

From Directly Observed Therapy to *Accompagnateurs*: Enhancing AIDS Treatment Outcomes in Haiti and in Boston

H. L. Behforouz, P. E. Farmer, and J. S. Mukherjee

Partners In Health; Division of Social Medicine and Health Inequalities and Department of Medicine, Brigham and Women's Hospital; and Harvard Medical School, Boston, Massachusetts

Like tuberculosis, human immunodeficiency virus (HIV) disease is associated with poverty and social inequalities, conditions that hamper the delivery of care. Like tuberculosis, treatment of HIV infection requires multidrug regimens, and the causative agent acquires drug resistance, which can be transmitted to others. A pilot project in rural Haiti introduced DOT-HAART (directly observed therapy with highly active antiretroviral therapy) for the care of patients with advanced acquired immune deficiency syndrome. A similar DOT-HAART effort was launched in Boston for patients with drug-resistant HIV disease who had experienced failure of unsupervised therapy. In both settings, community health promoters or *accompagnateurs* provide more than DOT: they offer psychosocial support and link patients to clinical staff and available resources. DOT-HAART in these 2 settings presents both challenges and opportunities. These models of care can be applied to other poverty-stricken populations in resource-poor settings.

ACCESS TO ANTIRETROVIRAL THERAPY

More than 2 decades after the onset of a worldwide pandemic, the World Health Organization (WHO) has declared AIDS to be a global health emergency. Worldwide, >42 million people are living with HIV infection, yet <5% of infected persons have access to antiretroviral medications, the standard of HIV/AIDS care in the world's wealthiest nations. In Africa, the most afflicted continent, it is estimated that well under 1% of those infected are receiving daily combination antiretroviral therapy. Recent initiatives, such as the Global Fund to Fight AIDS, Tuberculosis, and Malaria, aim to

increase access to antiretrovirals and offer hope that these lifesaving therapies will be made available to the underserved.

The increasing availability of these drugs, whether in resource-poor countries or in affluent nations, raises the question of their proper delivery and application. Lack of infrastructure is a long-cited reason to withhold such drugs in settings of extreme poverty. Here, we seek to demonstrate the feasibility and efficacy of community-based HIV/AIDS prevention and care. Drawing on our experiences with the provision of antiretrovirals and other complex therapeutic regimens in resource-poor settings—including rural Haiti and inner-city Boston—we argue that variants of directly observed therapy with highly active antiretroviral therapy (DOT-HAART) will prove useful in introducing complex multidrug regimens in settings lacking requisite health care infrastructures. Such DOT-HAART approaches are also effective in situations in which adherence to such regimens is compromised by fragmented medical services or social problems such as addiction.

Herein we report our efforts to improve access to care and adherence to treatment in markedly different

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Reprints or correspondence: Dr. Heidi L. Behforouz, PACT Project, Division of Social Medicine and Health Inequalities, Brigham and Women's Hospital, Third Floor, One Brigham Circle, 1620 Tremont St., Boston, MA 02120 (hbehforouz@partners.org).

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settings and discuss the challenges posed by the expansion of DOT-HAART, whether in rural Haiti or the urban United States. Experience in both settings leads us to conclude that providing comprehensive care not only supports HIV treatment and prevention efforts but also serves to strengthen public health infrastructures and reinforce other fundamental health care goals. A focus on integrated AIDS prevention and care does not siphon resources away from other health priorities, but instead helps generate new interest in other neglected diseases. In addition, it sparks renewed investment in drug procurement and the application of developed-country diagnostics and therapeutics in developing countries.

ADHERENCE TO COMPLEX REGIMENS

Although enhancing access to care remains the primary challenge of AIDS treatment globally, adherence emerges as a foremost problem whenever antiretrovirals become available. The WHO has defined adherence as “the extent to which a person’s behavior—taking medication, following a diet, and/or executing lifestyle changes—corresponds with agreed recommendations from a health care provider” [1, p. 117]. Combination antiretroviral therapy, remarkably efficacious when used as prescribed, may stand as the most complicated and demanding regimen for a condition requiring continuous open-ended treatment [2]. It is estimated that adherence levels of >95% are required to achieve durable suppression of HIV load [3]. In the developed-country settings in which adherence to complex medication regimens for various diseases has been studied, adherence rates are low, even when patients are judged to comprehend the consequences of nonadherence to therapy [4–6]. In HIV disease, the consequences of nonadherence are stark: recent studies have confirmed that adherence at levels of <95% independently predicted development of resistant virus, hospital admissions, and recurrent opportunistic infections [3]. Many factors may contribute to poor adherence, including depression, homelessness, and drug toxicity. However, no single risk factor predicts nonadherence with certainty [7], and physicians fail time and again to predict who will adhere well to prescribed antiretrovirals [8].

