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PROVIDING ANTIRETROVIRAL TREATMENT FOR ALL WHO NEED IT IN SOUTH AFRICA

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AIDS and Society Research Unit

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NEED IT IN SOUTH AFRICA**

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Providing Antiretroviral Treatment for All Who Need it in South Africa

In August 2003, the South African government announced its support for the provision of highly active antiretroviral therapy (HAART) in the public sector. This was a major break-through (antiretrovirals are now explicitly recognised as beneficial) but the Cabinet statement was very cautiously worded about actual implementation.¹ The Ministry of Health has been instructed to develop a 'detailed operational plan' but it is increasingly clear that one of the major constraints on the scale and pace of the roll-out will be the amount of resources allocated to it. Given the discourse of 'unaffordability' which has dogged South African AIDS policy making over the past five years (Nattrass, 2004 forthcoming) it is likely that South Africa will opt for a limited intervention on the grounds that resources are best spent elsewhere.

Studies of the cost-effectiveness of HAART in Africa provide some support for this position (Creese *et al*, 2002). The problem with this literature, however, is that it does not grapple adequately with the link between treatment and prevention, and does not, for the most part, consider the savings for the public health sector arising from the introduction of HAART. This South African study avoids both these limitations.² It deliberately poses the question of the costs of treating all who need it, rather than the standard cost-effectiveness question of how to spend the marginal dollar in the health sector. AIDS constitutes a major public health crisis and challenges the very basis of social solidarity in South Africa. For this reason, the central question which needs to be addressed as soon as possible – and through a broad process of social participation – is not whether the marginal dollar should be allocated to AIDS treatment or some other priority, but rather whether society is prepared to mobilise the additional resources (including through higher taxation) required to provide HAART to all those who need it.

¹ See discussion in the *Mail and Guardian*, August 15-21, 2003.

² This builds on earlier work by Geffen *et al* (2003) and draws on Nattrass (2004, forthcoming). Note that there are several other studies of the cost of HAART in South Africa. These use different assumptions about treatment regimens and have lower roll-out rates. See Boulle *et al* (2003) for a review. None of these studies poses a link between treatment and prevention.

The Link between AIDS Prevention and Treatment

This study draws on the output of a demographic model (ASSA2000 Interventions Model³) of the impact of various AIDS interventions. The model assumes that people who have experienced voluntary counselling and testing (VCT) subsequently modify their sexual behaviour (although this wears off over time for those who test HIV-negative) (Johnson and Dorrington, 2002). The relevant parameters for behaviour change were drawn from randomised control trials in Kenya, Tanzania and Trinidad (VTCEG, 2000) and from European data (De Vincenzi, 1994). This, together with the fact that people on HAART have lower viral loads and thus are less infectious (Vernazza *et al*, 2000; Hart *et al*, 1999), results in a HAART programme having a significant predicted impact in terms of preventing new HIV infections (see Figure 1). Marseille *et al* (2002) caution against this kind of conclusion, and warn that the benefits of reduced viral load have to be balanced against longer life expectancy for people on HAART. The ASSA2000 Interventions Model addresses this concern by assuming that HAART patients remain sexually active throughout their extended lives.

There is growing acceptance of the proposition that more people are likely to participate in VCT if there is hope of treatment (e.g. Harvard Consensus Statement, 2001). De Cock *et al* (2002) note, 'the advent of therapy in industrialised countries has greatly increased motivation for people to be tested for HIV, and has reduced stigma associated with the disease'. Farmer *et al* (2001) likewise found that the provision of HAART in rural Haiti resulted in a greater demand for VCT. A pilot HAART programme in Khayelitsha (an African township in Cape Town) has similarly resulted in an uptake in VCT, AIDS activism and lower stigma (Coetzee and Boule, 2003). Some analysts (including Marseille *et al* (2002)), however, worry that the presence of a HAART treatment programme will result in people becoming *less* fearful of HIV-infection because of treatment possibilities, i.e. that they will start manifesting 'HIV optimism', and thus practice riskier sex.

