Integrated HIV Prevention and Care Strengthens Primary Health Care: Lessons from Rural Haiti

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introduction

THE Declaration of Alma Ata, signed by World Health Organization member states in 1978 constitutes a major milestone in the contemporary primary health care movement. The goal was lofty—"health care for all by the year 2000"—and close attention was paid to the specific means by which that goal might be reached (1). The plans that emerged from the meeting—from improved vaccination coverage to decreased malnutrition—were deemed feasible by the signatories. Yet objectives have not been met in many of the very countries in which such victories were most needed. Worse, the promotion of health care as a right provoked violent reactions in some settings. Writing from Guatemala, where community health workers had been targeted for government repression and worse, Heggenhougen surveyed the fates of local community health activists and asked, simply enough, "Will primary health care be allowed to succeed?" (2) Thus, although many countries were able to meet certain goals set in Alma Ata, as many more were not; some of the poorest countries, in fact, experienced worsening health indices. As the year 2000 approached, the Alma Ata slogan became the butt of ridicule in international health circles. The slogan contained a typographical error, went the joke: the rallying cry was in fact "health care for all by the year 3000."

If we afford ourselves another millennium in which to remediate growing inequalities of access to something as basic as primary health

care, we are certain to see a growing gap in outcomes. New and improved diagnostics and therapeutics mean longer lives for those who have access to modern medicine; not so for the world's poor. The United Nations Food and Agriculture Organization recently reported that more than 840 million people in more than 30 countries are going hungry (3); while in many industrialized nations obesity ranks among the leading causes of morbidity and morality (4). Such ironies are not lost on those living and working in what are now termed "resource-poor settings." They are asked to do more and more with less and less. This "mission impossible" has led to deep discouragement within the primary health care movement. Self-described pragmatists have argued that we must lower our expectations and that only interventions deemed "cost-effective" should be encouraged (5). Health care systems falter where they are most needed and it is clear that the world's bottom billion are far from obtaining even the most basic primary health care.

Into this grim situation comes a series of transformed or newly described pathogens. Most malaria infections are now resistant to chloroquine (6), and drug-resistant tuberculosis is on the rise throughout the world (7,8); the most frightening newly described pathogen is HIV. Each of these three diseases can be managed with multidrug regimens, but an effective vaccine exists for none of them. AIDS, especially, has spawned a number of questionable public health clichés—for example, "education is the only vaccine." Despite two decades of experience using information and education as the primary tools in HIV prevention, there have been, until very recently, no careful studies of the efficacy of these interventions. One review of information and education campaigns concluded that, "somewhat surprisingly, towards the end of the second decade of the AIDS pandemic, we still have no good evidence that primary prevention works" (9). There is increasing agreement that these tools, though of great importance, are of limited efficacy in precisely those settings in which they are most needed—settings where social vulnerability, and not cognitive deficits or ignorance, is the primary determinant of risk for HIV infection (10).

A dispirited international health movement, the advent of new and complex epidemics, and struggles over the scant resources dedicated to improving the health of the poor have led to great debate about AIDS. One major U.N.-affiliated organization last year cancelled a program to provide breast milk supplements to HIV-positive moth-

ers, arguing that it was neither cost-effective nor feasible to do so, given the lack of potable water with which to prepare the supplements. A high-ranking UNICEF official asserted that, in impoverished settings, "provision of infant formula was creating dependence" (11). Unbelievably, continued reliance on HIV-positive breast milk was deemed the "realistic" approach for women living with poverty and HIV (12).

The debate about universal provision of *highly active antiretroviral therapy*, sometimes termed HAART, has been even more contentious. Many public health experts argued that these drugs—the only agents shown to prolong survival among patients with advanced HIV disease (13)—are too expensive and complex for patients in resource-poor settings. A recently published paper argued that prevention was "28 times more cost-effective than HAART," (14) as if these were mutually exclusive and competing activities. Still others have insisted that AIDS care will draw resources away from primary health care. Such views tend to remove AIDS treatment from the priority list.

