

A Protocol for Diagnosis, Care and Treatment of HIV, Hepatitis C and Tuberculosis in Residential Centers of Tehran, Iran

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Abstract

Background: People living in temporary residential centers such as camps and shelters for a short period of time (from one day up to 6 months) are more likely to be infected with HIV, Hepatitis B and C and Tuberculosis because of their high risk behaviours. Therefore, screening and identification of people with these diseases can help cure and prevent the spread of the said diseases in the society. These centers have made intermittent efforts to diagnose and treat their clients. However, to improve the services rendered to these people in the areas of HIV/AIDS, hepatitis C and tuberculosis, we have tried to establish an exhaustive unified protocol for these centers in order to be used as a guideline for diagnosis, treatment and care and follow-up upon the patients' discharge.

Methods: In order to implement the project with the aim of diagnosing and connecting to treatment, the centers first reported on the measures taken so far and interviews were conducted with the authorities, staff and clients of said centers. After reviewing the existing protocols at these centers, examining the strengths and weaknesses of the centers and the facilities and processes they use to diagnose, treat, and in particular to follow-up after the patient is discharged – to make sure the patients continue treatment and adhere to medications; training sessions were held at the centers whereby each of the administrative and health staff and clients were individually provided with the necessary training in prevention, diagnosis and treatment and they were assigned some tasks in line with the project objectives.

Results: Based on the training, we developed a model that identifies the role of everyone (client, administrative staff, health care personnel and physicians) in the process of the project and all of its different phases and stages which can be used as an unified and practical protocol at all of the target centers. In this model, the stages of diagnosis, screening, testing, accessing treatment clinics, receiving medication, how to use the medicines while staying in the centers, as well as follow-up and adherence to treatment up to one year after discharge were considered.

Conclusion: Due to the problems in the operating system of these centers, the protocol intended to not only make the diagnosis and treatment process more accurate but also pay close attention to adherence to the treatment and connection to the treatment centers and guidelines after the client is discharged.

Keywords: Hepatitis, HIV, Linkage, Protocol, Residential centers, Tuberculosis

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Introduction

A noticeable number of referrals to residential centers suffer from infectious diseases such as HIV, hepatitis B and C. Some people living with HIV (PLWH) who are on Antiretroviral Therapy (ART) may be concerned about discontinuation of their treatments during the time they stay in such facilities. All HIV-positive patients must be treated as soon as possible and regular intake of Antiretroviral (ARV) drugs plays a key role in controlling their condition and preventing HIV transmission to others (1).

Residential centers including addiction camps, shelters, dormitories, centers established under articles 15 and 16, Baharan and other harm reduction centres are temporary facilities in which homeless people or drug abusers are kept in Tehran for a short period (from one day up to 6 months) of treatment and rehabilitation. The priorities of these centres are helping addicts to quit and providing a safe shelter for those suffering homelessness, and sometimes for neglected ill people. Ill residents in these centers have various issues to take care including diagnostic tests, treatments, beds to sleep, unemployment, malnutrition, financial problems and mental health issues. They all need special counselling and supports. Basically, patients with pre-existing HIV or hepatitis C who are admitted in these centers need to give a full personal and medical history and to be medically examined (2,3).

These centers have the task of performing diagnostic tests, providing treatment in coordination with the counselling centers, conducting follow-up tests, and checking patients' treatment after discharge. Previous studies have shown that the rapid HIV and hepatitis C testing were not performed regularly, often due to inadequate number of kits. In addition, the evidence shows that almost no centers carry out the follow-ups after discharge, or if they do, it is only based on personal motivations, and not as a part of systematic approach (4).

It is believed that hepatitis C and Tuberculosis (TB) have been often neglected in these settings. Staff usually lacks the necessary knowledge and training for HIV, hepatitis C and TB. Many persons receive no incentive to continue their treatment while many of them suffer from depression and disappointment. In addition, their addresses and telephone numbers are constantly changing, making it difficult to access them after the

discharge. Access to their families is also difficult, and many have been rejected by their families (5-9). Therefore, the aim of this study was to prepare a protocol of diagnosis, care and treatment of HIV, hepatitis C and tuberculosis for both inside and outside the residential centers.

Materials and Methods

Sampling and choosing the participants

Random sampling is not the best research strategy in qualitative studies and makes it impossible to achieve goals and necessary information. This is exactly different from quantitative research. Accordingly, a purposive sampling method was applied in this research. An attempt was made to perform the sampling from diverse groups of people with experiences related to the main subject of the research who were employed or had responsibilities and different experiences. The heterogeneity of the subjects was provided by using this strategy. The studied community included 12 experts from AIDS control office, addiction office of Ministry of Health, Tehran University of Medical Sciences (TUMS), Tehran Municipality, Welfare Organization, temporary shelters, residential facilities, the center established under article no.16, camps and Drop-In-Centers (DICs) and three patients from the centers. Their comments were recorded through one Focus Group Discussion (FGD) and 10 interviews. These people were selected with the approval of the main study committee.