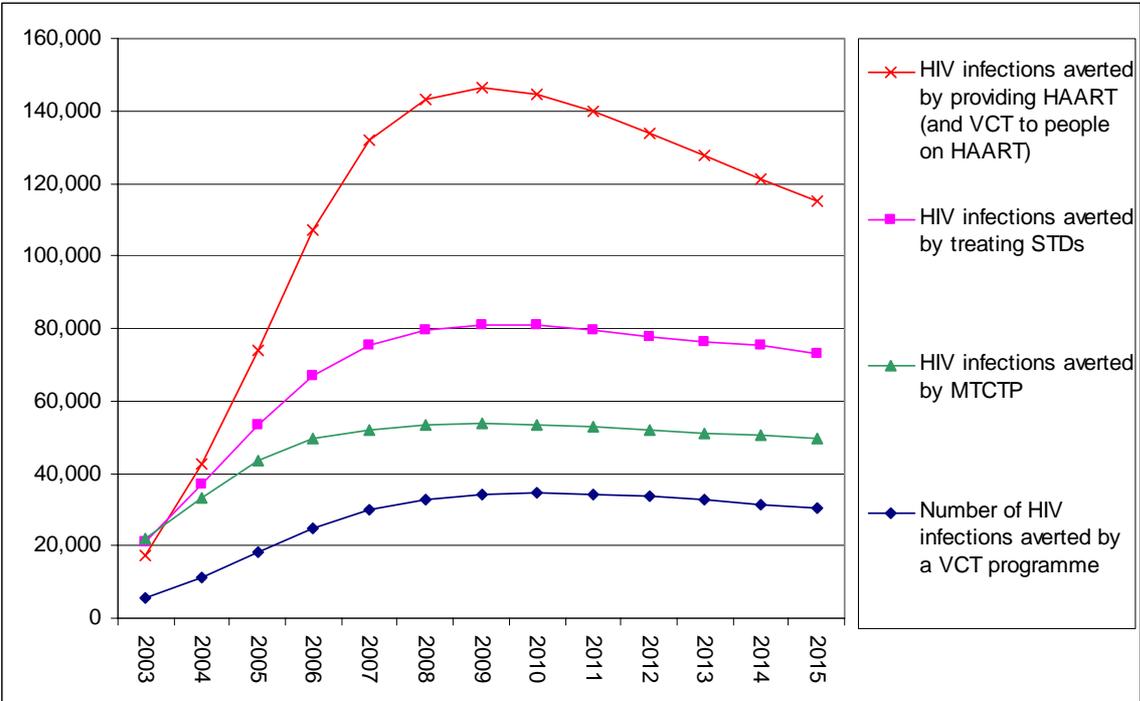
The source of this concern are studies in developed countries showing that HAART may have contributed to the increase in risky sexual behaviour amongst

³ The ASSA2000 Interventions Model was designed by Leigh Johnson and Rob Dorrington at the University of Cape Town. It includes various parameters of heterosexual behaviour (such as the probability that a partner comes from a particular risk group, the number of sexual partners per annum, the age of the partner and the probability that a condom is used during intercourse). Relevant South African data was obtained from the Demographic and Health Survey, the antenatal clinic survey and the best available estimates regarding mortality. The model is still being developed, and remains provisional.

a minority of men who have sex with men (MSM) (Page-Shafer *et al*, 1999; Stolte *et al*, 2002; Perez *et al*, 2002; CIDPC, 2002; Dubois-Arber *et al*, 2002). However, these results have to be treated with caution as they are typically cross-sectional and subject to selection bias. The best available study of the relationship between the availability of HAART and possible HIV optimism amongst MSM is that by the International Collaboration on HIV Optimism (2003). This study found no consistent relationship between HIV optimism and HIV status (thus highlighting the heterogeneous nature of the response of MSM to HAART) and mean optimism scores were low in all places. According to the authors:

‘What is striking about this finding is that these gay men were recruited in cities where HAART had been widely available for 4 years at the time of the survey. Despite the dramatic and visible reduction in HIV-related mortality and morbidity in these cities since 1997, only a few gay men expressed ‘HIV optimism’. Far from being optimistic, most gay men appeared to be realistic about the benefits of these drugs’ (2003: 548).

Figure 1: HIV infections averted by the different HIV/AIDS prevention and treatment scenarios (ASSA2000 Interventions Model).



In all countries except Canada, mean optimism scores were higher (but still in the pessimistic range) for MSM who reported unprotected anal intercourse (UAI) with a casual partner than for those who did not. However, as the study notes, causality could not be established from this kind of cross-sectional analysis: ‘It is impossible to say whether HIV optimism triggered high-risk behaviour or whether treatments optimism was used as a post-hoc rationalization to justify sexual risk-taking’ (ibid: 549). A similar point was made by Laporte (2002) in response to earlier studies.

In short, the view that HAART could easily result in a significant increase in risky sexual behaviour amongst MSM appears to be little more than a ‘moral panic’. There is no scientific basis for assuming that the advent of HAART has resulted in significant increased risk behaviour amongst MSM in high-income countries. There is even less basis for assuming that a possible behavioural response of a small minority of MSM is likely to be replicated on a significant scale in most developing countries where the dynamics of the HIV pandemic are very different. The fact that MSM on HAART are far more likely to engage in high risk sex than heterosexuals on HAART (Laporte, 2002: 15), together with evidence showing that MSM of non-Western nationality are less likely to engage in high-risk sex than their western counterparts (Stolte, 2002: 20), suggests that the problem (to the extent that it exists at all) may be located within a particular sexual sub-culture – and that this sub-culture has little obvious relevance for the African epidemic. It is too great a leap of logic to argue that because of a hypothetical link between HAART and risky sexual behaviour (for which there is little, if any, evidence) we should not consider the widespread use of HAART in developing countries.

