

The DREAM model's effectiveness in health promotion of AIDS patients in Africa

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SUMMARY

This study evaluates the effectiveness of a holistic model for treating people living with AIDS in Africa; the model aims to improve knowledge about AIDS prevention and care, increase trust in the health centre, impact behaviour, and promote a high level of adherence to HAART. The study took place in the context of the DREAM (Drug Resource Enhancement against AIDS and Malnutrition) programme in Mozambique, designed by the Community of Sant'Egidio to treat HIV patients in Africa. It provides patients with free anti-retroviral drugs, laboratory tests (including viral load), home care and nutritional support.

This is a prospective study involving 531 patients over a 12-month period. The patients, predominantly poor and with a low level of education, demonstrated a good level of knowledge about AIDS (more than 90% know how it is transmitted) and trust in the treatment, with a relatively small percentage turning to traditional healers. Overall the patients had a low level of engaging in risky sexual behaviour and a very good level of adherence to HAART (69.5% of the 531 subjects had a pill count higher than 95%). The positive results of the programme's educational initiatives were confirmed with the patients' good clinical results.

Key words: health promotion; HAART; adherence; AIDS prevention

INTRODUCTION

With the rapid expansion of access to highly active antiretroviral therapy (HAART) in resource-limited countries, more people worldwide initiated the therapy between 2005 and 2007 than in all the preceding years of the HIV/AIDS epidemic (<http://www.state.gov/s/gac/>; <http://www.who.int/3by5/en/>; <http://www.theglobalfund.org/en/>).

In sub-Saharan Africa, where the number of people on antiretroviral therapy rose from perhaps 100 000 to more than 1.5 million (UNAIDS/WHO 2006), the majority of people in treatment live in

conditions of great poverty with little access to education and with health care that is fragmented or non-existent. Addressing each of these problems is necessary for decreasing the risk of treatment failure (Harries et al., 2001; Farmer et al., 2001).

Few, if any, studies have evaluated the efficacy of multi-faceted models of AIDS treatment and care that incorporate health education interventions to increase adherence to HAART and modify attitudes and behaviours with interventions to provide concrete support to patients through, for example, nutritional assistance and

home health care. The principal studies in this sector have been conducted in Western nations, and the majority of them are interventions aimed at a well-defined target population, such as drug addicts, rather than at a varied group of patients in therapy (Rueda et al., 2006).

As for studies conducted in resource-limited settings, this research is new. In fact, the authors found only a handful of publications describing educational interventions for patients undergoing antiretroviral therapy (Wong et al., 2006) or describing home health care and other interventions to support such patients (Frick et al., 2001; Weidle et al., 2006; Korenromp and Kayondo, 2008).

This study aims to describe and evaluate the effectiveness of a holistic model for treating people living with AIDS, a model that improves knowledge about AIDS prevention and care, increases confidence in the healthcare providers, modifies risky behaviour and promotes a high level of adherence, thus improving the patients' health and quality of life.

The study was conducted in the context of the DREAM (Drug Resource Enhancement against AIDS and Malnutrition) Programme launched by the Community of Sant'Egidio in Mozambique in 2002 and later expanded to nine other sub-Saharan African countries with 20 centres currently operational (Marazzi et al., 2005, 2006; Giuliano et al., 2007; Palombi et al., 2007). The study was conducted in Matola, Mozambique, where DREAM is integrated into the AIDS programme of the National Health system.

METHODS

The DREAM model

Detailed information about the programme's methodology, its strategies for health education and its clinical results can be found in a previous paper (Marazzi et al., 2006). A synthesis of the programme's most crucial and innovative factors and a description of the key elements of the model, updated to reflect two years of experience, are found in Table 1.

Predisposing-cultural factors

These factors predispose the patient to a high level of participation. The interventions were undertaken by a multi-disciplinary team of social and healthcare workers, who studied and perfected their skills during specially designed

professional education courses offered annually in Mozambique by the Community of Sant'Egidio.

Health education activities are part of every phase of the model and involve the entire DREAM staff. The standard pre- and post-HIV test counselling, which is repeated for patients with special concerns or questions, is conducted by trained professionals and educates patients about HIV transmission and prevention and about DREAM, including assuring patients they will have access to the programme free of charge if they test positive.

