HIV has gone up** from £3.1bn ($4.8bn) in 2000 t**o more than £13bn ($20bn) in 2014.**
And concerted action over the next five years could end the Aids epidemic by 2030, says UN Aids.
But progress has been slower in some areas.

Conclusion

HIV / AIDS is the greatest challenge to health workers in my generation. It is also the greatest challenge to Civil Society in countries where it has had its greatest impact. The scale of the tragedy is enough to make even the bravest heart to quail.
Some people feel that the task is too big and we are too few. Listen to the words of one inter - national thinker of great reknown: "Never doubt that a small group of committed people can change the world; indeed it is the only thing that ever has (Margaret Mead)."
If we feel that we would rather turn away and focus on other issues, here is the rousing challenge from one of the earliest international HIV / AIDS activists: "Our responsibility is historic. For when the history of AIDS and the global response is written, our most precious contribution may well be that in a time of plague, we did not flee, we did not hide we did not separate ourselves."

I am always moved when I read of the response by the Christian churches in Alexandria, Egypt, to the arrival of the plague in the city in 256 AD. Most people fled from the city but the Christians decided to stay and to give as much help as possible to the sick and the dying, even though they knew that many of them would also get infected and die. Their courage and care for the sick and the dying without sparing any thought for themselves made an impact on people throughout the then known world.

Similar pioneers have arisen as a response to the HIV / AIDS tragedy e.g. Noerine Kaleeba the founder of TASO in Uganda, Philly Bongoley Lutaaya the musician, singer and creative HIV / AIDS activist, Professor Luo the inspiration for the people's movement Tasinta, among prostitutes in Zambia, Dr Chandra Mouli the founder of the Copperbelt Health Education Programme, Dr. Machumbi initiator of PROLUS in Eastern Congo, Ms Thebis Chaava and Dr Ian Campbell at Chikankata Hospital, Zambia, pioneering Home Based Care and Community Counselling relating to HIV / AIDS in the Mazabuka district. Their thinking and success impacted the whole of Africa. Dr Kristi Baker, the mentor of the Anti-AIDS club movement in Zambia. The list is almost endless and very moving as they showed clarity of thought, perseverance, inspiration and enthusiasm for change, and courage and care for the sick and the dying without sparing any thought for themselves.
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