Including Hospital Costs

One of the key differences between the South African study reported here and most other cost-effectiveness studies in Africa (see Creese *et al*, 2002), is that total hospital costs associated with AIDS are included in the calculation. Studies which consider only the direct cost of the intervention (such as that of Marseille *et al*, 2002) are effectively looking at cost-effectiveness through the eyes of a donor-driven intervention. The public sector health costs of treating AIDS-related opportunistic infections simply do not enter into the calculation. While this may be a reasonable assumption to make for those African countries with limited health infrastructure and limited fiscal resources for fighting the AIDS epidemic, it is not an appropriate starting point for analysing a middle-income economy like South Africa which is already spending money on AIDS-related opportunistic infections. Significant health care resources will continue to be expended on addressing the health needs of people living with AIDS. This must

be taken into account in any cost-benefit analysis of an AIDS intervention that includes HAART. The modelling exercise reported here indicates that when the costs of treating AIDS-related opportunistic infections are included, the case for including HAART is compelling.

With regard to MTCTP, it has been demonstrated that once total health costs (i.e. the costs of the intervention plus the costs of treating HIV-positive children for opportunistic infections) are compared to a no-intervention scenario (i.e. just the cost of treating HIV-positive children for opportunistic infections), then it becomes clear that government would save resources by introducing MTCTP (Skordis and Natrass, 2002; Natrass, 2004 forthcoming). This is simply because the costs of dealing with the AIDS-related illnesses of HIV-positive children are high in relation to the cost of preventing them from becoming HIV-positive in the first place. Including hospitalisation costs in the calculation is thus very important when thinking about affordability.

Table 1 provides information on the average annual cost of two AIDS intervention scenarios (one with HAART, the other without). Note that total costs for VCT and MTCTP are lower for the scenario which includes HAART. This is because of the impact of HAART on reducing the number of new HIV infections. The total costs of a STD programme, however, rises under the scenario which includes HAART (because of the higher number of sexually active people). The table includes an upper- and lower-bound estimate for the hospitalisation costs of treating AIDS-related illnesses. The upper-bound estimate was based on information from an urban hospital (in Soweto) of the costs of treating people at different stages of AIDS-illness (Karstaedt *et al*, 1996; Kinghorn *et al*, 1996). It assumes no rationing of treatment for AIDS patients and is thus a 'worst-case' scenario from a cost perspective. The lower-bound estimate is based on a World Bank estimate of the cost of treating opportunistic infections (in Stage 4 of the disease) in higher-income developing countries (Haacker, 2001). The actual costs (which are impossible to ascertain with any level of precision) probably lie somewhere within this large range. This is unsatisfactory, but unavoidable.

In this regard, it is worth noting the story (attributed to Lewis Carroll) about the young boy who estimates that there are 1,004 pigs in a field: "“You can't be sure about the four", he is told. "And you're as wrong as ever," says the boy, "it's just the four I can be sure about 'cause they're here, grubbing under the window. It's the thousand I isn't pruffickly sure about."” (cited in Boyle, 2001: 51). However, if the objective is to estimate with a reasonable degree of certainty that the number of pigs in the field lies between, say, 800 and 1,200, then the need for pin-point accuracy is reduced. The best we can do with regard to estimating hospitalisation costs is this kind of ball-park (pig-field?) estimate.

Leaving them out altogether is even less satisfactory as it effectively ignores a crucial component of the overall cost-benefit calculation. For example, it has been estimated that the Brazilian HAART programme saved the health sector almost \$1.1 billion between 1997 and 2001 by reducing opportunistic infections (Galvao, 2002: 1862). As the total cost of the antiretroviral medication amounted to \$1.4 billion over the same period (*loc. cit*), it is clear that the savings to the health sector are too important to be ignored. They reduce the net cost of a public sector programme substantially.

Table 1: Average annual cost of AIDS intervention scenarios (with and without HAART) plus hospitalisation costs between 2002 and 2015 (R million)

	<i>VCT+STD+MTCTP</i>	<i>VCT+STD+MTCTP+ HAART</i>
MTCTP	R135	R113
VCT	R20	R17
Improved treatment of STDs	R103	R112
HAART	R0	R9,883
Additional Infrastructure, public education and condom distribution	R331	R347
<i>Total Direct Costs</i>	<i>R589</i>	<i>R10,472</i>
Public Hospitalisation Costs (upper and lower bound)*	R33,840 – R11,167	R28,196 – R9,305
Total costs (direct cost plus upper and lower bound hospitalisation costs)	R34,429 – R11,757	R38,668 – R19,777

Source: Costing exercise done in conjunction with the ASSA2000 Interventions Model. See also Geffen *et al* (2003). * Lower bound hospitalisation costs reduce the upper bound costs by two-thirds (in line with World Bank data provided in Haacker, (2001: 9)). NB: Figures do not add up because of rounding. Total costs are in 2001 prices.