The FGD and interviews were conducted among 15 experts and key populations to investigate the research question. Since FGD benefits from a qualitative approach, a purposive sampling method was applied to recruit participants with enough related experiences. In the beginning of the FGD and interviews, the participants were asked to complete a demographic questionnaire. During the interview, the investigators, with the help of a trained facilitator, checked the accuracy of the participants' interpretations in some questions. In addition, the investigators carefully monitored non-verbal communications such as body language and facial expressions during the FGD and interviews. Participants were asked to clarify their remarks with examples, if necessary. The researchers recorded all the interviews and discussions with prior permission; the FGD and interviews were then transcribed accordingly. The main criteria for a qualitative research

are credibility, dependency, conformability, and transferability. To increase credibility of the study, 15 people were selected for doing FGD and interviews. In order to minimize dependency and prevent biases, more than one analyst encoded each transcript. In addition, the accuracy of the coded statements was evaluated, and confirmed by the participants. Conformability was increased by providing a clear description about the research path, allocating enough time to complete each step, using multiple data sources for better understanding of participants' statements, discussing the controversial data to reach a consensus, and asking the opinion of other experts. Transferability refers to the degree the results can be generalized to other contexts or settings; such FGD and interviews were analyzed by content analysis.

Results

Interviews with the patients

Generally, after diagnosis of the disease, they are treated with the help of a psychologist and staff of an assistance house (Madadsara) and they take medication during two or three months, and then go the Voluntary Counselling and Testing (VCT) center for further tests and taking medicine from there as well. The client should go to the VCT center himself to continue treatment. Follow-up for continuing treatment is not a service provided by this center. Based on previous experience, if the client fails to continue treatment, he will be followed up by the telephone number given to the counselling center. Clients are more likely to be followed through VCT centers. Since medication is important, follow-up should be at least once a month and should always give hope to the patient and provide appropriate advice to clients about using the medicines permanently. Factors affecting patients' follow-up include frustration with treatment, lack of awareness that discontinuation of medication can make the client worse, lack of money to travel to the VCT centers, and lack of one follow-up inside target centers. Patients' recommendation for follow-up after discharge is as follows: Providing useful information and training on diseases and their medical treatment, especially by trained peers, psychologist or clinician support, determination of a person for treatment, providing amenities, medicine, and food. Methadone also encourages the client to continue the treatment.

Interview with the experts

At DICs, part of the activities is group training in which a specialist teaches clients weekly about certain illnesses and life skills. Clients are partially familiar with these diseases and will be consulted before and after the test. If the test is positive, then the client should be referred to the VCT center for receiving treatment. In shelters, people are asked questions like this: During your visit, do you know the meaning of risky behaviour? And have you had risky behaviour throughout your life? And if they answered "yes", a rapid HIV test would be given. If the test is positive, they will be referred directly to the Positive Club. From now, they can no longer be tracked. In the camp, when a person quits the medicines, he is generally examined by a doctor. If symptoms of TB are present, they ignore them because they do not have the means to prevent contagion in the camp. There are no facilities for HIV testing in the camp, but they ask the individuals about HIV. The doctor and the psychologist also talk to the person if he has the disease to provide appropriate treatment for him. In fact, the patients are given medicine for their illness.

Clients of welfare house (Samansara) are collected through municipal patrols inside Tehran. The day after they enter into the center, the triple tests (HIV, hepatitis B, and hepatitis C) are taken. In the case of TB, according to the diagnosis of a physician or the self-help of the client, if a person is suspected of having tuberculosis, he would be treated with taking a sample of his sputum, taking a chest X ray, and PPD test. Clients with active TB are treated immediately. Except for three months in the past, no specific action was taken to treat hepatitis. In centers established under article 16, if the case is acute psychosis or open sores, they are not admitted. The rest of the centers do not admit HIV patients, but the center has done so and many letters have been sent to the Welfare Organization that these people should also be admitted. Regarding hepatitis C in the welfare house, in collaboration with a referral hospital and Tehran University of Medical Sciences, hepatitis C testing has been conducted recently (Approximately during the past 4 months). Clients are kept at the center and medication is given daily to the client and based on the doctor's discretion. In the case of tuberculosis, it is important to pay attention to the client's symptoms. If the person has active TB symptoms and is suspected of being ill, his sputum will be tested three times. In the case of

hepatitis C in the camp, clients are referred to a DIC where they are tested and treated for three to six months if the disease is present. There is no specific treatment for hepatitis in the welfare house, but only a brief consultation and medical advice on non-transmission of the disease will be provided. Post-discharge follow-up should be undertaken by VCT centers, as this is a specialized service and the staff at these centers are trained to do so. In general, the number of clients per year is not high enough until recruiting specialists in assistance and welfare houses. Only one of the camps stated that they would follow up HIV/AIDS cases after being discharged by the family's practical nurse and until about one year later.

