Migrant TB Treatment in Haiti Resulting in U.S. Policy Change at Guantánamo Bay, Cuba[1]

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Because of Haiti's poverty and poor health infrastructure, together with the global emergence of drug-resistant tuberculosis (TB), questions were raised about the U.S. military's practice of returning Haitian migrants with active noninfectious tuberculosis (TB) to Haiti. As a result, the pilot study reported here assessed the TB treatment completion rate of 38 Haitians (24 with TB and 14 contacts) who voluntarily requested repatriation from Guantánamo Bay (GTMO), Cuba, in November 1994.

Six weeks after repatriation, four of the study subjects had been lost to follow-up, 18 had received follow-up treatment, and 16 were delinquent in receiving treatment. The reasons given for failing to get treatment varied: 7 (21% of the 34 followed) were asked to pay for clinic visits, leaving them without medication; 5 (15%) were asked to return at a later date; and 4 (11%) had not sought treatment. A second follow-up visit five months later failed to locate three additional subjects. Of the 31 followed, 17 (55%) completed chemotherapy, while the remaining 14 (45%) discontinued treatment two to three months prior to the completion date despite extensive education and a promised monetary reward. On the basis of these findings it was strongly recommended that migrants with TB remain at Guantánamo until their treatment completion date, a recommendation that was adopted.

Political turmoil and instability contributed to a major population exodus from Haiti in June of 1994. Approximately 15 000 Haitians reached international waters, only to be intercepted by the United States Coast Guard and taken to the Guantánamo Bay (GTMO) Naval Base, Cuba. While in detention camps, an estimated 130 Haitians were diagnosed with presumptive pulmonary tuberculosis (TB) based on abnormal chest radiography and sputum cultures. One hundred and twenty close family members were PPD reactive (>10 mm).[3] It was the U.S. military's intention to repatriate these migrants to Haiti while they were receiving chemotherapy treatment.

In view of Haiti's poverty, the nation's poor health infrastructure, and the global emergence of drug-resistant tuberculosis, the efficacy of such a move was questioned on the grounds that the migrants might not continue TB therapy after returning to Haiti.

It is widely acknowledged that Haiti's TB program does not function adequately and that TB is the leading cause of death among rural Haitian adults (*1*). At the Albert Schweitzer Hospital, a large referral hospital in central rural Haiti, TB consistently claimed three to four times as many lives in the early 1990s among patients 15–49 years old than did the next

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[3] Rose Anne C. LaBarre, M.D., United States Air Force Medical Corps, personal communication, 1995.

Table 1. Age and sex of the 38 repatriated Haitians.

Age group (in years)	Females		Males	
	Cases	Contacts	Cases	Contacts
0–4	—	4	1	2
5–9	1	—	—	—
10–19	1	—	—	1
20–29	1	1	8	3
30–39	2	1	8	1
40–49	1	—	1	1
Total	6	6	18	8

most common diagnosis.[4] Screening for active TB among Haitian males (most of them young) at GTMO indicated a prevalence of 3.1% (2).

Infection with the human immunodeficiency virus (HIV) is a cofactor contributing to increased TB prevalence in both developing and industrialized countries (3). Recent reviews of the relationship between tuberculosis and HIV (4–7) suggest that as many as 30% of all HIV-infected individuals progress to active TB. Long et al. (8) found that 24% of a group of rural Haitian adults with active TB were HIV-infected. At GTMO, the prevalence of HIV infection among migrants with active TB was 10.1%.[3]

Haiti's high prevalence of multiple drug-resistant TB was another factor increasing the chances of TB treatment failure. Malone et al. (2) reported 22% TB resistance to at least one of the drugs tested among the first wave of Haitians at GTMO in 1991–1992. Among the second wave of Haitians in 1994, an estimated 20% of those with TB exhibited resistance to INH, while 1–2% showed resistance to three or more drugs.[3] Similar drug resistance within Haiti has been reported by Pitchenik et al. (9) and Scalcini et al. (10).

[4] Hospital Albert Schweitzer, annual reports of 1991, 1992, and 1993. Deschapelles, Haiti.

The aim of the study reported here was to assess the TB treatment completion rate of 38 migrants with active noninfectious TB and their contacts following the migrants' repatriation to Haiti.

METHODS

In November 1994, 24 migrants with active noninfectious TB and 14 of their contacts volunteered for repatriation to Haiti (Table 1). Two follow-up visits were planned, the first taking place between 4 and 11 December 1994, some time after repatriation, and the second occurring in June of the same year—after all the migrants were to have completed their chemotherapy. The findings of this pilot study were to be used by the U.S. State Department and U.S. military authorities to determine whether migrants with TB should remain at GTMO until their treatment completion date or whether Haiti's health infrastructure was adequate for the purpose of providing follow-up treatment.