Drawing on experience in one of the poorest parts of rural Haiti, we have found, in contrast, that improving HIV care can in fact strengthen primary health care goals. In what has been described as the world's third hungriest nation (15), we launched a small pilot project that integrated AIDS care with robust prevention efforts (16,17). In seeking to scale up this effort, we discovered that such projects are replicable and may enhance rather than take away resources from primary health care. We also try to describe the "minimum basic package" of integrated HIV prevention and care in the hopes that others may find this approach useful, now that novel funding mechanisms, including the Global Fund to Fight AIDS, Tuberculosis, and Malaria (GFATM), make it possible to tackle the world's leading infectious killers.

setting

Haiti is Latin America's oldest independent nation, born of a slave revolt that began in 1791. Over 95% of its population is descended from African slaves, and Haiti's history has been characterized by ongoing political strife. Haiti, far and away the most impoverished nation in the Western hemisphere, is, not coincidentally, the country with the region's largest burden of HIV. The World Health Organi-

zation estimates that over 6% of the adult population is already infected with HIV (18). AIDS is believed to be the reason that life expectancy is dropping in Haiti, with the WHO estimating life expectancy at 43.8 years (19). With a population of 8.3 million, Haiti accounts for only 25% of the Caribbean population but has more than 60% of the HIV/AIDS cases (20). The introduction of HIV to Haiti occurred more than 25 years ago, and Haiti's is considered a mature epidemic. Some have termed it "generalized," because it has long been difficult to identify anything resembling discrete risk groups (21,22); young women account for half of all HIV cases (23). Poverty and gender inequality are the leading co-factors for the dissemination of HIV in Haiti, and precisely these forces render existing prevention methods less effective (24).

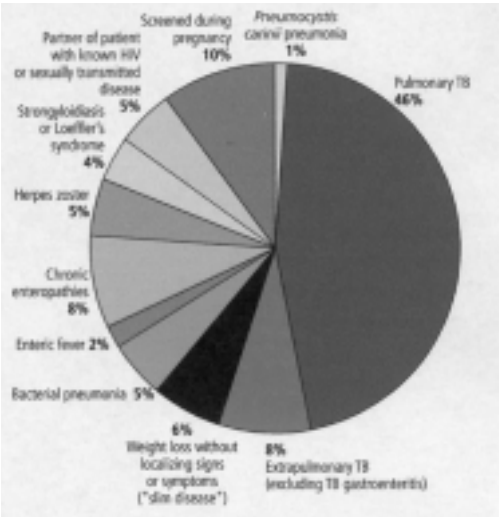
The history of the Haitian HIV epidemic, which began in the early 1980s in urban Haiti and was linked to the larger epidemic in North America, has been reviewed elsewhere (25,26,27). During subsequent years, HIV worked its way along major trading routes into the rural regions in which most Haitians live. It is important to note that many prevention efforts were launched in the difficult years between the introduction of the virus and the advent of effective therapy. Although these efforts were met with a measure of success, much of the transmission was occurring in urban Haiti, wracked during the past two decades by political violence and growing poverty.

The Central Plateau is one of the poorest parts of Haiti. With over 550,000 inhabitants, most of them living in villages and in small towns, the Central Plateau lacks potable water, paved roads, and electricity; the region also lacks basic health infrastructure (28,29). In 1988, working in a clinic in Cange, a squatter settlement in the lower Central Plateau, the Partners In Health/Zanmi Lasante team introduced what is now termed "voluntary counseling and testing." Although serologic tests were and remain free to patients, few, at the outset, came to us asking to be tested. Pregnant women, among others, were unlikely to accept voluntary counseling and testing. The great majority of tests performed had been recommended by clinicians seeking to confirm a presumptive diagnosis of advanced HIV disease. As a result, the majority of all tests performed between 1988 and 1995 were positive.

When in-patient capacity was added to the ambulatory clinic in Cange, the proportion of HIV-associated admissions, whether for

figure 1

Presenting Diagnoses in 200 Patients with HIV disease,
Clinique Bon Sauveur, 1993–1995



bacterial pneumonia, tuberculosis, or acute or chronic enteropathy, continued to rise. One survey of all in-patients conducted in the early 1990s, a time of great social upheaval in Haiti, revealed more than 40% to be seropositive (30). The majority of these patients were returning from the urban slums of Haiti's capital, Port-au-Prince. The clinic's overwhelmed medical staff did its best to manage opportunistic infections, but morale was then at an all-time low (31). There were simply too few tools to stave off death. AIDS had become the leading infectious cause of young adult mortality in rural Haiti.