Field visits of the residential centers

Visiting the assistance house

Upon admission of the clients, these new persons will be notified that HIV testing is available. A pre-test group counselling session is held. Volunteer clients say that they are ready and the test will be done. The psychologist is responsible for the experiment in the center. Whatever the outcome of the test, the consultation will be performed after the test. If the test results are positive (Identification has been made), referral to the health center (Aban Health Center) will be done for filing and receiving the medicines. The center tries to repeat the test for all clients at six-month intervals, but because of the lack of constant clients and the high turnover, they are not done for everyone. Within a year and a half, 19 people were diagnosed with HIV, about half of whom had a follow-up code and were available at the center. Assistance house makes good use of donations or even personal money from clients of assistance house and charges them for their travel. The health care practitioner is not concerned about the difficulties of the clients in reaching the health center, especially in case of homeless clients. They are often reluctant to file for them. It was suggested that they visit the "Khavaran health center" and carry out the testing and preparation of the case file. Follow-up after diagnosis of HIV, hepatitis, and TB was not performed for the following reasons: 1- Clients are homeless, have no family or supportive family, and are unable to communicate with the family, 2-Clients do not have a mobile phone or fixed telephone number, and 3-Clients have no hope of recovery and a tendency to HIV treatment. Clients' turnover is high and

they do not use a fixed center. The results of the tests shall be reported to the center. Clients are diagnosed with positive hepatitis C and are given medication. In less than a year, 133 tests were performed, 24 of which were positive. About half of them are currently undergoing the treatment. There is no specific action taken on TB. Disease detection and testing is not a priority of the assistance house which is run in the morning. Clients who do not come in the morning and only go to bed at night are excluded.

Visiting the addiction treatment centers established under article 16

On average, approximately 1,400 people are admitted to the center each year, and the length of stay of each client is 6 months, which, if initially accepted by the team, they are responsible to stay there and they cannot leave there except with judicial verdict. After 2 days, a rapid HIV test will be done for the clients and if positive, the person will be sent for the confirmatory testing. Otherwise, he will be referred to the VCT center, which, according to the director of the center, it has not been done since 2019. In fact, currently, clients whose rapid testing is positive until they are discharged (6 months) remain uncertain, and after being discharged, the patient is advised to undergo further testing at one of the nearby counselling centers. If the patient is already receiving ART, if they are on their own medication, they will be given daily by the practical nurse of the center. When the patient's medication is over, the patient's family should arrange for the individual's medication and take him to the counselling center where the patient's file is stored. For hepatitis C, no tests or services are provided and only the person's self-report and registration is sufficient. For suspected cases of TB, the health center also cooperates, and the patient's sputum sampling is performed at the camp supervised by a physician and a nurse.

Visiting the welfare house (Samansara)

Because the center has recently been moved from a place to another place, there is currently no specific work on HIV and hepatitis C at the center and only TB measures are taken. New clients' blood tests are taken to detect three viruses: hepatitis B, C, and HIV. Positive people will be sent to a health center for medical records and the medicines will be received which has not been effective so far! About hepatitis, hepatitis C screening

was offered at the university last year and treatment was performed. For TB, sputum samples were taken from clients by nurses and they were sent to the health center, but no evidence was found at the time of the visit!

Visiting drug addiction center

In general, no diagnostic tests for HIV and hepatitis C are performed at the time of patient admission. But if a person claims to have these diseases, while there is no obstacle to his admission, he is justified in taking care to prevent transmission and providing necessary explanations and training and maintaining his anonymity among other patients in that center. According to the camp officer and practical nurse at the center, if the patient is admitted with HIV for hospitalization, the patient will be given the same medication. However, if the medication is not available after the 28-day treatment period, his family is advised to refer the patient to a VCT center. Every once in a while, DICs affiliated with the “Rebirth center” and the doctors without borders come to the camp for HIV and hepatitis C testing and provide a range of services to patients admitted to the camp.

The diagnosis is usually confirmed by performing an ELISA test at the first visit in the medical centers, with no further follow-up for treatment. As of 2018, some operational actions have been introduced related to diagnosis, treatment and follow-up of these diseases (Hepatitis B, C, and HIV) at the health centers and the physicians and staff are trained regarding the rapid testing for primary diagnosis and urged to link the diagnosis to the care and treatment.

Suggestions on how to support the follow up and provide services

All participants emphasized special support for these patients and believed that these patients need a variety of services, both in terms of HIV infection and other problems such as employment, and nutrition.