DREAM also insists that the physician, pharmacist and centre coordinator conduct their own counselling sessions with each patient. This promotes a relationship of trust between the patient and the staff, particularly because the patients recognize the authority of the physician and because they meet monthly with the pharmacist to receive their medication, return pills not consumed and describe any problems or adverse reactions that they may experience. The coordinator's counselling is essential since he is responsible for organizing special assistance for patients with a low level of adherence or experiencing particular difficulties.

Brief health education sessions are held while the seropositive patients are waiting in the DREAM centres for their appointments. To encourage discussion and demonstrate the programme's concern for the patients' overall health and well-being, the sessions focus not only on adherence to the HAART regime, but also include other issues such as the prevention of infectious diseases and the importance of clean water and proper food storage.

The patients also participate in health education groups designed to modify their beliefs, attitudes and behaviour with respect to AIDS and related problems. In addition, peer support groups for HIV-positive patients are held in the waiting room of the centre. By sharing their stories, the community health workers, most of whom are fellow patients with specialized training, bear witness to the importance of the therapy for their health. They also help fight the stigma attached to AIDS by demonstrating in person that one can live with the disease, continue working and contribute to society.

The enabling-organizational factors

The most relevant element in this group is the totally free of charge access, not only to the

Table 1: Elements of the DREAM programme

Predisposing-cultural factors	Enabling-organizational factors	Reinforcing-participative factors
1. Health information groups	7. Free access to HAART and treatment of opportunistic infections	17. Employment of local staff at all levels
2. Health education groups	8. Free access to laboratory diagnostics	18. Employment of community health workers in the programme
3. Peer support groups	9. Computerization of DREAM centres and laboratories	19. Involvement of the patient's family in the therapeutic programme
4. Counselling:	10. Home Care	20. Involvement of Health Ministries and national and local health authorities
a. By the physician	11. Coordinator's responsibility for the team and the patients' adherence	21. Involvement of local political and religious leaders
b. By the pharmacist	12. Free access to nutritional support for the patient and his family	
c. By the coordinator	13. Integration and collaboration with the National Health System	
d. HIV pre-test counselling	14. Staff incentives according to the results achieved	
e. HIV post-test counselling	15. Different coloured cards for the patients according to appointment type	
f. Nutritional counselling	16. Health education leaflets and illustrations showing how to take the medicine	
5. Staff training specifically about adherence strategies		
6. Collaboration with 'traditional healers'		

antiretroviral therapy but also to diagnostics and to nutritional support.

The computerization of the DREAM centres and of the laboratories not only ensures a high level of organization, but is an important instrument for monitoring adherence because it allows the centre coordinator to check the patients' punctuality in keeping appointments and taking their pills as well as providing the results of the clinical and laboratory exams.

Home assistance is provided to support fragile patients, particularly children. As previously mentioned, the coordinator monitors patients' adherence through conversations with the staff and by consulting computerized records, enabling him to judge when a particular patient needs assistance at home.

Nutritional support is offered to the patient according to his social and nutritional condition, periodically measured using the body mass index (BMI). The food package supplied every month also contains food for the patient's family (Germano et al., 2007).

The reinforcing-participative factors

The key element in this group consists of using local personnel at all levels, from the physician to the laboratory technician.

The Machava DREAM centre team is composed of 1 coordinator, 2 physicians, 2 medical technicians, 1 pharmacist, 1 assistant pharmacist, 3 nurses, 2 counsellors and 15 community health workers. The team offers medical and social assistance to about 1700 seropositive patients, 900 of whom are on HAART. The majority of community health workers are DREAM patients selected and trained for this role. Their work as cultural mediators is crucial. Most are volunteers, who receive weekly food packages, and have an irreplaceable function of providing support and counsel to their peers. They fight the stigma and the marginalization that go with the disease, providing concrete evidence that having AIDS is not a death sentence, particularly when a patient fully adheres to the treatment. After their training, they also lead peer-to-peer health education, which goes beyond basic information about HIV to cover other aspects of the patients' lives: nutrition, personal hygiene and cleanliness of the home, prevention of infectious pathologies and much more. They are also involved in home care, nutritional support, counselling and checking

the patients' adherence. The role of the community health workers has become increasingly public in Mozambique. They appear on television talk shows and radio programmes; they are interviewed by national newspapers and often are invited to speak before large audiences.

