

Linking Resources for Antiretroviral Therapy Adherence

The Samastha Project in Karnataka, India



Courtesy of Herman Willems

Meeting of Samastha link workers, accredited social health activist, and Vimukthi supervisors in Bellary District.

A 10-year-old girl and several field workers are sitting in a room in the village of Kurugodu in the southwestern state of Karnataka, India. The girl looks happy and healthy. However, the small green booklet she carries shows that she is a child living with HIV. She is on antiretroviral therapy (ART) and outreach workers from Vimukthi, a nongovernmental organization (NGO) and partner in the Samastha project, have identified adherence problems. Because she accompanied her mother on a trip to a neighboring district and ran out of medication, the girl has missed her ART drugs for a number of weeks. The outreach workers are talking to her and her guardian to help determine the best way to get her back on treatment and avoid missing ART doses in the future.

Her situation is not unusual: adhering to long-term HIV care and ART is challenging for all people living with HIV (PLHIV). It is especially so for PLHIV in rural villages such as those in Kurugodu, which is about three hours away from the nearest HIV care and ART center. Though the number of ART centers in Karnataka has increased dramatically over the past years, such problems as transport and incomplete information remain obstacles to care for PLHIV, and many are lost to follow-up (LFU) after diagnosis. Those who drop out of care will not receive the care or treatment for which they are eligible. And those who are on ART may have adherence problems or may default, rendering them more likely to transmit HIV or become ill.

Keeping PLHIV adherent to treatment was a key goal of Samastha, a five-year project that was launched in January 2007 with support from the U.S. President's Emergency Plan for AIDS Relief through the U.S.

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Agency for International Development. Implemented through a consortium of international and Indian partner NGOs, including Vimukthi, Samastha sought to provide comprehensive HIV services in 12 high-prevalence rural districts and 3 urban centers in Karnataka, as well as 5 coastal districts in neighboring Andhra Pradesh. The project was designed to reduce the risk of HIV transmission among the most at risk populations, as well as vulnerable populations in rural areas, while building the capacity of existing health care institutions to provide quality HIV care, support, and treatment services (Karnataka Health Promotion Trust [KHPT] 2008) and to promote the utilization of these services by PLHIV.

Samastha used a number of innovative strategies to improve access and adherence to treatment, a particular challenge in rural areas. The project developed networks that helped government agencies and NGOs coordinate their work, which enhanced their capacity to recruit new patients, keep them in care, and monitor their status at the district level. Procedures developed by Samastha also helped HIV workers to track and retrieve patients who had been LFU, a difficult population in these remote areas.

Karnataka's Rural HIV Epidemic

A 2008-2009 survey estimated HIV prevalence in Karnataka's adult population at 0.63 percent, compared to 0.31 percent in India overall (National Institute of Medical Statistics and National AIDS Control Organization [NACO] 2010), while other studies document a high prevalence among certain populations, such as women in antenatal care (1.1 percent; National Institute of Health and Family Welfare and NACO 2007) or female sex workers (ranging between 9.5 to 34.2 percent by district;

Indian Council of Medical Research and Family Health International 2009).

The HIV epidemic in Karnataka has a strong rural component (Becker et al. 2007), driven by migratory labor and the availability of cash that attract commercial sex workers. In many parts of northern Karnataka, sex work in the context of the *Devadasi*¹ tradition is socially accepted (O'Neil et al. 2004). Devadasi female sex workers are more likely to work in rural areas compared to other female sex workers (Blanchard et al. 2005).

Samastha worked in several ways. The project trained, collaborated with, and coordinated existing community-based services (ASHA,² *anganwadi*,³ and auxiliary nurse midwives), government cadres and structures (such as the District AIDS Prevention and Control Unit [DAPCU] and integrated counseling and testing centers [ICTCs]), NGOs, and PLHIV networks. Samastha also provided preventive services directly and strategically deployed a number of trained outreach and link workers (see Box 1).

Implementation

Samastha developed a network in which trained workers, village health committees, government facilities, PLHIV networks, and participating NGOs collaborated to improve recruitment and retention

¹ Traditionally, Devadasi were girls who were dedicated to marriage to a god and were required to perform duties at temples. These duties commonly included sexual favors to priests and patrons of the temple. Over time the system has changed, but sexual exploitation of the Devadasi, especially those from lower castes and economically vulnerable families, is common (Halli et al. 2006).