TB diagnosis at GTMO was based on chest radiography screening results that suggested active TB. Three sputum samples from each positive screening subject were then evaluated for acid-fast bacilli by Kinyoun stain and culture. Testing for susceptibility to rifampicin, isoniazid, streptomycin, para-aminosalicylic acid, kanamycin, ethionamide, and ethambutol was

performed on culture isolates by the proportional growth method using solid Middlebrook 7H–10 media at the Naval Hospital in Portsmouth, Virginia. Neither sputum induction techniques nor bronchoscopy were available. Serologic testing for HIV was performed on all presumptive TB-positive migrants.[3] Respiratory isolation was a requirement for all migrants until they were found to be noninfectious.

The treatment protocol for active TB at GTMO consisted of DOT (direct observation treatment) using standard doses (*11*) of rifampicin (RIF), isoniazid (INH), pyrazinamide (PZA), and ethambutol (ETM) three times a week over a period of six months for HIV-negative migrants and nine months for those who were HIV-positive. TB contacts received INH DOT three times a week.

Before departure, each migrant in the study group (or the migrant's parents if the migrant was a child) was given the name of the clinic nearest to his or her stated return address in Haiti together with medical records, X-rays, a letter of introduction to the clinic, a one-month supply of TB medication, and rice and beans. Based on information gathered by the author during a prior fact-finding mission to Port-au-Prince, the study participants were informed that free TB treatment and medication were available throughout Haiti as well as supplemental food (usually rice, beans, and/or oil). The author also promised each participant US$ 10.00 if the prescribed treatment protocol was completed.

Education sessions dealing with TB and the importance of follow-up treatment preceded repatriation. Bus fares were given to migrants as they disembarked in Port-au-Prince, and military vehicles provided transportation to the bus station. Twenty-seven (71%) of the migrants returned to the southern peninsula and eleven (29%) to central Haiti.

The follow-up visits were accomplished in rugged terrain using a four-wheel drive vehicle that averaged 10–15 miles a day over the course of a 12–14 hour work day. When the first visit was conducted, all the study participants except those lost to follow-up were contacted personally. However, the second follow-up visit was carried out during the rainy season, when washed-out roads made it impossible to reach everyone. Therefore, clinic records were used instead.

In Haiti, the Pan American Health Organization (PAHO) recommends a TB drug treatment protocol that consists of two phases: In the first phase rifampicin, isoniazid, pyrazinamide, and ethambutol are taken daily; the phase is not completed until 60 doses are administered. During the second phase rifampicin and isoniazid are taken twice a week; this phase is not completed until 40 doses are administered (*12*). All of the TB medications received by the study participants were supplied from Port-au-Prince.

RESULTS

The First Follow-up Visit

During the first follow-up visit, conducted in December 1994, it was generally more difficult to locate migrants in the cities than in the rural areas. Most (80%) of the given addresses in Port-au-Prince proved incorrect, as compared to 16% in the rural areas. Four study participants with TB, two of whom were HIV-infected, were lost to follow-up.

The results of the first visit indicated that six weeks after repatriation, 18 of the study subjects (53% of those visited) had received some sort of follow-up treatment within 10 days of the visit, while 16 (47%) had gone without TB medication for more than 10 days. Reasons for the lack of treatment varied. Contrary to PAHO's assurance that TB treatment and medication were free in Haiti, seven of the latter 16 participants were asked to pay for their clinic visits, leav-

ing them without medication; five attempted follow-up treatment but were asked to return at a later date; and four had not visited the clinic at all.

The more isolated the clinics, the less likely they were to have adequate anti-TB drugs available. One rural clinic had no rifampicin available, and all other drugs were in low supply. Another clinic had no medication at all, and a third was very low on all drugs.

In addition, the drug regimens administered varied from clinic to clinic. A fifth of the clinics employed the aforementioned four-drug regimen for patients five months into their treatment, while other clinics followed PAHO's second-phase protocol.

The Second Follow-up Visit

During the second follow-up visit, conducted in June 1995, it was generally less difficult to locate study participants or appropriate records at health clinics. However, poor road conditions prevented contact with two participants in the mountainous southern peninsula, and one Port-au-Prince individual could not be reached after three home visits, reducing the total number of study subjects followed to 31.

Seventeen (55%) of the 31 subjects followed (10 with TB cases and seven contacts) completed treatment, receiving free medication and free clinic access. All of the clinics involved in treating these subjects were using PAHO's recommended second-phase treatment protocol. In contrast to the first visit, all of these clinics reported having an adequate supply of TB medication but no supplementary food. The remaining 14 (45%) of the 31 subjects (seven with TB cases and seven contacts) discontinued treatment two to three months before their scheduled completion date, despite extensive education concerning the importance of follow-up treatment and the aforementioned monetary incentive.