The programme costs

While the DREAM programme requires significant initial investment (about USD 400 000) to set up the molecular biology laboratory, the costs for tests and antiretroviral drugs are fairly low, particularly when compared with Europe and North America. The cost per year for each patient on treatment is about USD 750 for those on the first-line regimen and USD 1450 for patients on second-line, including drugs, laboratory costs and nutritional support as well as administrative and personnel costs. The specific cost for improving adherence, calculated on the basis of the elements linked most closely to the adherence, has averaged about USD 10 per patient per year.

Study design

This is a prospective single-arm observational study. The period of observation was 12 months. The enrolment period lasted 20 days, beginning on 10 March 2005 and closing on 30 March. The Machava DREAM centre is located within a National Health Service day hospital in Matola, Mozambique. This is a rather new dormitory town of about 700 000 residents near the capital, Maputo. The population of Matola includes members of different ethnic and linguistic groups coming from various parts of the country. The catchment's area covers a radius of about 30 km around the treatment centre.

Subject selection

Included in the study were all the patients at the Machava DREAM treatment centre who were over 15 years of age as of 1 April 2005, and who were on first-line anti-retroviral treatment (a fixed-combination of two nucleoside analogue reverse-transcriptase inhibitors—lamivudine and zidovudine or stavudine—and an NNRTI—nevirapine) for a period of more than 3 months. Patients with <3 months of therapy at the start date were excluded because the aim of the study was to evaluate the efficacy of the model in order to improve knowledge, behaviours, adherence and health over the long term.

Qualitative research

The qualitative evaluation was conducted through the use of a structured interview administered by two healthcare workers, trained in an intensive course, who had not previously known the patient. Before beginning the interviews, the questionnaire was tested to ensure patients understood the questions and some adjustments were made. The interviews were conducted with all the patients enrolled in the study during the first month of the observation period. The interview was composed of 17 open-answer questions divided into 8 subject areas:

- Knowledge about HIV/AIDS aetiology and transmission: four items.
- Knowledge about HAART efficacy and the conditions necessary to achieve it: three items.
- Confidence in the HAART treatment: two items.
- Level of patient's satisfaction with his/her relationship with the physician and other healthcare staff: one item.
- Patient's perception of stigma surrounding the disease: one item.
- Subjective values and perceived risk of infecting someone else: two items.
- Reliance on traditional healers: two items.
- Adherence to HAART. The patient was asked if he had forgotten to take any of his pills in the previous 3 days: two items.

Each patient's respect for appointments was verified using specifically designed software, which keeps track of the total number of appointments kept for medicine collection. The software also reports each patient's adherence based on pill counts recorded every 30 days, and it shows each patient's HAART regimen, according to active principle or combination. It calculates adherence as a percentage of the number of pills consigned less the number of pills returned for the period between two appointments, divided by the pills prescribed for that period. The calculation also takes into account days of missed coverage if the patient does not arrive on the assigned day to receive a new supply of medication.

Outcomes were evaluated at the moment each patient began antiretroviral therapy (t0); at the beginning of the observation period (t1); and at the end of the 12-month observation period (t2). The indicators used were: haemoglobin levels (Hb) at t0, t1 and t2; BMI at t0, t1 and t2; CD4 cell counts were measured using a Beckman Coulter EPICS XL-MCL flow cytometre at t0, t1

and t2; and viral loads (VL) at t0, t1 and t2. The viral loads were measured using branched-DNA technology (System 340, version 3.0, Bayer Diagnostic, Tarrytown, NY, USA). For the t0 figure, we used the most recent VL (within 90 days) prior to the date of the start of observation and for t2 the first available (within 60 days) after the end of the observation period.

RESULTS

Based on the criteria mentioned above, 531 patients were selected for the study: 222 males and 309 females. The average age was 36.2 years (DS 9.0). Among the males the average age was 37.9 years (DS 9.5) and among the females it was 35.0 (DS 8.5) years. The average duration of HAART before the beginning of the observation period (t1) was 14.7 months and the median was 8 months.

Process evaluation

The responses of the 531 patients to the interview questions can be summarized as follows:

Education and knowledge

Level of formal education: 172 (32.5%) of the 531 patients were illiterate, 221 (41.6%) had between one and five years of schooling and only 95 (18.9%) had more than 10 years of schooling (a secondary school diploma).

Knowledge about AIDS: 481 (90.6%) of the 531 patients interviewed knew the cause of the illness was a microorganism introduced from outside their bodies. Twenty-five (4.7%) patients thought that the disease was caused by something previously inside of them, which was triggered by something they or a family member had done wrong; therefore, they believed a purifying ritual was needed (Table 2).