² One of the key components of the National Rural Health Mission is to provide every village in the country with a trained female community health activist or accredited social health activist (ASHA). Selected from the village itself and accountable to it, the ASHA has been trained to work as an interface between the community and the public health system (National Rural Health Mission n.d.).

³ Government sponsored child- and mother-care center.

of PLHIV while strengthening and supporting their adherence to treatment.

Link Workers and Outreach Workers: Coordinating Treatment, Care, and Adherence

The “link worker” model was a central component of Samastha’s rural outreach. Link workers were PLHIV who were selected by Samastha from a small number of HIV-positive candidates proposed by their community; they received an allowance for their work. The link workers’ key tasks revolved around prevention, stigma reduction, and support for PLHIV that included adherence support to both treatment and care.

While link workers were recruited in rural high prevalence areas, Samastha supported HIV-positive outreach workers at community care centers and at integrated positive prevention and care drop-in centers. Outreach workers’ main task was to support PLHIV’s adherence to care and treatment. Community care centers are hospitals that provide inpatient and outpatient care for PLHIV, including ART. The community care center outreach workers operate in a 30 kilometer radius around the hospital. The drop-in centers were Samastha centers that initially provided non-ART care for PLHIV. As government facilities gradually increased their provision of clinical services for PLHIV, Samastha progressively shifted drop-in center focus to outreach. The drop-in center outreach workers have a strong link with the numerous ICTCs. This made the ICTCs into entry points for Samastha outreach services.

Samastha provided the outreach and link workers with a five-day induction training in mapping, micro-planning, the basics of HIV, sexually transmitted infections and HIV care, needs assessment, and counseling. The induction training was followed by three days of communication skills training. Link workers were also introduced to the concept of “shared confidentiality” (sharing medical information with family, health workers, and others as needed) and many received additional training packages.

Coordination: Over the course of the project, it became clear that numerous public, private, and community resources were available.

BOX 1. MAIN COMPONENTS OF SAMASTHA PROJECT IN SUPPORT OF ADHERENCE

1. Link workers and other outreach workers coordinate follow-up and tracing activities according to geographic areas
2. Community- and facility-based care for PLHIV
3. Detailed mapping, micro-planning, and home visits
4. Organizational capacity building and training of outreach workers
5. Support groups
6. Support to village health committees
7. Links to government programs
8. Facility-based adherence monitoring.

Scores of NGOs and local networks of PLHIV were working in rural areas; the government had strong programs, all providing community outreach services; and village-level organizations had access to certain local resources—but these organizations were not working together. Samastha worked with all of the local human resources and developed mechanisms to bring all players together, initially in two pilot districts, and expanded the model throughout the 12 Karnataka districts.

Ultimately, the link workers' coordinating role became a hallmark of Samastha's interventions in high prevalence rural areas. Link workers formed the essential connection between PLHIV, government and community structures, and HIV care and treatment services, commonly accompanying persons from their catchment area to these services.

Newly diagnosed clients who consented to shared confidentiality were connected at public ICTCs with link workers for community-based follow-up. Where possible, Samastha worked through pairs of link workers to enhance accessibility to both genders. A pair of link workers typically covered three to five villages. These workers followed all PLHIV in their catchment villages based on continually updated lists from the ICTC registers.

The link workers helped PLHIV connect with government and community agencies, kept track of adherence, provided home care, and performed numerous other tasks as necessary (see Box 2). To ensure quality and consistency, Samastha project supervisors—one for every 8 to 10 link workers—monitored the workers' activities. Supervisors also helped to plan activities, conduct village training, establish connections with resources such as the ICTCs and social welfare agencies, and collect basic statistics on the number of clients and visits to clients.

Home visits: Samastha provided home visits through three different cadres of field workers. Home visits to consenting PLHIV were a fundamental part of the link workers' follow-up. They maintained a set of maps of their catchment villages: a social map identifying formal and informal facilities and services in the village (Figure 1), and detailed maps indicating the houses of the different types of clients—PLHIV, orphans and vulnerable children, widows, female sex workers, pregnant women, and others (Figure 2). The maps were updated every quarter. PLHIV who feared HIV-related stigma, a significant issue in Karnataka, could also opt to meet the link workers at other locations. Those who refused home visits were mapped but not visited.