Given these high stakes and the necessary but rapid introduction of antiretroviral therapy in developing countries, it is important that clinicians understand how to promote long-term adherence. Compliance was long ago identified as the ranking problem in effective control of tuberculosis [9, 10]. Like AIDS, tuberculosis is a chronic infectious disease that, when untreated, has a high case-fatality rate. When treated correctly with a supervised multidrug regimen, tuberculosis mortality is negligible. But inadequate or unsupervised therapy for tuberculosis is associated with acquired drug resistance, ongoing transmission of drug-resistant strains, and death.

Tuberculosis control programs have long used DOT to ensure adherence to treatment. DOT of short-course chemotherapy revolutionized control of tuberculosis in some of the world’s poorest countries. Standardization of therapies permitted a reduction in the duration of therapy from 18 to 6 months; patient dropout declined, and survival rose accordingly. International health and financing bodies, including the WHO and the World Bank, declared DOTS (DOT, short-course) one of the most cost-effective public health interventions available [11]. By the last decade of the 20th century, DOTS was prematurely termed the sole strategy necessary for tuberculosis control.

In pioneering DOTS-Plus (DOTS enhanced by social services and support) for the treatment of drug-susceptible and multidrug-resistant tuberculosis in Haiti and Peru, the Partners In Health (PIH) team demonstrated that a complex drug regimen could be delivered via community-based care in the most adverse field conditions [12, 13]. Cure rates were excellent, even when compared with those of US referral centers [14], and mechanisms were developed to drop prices of second-line anti-tuberculosis drugs even as local access to these agents was enhanced [15]. Each of these lessons and strategies is relevant to the effective control of HIV disease. A comparison of the program variables for DOTS and DOTS-Plus for tuberculosis and DOT-HAART for HIV/AIDS in Haiti and Boston is shown in table 1.

THE HIV EQUITY INITIATIVE: HAITI

Haiti is the poorest country in the Western Hemisphere and one of the poorest in the world, ranking 150th of the 175 countries in the United Nations Development Programme Development Index [19]. Decades of political instability and economic crisis have contributed to increasing poverty and deteriorating health and social infrastructures; the United Nations recently ranked Haiti the world’s ninth hungriest country [20]. Not coincidentally, Haiti bears the Western Hemisphere’s worst AIDS epidemic: with a prevalence among adults of >5%, HIV/AIDS has now surpassed tuberculosis as the leading cause of death among young adults nationwide [21].

Partners In Health/Zanmi Lasante (PIH/ZL) has a long history of providing HIV and tuberculosis care through the Clinique Bon Sauveur in the village of Cange, a squatter settlement in rural Haiti. In 1988, these organizations launched a DOT program for tuberculosis and began to build an extensive network of community health workers. These *accompagnateurs* would serve as the essential link between the patients, dispersed throughout rural villages in mountainous central Haiti, and the clinic-hospital complex in Cange [22]. This infrastructure developed by PIH/ZL to contend with the tuberculosis epidemic was critical to respond to the growing HIV threat in the late 1980s.

Table 1. Comparison of 3 types of directly observed therapy (DOT).