A handful of errors and discoveries made during these difficult years led, however, to the establishment of one of the world's first community-based AIDS care programs. The first discovery was that voluntary counseling and testing remained unappealing in the absence of effective therapy. The second discovery concerned the nature of presenting opportunistic infections. During 1993–95, a careful study of 200 consecutive HIV diagnoses revealed that half of these patients were judged by clinicians to have active tuberculosis (Figure 1) (32). Most patients treated for HIV-associated tuberculosis with directly observed, short-course chemotherapy for tuberculosis (DOTS)

showed marked clinical improvement when clinical care was associated with social support (33). Although diagnoses were made in clinics, the great majority of all tuberculosis care was provided by village health workers called *accompagnateurs*. The majority of *accompagnateurs* were local residents providing care to their own neighbors, receiving a modest stipend to do so. Medications and follow-up care were provided free of charge to the patients. In addition, families affected by tuberculosis were eligible for social services, as described elsewhere (34). A third discovery was made near the end of 1995, when the Cange clinic became Haiti's first clinic to introduce AZT for the prevention of mother-to-child transmission of HIV. Rates of voluntary counseling and testing use in the prenatal clinic skyrocketed from around 30% to over 90% in the course of the ensuing year. For the first time, the great majority of HIV serologies performed were negative.

A decade of experience with a successful community-based DOTS program, and the fact that the AIDS and tuberculosis epidemics overlapped substantially, led our Haiti team to decide in 1998 to deliver AIDS care via the same model used to treat tuberculosis: "DOTS" became "DOT-HAART" as village health workers used antiretroviral therapy rather than, or in addition to, antituberculous drugs. From 1999 to 2002, the team relied on clinical algorithms—CD4 counts and viral loads were unavailable—to identify AIDS patients who would not survive long without antiretroviral therapy (35). During the early years of the program, there was a significant rise in demand for voluntary counseling and testing, itself temporally associated with a large number of equally dramatic clinical responses to antiretroviral therapy. The "Lazarus effect," as it became known locally, was noted to lead to a sharp decline in AIDS-related stigma (Figure 2).

A corollary lesson was that AIDS prevention and care go hand-in-hand. The rate-limiting factors from 1999–2002 were always the same ones: an inability to find funding for staff and for antiretrovirals.

Other lessons emerged in the course of implementing this program in scores of villages. To improve AIDS care, the team was not only serving HIV-affected families, but also increasing its ability to identify and treat patients with other diseases, most notably tuberculosis and sexually-transmitted infections (36,37). Expanding capacity for

figure 2

A 25 year-old HIV patient before and after therapy with antiretroviral agents.

prevention of mother-to-child transmission enhanced the quality not only of prenatal care but of all women's health services. Introducing comprehensive AIDS care improved staff morale and increased the flow of essential medications and vaccines to treat and prevent other infections. In other words, improving AIDS prevention and care led in at least one part of central Haiti to a dramatic improvement in the quality of primary health care in general.

Could this exercise be replicated elsewhere? Working with the *accompagnateurs*, the program directors attempted to identify the essential elements of the project, those without which it would not be possible to deliver integrated HIV prevention and care that would, at the same time, strengthen public health capacity. Table 1 lists six elements of the "basic minimum package" of what constitutes a complex health intervention. Four functions, we have called *pillars*—HIV prevention and care; tuberculosis diagnosis and case-holding; STD case finding and treatment; and women's health services—were designated as central to program success. Each of these interventions was deemed a public good and thus supported by donor funds and by Haiti's Ministry of Health. As each of these components of care was also delivered in large part by village health workers, local training became critical to the effort. Approximately 30 essential medications

table 1

Program Elements Crucial to Integrated Aids Prevention and Care: the Haiti Experience

1	Training and capacity-building for voluntary counseling and testing
2	Training and capacity-building for staging (whether with clinical or laboratory criteria) and clinical management
3	Community-based care delivered by village health workers
4	Training of village health workers in side-effect management and referral
5	Program capacity for diagnosis and care of tuberculosis and STDs
6	Program capacity for prenatal care and women's health

were deemed necessary for the program to succeed, as were a small number of laboratory tests—important components of primary health care even in resource-poor settings.

from pilot project to scale-up: building on the four pillars

Having identified the key lessons we had learned during the first three years of operations—1999–2002—and noting the synergy between AIDS services and primary health care, we addressed the next question: could these lessons be applied elsewhere in the region? In 2002, when Haiti's application to the Global Fund to Fight AIDS, Tuberculosis, and Malaria received a high rating in the first round of proposals (38), the Partners In Health/Zanmi Lasante team decided to replicate the Cange prevention-and-care program elsewhere in Haiti. In addition to the "four pillars" outlined above, our approach included a careful assessment of the social conditions of patients and their families, as basic social services could be offered as part of the minimum package of services for AIDS and TB patients. As case finding and care was to be delivered largely by village health workers, scale-up of training efforts would also be necessary.