The Brazilian figures suggest that savings on hospitalisation are substantial but not sufficient to outweigh the costs of the drugs.⁴ The South African case

⁴ Texiera *et al* (2003), however, argue that if the cost of ambulatory care is included along with the drugs needed to treat opportunistic infections, then the health costs rise to \$2 billion – which results in HAART actually saving the health sector money.

appears to be similar. As can be seen from Table 1, total hospitalisation costs are *lower* in the intervention scenario that includes HAART than they are for the one that does not. This is partly because of lower morbidity for people on HAART,⁵ but mainly because of fewer new HIV infections (and associated hospitalisation costs). Note that the ‘saving’ is not sufficient to compensate fully for the cost of HAART – hence the total cost of the scenario with HAART is higher than the scenario that does not. In other words, a HAART intervention will not ‘pay for itself’, although it goes a long way towards doing so. The difference in total average annual costs experienced by the health sector between the two scenarios is R4.2 – R8 billion (for the upper- and lower-bound estimates). This net increase needed to expand an AIDS intervention to include HAART treatment is less than the R10 billion a year needed to resource a HAART intervention. This is because the HAART intervention is able to claw back a substantial proportion of the resources spent on it through lower hospitalisation expenditure, and lower spending on VCT and MTCTP.

Figure 2 shows the trajectory of total health sector costs (i.e. the cost of the interventions plus the cost of treating opportunistic infections) over time. The top two lines depict the costs of the two scenarios assuming the upper-bound hospitalisation costs. The figure shows that the total cost for the scenario including HAART is lower than the costs of the scenario without HAART between 2002 and 2007. This is partly because the HAART programme is phased in (starting from 20% in 2002 and rolling out to 90% in 2006) which means that the drug costs are likewise phased-in. It is also partly the result of the fact that the treatment of opportunistic infections for those on HAART is pushed forward in time. Costs relating to treating those with full-blown AIDS kick in later (which is why the cost of the scenario with HAART eventually exceeds that of the scenario without HAART).

If, we assume a lower-bound estimate for hospital costs, then Figure 2 shows that the total cost of the scenario with HAART exceeds that for the scenario without HAART from 2003 onwards. This is because we are assuming a lower-level of care for those with opportunistic infections – thus the advantages of averting and pushing these costs further in time are smaller.

⁵ Badri *et al* (2002) have shown that putting patients on HAART reduced the incidence of HIV-1 associated tuberculosis by more than 80%. A study in Haiti likewise concluded that ‘as elsewhere, patients receiving HAART are far less likely to require admission to hospital than are patients with untreated HIV disease’ (Farmer *et al*, 2001: 405). But while patients on HAART will require less treatment, they will revert back to a stage of higher AIDS-related morbidity if they become resistant to HAART and are forced to stop the treatment. The ASSA2000 Interventions Model assumes that people do eventually get pushed out of the HAART programme – and once this happens, they suffer the same morbidity patterns as people who never went on it (Johnson and Dorrington, 2002). In other words, the modelled benefits in terms of lower morbidity associated with HAART is less than suggested by short-term studies of the impact of going onto HAART.