Program variable	DOTS for tuberculosis	DOTS-Plus for multidrug-resistant tuberculosis	DOT-HAART for HIV/AIDS in Haiti	DOT-Plus for HIV/AIDS in Boston
Duration of therapy	Limited (6–9 months)	Longer (18–24 months)	Ongoing	Ongoing
Drug regimen	4-drug intensive phase followed by 2-drug continuation phase	Individualized, complex regimen (5–8 drugs)	Twice-daily 3-drug regimen for antiretroviral-naïve patients	Individualized once-daily 3-drug regimen based on genotype
Adverse effects	Severe adverse effects rare	Side effects frequent but rarely life threatening; often require regimen adjustments	<10% of subjects require regimen change (because of side effects or pregnancy)	Side effects frequent but rarely require regimen change
Relationship between treatment and prevention	Treatment = prevention	Treatment = prevention	Treatment = prevention ^a	Treatment = prevention ^a
Drug prices	Inexpensive drugs	Falling drug prices (e.g., through the Green Light Committee ^b)	Generic drugs becoming available; 3-drug regimen costs <\$1/day	Expensive regimens

NOTE. DOTS, directly observed therapy, short-course; DOTS-Plus, DOTS enhanced by social services and support.

^a Although the relationship of treatment and prevention in HIV disease is still under study, preliminary data suggest that AIDS treatment reduces HIV transmission [16, 17].

^b The World Health Organization Green Light Committee improves access to second-line antituberculosis drugs for DOTS-Plus pilot projects [15, 18].

In 1986, the first AIDS case was documented in central Haiti. In response, PIH/ZL staff offered voluntary counseling and testing free of charge. This free testing continues and is closely linked with prevention activities, such as condom promotion and culturally appropriate HIV education; these efforts have been described elsewhere [23]. In 1995, the clinic became the first in Haiti to offer zidovudine free of charge to all HIV-positive pregnant women to decrease the rate of mother-to-child transmission of HIV. This dramatically enhanced the rate of participation in voluntary counseling and testing among pregnant women in Cange, from 30% to >90%, and substantially lowered the rate of vertical transmission of HIV.

Because antiretrovirals were not available in the 1990s, HIV/AIDS care in Haiti focused on the treatment of opportunistic infections. A careful study of 200 consecutive diagnoses of HIV infection made in central Haiti revealed that one-half of these patients were judged to have active tuberculosis [24]. These patients were treated with short-course chemotherapy for tuberculosis disease. Response to therapy was excellent among patients with HIV-associated tuberculosis: an estimated 15%–20% of those treated with DOTS for tuberculosis alone remain clinically healthy almost a decade later, even without antiretroviral therapy. Thus, treatment of tuberculosis with DOTS became a critical component of HIV/AIDS care, and the detection and treatment of every case of active tuberculosis was the first important programmatic link in developing a sound HIV/AIDS care strategy for rural Haiti.

Among the majority of HIV-infected patients, however, treatment of active tuberculosis merely postponed an inevitable decline in health due to advanced HIV disease. In 1998, as the number of AIDS deaths continued to rise, PIH/ZL launched a

program to offer HAART to the sickest clinic patients—those who no longer responded to treatment of opportunistic infections. The goals of the HIV Equity Initiative were to apply lessons learned from tuberculosis control to the growing problem of AIDS. We used the already successful DOTS program, with its emphasis on adherence to treatment and social support, and trained *accompagnateurs* to administer HAART. All medical consultations, drugs, and social services are provided free of charge, as is the case with tuberculosis care. This pilot effort, described elsewhere [25, 26], demonstrated that high adherence to HAART regimens could be attained in even the most resource-limited settings where prevention and care of HIV infection are considered public goods [27].

The *accompagnateurs* are the structural backbone of the HIV Equity Initiative. Although we used the term DOT to describe what they do, it was clear from the outset that far more complex social processes were occurring. The *accompagnateurs* are respected in their home communities and serve as the essential link between the villages and the clinic. When a patient from the catchment area is given the diagnosis of advanced HIV disease requiring HAART, an *accompagnateur* is either selected from the current staff or hired from the community at the patient's request. The majority of these village-based health workers are peasant farmers or market women. *Accompagnateurs* receive training on the importance of confidentiality and emotional support for the patients. In addition, they are educated about the clinical presentation and management of HIV infection and tuberculosis, including proper use of medications, management of side effects, and prevention of HIV infection. During daily visits, *accompagnateurs* are asked to directly observe the ingestion of at least 1 dose of HAART and are per-

mitted to leave the second treatment dose with the patient at that time. In most cases, however, *accompagnateurs* visit their patients more than once a day, to observe the ingestion of the second dose. A recent program review, which included focus groups with >100 *accompagnateurs*, revealed that most believed that, as with tuberculosis treatment, all doses should be observed.