During visits, the workers checked the government-issued "Green Book" (the clinical log), discussed past and upcoming clinical appointments, and conducted and documented a pill count to check adherence. The pill count was instituted

BOX 2. LINK WORKERS' RESPONSIBILITIES

- Monitoring ART adherence
- Tracing missing and LFU clients
- Caring for orphans and vulnerable children
- Promoting positive prevention for people who tested positive for HIV
- Reducing stigma
- Linking PLHIV with government and other programs
- Liaising with ART centers
- Mobilizing community resources
- Providing home-based care
- Spearheading prevention activities at the community level.

mid-project because the previous approach, a three-day recall, appeared to be unreliable. The Samastha database, which collected information on all adherence assessments performed by link workers, showed that overall adherence was high: nearly all (95 percent) of over 24,000 PLHIV on ART who participated in the project showed good adherence (adherence greater than 95 percent).⁴ Another 2.7 percent had some adherence problems (80 to 95 percent), while 2.3 percent had poor adherence (less than 80 percent adherence). When link workers found inconsistent compliance with treatment, they provided extra counseling and helped clients identify ways to improve adherence.

Outreach workers' home visits largely focused on retrieving PLHIV who were missing or LFU. They did so in villages that were not covered by link workers and in urban areas where no link worker scheme was implemented. While both link workers and outreach workers would respond to adherence problems that were identified at the facility level, link workers would provide more continuous support through regular visits to homes of PLHIV.

The female sex worker peer educators were a third type of field worker that Samastha used. Their role in adherence support was similar to that of the outreach workers and link workers, but limited to the female sex worker community.

Documenting clinical care and compliance: Link workers documented their work systematically in handwritten registers. The registers record how long it took to get clients into the clinical care system after being diagnosed with HIV, when each client's last clinical visit took place, and when they last collected their antiretroviral drugs, among a string of other important facts about the medical follow-up for each patient.

⁴ However, accurate documentation of adherence proved problematic (see the "Challenges" section).

Figure 1. Social map of a participating village.

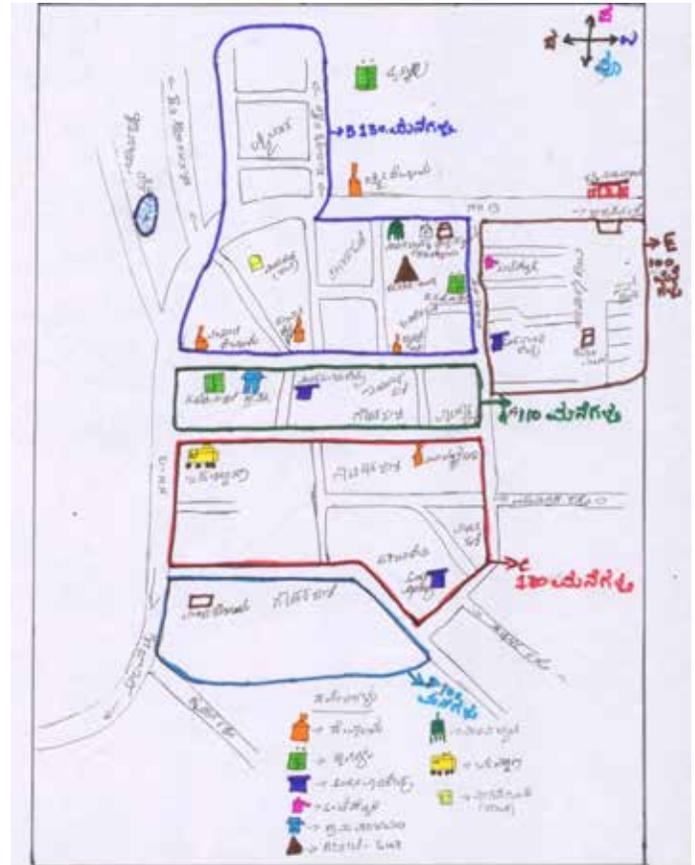
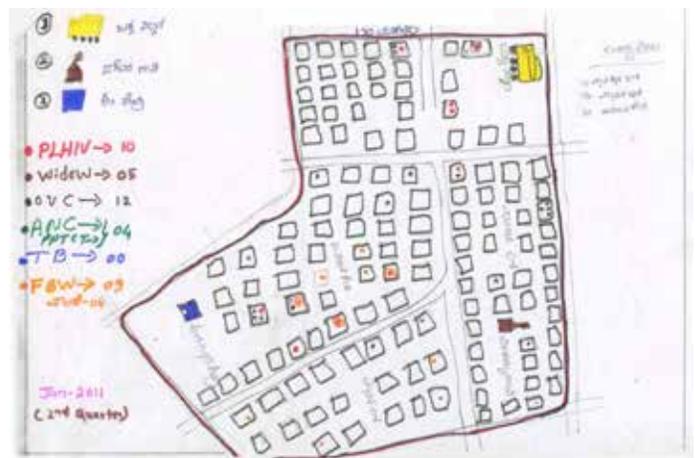