Figure 2: Total costs to the health sector under various intervention scenarios

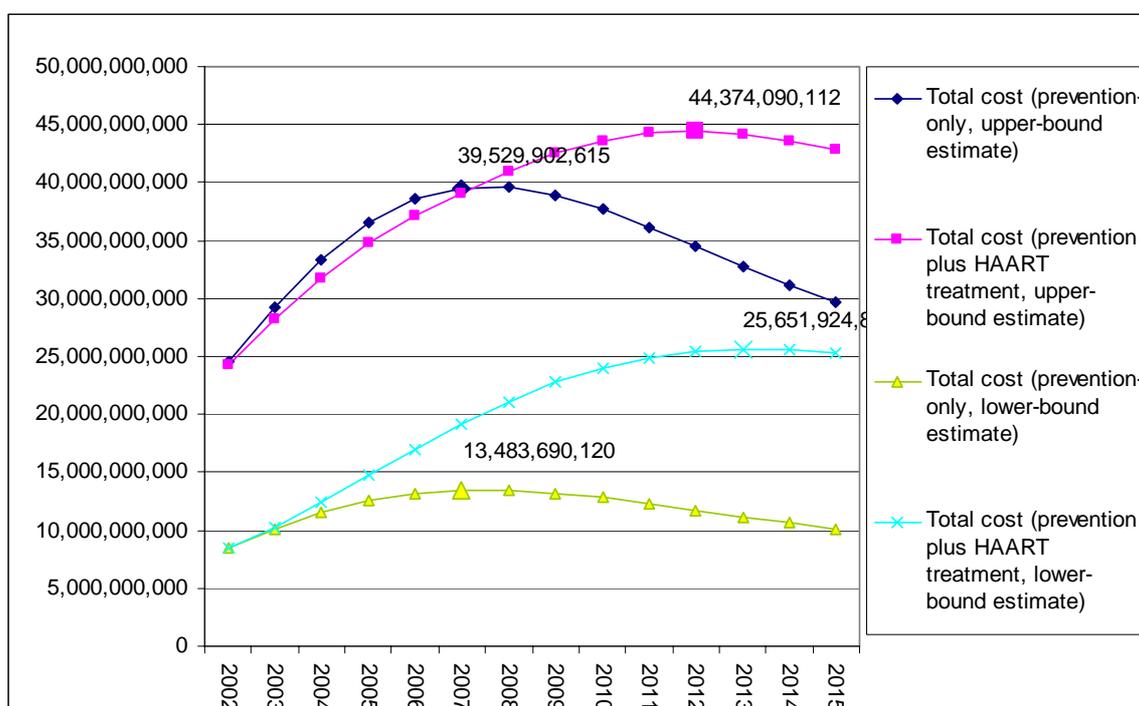


Table 2 presents average annual estimates for key variables. If we take the upper-bound estimate for hospital costs, then more HIV infections will be averted, and at a lower average cost, if an AIDS intervention was expanded to include HAART. However, if we take the lower-bound hospitalisation cost, then the average cost per HIV infection rises slightly when a HAART programme is added. This is because the ‘savings’ to the state in terms of fewer opportunistic infection cases is smaller. This means that where a relatively high level of care is provided for HIV-positive people suffering from AIDS-related opportunistic infections, then the cost per life saved will decline if government introduces a HAART programme for all who need it.

Note that the argument has only considered the benefits of HAART from the narrow financial perspective of the public health sector. It does not try to put an economic value on the fact that fewer orphans would be created,⁶ or on the extra years of life gained by people on HAART, or on the economic value of lives saved through lower rates of HIV transmission. If these social benefits had been valued, then the economic case in favour of including HAART as part of a

⁶ As Farmer *et al* argue with respect to the conventional wisdom that we cannot afford HAART: ‘Leaving aside all moral arguments, any economic logic that justifies as acceptable the orphaning of children is unlikely to be sound, since the cost to society, though difficult to tabulate, is far higher than the cost of prolonging parents’ lives so that they can raise their own children’ (2001: 408).

broader HIV intervention would be even stronger. The value of this particular (albeit limited) economic calculus is that it speaks directly to the government budget. The strength of the finding is that *even* within this narrow frame of reference, there is a strong economic case to be made in favour of including a HAART programme.

Table 2: The difference between an AIDS intervention with and without HAART.

	<i>VCT+STD+ MTCTP</i>	<i>VCT+STD+ MTCTP+HAART</i>	<i>Difference between the two scenarios</i>
Cumulative HIV infections averted (2002-2015)	1,814,000	2,863,000	1,049,000
Cumulative reductions in AIDS deaths (2002-2015)	415,000	2,859,000	2,444,000
Number of maternal orphans in 2015 under age 18	3,108,000	2,195,000	-913,000
Direct cost per HIV infection averted	R5,000	R51,000	R46,000
Total cost (2002-2015)	R165 – R482 billion (R323.5 billion)*	R277 – R541 billion (R409 billion)*	R112 – R59 billion
Total cost per HIV infection averted	R178,300*	R142,900*	R35,400

* Mid-point of the upper-bound and lower bound cost estimates in parentheses

What are the Budgetary Implications?

Most cost-effectiveness calculations of AIDS interventions are designed to help answer the question: how should the marginal dollar (or Rand) be allocated in order to save the greatest number of lives. This central economic question is a very useful one to ask when resources are absolutely constrained. However seemingly technical question is shot through with both implicit and explicit moral judgements. If the only objective was to design an AIDS-intervention strategy which saved the most lives for the least amount of money, then one response might be to deny HIV-positive people access to the public health

system altogether!. This could be done on the grounds that the few extra (disability adjusted) years of life saved by treating their opportunistic infections are not worth the extra cost. The huge bill for hospitalisation costs would then be reduced significantly. Once this decision was made, the next step would be to consider which intervention saves the most lives for the least amount of money. This would be a VCT intervention. Once this programme had been fully rolled out, any additional resources would then be allocated to treating STDs, and then only if there was still cash available into MTCTP and then finally, into HAART.

One problem with this line of logic is that it fails to question the very framework that made the logic necessary in the first place – i.e. the budget constraint. The analysis starts with a constraint: you have limited resources, how should you manage the trade-offs? This is a reasonable starting point if you are in a Crimean war field hospital with no option other than to practice triage. But it is an inappropriate metaphor if used to deflect attention from the larger, prior, question: ‘how much would it cost South Africa to implement a full-scale AIDS intervention which included the provision of HAART for all who need it?’

Posing this big question, however, immediately raises a further question: what are the implications for the budget? According to the estimates reported in Table 2, a full AIDS prevention and treatment intervention would cost between R277 billion (lower-bound estimate) and R541.4 billion (upper-bound estimate) over the period 2002 to 2015. This amounts to an average of R19.8 billion or R38.7 billion respectively per year over the period. Given that South Africa’s consolidated national and provincial expenditure on health was R28 billion in 2002/2, this still amounts to a large required increase in government expenditure on health – especially when we consider the upper-bound estimate. Is it affordable?