The clinical and public health literature has little to say regarding the social processes involved in “accompanying” patients with chronic, treatable diseases. During the program review, we learned that *accompagnateurs* were sharing food with their patient-neighbors, babysitting, and running errands. Some of the *accompagnateurs* were themselves receiving antiretrovirals from their own *accompagnateurs*. Something far more complex and beneficial than DOT—a “virtuous social cycle”—occurs when neighbors are enlisted in the struggle against tuberculosis and HIV infection.

The clinic staff as well as the *accompagnateurs* provide psychosocial support. New patients undergo a detailed social assessment to address potential barriers to adherence or to a strong response to therapy. A social worker or social work assistant visits each patient at home to assess the household’s financial situation, almost invariably dire, and to gauge the strength of existing social support networks. An individualized management plan is elaborated on the basis of these assessments and the input of the *accompagnateurs*. In addition to individualized care, monthly patient meetings facilitate exchange of information, permit patients to share problems with peers and staff, and strengthen the responsiveness of the program. These meetings also permit clinic staff to promote secondary prevention of HIV infection. Similar group therapy efforts have been used in other PIH projects in Peru and Boston [28].

On a broader scale, the PIH/ZL staff also oversees housing improvement and potable water projects. The latter are especially important for effective prevention of mother-to-child transmission of HIV during nursing. The complete integration of HIV/AIDS prevention and care has yielded impressive results: Over the past 5 years, seroprevalence in our prenatal clinics has dropped slowly but steadily, from >5% to 2.8% [16, 29–31].

A recent review of key clinical and laboratory parameters compared outcomes between a group of 100 PIH/ZL patients who received DOT-HAART on the basis of the clinical criteria of advanced disease (generally bed-bound with significant weight loss) and 2 other groups, each with 100 HIV-positive patients for whom antiretroviral therapy was deferred because they were deemed less sick (i.e., they were generally ambulatory without significant weight loss) or because they lived too far from the clinic to arrange for an *accompagnateur* [30]. Even though the patients in the first group were far sicker than those in the 2 groups for whom HAART was deferred, the first group

showed superior improvement: fewer hospitalizations, opportunistic infections, and cases of tuberculosis and lower mortality. In addition to the outcomes listed above, the assessment confirmed the reduction of social stigma and improved staff morale as favorable results of the program. The dropout rate from the program was remarkably low: <2% since 1999. Side effects of the treatment have been rare, and only a few patients required a change in drug regimen [30]. Beginning in 2002, efforts to scale up the HIV Equity Initiative began across central Haiti.

INTRODUCING DOT-HAART TO INNER-CITY BOSTON

We subsequently applied these lessons in Boston, where we serve a cohort of >100 patients who have experienced failure of conventional, unsupervised therapy. This initiative is run by the Prevention and Access to Care and Treatment (PACT) Project. A joint project of the Division of Social Medicine and Health Inequalities at Brigham and Women’s Hospital and PIH, the PACT Project is a health promotion and advocacy program in inner-city Boston. PACT employs trained community health promoters, or *accompagnateurs*, to deliver home-based medical and social support services to high-risk HIV-positive patients who are experiencing failure of standard HIV/AIDS care. These patients represent the 10%–15% of Boston’s HIV-positive population who experience a synergy of plagues that lead to the unfavorable outcomes, including high rates of disability, AIDS-related mortality, and preventable hospitalizations, and are referred to the PACT program by Boston infectious disease specialists and social service personnel. After 1–2 years, 85% of enrolled patients respond successfully to standard PACT health promotion services (which include adherence counseling, accompaniment, and case management), and demonstrate reduced HIV loads, increased CD4⁺ cell counts, and improved quality of life (data not shown). However, 15% of our cohort continue to struggle and require more aggressive adherence interventions. For these patients, we have offered DOT-HAART in addition to PACT services (i.e., DOT-Plus) with good results and high participant retention and satisfaction [32].

The patient population in Boston differs from that in Haiti in a number of ways: the majority of the Boston project participants are antiretroviral-experienced, and many have infections that have developed high-level resistance because of the participants’ inability to adhere to antiretroviral regimens. Although both populations experience poverty and social marginalization, these inequities result in a different set of barriers to successful treatment outcomes in the urban United States. These barriers include substance abuse, severe mental illness, homelessness, domestic violence, and the isolating social stigma of HIV infection that is particular to the urban United States.