In August 2002, we performed a needs assessment for the town of LasCahobas, a commune of over 55,000 inhabitants abutting Haiti's border with the Dominican Republic (see map). Unlike Cange, which

figure 3

Partners In Health Sites in Central Haiti

is a small and recently settled squatter encampment of landless peasants, LasCahobas is a large and long-established town with a central square, a market, a public high school, a police station, a courthouse, and a large number of churches. The town is predominantly an agricultural market center, without industry or tourism. Trade occurs across the Dominican border, and there is daily traffic between LasCahobas and Port-au-Prince, three to four hours to the south and west. In some senses Cange and LasCahobas are strikingly different settings—the former a small squatter settlement, the latter a large market town—but both places are saddled with a large burden of tuberculosis, AIDS, and primary health care problems.

Our preliminary assessment found the LasCahobas public clinic to be nearly empty in the morning and closed by noon. We found a demoralized staff with very little in the way of tools. As for HIV prevention and care, no services were being offered at all: the absence of serologic tests meant that even voluntary counseling and testing and prevention of mother-to-child transmission were unavailable. On paper, at least, the diagnosis and care of tuberculosis were provided free of charge to patients. But in the year preceding scale-up, only

nine cases of tuberculosis had been diagnosed in LasCahobas. Incidence data from the Cange region suggested that closer to 180 patients should have been expected to present each year with active tuberculosis (39).

methods

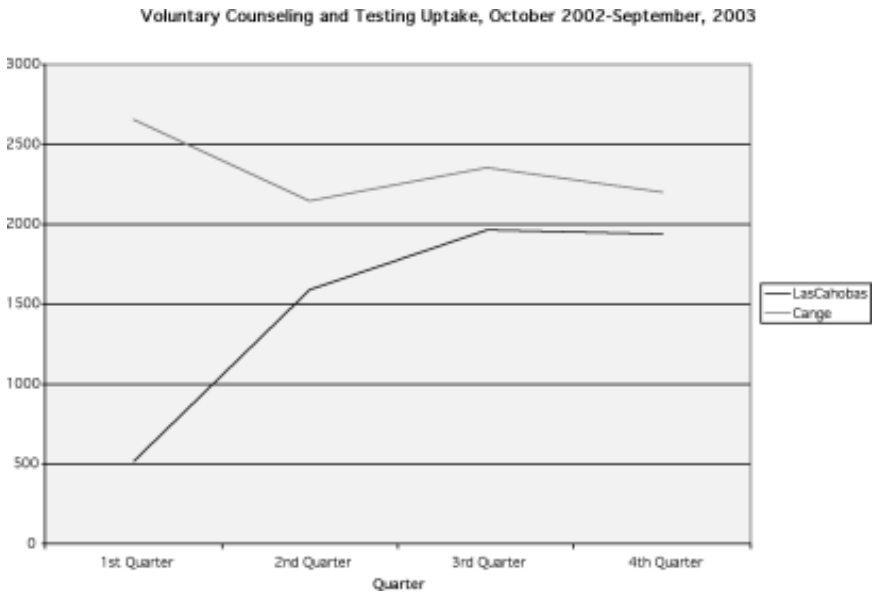
Ours is a retrospective observational study and relies on a number of quantitative and qualitative methodologies, ranging from participant observation to active case finding; this report also relies on the monitoring of key health indices during the first 14 months of operations in LasCahobas. The health indices that we followed include the number of diagnoses of tuberculosis, HIV infection, and sexually transmitted infections; the number of prenatal visits; and detailed encounter reporting by service (pediatrics, women's health, etc.) within the ambulatory clinic. Reports of services were compiled daily by local staff trained to use computers and basic spreadsheet software; some learned how to use Epi-Info. Monthly distillations of information were submitted to Haiti's Ministry of Health, which provided oversight of the project and also basic clinical operations. Partners In Health/Zanmi Lasante staff worked closely with Ministry of Health staff to deliver the basic minimum package described above. These services were provided free of charge to patients, with most fees defrayed by the GFATM; other expenditures were covered by Partners In Health and the Ministry of Health.