Figure 2. Detailed village map showing locations and types of Samastha clients.



From October 2009 to September 2010, over 350 Samastha link workers reached more than 45,000 PLHIV in the state of Karnataka (KHPT 2011a). The adherence of pre-ART clients—those who have been diagnosed but are not eligible for ART—was not monitored at all facilities. In such cases, link workers provided the only systematic monitoring of adherence to care.

Linking PLHIV with other services: Link workers commonly helped their clients obtain a food ration card or a widow's pension, arranged links to government agencies to ensure care for pregnant women, linked beneficiaries to the orphans and vulnerable children scheme of the Women and Child Welfare Department, and occasionally guided a client through the process of applying for government housing. Anecdotal responses from PLHIV suggested that assistance such as this indirectly supported their adherence to treatment.

Establishing support groups: Samastha helped PLHIV improve their own lives by establishing support groups, often with help from government or community workers or from NGOs (thus helping to build the NGOs' capacity as well). Support groups can help PLHIV regain self-esteem and confidence.

Building Local Capacity to Provide HIV Treatment

Samastha's capacity building efforts helped to establish and scale-up a network of lower-level centers for HIV care in Karnataka. Initially ART was provided by government ART centers at the district level. By the end of 2010, Samastha had conducted basic six-day training sessions for 359 clinical staff members from both private and government institutions, many of whom went on to benefit from clinical mentorship or practice at learning sites

that were organized by Samastha (KHPT 2011b). ART adherence is one of the areas that were covered in detail during this training. Samastha's capacity building has provided strong support for the establishment of 93 link ART centers during the life of the project. These centers are located in taluka (subdistrict) hospitals and continue ART for patients who are stable and have no adherence problems. Thus, the link ART centers bring ART closer to patients and provide an incentive for good adherence.

Supporting Adherence through Village Health Committees

Link workers were assisted in their work by village health and sanitation committees made up of community leaders, representatives from community-based organizations, NGOs, disadvantaged communities, other community representatives, and village health workers. Samastha's link workers initiated community discussion to improve understanding of HIV and provided a monthly report to the committee on the latest HIV statistics, PLHIV needing support, adherence problems, and other issues.

Link workers approached the village health and sanitation committee as needed to obtain support for PLHIV. For example, the committee might pay bus fare or school fees, or provide food support. Funding was provided by the village's cooperative society, which gathers financial support from business people, wealthier villagers, and neighboring industries; this funding has enabled some villages to maintain successful activities beyond the end of the projects that initiated them. The visibility of Samastha's link workers, and their efforts to combat HIV-related stigma, probably contributed to the growing number of village-

initiated volunteer activities that directly or indirectly support PLHIV adherence. In one village, some of the students who owned scooters agreed with the village health and sanitation committee to provide PLHIV with transport to the ART center, and in another, a private bus company provided free transport to PLHIV. Initiatives like these that emerge spontaneously are among the most likely to be sustained.