In contrast to Haiti, where health and social service resources are widely unavailable, Boston participants underutilize available resources because of a combination of factors, including institutional racism, inability to negotiate the complex maze of medical and social services, depression, and isolation due to deterioration of support networks. Table 2 compares the patient populations in Haiti and Boston.

Like the Haitian health promoters, PACT *accompagnateurs* are drawn from the community and have first-hand knowledge of the obstacles faced by patients in their daily lives. PACT health promoters develop a rapport with their participants, gaining trust and forging partnerships that allow for meaningful exchange and therapeutic alliances. Their activities include accompaniment to medical appointments; adherence and harm reduction counseling; assistance with social crises, such as homelessness and domestic violence; education; and provision of support and encouragement. Through these activities, the majority of PACT participants have achieved improved health and well-being, as measured by increasing CD4⁺ cell counts, lower HIV loads, and fewer opportunistic illnesses and hospitalizations. For those patients who experienced failure of the PACT health promotion services, we adapted the Haiti DOT-HAART program and formed the PACT DOT-Plus initiative: DOT with HAART would be provided along with other social services traditionally provided by PACT *accompagnateurs*. Toward this end, a new type of community health promoter, the DOT health promoter, was introduced. As in Haiti, this DOT health promoter

visits patients in their homes on a daily basis to provide support and encouragement while the patients take their daily doses of antiretroviral therapy. Drawing on experiences with DOT for tuberculosis, once-daily HAART regimens are selected by the referring physicians to ensure that the consumption of all doses is observed. In addition to providing education about medications and management of side effects, DOT health promoters build the same intimate relationships witnessed in the Haiti program.

As in Haiti, primary outcomes of interest for the DOT-Plus program include survival and rates of hospitalization. In addition, advanced laboratory infrastructure in the United States permits the monitoring of CD4⁺ cell counts and HIV loads. The PACT DOT-Plus program has been in place for 1 year. To date, 15 high-risk patients for whom traditional PACT services failed have been enrolled into the program. Two patients dropped out of DOT-Plus at 3 months after enrollment but continue to receive PACT services. For the remaining 13 patients, the rate of adherence to treatment is 97%, and 11 patients have achieved persistently undetectable HIV loads. Median CD4⁺ cell counts rose from 83 cells/ μ L at baseline to 106 cells/ μ L (range, 11–578 cells/ μ L) at 6 months and 192 cells/ μ L (range, 16–262 cells/ μ L) at 12 months. Hospitalization data also suggest improved outcomes among those participating in DOT-Plus; during the 6 months before enrollment in the program, there were 7 AIDS-related hospitalizations with a total length of stay of 48 days. In the 6 months after enrollment,

Table 2. Characteristics of patients in pilot studies of directly observed therapy (DOT) in Haiti and Boston.

Characteristic	Haiti: Zanmi Lasante	Boston: PACT Project
Antiretroviral history	Naive	Experienced
Drug resistance of HIV	Very low	High
Poverty	Absolute	Relative
Social services	Unavailable except through Zanmi Lasante programs	Underutilized
Health system	Minimal Unequal access to very limited services Patients have no prior experience with health care services, i.e., health care-naive	Sophisticated Access depends on ability to navigate system Patients have experience with health care services, many of which are negative and discourage continued engagement, i.e., health care-fatigued
Barriers	Unemployment Hunger Inadequate housing	Homelessness Mental illness Substance abuse Social isolation
Perceived benefits of adherence	High	Low or faltering
Perceived costs of adherence	None Social stigma not documented to be a barrier to adherence	Lifestyle change Risk of disclosure Social stigma Constant reminder of disease
Antiretroviral administration alternatives	Currently none	DOT is voluntary and optional for those with failure of standard care practices

NOTE. PACT, Prevention and Access to Care and Treatment.

however, there were 3 AIDS-related hospitalizations with a total length of stay of 5 days and 1 hospitalization of 2 days' duration for toxicity related to medications [32].