DISCUSSION AND RECOMMENDATIONS

This study provided a basis for useful observations despite the small numbers of participants involved. Among them:

(a) The study participants' immediate concern after returning to Haiti was survival rather than TB treatment. Before leaving Haiti, all had disposed of their property to buy a passage to the U.S., only to return to absolute poverty with no prospects of employment. Therefore, supplementary food became an important motivator for seeking TB follow-up treatment. When it was not available, despite prior assurance by Port-au-Prince organizations that nutrition clinics could be accessed by TB patients throughout Haiti, migrants expressed their frustration and resignation. Hunger became their chief complaint. Chemotherapy treatment without adequate food also tended to cause adverse gastrointestinal side-effects—resulting in discontinuation of medication in some cases.

(b) Successful treatment appeared strongly related to access. Migrants who completed TB chemotherapy lived within a short walking distance of their village clinics. If the clinic were found closed one week, it apparently did not require too much effort to return the following week. The US$ 10 monetary reward promised for completion of treatment appeared to serve as a motivator.

In contrast, delinquent migrants tended to reside in isolated rural areas; and rural health care was delivered from widely scattered, poorly equipped dispensaries. In addition, most rural dwellers found accessibility restricted by lack of transportation, rugged isolation, and lengthy treatment waiting times. Typically, a patient would walk all day to reach the clinic, then stay overnight in the area before returning home the next day. Consequently, the circumstance of a clinic being closed or without

medication significantly reduced the likelihood of a repeat visit.

(c) Clinics that lacked medicine tended to be the most isolated and farthest from Port-au-Prince. Clinics on or near the main highway were more likely to have received supplies. This was largely because a severe gasoline shortage, resulting from the extended economic embargo, had halted much of Haiti's transportation for several years. Six months after the economic embargo was lifted, it was found that the stock of TB medication in the isolated clinics had improved.

(d) The TB treatment completion rate for the general population was alarmingly low in the clinics visited. Review of dispensary data for all patients indicated that several clinics along the southern coast which did not provide supplementary food with their TB treatments had reported an estimated 10% treatment completion rate for the several years preceding 1995, based on a monthly average of 50–55 TB patients. In contrast, an isolated nongovernment clinic with similar patient numbers increased its treatment completion rate to approximately 85% after it implemented a supplementary food program (personal observation, 1995). Since poverty and hunger are two of Haiti's most severe chronic problems, supplementary food programs tend to become doubly effective adjuncts to TB therapy.

(e) All seven subjects lost to follow-up were young men diagnosed with active TB, four of whom were HIV-infected. Whether treatment was continued after their return to Haiti may never be determined. According to Adrien et al. (*13*), HIV-infected Haitians tend to face social discrimination. Another factor that may have contributed to treatment dropout or discontinuation was an overall improvement in physical well-being after a three to four month nutrition and chemotherapy regimen at GTMO, which could have decreased some subjects' motivation to continue.

(f) In view of Haiti's high TB and HIV prevalences, its national TB program needs reevaluation directed at the goal of designing and implementing a plan to increase the rates of early diagnosis, treatment compliance, and cure. In 1976 Wiese (*14*) reported that 75% of all study subjects in a large southern Haitian town had abandoned treatment within 6 months of diagnosis, and that more than 93% had done so within a year. As of 1995, little appeared to have changed.

Several treatment models could serve as examples if adequate resources were available to organize and supervise the program. Haiti's Albert Schweitzer Hospital uses former TB patients to deliver DOT therapy and provides food as part of the therapy. As a result of this approach the TB cure rate has improved markedly.[5] In a similar vein, Farmer et al. (*1*) achieved high cure rates with a community-based TB control project in Haiti when the economic causes of TB were addressed by combining direct financial aid with a free treatment program. In this case hunger and poverty were found to be the prime factors responsible for treatment failure. The authors noted that "The relative insignificance of patients' understandings of etiology compared with access to financial aid is one marker of the primacy of economic considerations in impoverished settings."

Based on the pilot study reported here, the author strongly recommended that migrants with TB remain at GTMO until their treatment completion date, a policy that was adopted by the U.S. State Department and military authorities. This assured continued quality care for the more than 200 remaining TB patients and their contacts. The program included periodic sputum cultures, chest radiographs, blood tests to monitor drug levels, DOT, and adequate

[5] Personal communication, Drs. Gretchen and Warren Berggren, 1995.

food three times a day. The government is to be commended for the decision. Haiti has a potential for infecting U.S. soldiers and other members of the U.N. peacekeeping force with TB, contributing to the spread of TB in the U.S. as well as globally.

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