results

Our experience in central Haiti suggests that scale-up of community-based care for advanced HIV disease is feasible. Less than a year after implementing the four pillars, LasCahobas's health center had been radically transformed by what was ostensibly an "AIDS project." Introducing all four pillars meant introducing 30 new essential drugs to the formulary, establishing a small laboratory, training and paying stipends for community heath workers, and complementing Ministry of Health personnel with staff trained by Partners In Health/Zanmi Lasante. The impact of these efforts was profound. Hundreds of people living with HIV came forward for evaluation and care; within a year, over 120 patients were receiving supervised therapy with ARVs (DOT-HAART). In LasCahobas, as in Cange, almost all prenatal care came to include voluntary counseling and HIV testing. Algorithmic

figure 4

Voluntary Counseling and Testing Uptake, October 2002–September, 2003



management of sexually transmitted infections was introduced. Aggressive HIV-prevention took place within the clinic, in area churches and schools, and in the villages served by the *accompagnateurs*. Within 14 months of initiation of scale-up, more than 200 tuberculosis patients were identified and began receiving DOTS. A small inpatient unit was built and in April 2003, rural Haiti's second AIDS clinic, with equipment comparable to that available in Cange, was dedicated in a ceremony that drew hundreds of local wellwishers. The naysayers who argued that stigma would prevent the success of such a clinic were proven wrong, as the AIDS clinic is the most active part of what is now one of rural Haiti's busiest health centers.

We can quantify many of the trends documented during the first 14 months of the scale-up, including those services central to primary health care. The pace of voluntary counseling and testing uptake, shown in Figure 4, has been striking. Voluntary counseling and testing have long been available in Cange, but prior to August 2002 HIV testing was not available in the commune of LasCahobas. Only a year after scale-up began, almost 2000 serologic tests are performed each