Health services

It appeared that the defined process should be integrated to engage all the employees in the centers. For instance, the AIDS Control Office has recently recommended Dolutegravir for HIV⁺ patients due to its lower resistance which requires morning shift officials to follow the patient’s drug use.

Support services

Currently, it is recommended to accompany the identified patient to a VCT center. If patients cannot afford to visit the counselling centers, the municipality should be responsible to provide free public transport. Of course, this requires staff with appropriate attitude. Influential organizations and parties should be more involved in these areas to provide adequate support for these patients.

Providing wider social services

Target groups in the Narcotic Anonymous (NA) community and “Congress 60”, who have quitted drugs, can be provided with training and a rapid test to enhance the case detection in the community.

Useful information

Many participants found the information provided via brochure, phone calls, and counselling beneficial to linking these people to treatment; they include information such as the disease definition and nature, routes of transmission, medicines available to control the disease, and the information about the specialized centers operating in the field. This information could be provided in two ways:

Brochure: Information on disease treatment, availability of drugs, confidentiality of personal information and respecting privacy and dignity of the patients could be distributed by providing brochures.

Psychologist and clinician: The appropriate approach and attitude of the psychologist or clinician could create the trust required for an effective treatment adherence and secure the support network for patient and his family. “This strategy is more about psychological issues like having a psychologist talk to his patient to give him some peace of mind. It depends on the art of those who are trained to deal with that patient at the same stage and to say that the disease does not pose a particular risk to you and that you can continue your life as normal as you can if you start treatment early, so that they can get rid of that initial fear”

Being determined: The individual role is important for continuation of treatment. Ultimately, the individual is the key decision maker and will decide whether to pursue the treatment considering the fact that HIV is not like any other diseases such as common cold, and certainly no treatment could prevent many physical

and psychological injuries in the course of the disease progression.

“People cannot deceive themselves, whether they eventually get attached to a place to get help. Whether or not a person is given a test and attached to the treatment depends on whether or not he or she is taking the treatment after the test.”

You can also follow up and connect with the centers through appropriate, kind and gentle language, as well as through trained peers. “The strategies we have learned, with the language we know, link the person to the health centers. It is also very useful through health care providers.”

Discussion

1. Diagnosis services for HIV, hepatitis C and tuberculosis

The first step in implementing the linkage project is to raise the awareness of health and administrative staff, clients and assistants, for whom training sessions will be held at the above-mentioned accommodation centers.

- Details of the implementation of training classes for health workers of residential centers:

After coordinating with the residential centers, training courses on “HIV, hepatitis C and tuberculosis” are delivered by the project investigators at these centers.

The main topics of the training sessions are as follows:

- HIV transmission and prevention
- HIV testing in the residential centers
- Pre-and post-HIV counselling
- How to teach persons about HIV, hepatitis C and TB
- Diagnosis of hepatitis C and referral for the treatment
- ART and TB treatment
- Diagnosis of latent TB
- Post-discharge care guideline for TB patients according to the guidelines of Iranian Ministry of Health (MoH)
- Control of TB in the residential centers
- Early diagnosis of TB patients
- The systematic approach in TB treatment
- Proper follow up of TB patients
- Prevention of TB
- Tuberculosis screening when entering the center
- Diagnosis of HIV positive patients
- Diagnosis of patients in close contact with patients with sputum positive pulmonary TB
- Guidelines for treatment under direct observation

based on guidelines of Iranian Ministry of Health

- Follow up the suspected cases of TB

- Training for clients and assistants in the residential centers: These training sessions provide knowledge regarding the HIV risk factors such as history of injecting and unprotected heterosexual/homosexual intercourse and instruct the trainee on how to refer the individuals with mentioned risk factors for HIV testing. It also provides instruction on how to screen for hepatitis C and detect the symptoms of TB (Cough, hemoptysis, fever, night sweats and weight loss) and refer the patients to the physician at these centers. The trainees also learn how to track the patients in the follow-up for sputum testing and treatment. In addition, trainees learn how to fill out the related forms for finding the patients. The main topics of the training sessions for this target group are as follows:

- The importance of HIV, hepatitis C and TB in the residential centers
- HIV testing in the residential centers
- Diagnosis of hepatitis C
- Early diagnosis in patients with TB
- Prevention of TB
- How to provide treatment over the course of the disease

- Other staff: In this group, the staff are trained with a greater emphasis on working with health professionals to identify suspected HIV, hepatitis C and TB cases and to refer them for follow-up, treatment and hospitalization (If applicable). The following subjects will be briefly explained for them:

- The importance of HIV, hepatitis and TB in the residential centers
- HIV testing in the residential centers
- How to teach clients about HIV, hepatitis C and TB
- Hepatitis C diagnosis
- Prevention of TB
- Tuberculosis screening when entering the residential centers
- The process of identifying TB patients
- How to conduct direct observation of the treatment
- How to follow suspected TB cases in the residential centers
- Tuberculosis control in the residential centers.