Firstly, it is important to note that some of the hospitalisation costs included in the total cost estimates are already being born by the public health sector. According to a Department of Health Report, 12.5% of the total health budget is currently being spent on the costs of hospitalising AIDS patients (2001: 3). The demographic and costing model presented here implies that only 20-50%⁷ of HIV-positive people are obtaining the treatment they need. If we were to expand government health spending to include the full AIDS intervention including HAART programme outlined above (including, of course, non-rationed care for those suffering from opportunistic infections), then the South African Treasury would need to raise between R14.1 billion and R31 billion – depending on what assumptions are made about hospitalisation costs.

⁷ This is for the upper-bound and lower-bound hospitalisation costs respectively.

The Gross Domestic Product (GDP) in 2001 (in current prices) was R983 billion. So we are talking about spending an extra 1.4% – 3.2% of GDP. South Africa raised R61 billion in 2001/2 from value-added tax, which implies that the South African Revenue Services raises about R4.4 billion for each percent levied by VAT. This means that we would need to raise VAT by between 3 to 7 percentage points in order to fund a full-scale prevention and treatment intervention. Total taxation as a percentage of GDP would thus rise from 24.6% of GDP to a maximum of 27.8%. While this is a large increase (and the macroeconomic implications of it need to be considered seriously before any decision is made to increase taxation), it is worth noting that in comparative terms, a tax take of 27.8% of GDP is not out of line with world averages. According to World Bank data, 40 out of the 106 countries for which there is adequate data have tax revenues as a percentage of GDP higher than this.

An increase in VAT is not necessarily the best way to fund this expenditure because poor people consume more of their income than rich people, and thus they pay a higher proportion of their income back to the Receiver of Revenue than rich people through VAT (even taking into account that some basic goods are VAT-exempt). Other means of raising the additional revenue include an increase in income tax, or some combination of different taxes, borrowing, expenditure cuts in other areas (e.g. defence⁸), and applications for grants and other forms of foreign AID and assistance. The illustrative increase in VAT is simply posed here in order to give an easy-to-grasp indication of the broad implications for taxation.

What About Rationing?

An alternative approach to the one presented here is to propose a much more modest HAART intervention which treats fewer people. The 2003 Joint Health and Treasury Technical Task Team projection of the cost of a HAART programme for South Africa comprised three alternative scenarios assuming 100%, 50% and 20% coverage respectively (JHTTT, 2003). This suggests that government is considering the possibility of rolling out a treatment programme to a fraction of those who need it.

Estimated direct costs in the first year of the 100% coverage scenario are within the amount allocated by the National Treasury in the 2003/4 budget for AIDS treatment. This perhaps suggests that the National Treasury was 'already planning and preparing for a national programme to provide anti-retrovirals to

⁸ Boulle *et al* observe that South Africa's costly arms procurement process could 'potentially have covered the entire cost of an antiretroviral intervention' (2003: 296), although this is only true for the first few years.

South Africans' (Hickey and Ndlovu, 2003: 2). Two qualifications are, however, in order. Firstly, given the State President and the Health Minister's stance on antiretrovirals, there may be continued political obstacles to implementation. Secondly, given the constraints imposed by the medium-term expenditure framework, it is unlikely that the Treasury is contemplating the same kind of national AIDS prevention plus HAART programme discussed here. Rationing of HAART is thus likely in the short- and medium-term.

The best publicly available estimate of a rationed approach to HAART is that by Boulle *et al* (2002). They estimated the cost of providing HAART to 10% of those who become AIDS-symptomatic. They conclude that the total programme costs of treating 107,000 people (in 2007) would be about R409 million. This amounts to about R3,800 per person on HAART. This is just over half of the cost per person on HAART in 2007 (i.e. R6,200) as estimated by the ASSA2000 Interventions Model because Boulle *et al* assume only one line of treatment.

In many respects, the data used by Boulle *et al* are consistent with the data presented here. They do not, however, include a link between treatment and prevention, and they assume a much more limited treatment regimen. The major strategic difference between their approach and the one presented here, is however, the scale of the intervention. Rather than start with an estimate of what is required in terms of treatment, they start with what they think is 'feasible' or 'affordable' given 'existing budget constraints'. It was, in other words, an attempt to get a treatment foot-in-the-door by asking for less resources – rather than spelling out what society needs to consider spending in order to provide HAART to all who need it. Instead of challenging society to fund a full-scale programme, their approach explicitly assumes that this line of action is likely to be counter productive. They start with the existing level of health spending, treat it as an absolute constraint, and then ask for a marginal shift of resources in favour of treating a limited number of people.