figure 5

HIV Case Detection, July 2002–December 2003

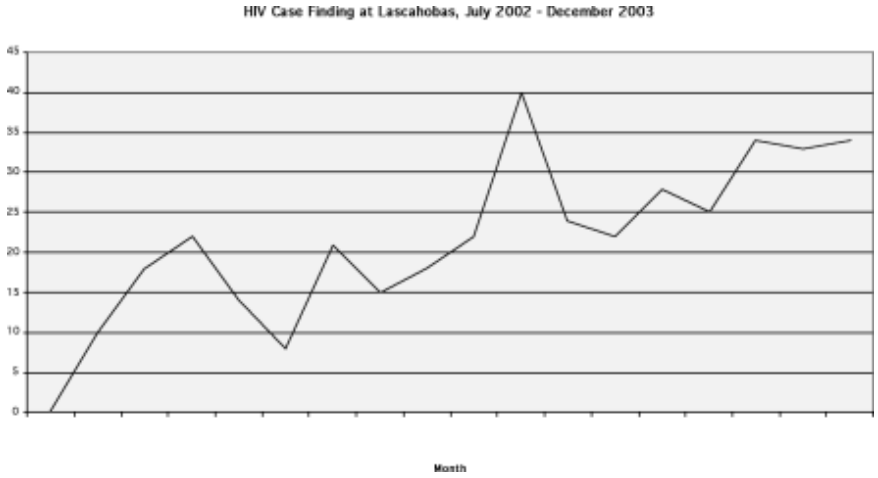


figure 6

Number of Patient Visits, July 2002–November 2003

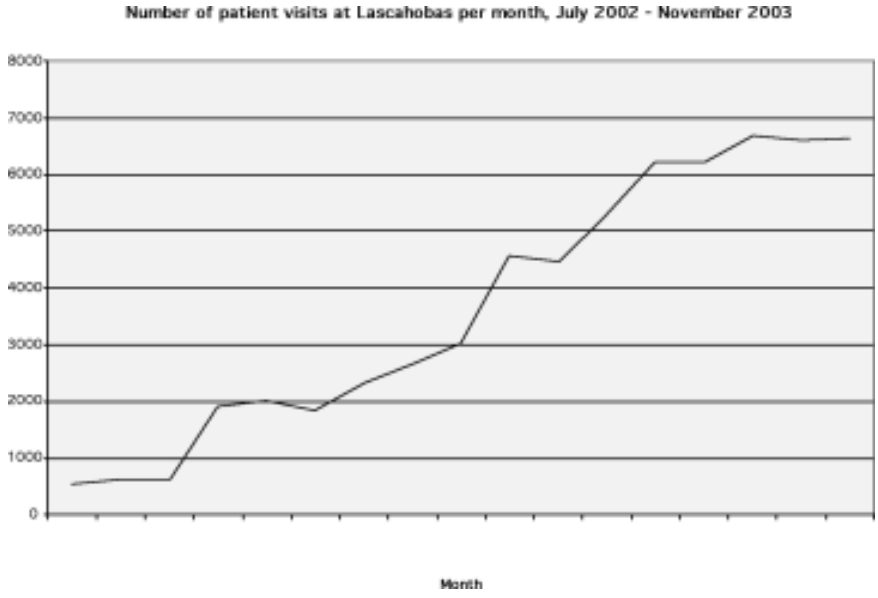
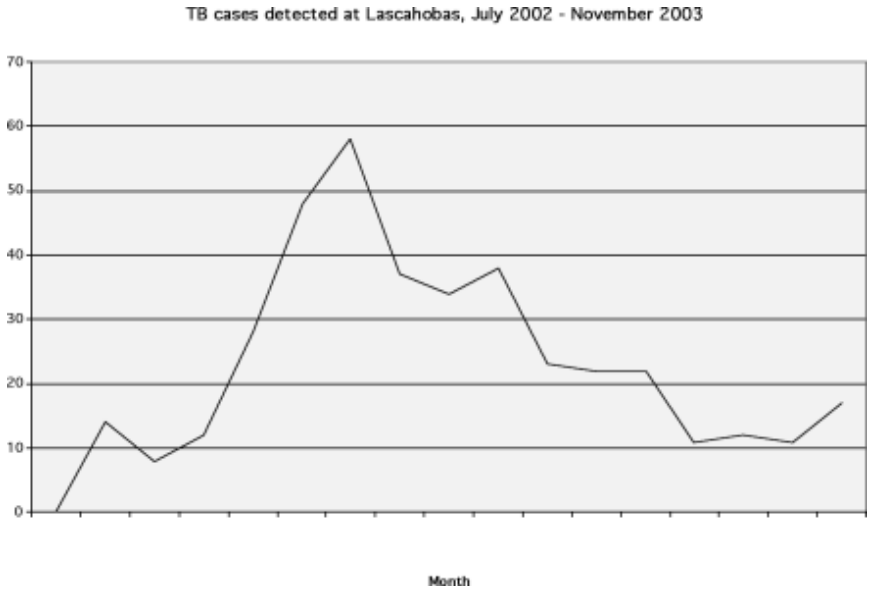


figure 7

Tuberculosis Case Detection, July 2002–November 2003



month. Concordantly, the number of HIV-positive serologies has also increased, as shown in Figure 5.

Figure 6 shows the dramatic rise in ambulatory visits to the Las-Cahobas primary heath clinic since implementing the four pillars; staff there now routinely see more than 300 patients per day. Tuberculosis diagnoses (Figure 7) display a rapid rise, peaking in December 2002, demonstrating the "first pass effect" of tuberculosis case finding in endemic regions that previously had limited or no access to care. Routine screening for all symptomatic patients, with smear microscopy and chest radiography, are now central to the services offered in LasCahobas. Prenatal care, not offered in the clinic prior to scale-up, has seen a similarly dramatic rise (Figure 8) since HIV prevention and care have been integrated into the primary health services offered in the town. Even vaccinations, ostensibly unrelated to HIV, have become more readily available through the LasCahobas clinic: Figure 9 shows the secular trend in vaccinations performed in the course of clinic operations.