- Center administrator: The purpose of the above training

sessions for health professionals, clients, assistants and administrative staff is explained and the importance of early detection and treatment of HIV, hepatitis C and TB in these centers is highlighted. Meanwhile, the issue of cost/cost-effectiveness of early diagnosis and treatment of patients is addressed. Finally, they are instructed to provide necessary assistance in referring the patients with suspected TB and HIV to the physician, as well as, if necessary, to undergo further testing or hospitalization. Further training sessions are delivered three times a week (Saturdays, Mondays and Wednesdays) by nurse/psychologist about TB and HIV for both health staff and clients. These sessions are mainly focused on the routes of HIV, hepatitis C and TB transmission, diagnosis, and prevention lasting for an hour, including half an hour of lectures and half an hour of question and answer. At the end of each session, a tutorial pamphlet for the clients/assistants is provided on above-mentioned topics.

The rapid HIV diagnostic testing (SD Bioline HIV-1/2 3.0 Kit, with sensitivity and specificity of 100% and 99.8%, respectively) and hepatitis C testing (SD Bioline HCV, with sensitivity and specificity of 100% and 99.4%, respectively) kits are used for early screening of new individuals by healthcare professionals. The instructions regarding the HIV, hepatitis C and TB screening are delivered three days a week (Saturdays, Mondays and Wednesdays) for almost an hour for clients. Thereafter, people with suspected symptoms of TB or willingness to undertake HIV and hepatitis C tests will be referred to the health professionals. A nurse records the names of people who are suspected of having TB or willing to undergo HIV or hepatitis C testing in a registration form on daily basis. In case of no suspected TB cases or a person willing to take HIV testing, zero is included in the form and returned to the center's officer.

There is also a training session for the health staff at the residential centers on rapid diagnostic testing of HIV and hepatitis C based on the Ministry of Health and Medical Education guidelines. These sessions include HIV and hepatitis C diagnostic testing methods, the benefits of using a rapid HIV and hepatitis diagnostic tool, applications of rapid diagnostics, general principles of kit use, kit selection, quality assurance of rapid diagnosis kit, rapid diagnostic test guideline, safety of kit contents, sample collection and maintenance, procedure, interpretation of results and application of

the control samples.

A rapid diagnostic HIV test is used to find the active patients and this will be the "start of voluntary HIV testing by service providers". In addition, a passive case finding, using the "Client Initiated Voluntary Testing" method will be implemented. In people suspected of tuberculosis and people referred to a physician for any reason having risk factors for HIV infection, the screening is carried out by "initiating a voluntary HIV test by service providers" method. Individuals who were missed to follow up due to discharge or unwillingness are also registered at the relevant forms.

Screening in the residential centers is very important. These are the places where the people with different risk factors for HIV, hepatitis C and TB are gathered and could be reached for active case programs. All residents could be screened for HIV, hepatitis, and pulmonary TB and those who are suspected of having a disease, could be offered treatment and support. HIV screening could be performed on client's request or among those with HIV risk factors such as the history of injecting drugs, unsafe sexual relations, and frequent blood transfusions. A sputum smear and radiography should be conducted for people with suspected TB symptom and referral of suspected cases should be done for further clinical evaluation. HIV testing is also recommended for those being screened for TB or for the individuals with HIV risk factors.

In order to accurately record the activities, a form titled "Finding HIV, Hepatitis C and Tuberculosis Patients Among New Entrants by Screening" is used in which the demographic information, tuberculosis, HIV and hepatitis C screening, diagnosis, and follow-up are recorded.

The principle of confidentiality is considered in HIV testing. This information including demographics, TB-related factors, HIV risk factors, test results, and referrals for tests are recorded in a list called "Rapid HIV Test, Hepatitis C and Tuberculosis in Residents". In case of negative test results, after rapid HIV testing, information on HIV transmission and prevention will be provided for the group. Individuals who are tested positive are individually counseled and followed up for the continued care. For individuals whose testing is uncertain, in addition to the necessary recommendations, a rapid test is performed after two months to determine if the person has been diagnosed with HIV in the center.

Quality control of rapid HIV testing kits is performed at the beginning of each week (Saturdays each week) using positive control and negative control materials according to the national guideline. Quantitative and qualitative control of sputum specimens (If necessary) is the responsibility of the nurse.