They are not alone in advocating this kind of approach. For example, Haacker (2001) estimates that total HIV-related health services plus HAART for 3% of those who need it, would cost about 1.4% of the GDP in South Africa. This, according to Haacker, is affordable. However, as Geffen has pointed out, 'it seems reasonable to ask why aiming for 100% coverage of the HIV-positive population at less than 5% of GDP should be fiscally unsound' (2002: 3).

There is no magic formula as to what is, or is not, 'affordable'. There are always budget constraints and trade-offs – but the size and allocation of the government budget is far more flexible than implied by certain brands of technical economic discourse. Seekings (2003) cites examples of the discourse of unaffordability used during every successive debate over the expansion of South Africa's

welfare system since the 1920s. Once the welfare policy had become entrenched, what had previously been regarded as ‘unaffordable’ became an accepted part of government responsibility to its citizens. This was the case with the introduction of non-contributory old-age pensions for white and coloured people in 1928, and its extension to Indians and Africans in 1944. South African society needs to grasp the nettle concerning what is required to address the AIDS pandemic, and how to pay for it. This is a decision that requires social reflection and debate. It should not be made by stealth through some limited and narrow intervention which does not spell out the costs in terms of how many lives are not saved as a result of opting for the cheaper, less radical, intervention.

The other, obvious, problem with a rationing strategy is how will the rationing take place? According to what criteria should HAART be allocated to people who need it? For example, the Western Cape government generated a debate within AIDS-advocacy circles when it was announced in June 2003 that the province had sufficient resources to provide HAART to children. There may be practical advantages in this policy in that the infrastructure is available (all pregnant women in the Western Cape have access to VCT and children are reachable through the immunisation programme). However, it is far from clear whether these practical advantages outweigh the practical advantages of treating entire families – and rolling out the treatment to more sites as more resources come available. There are also ethical problems involved in providing life-prolonging treatments to children whilst denying it to mothers and fathers. It sends out a message that only the ‘innocents’ deserve treatment – thus contributing further to the stigmatisation of AIDS. Treating all lives as equal is a preferable strategy, especially from a human rights perspective.

It is likely that rather than announce an explicit rationing strategy, the government may simply choose to ‘roll-out’ a HAART treatment programme to very limited numbers of sites and/or at a far slower rate than desired by AIDS activists. While it is inevitable that a national HAART programme will have to start in urban hospitals (because this is where the best capacity exists to deliver such a programme) there is no necessary reason why capacity cannot steadily be generated elsewhere – thus facilitating a broader roll-out (see discussion below). Unless this happens, an AIDS treatment programme will favour those living close to hospitals and will exacerbate urban-rural differentials.

Another way of rationing HAART is to allow doctors to prescribe it, but not to embark on a large-scale publicity campaign. If large numbers of HIV-positive people fail to get tested, and simply die of opportunistic infections, then the actual demand for HAART will be far lower than that projected here. This paper presented the ‘worst case’ scenario for the government in terms of HAART programme costs. Actual demand is likely to be far lower because of failure to

test, reluctance to accept HAART, fear of stigma etc. If the government embarks on a treatment programme as a low-priority and low-visibility policy, then take-up rates are likely to remain low, thus effectively rationing HAART. In this scenario, the Treatment Action Campaign and other advocacy groups will continue to mobilise for a change of policy, even in the presence of a government-funded treatment programme.

‘Scaling-up’ the Use of HAART in the Public Sector

During 2003, as it became more and more likely that government would be forced to introduce HAART in the public sector, the AIDS policy debate shifted towards the challenges involved in ‘scaling-up’ a treatment programme. This included the need for Brazilian style negotiations with the large pharmaceutical companies over the prices of antiretrovirals, and a concerted effort to support the domestic production of generics either under voluntary or compulsory licences.⁹ The launch in August 2003 of South Africa’s first generic antiretroviral drug (containing stavudine) under a voluntary licensing agreement with Bristol-Myers Squibb was a particularly welcome development.¹⁰ As econometric analysis of antiretroviral price trends reveals, reliance on ‘corporate philanthropy’ does not guarantee long-term sustainability of lower differential pricing, and that the introduction of generic competition remains an essential factor for price decreases (Lucchini *et al*, 2003). Ensuring that testing facilities (to conduct CD4 cell count tests, viral loads etc) expand in line with demand from the health sector, is a further challenge for the private sector and/or public-private partnerships.¹¹

The implications for the health sector of a full-scale national treatment programme are immense. The costing exercise presented here included the cost of additional doctors, nurses and counsellors. Hiring extra staff is necessary in

⁹ Brazil has massively expanded the domestic production of antiretrovirals under voluntary license agreements. Between 1999 and 2001, the proportion of antiretrovirals produced in Brazil rose from 47% (19% of government expenditure on antiretrovirals) to 63% (43% of expenditure). The remainder are purchased on the international market (Galvao, 2002: 1864). Brazil has threatened to engage in compulsory licensing (i.e. breaking patents) in order to force price concessions from pharmaceutical companies, but has yet to do this. The November 2001 decision by the World Trade Organisation to allow the use of compulsory licensing in cases of national public health emergencies has further strengthened Brazil’s hand – as well as that of other middle-income developing countries (like South Africa) which have the industrial capability to produce antiretrovirals if necessary.