figure 8

Prenatal Care Visits, July 2002–December 2003

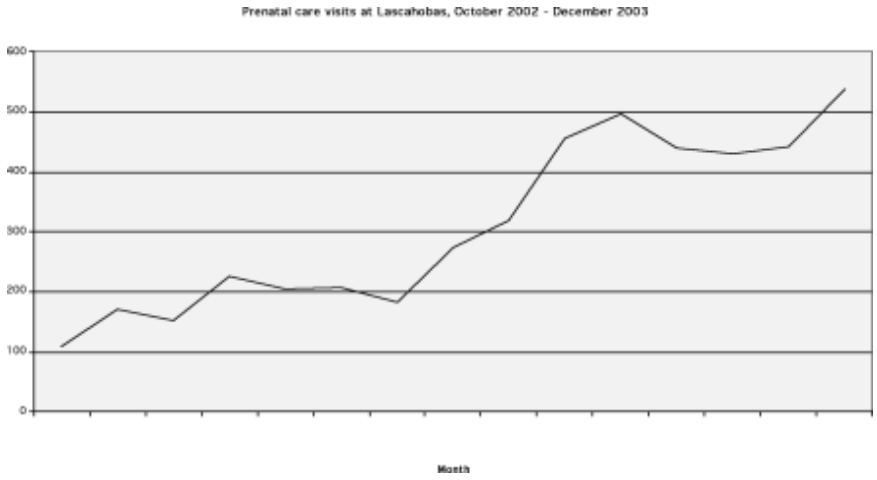
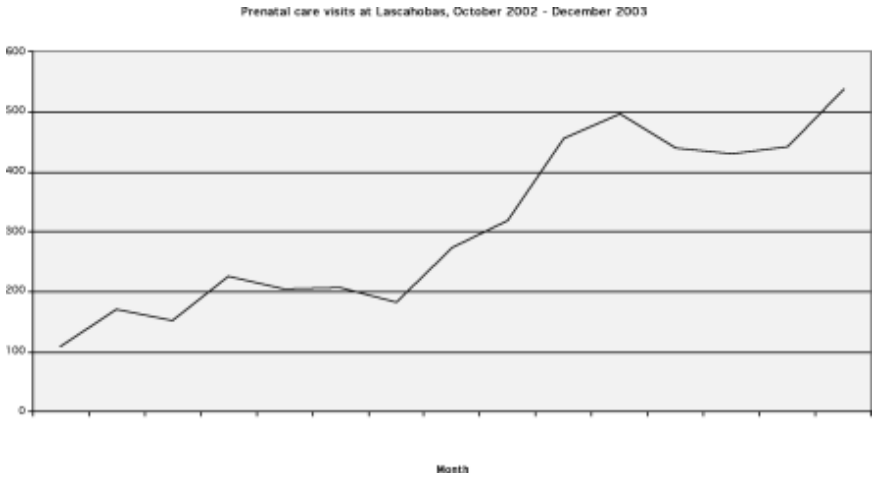


figure 9

Vaccine Administration, January 2003–November 2003



Less easily quantified results include, as in Cange, improved staff morale and greater community participation. Both are indispensable to the success of primary health care. The lessons of scale-up have shown us that improving AIDS care, far from diverting resources, has

in fact strengthened primary health care throughout Haiti's lower central plateau.

discussion: epidemic disease and primary health care

In April 2003, with monies from the Global Fund to Fight AIDS, Tuberculosis, and Malaria, the Partners In Health/Zanmi Lasante team set out to replicate this experience in three other large towns across rural Haiti. In each setting, the Partners In Health/Zanmi Lasante team has chosen to work with understaffed and underfunded public clinics, and believe that such public-private partnerships are central to rebuilding dilapidated and underfunded public health infrastructure. In each setting, we integrated the "four pillars" of such a program: linking quality AIDS care, including antiretroviral therapy for those with advanced disease, to AIDS prevention efforts; aggressive case finding and supervised treatment of tuberculosis, the leading opportunistic infection in Haiti; aggressive case finding and algorithmic treatment of all sexually transmitted infections; and improved women's health services. In each setting, we have relied on village health workers, rather than physicians or nurses, to provide the bulk of care.

With a modicum of technical and financial assistance, implementing the four pillars is within the reach of many institutions, including Ministries of Health and non-governmental organizations now operating in the heavily HIV-burdened regions of Africa and Latin America. Our own experience leads us to believe that each of these pillars is a necessary component of a robust AIDS prevention-and-care program. Just as AIDS prevention is hampered by a lack of AIDS care, so too will such a program fail if tuberculosis is the leading opportunistic infection but does not figure in the planning of those designing AIDS interventions. Similarly, a prenatal care program that offers only voluntary counseling and testing and prevention of mother-to-child transmission of HIV but is unable to treat mothers with advanced HIV disease will soon find itself attending to many young HIV-negative orphans, and many pregnant women will decline testing in the absence of treatment. Because untreated sexually transmitted infections can enhance transmission of HIV (40,41), it is important that AIDS programs be prepared to diagnose, treat, and prevent all sexually transmitted infections.

Lessons learned in attempting to respond to another chronic infectious disease afflicting the poor disproportionately, tuberculosis, offer insights regarding the synergy between AIDS programs and primary health care. These lessons include, first, the integration of prevention and care activities. The prevention of tuberculosis is no longer based on sequestering people for years in sanatoria; rather, prevention is based on prompt diagnosis and ambulatory treatment, because an effectively treated patient is no longer infectious (42). This insight has relevance even for a sexually transmitted pathogen: in rural Haiti, we soon discovered that improving HIV care helped to destigmatize what had been considered a fatal and "untreatable" disease—untreatable because of the poverty of the patients. Since the introduction to central Haiti of antiretroviral therapy and community-based care, we have seen an enormous increase in demand for voluntary counseling and testing. Now, of course, the majority of these tests are negative, affording health care workers a chance to do a better job preventing new infections. Research from Uganda suggests that the risk of transmission between serodiscordant couples varies with viral load (43). It is not unreasonable to argue that those with undetectable viral loads—again, effectively treated patients—are less infectious (44). In our programs, people receiving antiretroviral therapy have daily contact with an *accompagnateur* and monthly contact with clinic staff. Such exchanges afford all involved, including those living with HIV, a chance to work harder on secondary prevention.