The vast majority, 508 patients (95.75%), knew HIV can be transmitted sexually or through blood transfusions or injections; 21 (3.9%) patients were imprecise when describing the means of transmission (12 did not know the virus could be transmitted through blood transfusions or contaminated needles and 9 thought that the virus could be transmitted through food).

On the other hand, 500 (94.1%) of the 531 patients knew that it was necessary to follow the therapy each day at precise times for the rest of their lives.

Table 2: Knowledge and behaviours of the 531 patients enrolled in the study

Knowledge about the causes of AIDS	Knowledge about AIDS transmission	Sexual behaviour	Frequenting traditional healers
Correct 481 (90.6%)	Correct 508 (95.7%)	No relations with any partner 78 (14.7%)	Not frequenting 396 (74.5%)
Incorrect 25 (4.7%)	Incorrect 21 (3.9%)	Relations with only one partner 408 (76.8%)	Regularly /occasionally frequenting 135 (25.5%)
No response 25 (4.7%)	No response 2 (0.4%)	Relations with more than one partner 14 (2.6%)	No response 0 (0%)
		No response 31 (5.8%)	
Total: 531 patients	Total: 531 patients	Total: 531 patients	Total: 531 patients

Subjective values and perceived risk to infect someone else

A total of 501 (94.3%) patients said they trusted the antiretroviral therapy; 514 (96.8%) said they had a good relationship with the centre in general; 507 (95.5%) said they had a good relationship with the coordinator and counsellors; 479 (90.2%) said they had a good relationship with the physician.

The vast majority of study participants, 502 (94.5%), said they knew they could infect someone else through a sexual relationship and 485 (91.35%) knew a child born to an infected mother could be infected.

Outcome evaluation

- (1) *Sexual behaviour:* 78 (14.7%) of the 531 patients said they were not having sexual relations with any partner at the time of the interview; 408 (76.8%) said they were having sexual relations only with their partner (in 28 cases the partner was also an HIV-positive patient being cared for at the same centre); 14 (2.6%) patients said they were having sexual relations with more than one partner; and 31 (5.8%) said they preferred not to respond to the question (Table 2).
- (2) *Traditional medicine:* 89 (16.8%) of the 531 patients said they had gone occasionally to a traditional healer and 46 (8.7%) said they went regularly; however, 121 (89.6%) of the 135 patients who said they had gone to traditional healers said that for AIDS treatment they go only to the DREAM centre (also Table 2).
- (3) *Adherence to HAART reported during the interview:* 514 (96.9%) of the 531 patients said they took all of their pills in the three days prior to the interview; 12 (2.2%) said

they had skipped one or more doses; 5 (0.9%) did not respond.

- (4) *Respecting appointments:* 461 (86.8%) of the patients kept more than 95% of their appointments for medical visits; 489 (92.1%) of the patients kept more than 95% of their appointments to collect their medicines.
- (5) *Computerized pill counts:* 369 (69.5%) of the 531 patients had a pill count higher than 95%, while 89 (16.8%) reported taking between 90 and 95% of the pills prescribed. Therefore, 458 (86.4%) of the study patients had an adherence level surpassing 90%. For the patients who left the programme before the end of the observation period, pill counts were calculated for each month from enrolment in the study. The mean period of observation for the group who left the programme was 5.8 months (SD 2.1).

Health evaluation

Of the 531 patients, 465 (87.7%) completed the 12-month observation period; of the remaining 66 (12.4%) patients, 8 (1.5%) died; 17 (3.2%) quit the programme and 41 (7.7%) moved to other AIDS centres (Table 3).

Of the 465 patients who completed the 12-month observation period, 394 (78.8%) remained on the first-line therapy until or beyond the end of the observation period. A total of 44 patients (8.3%) shifted from the first-line regimen because of toxicity events (21 for anaemia, 8 for skin rashes and 15 for grade 2–4 hepatic alterations) and 27 patients (5.1%) moved to second-line therapy because of virological failure.