Facility-based Adherence Monitoring

While link workers maintained contact with their clients and supported their adherence through community-based initiatives, ART center and ICTC staff systematically monitored adherence at the institutional level. Ensuring adherence entailed not only helping clients stay with their medication regime, but also finding and recovering those who were “missing” (missed a scheduled appointment fewer than 90 days ago) or LFU (have not returned since missing an appointment more than 90 days ago). A major innovation by Samastha was to have the medical staff of DAPCU, the key government agency for HIV-related activities in Karnataka, take on a central coordinating role in the identification and recovery of these clients.

DAPCU relied on a three-level tracking system implemented at ART centers. In these centers, daily adherence monitoring and support were routine. Each day, pharmacists kept track of expected ART clients who did not show up to receive their pills. At ART centers, counselors tracked patients’ compliance with their clinical visit schedule, and laboratory technicians did a similar exercise for pre-ART clients with a CD4 count < 350 cells/mm³. The result was a series of “due lists” for people who were scheduled to come in for a clinical visit, receive ART, or check CD4 counts. On a third level,

the registration of newly diagnosed PLHIV at the ART center was tracked. As clients were contacted by phone and came back for follow-up, or did not return, the lists were adapted.

Once a month these lists of missing and LFU clients, including newly diagnosed, pre-ART, and ART, were discussed at a meeting at the DAPCU office of each participating district. Representatives from all organizations engaged in tracing missing clients attended these meetings. Participants separated into breakout groups to discuss the lists from their geographic region, sort data, and compare lists (see Figure 3). The result of each meeting was a series of clean and corrected lists that were handed out to participating organizations based on where they worked. Together with the DAPCU, Samastha carefully coordinated complete geographic coverage of a district. Typically, Samastha link workers would trace missing and LFU clients in the villages under their responsibility while outreach workers based at community care centers and ICTCs covered the area around their center. NGOs, PLHIV networks, and drop-in centers (places where PLHIV can meet and receive psychosocial support, usually managed by PLHIV networks) would ensure coverage of those areas that were not serviced by Samastha and that were too far from community care centers or ICTCs. Participating organizations paid their own costs for tracing defaulters, and most organizations incorporated this task in their daily work so that it did not require additional funding.

At the same meeting, participants discussed the outcome of efforts to recover missing and LFU clients identified during the previous month’s meeting, and checked to make sure that the lists also included the names of those who were diagnosed at the ICTC but did not register for ART services. New diagnoses were a problematic area where much LFU occurred. In some cases, link or outreach workers accompanied newly diagnosed

clients to the ART center so that they could be registered immediately. As a result, the proportion of newly diagnosed PLHIV who are registered at the ART center increased from 47 percent in 2007 to 98 percent in 2010 (NACO 2011). This improved linkage had the additional effect of strengthening ART centers and the counseling that PLHIV received.

This coordination among various actors during the monthly meetings at DAPCU was a major factor in Samastha's success in retaining or recovering PLHIV who were missing or LFU in this challenging rural area. At the start of the Samastha project, limited data were available on LFU clients. A vital element in Samastha's adherence efforts was to ensure that state-level agencies also understood the need for accurate data on missing and LFU clients. To this effect, project staff members collaborated with officials at the Karnataka State AIDS Prevention Society, who subsequently began to request district-level data on LFU clients from the DAPCUs. These requests spurred DAPCUs to improve and coordinate the collection and use of data on missing and LFU.

As a result, some districts were able to account for all of the PLHIV who had initiated ART since the beginning of the ART program. Verification of the missing and LFU client lists in various districts shows that most clients who had ever initiated ART were accounted for. They were categorized according to six categories (died, transferred out, stopped treatment, missing, LFU, and alive and on ART). The proportion of LFU clients reduced from 5.4% to 3.4% and has been stable over the past few years (NACO 2011).

The "transfer" category—meant to maintain coverage when a patient moved permanently or traveled temporarily to another district—proved more difficult. When a patient traveled to another district, a Samastha link worker helped write a



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Figure 3. Comparing the pharmacy and antiretroviral registers to clarify status of people living with HIV in Karnataka.

request for transfer and submitted this to the ART center, which issued a referral letter. However, it is clear that not all transfers worked well. Transfers across state borders posed more problems than those between districts within Karnataka—in the case of seasonal laborers for instance, who may migrate for three to six months at a time. Continuity of services for such cases still needs to be worked out.