¹⁰ The manufacturer, Aspen Pharmacare also has voluntary license agreements with Boehringer Ingelheim (for nevirapine) and GlaxoSmithKline (for zidovudine and lamivudine).

¹¹ When Brazil and Botswana introduced their national treatment programmes, the state was actively involved in the setting up and management of additional testing facilities (Galvao, 2002; Ramothlwa, 2003).

order to ensure that the introduction of a HAART programme does not drain much needed financial and human resources from other parts of the health system. Additional infrastructure (e.g. consultation rooms) was also included in the costing exercise, although it is possible that further unexpected costs may be incurred. For example, the theft of antiretrovirals proved to be an unexpected problem in Botswana, with the result that they had to be stored in the same way as narcotics – thus posing additional expenses on the health system (Ramotlhwa, 2003).

Most importantly, a national HAART programme needs to be rolled out in a way which improves the functioning of the existing health care system – i.e. as a vehicle for upgrading (rather than undermining) the health care system. This is why it is so important to stress the additional resource requirements associated with a treatment roll-out. In addition, the management and monitoring of HAART patients needs to be integrated with other programmes, most obviously with the treatment of tuberculosis, but also with that of other opportunistic infections.

Systemic challenges such as these are serious, but not insurmountable. As the Deputy Director General of Health in the Western Cape Provincial Government argued at an August 2003 workshop on scaling up antiretrovirals in the public sector, the complexity of a HAART intervention should ‘not be exaggerated’ (Abdullah, 2003). By mid-2003, the Western Cape had two and a half years of experience with pilot treatment programmes reaching over 1,000 HAART patients.¹² Abdullah (2003) pointed out that medical staff and volunteers were very keen to introduce a HAART programme in the public sector, and rolling out treatment will constitute a much needed boost to morale.

Boulle (2003) was similarly optimistic about the prospects of rolling out a HAART programme in the Western Cape. He argued that the Khayelitsha pilot project shows how antiretroviral interventions can be used to improve access to health services, and to graduate the level of care (e.g. from PMTCT, to the treatment of opportunistic infections, to providing HAART, and now integrating the management of TB and AIDS (Boulle, 2003). He argued that a more nurse-centred HAART programme is possible.

One of the most encouraging lessons of the Western Cape pilot programmes is that HAART patients are not overwhelmed by the ‘complexity’ of the treatment intervention and understand the need to adhere to the drug regimen. Good adherence requires adequate counselling and other support programmes, but the

¹² These include the MSF programme in Khayelitsha, other pilot projects in Gugulethu, Grote Schuur Hospital, and the Red Cross Children’s Hospital, and clinical trials (e.g. at Somerset and Tygerberg hospitals).

pilot projects show that good adherence is possible in resource-poor settings (Abdullah, 2003; Coetzee and Boulle, 2003). Recent evidence from Gauteng points to similar conclusions (Mlongo, 2003). Coetzee and Boulle point out that the clinic waiting room becomes a 'support area' with patients discussing adherence issues and problems relating to overcoming side-effects with each other (2003). In addition, HAART patients in Khayelitsha have become powerful community advocates of treatment, which has helped reduce stigma and encourage disclosure in the area (Coetzee and Boulle, 2003). The Botswanan experience also indicates that HAART helps 'break the cycle of denial and infection', thus strongly supporting prevention (Ramotlhwa, 2003).

There is, of course, always the question as to whether the success of pilot projects can be replicated on a larger scale as the treatment programme rolls out in 2004 and 2005. In this regard, the experience of Botswana is highly instructive. The national treatment programme was initially concentrated in four strategically located sites (Gaberone, Francistown, Maun and Serowe) and then expanded to include three army facilities and two mining hospitals. A further ten hospitals were then identified as additional sites (Ramotlhwa, 2003). After 18 months of experience with rolling out HAART, the results were very encouraging: patient follow-up exceeded 90% and complete viral load suppression was recorded in over 85% of patients (Ramotlhwa, 2003).

One of the problems with rolling out a HAART programme by starting with well resourced urban hospitals is that many of those who need access to treatment will not receive it (at least not for some time). There is, in other words, a trade-off between implementing the programme efficiently, and ensuring immediate equitable access. Unfortunately, there is no way of 'balancing' these concerns, because a poorly implemented HAART programme will be of limited benefit to patients, and runs to danger of increasing drug resistance. There is no real alternative other than to start where the capacity exists for effective intervention, and then to expand that capacity as fast as possible to other areas. The challenge, of course, is to allocate sufficient resources for developing this capacity. If there is social support to finance a rollout, the extent and pace of the HAART rollout would then be determined by operational issues such as clinic readiness, rather than *a priori* financial considerations.

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