The tables report the BMI (Table 4), the Hb level (Table 5), CD4 cell counts (Table 6) and viral load (Table 7) of the 465 patients who completed the observation period. Values are

Table 3: Status of the 531 patients originally enrolled in the study

Status	No. of patients	Duration of HAART exposure before the beginning of the observation period, mean months
<i>Patients observed for 12 months</i>	465	15.1
Remained in a first-line therapy regimen	394	14.6
Switched from a first-line therapy regimen	71	15.4
because of toxicity events	44	
because of virological failure	27	
<i>Patients observed for <12 months</i>	66	12.5
Quit the programme	17	9.6
Died	8	1.9
Moved to another AIDS centre	41	14.4
Total	531	14.7

Table 4: Body mass index (BMI) in the 465 patients observed

BMI	t0		t1		t2	
	No. of patients	Percentage	No. of patients	Percentage	No. of patients	Percentage
<18.5	106	22.8	39	8.4	26	5.6
18.5–25	290	62.4	295	63.4	289	62.1
26–30	56	12.0	98	21.1	108	23.2
>30	12	2.6	28	6.0	41	8.8
NR	1	0.2	5	1.1	1	0.2
Total	465	100	465	100	465	100
BMI average	21.4		23.1		23.7	

t0, beginning of antiretroviral therapy; t1, beginning of the observation period; t2, end of the 12-month observation period.

Table 5: Haemoglobin levels in the 465 patients observed

Haemoglobin (mg/ml)	t0		t1		t2	
	No. of patients	Percentage	No. of patients	Percentage	No. of patients	Percentage
<8	58	12.5	4	0.9	3	0.6
8–10	134	28.8	44	9.5	22	4.8
>10	273	58.7	417	89.6	440	94.6
Total	465	100	465	100	465	100
Haemoglobin average	10.6		12.0		12.6	

t0, beginning of antiretroviral therapy; t1, beginning of the observation period; t2, end of the 12-month observation period.

given for when the patients initiated HAART (t0), the beginning of observation period (t1) and the end of the observation period (t2). As can be seen in the tables, all four measurements indicate considerable improvement, particularly the reported viral loads.

DISCUSSION

The data show that the patients had a good level of understanding of HIV/AIDS and of the therapy. Their knowledge is particularly

impressive given their relatively low level of formal education. More than 90% of the patients had a correct understanding of the cause and the means of transmitting the infection as well as a correct understanding of the antiretroviral therapy. A very high percentage of the patients, 94.5%, also had a correct perception of their risk of transmitting the disease and, importantly, demonstrate that this knowledge had an impact on their behaviour.

In a country where more than 50% of the population regularly turns to traditional healers, the number of study patients who did so should

Table 6: CD4 cell counts in the 465 patients observed

CD4 cells/ μ l	t0		t1		t2	
	No. of patients	Percentage	No. of patients	Percentage	No. of patients	Percentage
<50	110	23.6	8	1.7	5	1.1
50–199	227	48.8	78	16.7	51	11.0
200–349	90	19.4	170	36.6	151	32.5
350–500	14	3.0	125	26.9	140	30.1
>500	24	5.2	84	18.1	118	25.4
Total	465	100	465	100	465	100
CD4 average	169		360		397	

t0, beginning of antiretroviral therapy; t1, beginning of the observation period; t2, end of the 12-month observation period.

Table 7: Viral load in the 465 patients observed

Viral load (copies/ml)	t0		t1		t2	
	No. of patients	Percentage	No. of patients	Percentage	No. of patients	Percentage
0–400	25	5.4	315	67.7	395	84.9
401–10 000	36	7.7	39	8.4	41	8.8
>10 000	404	86.9	111	23.9	29	6.2
Total	465	100	465	100	465	100
Viral load average	134 601		26 426		4344	

t0, beginning of antiretroviral therapy; t1, beginning of the observation period; t2, end of the 12-month observation period.

be considered relatively low. The level of appointments kept for medical visits and for delivery of their pills appears optimal. A high level of adherence is crucial for viral suppression (Bangsberg et al., 2000; Paterson et al., 2000; McNabb et al., 2001) and to prevent the evolution from HIV infection to AIDS (Bangsberg et al., 2001) and further progression to death (Garcia de Olalla et al., 2002; Hogg et al., 2002). A level of adherence with less than 90% of prescribed doses taken is associated with a dramatic decline in treatment response (Howard et al., 2001). Non-adherence is the major obstacle to the long-term success of HAART regimens and strongly associated with mortality (Gallego et al., 2001).

The results also provide an indication of the impact that a health-education strategy, while designed principally to promote adherence to therapy can have on preventing the spread of HIV. The impact on the wider community can be considerable because correct information about the disease and its transmission are shared by the patients.

As for the impact of the educational intervention on the health of the patients, the authors would like to highlight several essential points

concerning the number of deaths, of those who abandoned treatment and those who transferred to other centres during the observation period (t1–t2).