Also, not all pre-ART clients are accounted for. For example, an estimated 3,500 to 4,000 pre-ART clients who initiated care prior to 2006, when the ART program began in Karnataka, were not accounted for in the district of Bagalkot (out of a total of more than 14,400 ever enrolled). Most of these were clients who were LFU between the start of the HIV program in 2002 and the start of the ART program in 2006. Until recently, pre-ART clients were only traced through the activities of the link workers and the integrated positive prevention and care drop-in center outreach workers. However, in 2010-2011, some ART centers started adding pre-ART clients with a CD4 count < 350 cells/mm³ to the list of clients to be traced.

What Worked Well

Linkages and local support for adherence: In many areas where Samastha worked, the linkages between PLHIV and existing government schemes were successful—though, unfortunately, their effect on adherence cannot be quantified. Nevertheless, it is likely that Samastha’s linking strategies contributed substantially to patient adherence to ART and care. The link workers’ activities also increased local understanding of HIV and helped to spur community initiatives to assist PLHIV, some of which directly supported adherence.

Improved documentation: The combination of Samastha’s efforts, including mapping villages, standardizing and coordinating documentation, and facilitating tracking, significantly improved the ability of government agencies and NGOs to identify, recover, and retain PLHIV who needed care and treatment.

Improved tracking: It seems clear that Samastha’s work significantly improved efforts to track down rural clients who needed HIV services and increased the capacity of PLHIV to adhere to their treatment regimes. Also, while the project linked PLHIV with various types of resources, the linkages maintained the confidentiality of PLHIV and, with few exceptions, facilitated communication of each patient’s wishes regarding contacts with support services.

Samastha may have influenced state-level statistics on LFU clients. During the project period, the number of people who were receiving ART increased from about 3,000 to over 83,000 statewide. In Karnataka overall, the proportion of PLHIV who were LFU began to decrease soon after Samastha started, dropping from 5.4 percent in spring 2008 to 3.4 percent in late 2010 (NACO 2011).

The state level, district, and visited ART centers reported stable numbers of LFU clients. This suggests that the majority of missing clients are being retrieved before they qualify as LFU.

Enhanced relationships and trust: Samastha built trust with ICTC counselors by referring clients to them, including pre- and postnatal women and their infants, and by organizing testing “camps” with ICTCs. Camps provided opportunities for ICTCs to educate and establish contacts with people who wanted testing, and enhanced the relationship between ICTC staff and communities. Finally, Samastha’s role in strengthening the connections between DAPCU and local NGOs helped to build trust and collaboration between government and community-based organizations at the district and state levels.

Challenges

Stigma: Though Samastha’s link workers improved local understanding of HIV, stigma remained a major challenge with particular relevance for adherence to treatment. While the proportion of people who provided the correct address for home visits increased considerably (from an estimated 10 percent at the start of the project to an estimated 30 to 40 percent in later years), a large number of people still did not want to be contacted at home. In other areas (e.g., Mysore rural), an estimated 70 percent provided the correct address, while in areas like Bagalkot, where KHPT had been active well before the start of the Samastha project, the proportion of PLHIV who were open to home visits was estimated at around 90 percent.

Expansion: District-level DAPCUs need support in managing and coordinating the activities that were implemented in Samastha-supported districts.

The large numbers of PLHIV who need follow-up, and the considerable number of local organizations whose activities need to be coordinated, make it very challenging for DAPCUs to expand this kind of program without intensive support. At the end of the project, Samastha used considerable resources for its activities in fewer than half of the districts in Karnataka. A wider scale-up would require additional resources.

Understanding adherence: Training link workers to recognize adherence problems was not always easy. Adherence issues are likely to be underestimated for several reasons. Samastha recognized that the three-day recall was not reliable and changed their assessment method. The pill count however, requires considerably more calculus skills and may cause a lack of confidence among link workers to use the method or to correctly assess adherence problems. Data from the link workers' adherence assessment show that almost 100 percent of their clients on ART achieve greater than 95 percent adherence. However, checks of the Green Books of clients encountered during village meetings (and comparing the dates of antiretroviral drug pickups with the number of tablets received) showed that roughly one out of six had adherence issues that would rate them below 95 percent adherence.