2. HIV and hepatitis C care services

People having HIV risk behaviours or willing to take the HIV test are first consulted. A rapid HIV is performed after obtaining informed consent. People taking HIV test are counselled once again after the test. Individuals tested positive on rapid HIV test are immediately referred for ELISA tests for definite diagnosis, and their primary tests such as CBC count, CD4 count, chest X-ray, PPD test, hepatitis B, C, VDRL and liver enzyme tests are performed.

Clients whose rapid hepatitis C testing is positive will be referred to hepatitis C counselling centers. Upon confirmation of diagnosis at these centers, they are referred to the relevant university by a letter from the Ministry of Health to initiate the treatment.

3. HIV and TB treatment services

ART and TB treatments are directly observed by the nurse. ART, hepatitis C (If possible) and TB medicines are provided monthly at the residential centers. The daily drug registration form is also designed to identify clients who are delayed or absent from treatment in the follow-up. Methadone is provided as an incentive for HIV positive patients.

4. Post-discharge follow-up

All clients with HIV, hepatitis C, and TB are followed up monthly for at least one year after the discharge. TB patients are referred to a health center nearby their home and encouraged to continue their treatment. The health center is also informed. The first step in pre-discharge is informing and training the client through multiple phone calls to ensure the client visits the health centers for continuing care and treatment.

Information for HIV⁺ patients is also provided for the client at VCT center near the client's house. The address and telephone number of the counselling centers are provided through the client's brochure. The Positive Club is also informed of the discharge. Based on person's will, his or her family is also informed to

follow up his/her care and treatment after the discharge. It is recommended to compensate for the commuting expenses through the Positive Club to encourage the patient to visit the counselling center or to provide a subway and bus card to facilitate travel with the assistance of the municipality. Tracking through the peers at the Positive Club is also a good model to follow the individual.

In the case of hepatitis C, patients are referred to the hepatitis C consultation center before discharge.

Providing services in the residential centers **A – Initial screening of suspected cases for HIV and hepatitis C**

- Identification of suspected cases of HIV and hepatitis C registration in relevant form are done by nurse. The nurse provides a list of suspected HIV and hepatitis C cases immediately after the shift is finished.
- The nurse lists the names and refers the patients for rapid HIV and hepatitis C testing.
- In case of negative test, group counselling is provided by the nurse.
- If the test is positive, the patient is referred to the physician:
 - The physician provides post-test counselling, confirmation of HIV and hepatitis C testing and patient care.
 - The phone number is received for follow-up after discharge and after the nurse is notified.
 - Follow-up appointment is scheduled after notifying the nurse.

B. How to continue the care for HIV and hepatitis C patients

- To continue the care for HIV and hepatitis patients, the nurse follows the individual by using usual prescription containing name, surname, father's name, and visit date of the individual. The nurse carries out the following activities:
 - Form a medical file in the centre.
 - Applies for receiving ART treatment
 - Requests initiation and continuation of prophylaxis with Cotrimoxazole
 - Requests follow-up inquiries.
 - Requests CD4 count.
 - Applies acid fast bacillus (AFB) if needed.
 - Requests sputum culture if needed.

- Applies for initiation and continuation of latent TB treatment.
- Requests supplemental tests such as PPD if needed.
- Refers hepatitis C patients to the counselling centers.
- The nurse provides the needed medication in coordination with the counselling center.
- Upon discharge, the nurse provides follow-up after discharge using the patient's telephone and information.

C. How to begin investigating suspected cases of TB in the initial screening:

- Identification of suspected cases of TB by a nurse and registration in the relevant form is done.
- The nurse delivers list of suspected cases of TB to the physician immediately after the shift is over.
- The nurse inserts names into a list and introduces the patients to the physician.
- If the doctor confirms the likelihood of TB, the patient is followed up with the usual prescription by recording information including name, surname, father's name, code and date of visit.
- A list of TB suspects is prepared by the nurse.
- The nurse requests for sputum.
- Sputum culture is done if required by the nurse.
- The nurse requests follow up of TB inquiries.
- The nurse requests chest radiography if needed.
- The nurse requests other tests like PPD if needed.
- The nurse requests a rapid HIV test.
- An appointment should be scheduled for a follow-up after the nurse is notified.

How to start investigating suspected TB cases:

- All cases reported by physicians or other health care workers as suspected of TB are examined by an attending physician, and if confirmed as probable case, the patient has to provide the identity information including name, surname, father's name and visit date. The physician could initiate the work-up for TB with sputum smear and/or chest radiography:
- A list of TB suspects is provided for the nurse.
- Sputum is provided for the nurse.
- Sputum culture is provided for the nurse if needed.
- Required follow up of TB is provided for the nurse if needed.
- Chest radiography is done if needed.
- Other tests like PPD are taken if needed.
- A rapid HIV test is done.

- An appointment for a follow-up is scheduled after the nurse is notified.