The low percentage of patients who abandoned antiretroviral therapy, 3.2%, demonstrates the patients' commitment to the programme, and is particularly significant when compared with the high level of abandoning antiretroviral therapy registered in other studies conducted in sub-Saharan Africa.

As for the transfer rate, it should be noted that when AIDS treatment was first offered in Mozambique and other African countries, it was available only in the capitals and large cities. Beginning in 2004, many treatment centres were opened throughout the country. Unlike the case of those who abandoned therapy and almost certainly interrupted HAART, the good level of adherence of patients who later transferred to other AIDS centres strengthens the hypothesis that they continue to be adherent. Another relevant point in the study is the high number of patients, 394 (74.2% of the study sample), who finished the observation period still on

first-line therapy, especially considering that at time t1 the average time of HAART exposure of the entire sample was 14.7 months.

As for the 71 patients who moved to second-line treatment, one must keep in mind that they had been on first-line therapy for longer than the other patients when the study began (mean: 15.4 months at time t1). It is necessary to take into consideration that only 27 (5.1%) of the 531 patients passed to second-line treatment because of virological failure; in African countries, it is very important to try to keep patients on first-line treatment for as long as possible because the second-line treatment is much more complex to adhere to and its expense is generally beyond the available economic resources. In addition, the conservation of the second-line drugs is more difficult because several of them must be kept at a specific temperature.

The efficacy of the intervention is demonstrated not only by the high level of adherence measured through pill counts, but also by the impact on the patients' health as measured by the four chosen indicators (Hb, BMI, CD4 cell counts and VL) at three different moments (t0, t1 and t2).

The most innovative factor of the model, as far as health education is concerned, is that the patients themselves become active agents of change in their own health and that of others. This is particularly evident in the community health workers, the majority of whom are DREAM patients. They are DREAM's most tenacious and convinced allies in the fight against AIDS. They personally demonstrate the effectiveness of the antiretroviral therapy and they share their experience with others. This creates a type of 'reverse infection,' a way of transmitting hope and the will to live. The community health workers are the first to welcome the sick and they help patients reintegrate into life of the community. Patients start working again, they benefit from helping others and, in the process, regain their sense of dignity.

Another important aspect of the programme's health education strategy is an insistence that ample time be dedicated to counselling. The counselling is conducted not only by the staff member who provides initial pre- and post-test counselling, but also by the physician, the coordinator and the pharmacist. The authors maintain that if the physician does not establish a

relationship with the patient and understand the patient's needs and challenges, the stage is set for failure.

The results of the study also demonstrate that the nutritional support envisioned by the DREAM model is an essential component of the programme; the authors are convinced that it is a complementary and not secondary aspect of HAART in limited resource settings.

Clearly, replicating the DREAM model requires a serious investment, but the experience gained in the years of the programme's operation demonstrate that the efficacy of the model repays the costs by restoring people to health and keeping most of them in first-line therapy for longer. With the help of international funds, national Health Ministries can sustain the programme.

CONCLUSIONS

The results in terms of education, adherence and health outcomes indicate that the DREAM model works well in the sub-Saharan context. The model increases patients' ability to take action and promote their own health. The DREAM programme represents a way of making possible and accessible not only the antiretroviral therapy but also the entire series of measures that make it effective: health education for the patients and hope for their futures, nutritional support, advanced diagnostics and staff training. Simultaneously, measures are taken to defend the patients against opportunistic diseases, infections and malnutrition and to protect them from contracting malaria and tuberculosis. Support is provided for a patient's entire family and special attention is paid to the particular needs of children, especially those who are HIV-positive. A unique part of the DREAM model and one of its strengths is the participation of patients trained as community health workers. Most of the community health workers are women; in a situation where women are the main victims of AIDS, the recruitment, training and employment of the HIV-positive women enables them to exercise control over their disease and to become a human resource that is a richness for the whole country.

ACKNOWLEDGEMENTS

The authors wish to thank the Government of Mozambique, particularly Dr. Paulo Ivo

Garrido, Minister of Health, all the members of the Health Ministry staff engaged in the battle against AIDS; and all the Mozambican physicians, nurses, technicians, assistants and community health workers who contribute to the development and diffusion of the DREAM programme in Africa. The authors thank all the donors who make DREAM possible, especially the World Bank and the Agence Française de Développement. The authors also would like to acknowledge Cindy Wooden for her translation assistance.

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