Recommendations

Samastha's multipronged approach to adherence monitoring and improvement is promising. The combination of interventions to prevent, identify, and remedy adherence problems has the potential for maximum impact. The scale at which Samastha implemented the interventions required the organization of a large support and supervision network, and the project showed that this can be done. The following are some recommendations to consider when implementing similar interventions.

Refine systems to safeguard confidentiality: Samastha link workers earned the confidence of ICTC counselors and other government HIV service providers through careful implementation of a well-designed system. Individuals' confidentiality requests should be carefully documented, communicated to all concerned, and respected. Programs should systematically look for any negative side effects of shared confidentiality, especially if it is extended to a wider cadre of health care workers.

Ensure adherence management at a sufficient level of authority: Intensive adherence monitoring work needs to be guided by a skilled manager who is capable of bringing all concerned parties together at regular intervals and motivate them to do a thorough review and compare lists of clients. In Karnataka, this task was taken on by the DAPCU directors, most of whom proved to have sufficient levels of authority to manage this process. Senior Samastha staff stressed that it is important that whoever takes on this coordinating role should have the authority to make the system work.

Develop adherence procedures for migratory PLHIV: Special attention may be required to guarantee continuity of services for migratory laborers, especially those who migrate for long periods of time and those who migrate across state borders.

Make sure that outreach workers can identify adherence problems: Supervision of link workers should regularly focus on adherence assessment. Supervisors can improve link workers' assessment skills by observing adherence assessments, double-checking the link worker's assessments, and performing assessments along with the link worker. Whenever link workers overestimate adherence or fail to recognize adherence problems, opportunities for patient education and adherence support are missed. ■

REFERENCES

Becker, M. L., B. M. Ramesh, R. G. Washington, S. Halli, J. F. Blanchard, and S. Moses. 2007. Prevalence and Determinants of HIV Infection in South India: A Heterogeneous, Rural Epidemic. *AIDS* 21:739–747.

Blanchard, J., J. O’Neil, B. M. Ramesh, P. Bhattacharjee, T. Orchard, and S. Moses. 2005. Understanding the Social and Cultural Contexts of Female Sex Workers in Karnataka, India: Implications for Prevention of HIV Infection. *The Journal of Infectious Diseases* 191(Suppl 1):S139–S146.

Halli, S. S., B. M. Ramesh, J. O’Neil, S. Moses, and J. F. Blanchard. 2006. The Role of Collectives in STI and HIV/AIDS Prevention Among Female Sex Workers in Karnataka, India. *AIDS Care* 18(7):739–749.

Indian Council of Medical Research and Family Health International. 2009. *India Integrated Behavioral and Biological Assessment, Round 1 (2005-2007), National Summary Report*. Pune, India: National AIDS Research Institute and Family Health International.

Karnataka Health Promotion Trust. 2008. “Our Projects.” Available at www.khpt.org/samastha.html (accessed June 2011)

Karnataka Health Promotion Trust. 2011a. *Annual Progress Report of Samastha Project, 2011*.

Karnataka Health Promotion Trust. 2011b. *Building Capacity for Sustainability: Capacity Development Strategy for Samastha’s Care and Support Initiatives*. Bangalore, India: KHPT.

National AIDS Control Organisation. 2011. *ART Scale up in Karnataka: Best Practice Document*. Bangalore, India: KHPT.

National Institute of Health and Family Welfare and National AIDS Control Organisation. 2007. *Annual HIV Sentinel Surveillance Country Report 2006*. New Delhi, India: NACO.

National Institute of Medical Statistics and National AIDS Control Organization. 2010. *Technical Report, India HIV Estimates*. Government of India.

National Rural Health Mission. n.d. Home Page. Available at <http://mohfw.nic.in/NRHM/asha.htm> (accessed January 2012)

O’Neil, J., T. Orchard, R. C. Swarankar, J. F. Blanchard, K. Gurav, and S. Moses. 2004. Dhandha, Dharma and Disease: Traditional Sex Work and HIV/AIDS in Rural India. *Social Science & Medicine* 59:851–860.

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