A second lesson from tuberculosis control concerns the delivery of care. Evidence from across the globe suggests that the most successful tuberculosis treatment outcomes are seen when supervised community-based care is offered to patients (45). In rural Haiti, *accompagnateurs* began supervising therapy for tuberculosis in 1988 and soon saw the end of deaths from that disease. A decade later, the *accompagnateurs* added antiretrovirals to their armamentarium, providing essentially the same services for a different disease. Village health workers also serve as a vital link between village and clinic, and help attend to the pressing social problems that the majority of our patients face. Although this approach was pioneered in rural Haiti, it was exported successfully to a slum in Peru (46) and more recently to poor neighborhoods in Siberia and in Boston. Our experience in very different settings permits us to argue that this model

may be adapted widely. *Accompagnateurs* can serve as the chief purveyors of primary health care services in resource-poor settings (47).

Third, AIDS prevention and care need to be seen as a "public good" (48). Tuberculosis is again paradigmatic: an airborne disease, tuberculosis has long been considered a public health responsibility. Throughout the world, the most successful tuberculosis control programs, regardless of funding, are public ones, where services are provided to all those who might benefit from them, regardless of social standing or ability to pay. AIDS prevention and care should be considered a public good for many reasons, the most important being that HIV kills more young adults than any other single pathogen. In many of the countries most beleaguered by AIDS, there is no longer the capacity, financial or infrastructural, to confront this pandemic with public funds. But the answer in these instances is not to further privatize these efforts; the answer is to reinforce or rebuild public infrastructures and to do what it takes to make sure that populations in need have access to both prevention and treatment (49). In a place like rural Haiti, this means that the cost of care cannot be borne by the patients. Slowing the pandemic, and stopping senseless deaths, requires that public-private partnerships make resources available in the poorest and most heavily burdened regions. Such transfers of wealth are not only possible, they are necessary if we are to break the cycle of poverty and disease. This was the spirit in which primary health care was advanced in 1978 as a central goal of public health.

Fourth, and perhaps most significantly, good AIDS prevention and care does not drain resources away from primary health care. On the contrary, our experience in central Haiti suggests just the opposite. Writing of this experience, Muhkerjee notes that "providing a comprehensive HIV-1 treatment program has necessitated revitalizing the public health infrastructure, and improving the delivery of essentials, such as vaccinations, sanitation, and clean water" (50). To the degree that public health goals proved to support, rather than exclude, each other, the rhetoric of "limited resources" and "cost-efficiency" begs for reexamination.

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ABSTRACT

Three decades ago, the world's ministries of health declared primary health care—the delivery of basic preventive and curative services—a top priority. Since then, however, the world's poorest countries have not met most primary health care goals. Twenty-six years after the Declaration of Alma Ata, we are said to be living in a time of "limited resources," a phrase that construes various health interventions as competing priorities. As HIV has become the leading infectious cause of adult death in much of the world, it is difficult to argue that AIDS prevention and care are not ranking priorities

for primary health care, yet precisely such arguments have held sway among international health policy makers. We present new information emerging from the scale-up of an established and integrated AIDS prevention-and-care program, based initially in a squatter settlement in central Haiti, to a second site in rural Haiti. The program includes robust prevention efforts as well as community-based therapy for advanced AIDS; three related components—women's health and active case finding and therapy for tuberculosis and sexually transmitted infections—were central to this effort. We tracked changes in key indices over the 14 months following the introduction of these services to a public clinic in central Haiti. We found that integrated AIDS prevention and care, including the use of antiretroviral agents, to be feasible in resource-poor settings and that such efforts may have favorable and readily measured impact on a number of primary health care goals, including vaccination, family planning, tuberculosis case finding and cure, and health promotion. Other collateral benefits, though less readily measured, include improved staff morale and enhanced confidence in public health and medicine. We conclude that improving AIDS prevention and treatment can help to reinvigorate flagging efforts to promote universal primary health care.

Key words: HIV, AIDS, primary health care, global health equity