In addition to positive health outcomes, there are other successes of the DOT-Plus program. Patients report improved quality of life. Of the 13 participants who are currently receiving DOT, the 3 who were previously working have been able to maintain their jobs, and 3 who previously were unable to work have returned to work. Eleven of the 13 note an increase in or return to activities, such as actively caring for their children, participating in church and community groups, hosting and attending family gatherings, and traveling to their countries of origin, activities in which they were unable to participate before entering in DOT. Many patients previously led reclusive lives because of their illness and its obvious physical stigmata. Thin, tired, and ill, they did not feel comfortable leading a public life, because they feared gossip, accidental disclosure, or discrimination. Since the initiation of therapy, they have not only gained weight and general health but also energy and confidence. They have returned to working, traveling, and attending church and thus have sought out inclusive and accepting social networks that will sustain them in the future.

These results demonstrate that the DOT-Plus program is effective in improving outcomes among high-risk HIV-positive patients of urban Boston for whom not only standard HIV/AIDS care but also traditional PACT services have failed. With the continued support of the PACT health promoters, the PACT DOT workers ensure the adherence to HAART that guarantees better outcomes.

DOT OF ANTIRETROVIRALS IN HAITI AND BOSTON

We have attempted, in this review, to describe community-based HIV/AIDS care in 2 very dissimilar settings. In both rural Haiti and the urban United States, lessons from successful control of tuberculosis have been applied to promote the prudent and compassionate use of antiretrovirals. In central Haiti and inner-city Boston, we have demonstrated that it is possible to enhance adherence to long-term suppressive regimens for advanced HIV disease among patients who face, by any criteria, significant barriers to adherence to such regimens. In Haiti, extreme poverty, unemployment, and hunger are the primary forces underpinning the epidemic and constitute the chief barriers to adherence. In poor neighborhoods in Boston, relative, rather than absolute, poverty, as well as racism and socioeconomic marginalization, are associated with substance abuse, fractured medical care and social services, and poor outcomes of anti-HIV therapy.

Over the past decade, modern AIDS care has not been deemed cost-effective in places as poor as Haiti. Instead, pre-

vention efforts are emphasized. However, this prevention-versus-care dichotomy has been revealed as a false one: prevention efforts have faltered in the absence of care, in large part because few come forward for testing if no care is available [33, 34]. In Haiti, at least, AIDS is stigmatized because it is seen as a death sentence. When therapy is made available, the stigma is decreased.

In Boston, the social stigma surrounding HIV infection is largely attributable to the negative societal view of factors that put people at risk for HIV infection. These include substance abuse, mental illness, homelessness, and poverty. These issues demand complex and interrelated interventions, by both PACT health promoters and collaborations with other organizations, to help resolve each participant's personal synergy of problems while focusing efforts toward raising awareness of the societal inequities that lead to these problems. As in Haiti, patients who have been restored to health also experience a decreased sense of stigma and isolation when they are able to reenter society and function within it. The DOT-Plus participants' inclusion in a supportive environment created by community members and peers diminishes isolation and leads to a greater sense of normalcy. By hiring community members as health promoters, the affected community embraces HIV infection as a reality. PACT health promoters lead community-wide education seminars on HIV disease, mental illness, and substance abuse and conduct street outreach activities to increase HIV testing and counseling, harm-reduction practices, and needle exchange. In the course of caring for patients, they recognize the limitations in the available resource system and advocate for increases in culturally competent mental health and substance abuse treatment services. Many health promoters join advocacy networks that interface with city and statewide policy makers in an attempt to bring a human face to budget negotiations and resource allocation decisions. As patients become healthier and realize their potential, they too become involved in community outreach and education activities. Several DOT-Plus patients have begun to speak in public, on television, and in medical school classrooms about lives of poverty and marginalization as well as their HIV illness experiences. In so doing, they raise the level of consciousness about HIV disease and its risk factors and begin to effect change.

In both rural Haiti and urban Boston, we have sought to elaborate culturally appropriate and fully integrated programs for AIDS prevention and care. Both seek to move beyond DOT to the notion of accompaniment. In Haiti, *accompagnateurs* are community health workers, usually living in the same neighborhoods or villages as their patients. Each day, *accompagnateurs* deliver DOT-HAART to their neighbors with advanced AIDS, in precisely the manner in which they deliver DOTS to their neighbors with tuberculosis. On the basis of early experience in Haiti, we concluded that community-based care for

Table 3. Comparison of programs of directly observed therapy (DOT) with antiretrovirals in Haiti and Boston.