How to continue investigating suspected TB cases:

- Sputum results are tracked by the nurse.
- The physician is notified by phone about sputum-positive results.
- Sputum negative results are recorded by the nurse in the file.
- Results of rapid HIV testing are recorded by the nurse.
- If confirmed, the physician follows through with a regular prescription information containing name, surname, father's name, and visit date:
- The nurse should be informed regarding the type of TB and how to start treatment.
- The phone number of patient for follow-up should be listed after discharge after notifying the nurse.
- Follow-up appointment should be scheduled after notifying the nurse.

The physician does the following if the diagnosis of TB is not confirmed:

- Asks the nurse to exclude the patient from the list of TB suspects
- If the physician cannot confirm or rule out the TB, the patients are followed up using the identity information containing name, surname, father's name and appointment date on the standard prescription:
- The next appointment should be scheduled.
 - The nurse should be informed to keep the patient on the list of suspected TB cases.
 - Diagnostic measures should be followed.
 - The next follow-up appointment should be scheduled after notifying the nurse.

D- How to proceed with TB care:

- * The physician visits TB patients every month and follows up with the usual prescription, containing name, surname, father's name and date of appointment:
- The nurse should be informed about how to proceed.
- Sputum control should be done.
- Sputum results are recorded by the nurse in the patient's file or the sputum results registry.
- Additional tests should be done if needed.
- Follow-up appointment should be scheduled after notifying the nurse
- Termination of treatment should be announced by the nurse if needed.
- * If discharged, the nurse uses the patient's telephone

and informs the health center after the discharge.

* Clients dispatched during the admission, diagnosis, care and treatment are never removed from the lists and registries, but are reached at different times to return to the center.

Designing and piloting data collection forms, and checklists

Weekly meetings were held to prepare forms and checklists with the project researchers at the Iranian Research Center for HIV/AIDS (IRCHA). These forms were tested at the center established under article 16 over a four-week period and were improved according

to the objectives of the project, which are currently the following.

These forms and checklist are as follows:

- Line List No.1- Case Finding for HIV, Hepatitis C, and Tuberculosis during Screening (Appendix no.1)
- Line List No.2- Case Finding for HIV, Hepatitis C and Tuberculosis inside the Residential Centers (Appendix no.2)
- Sputum Specimen Registration and Follow up (Appendix no.3)
- Post-discharge Follow-up for HIV, Hepatitis C and Tuberculosis (Appendix no.4)
- Line List No.3 - Rapid HIV Test, Hepatitis C and

Appendix no.1. Line list 1- Finding HIV, Hepatitis C and Tuberculosis among new clients during screening at the residential center, Iran

Personal specifications			Evaluation of Tuberculosis						Evaluation of HIV and Hepatitis C							
Name and surname	Father's name	Age	Is the person currently being treated for Tuberculosis?						Is the person known to have HIV and Hepatitis C?							
			Response(Yes/No)	If the response is yes, the name of center treated the Tuberculosis					Result of evaluating active Tuberculosis	Response(Yes/No)	If the response is yes, the name of counselling center					
If the response is no, evaluate the availability of the following factors:			History of treatment of Tuberculosis	Cough more than two weeks	Sputum /Hemoptysis	Night sweats	Weight loss	Fever			History of injection drug use	Unsafe sex	Frequent blood transfusion	Tattoos	Refusing to do test	Result of HIV test

Appendix no. 2. Line list 2- Finding HIV, Hepatitis C and Tuberculosis patients inside the residential center, Iran

Personal specifications			Evaluation of Tuberculosis						Evaluation of HIV and Hepatitis C		
Name and surname	Father's name	Age	Evaluate the availability of the following factors:						Result of HIV test	Result of Hepatitis C test	Is it required to repeat the test again? If yes, which one?
			History of having contact with person with Tuberculosis	History for treatment of Tuberculosis	Cough	Sputum / Hemoptysis	Night sweats	Weight loss			

Appendix no.3. Line List for Recording and Tracking of Sputum Samples

Name and surname	Date of providing Sputum sample	Serial number Sputum sample	Result			Date of providing Sputum sample again	Serial number of Repeating Sputum sample	Result			Date of informing to physician
			Sample 1	Sample 2	Sample 3			Sample 1	Sample 2	Sample 3	

- Tuberculosis (Appendix no.5)
- Adherence Registration Form for the Treatment of HIV, Hepatitis C and Tuberculosis (Appendix no.6)
- Line List of Characteristics of People Living with HIV, Hepatitis C and Tuberculosis (Appendix no.7)
- Inquiry Form (Appendix no.8)

Appendix no.4. Line List for Post-discharge Follow-up of HIV, Hepatitis C, and Tuberculosis