Characteristic	Haiti: Zanmi Lasante	Boston: DOT-Plus
Estimated need	10,000 in Central Department	60–175 (15%–35% of 400–500 PACT patients who experience failure of standard health promotion)
Current enrollment	1050; scale-up underway throughout central Haiti	18; scale-up underway
Source of referral	Zanmi Lasante clinic staff and community health workers, mobile clinics, self-referral	Primary providers, existing participants
DOT staff	400 community health workers (with multiple other tasks)	3 DOT health promoters
Eligibility criteria	Any patient with HIV infection requiring antiretroviral therapy by clinical criteria (1999–2002) or symptomatic with CD4 ⁺ cell count of <350 cells/ μ L (2002–present)	Inability to adhere to medication; CD4 ⁺ cell count of <350 cells/ μ L; HIV load of >1000 copies/mL; comorbidity (e.g., mental illness or opportunistic infections); significant social instability
Pilot 12-month outcomes	Program retention: 98% Mortality nil among initial cohort Sharp reduction in incidence of tuberculosis and other opportunistic infections 12-month CD4 ⁺ cell and HIV load data not yet readily available in rural Haiti Decreased hospitalization rates	Program retention: 87% Adherence rate: 97% Mean increase in CD4 ⁺ cells from 123.7 cells/ μ L (range, 8–237 cells/ μ L) to 159.4 cells/ μ L (range, 16–262 cells/ μ L) Patients achieving undetectable HIV load: 73% Decreased hospitalization rates

NOTE. DOT-Plus, DOT enhanced by social services and support; PACT, Prevention and Access to Care and Treatment.

HIV disease was both feasible and necessary; we are now in the process of scaling up this effort throughout central Haiti. More than 8500 patients are being followed up, ~15% of whom are receiving DOT-HAART.

The DOT-HAART experience has been similarly positive in inner-city Boston. Although salaries of US-based community workers or *accompagneurs* are relatively high compared with those of village health workers in Haiti, the reduction in the number of hospitalizations for recurrent opportunistic infections suggests that the intervention may be cost-effective for patients unable to adhere to complex antiretroviral regimens. Further trials are needed to demonstrate cost-effectiveness and sustainability of the DOT-Plus intervention as well as the impact of the intervention on self-administration capacity and virological resistance. Table 3 summarizes the key points of comparison between Haiti and Boston DOT programs.

On the basis of our preliminary experience, DOT-Plus with HAART appears to be feasible, acceptable, and effective in resource-poor settings among high-risk patients. The process commonly known as DOT is in fact a complex social process that is still poorly understood. We lack a vocabulary to describe what *accompagneurs* do in making home visits to their neighbors. Multiple methodologies would be required to examine and describe the virtuous social cycle that may be set in motion by advancing humane, community-based care.

The DOT-HAART program as delivered by community *accompagneurs* works, both in Boston's inner city and on Haiti's Central Plateau. The continuity and responsiveness of care, the willingness of the *accompagneur* to "walk with the patient," and the health promoter's ability to manage the entire context of the patient's illness experience make the programs successful.

Yet this shared victory should not be used to diminish the differences between patient populations in Haiti and in Boston. Although the extreme nature of all patients' sickness is rooted in poverty, be it absolute or relative, and marginalization, be it global or societal, the patients do face unique and geographically specific challenges that must be addressed in the design and implementation of other effective interventions. What is heartening about the DOT-HAART experience of both PIH/ZL and PACT is that a similar philosophy can be applied to disparate populations. The *accompagneur* model shows that health promoters who are drawn from the community of those they serve can provide the best and most comprehensive care to disadvantaged patients. We believe that future directions for such care may be defined by program experience and by operational research; in so doing, we will be able to identify optimal strategies for the full integration of effective HIV/AIDS prevention and care and for the development of pilot programs, whether in rural Haiti, inner-city communities in the United States, or other communities in which poverty and social inequalities complicate treatment of HIV/AIDS.

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