Date of registration (day, month)	Personal specifications		Prophylaxis of Tuberculosis		Treatment of Tuberculosis			Antiretroviral therapy		Treatment of Hepatitis C		Result of follow up	Address and phone number of patient
	Name and surname	Father's name	Date of beginning	Date of End	Date of beginning	Country code for treatment of Tuberculosis	Date of End	Result of treatment	Date of beginning	Date of discontinuing of treatment	Date of beginning		

Appendix no. 5. Line list 3 – HIV/HCV Rapid Testing and Tuberculosis Status among Clients in the Residential Center, Iran

Date of referring (day , month)	Personal specifications			Situations related to Tuberculosis			Risk factors					Result of HIV test		Result of Hepatitis C test					
	Name and surname	Father's name	Age	Active Tuberculosis	History of Tuberculosis	Contact with smear positive Tuberculosis	Suspected Tuberculosis case	Injection drug use	Unsafe sex	Affected sex partner	Frequent blood transfusion	HIV Symptoms	Other	Unknown	Refused to do	Negative test result	Positive test result	Refused to do	Negative test result

Appendix no. 6. Card for Adherence to Treatment (HIV, Hepatitis C and Tuberculosis)

The month of receiving the medicine	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
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Appendix no. 7. Line list 4- Characteristics of the Patients under the Supervision inside the Residential Center, Iran

Name and surname	Father's name	Age	File number	Medicines used	Final CD4 count	Last Viral load	Existence of Hepatitis C	Situation of Tuberculosis			Date of last visit by doctor
								Active or latent Tuberculosis	Date of beginning of treatment	Date of end of treatment	

- List of People Receiving ART, Hepatitis C and Anti-tuberculosis Medicines (Appendix no.9)

Briefly, figure 1 shows the procedure of HIV/HCV/TB case finding, diagnosis and treatment in the residential centers with different units/phases. In unit/phase one, HIV/HCV/TB communicator educates the clients about HIV/HCV risk factors and symptoms of TB, finds suspected cases, completes line list of HIV/HCV/TB, and reports suspected cases to the clinic as to further test and consult. In the quarantine, all newly-transferred clients are admitted. On the admission time, a health communicator completes the line list as well as in the housing units/phases which he/she does the same activity, and finally all suspected cases are referred to the clinic. In the clinic, consultation and testing are performed to diagnose HIV/HCV/TB patients. Patients are examined by a general practitioner and, if necessary, he/she refers them to an infectious disease specialist for further treatment. Moreover, the general practitioner submits some orders to a clinic's health communicator who is responsible for implementing orders, registration, monitoring of treatment and follow up activities after discharge.

Conclusion

Lessons learned and recommendations

Regarding the appropriate protocol in the residential centers in line with "90-90-90 targets", it seems that these settings are a good opportunity to introduce the protocol for early detection of people living with HIV

(PLWH) to achieve higher coverage of HIV care and treatment services. This protocol is employed by the health communicators and the clinic staff who trained the clients about HIV/HCV-related risk factors and TB symptoms. In addition, an attempt was made to integrate HIV/HCV/TB services into health care system of the centers as HIV tests and ART also are performed in the general clinic of the centers and all the physicians ask HIV testing for their patients if needed.

Regarding the fact that DOT seems to be an effective factor in the adherence to ART, ART is delivered as DOT in Iranian residential centers and then is expanded to other centers in the country.

This protocol could potentially be adopted for the early detection and identification of infectious diseases in cases for whom early detection and treatment was not done.

The protocol emphasizes the importance of early identifying key symptoms and risk factors. This approach provides an opportunity for improved prevention and management intervention programs, enabling clients at risk or those who have been diagnosed with a target disease to be followed up and receive the appropriate health care. In fact, health care providers in the centers and high risk environments are in a prime position to apply and implement this protocol to timely and optimally identify and treat any medical problems.

Through the enhanced, early detection and treatment

Appendix no. 8. Inquiry Form for HIV, Hepatitis C and Tuberculosis

- History:
- First name and last name:
- Father's name:
- Age:
- Source Name:
- Source File Number:
- Destination File Number:
- HIV diagnosis center and date:
- Last CD4 Date and Number:
- Last viral load date and number:
- ARV treatment history:
- ARV treatments start date:
- ARV treatment regimen:
- HBs-Ab / HBs-Ag / HBC-Ab / HCV-Ab
- Vaccination Status:
- Hepatitis C treatment status:
- History of Tuberculosis Treatment:
- History of latent Tuberculosis treatment:
- Date and Result of PPD Test:
- Has he/she completed Tuberculosis treatment?
- Start and End Date/End of Treatment:
- Address and Phone:
- Name and Position of Inquirer:
- Informant from the Origin:

Appendix no. 9. Line list 5 - People receiving anti-retroviral, anti-hepatitis C and anti-tuberculosis medicines

Name and surname	Father's name	Medicines at morning	Medicines at night	Notes
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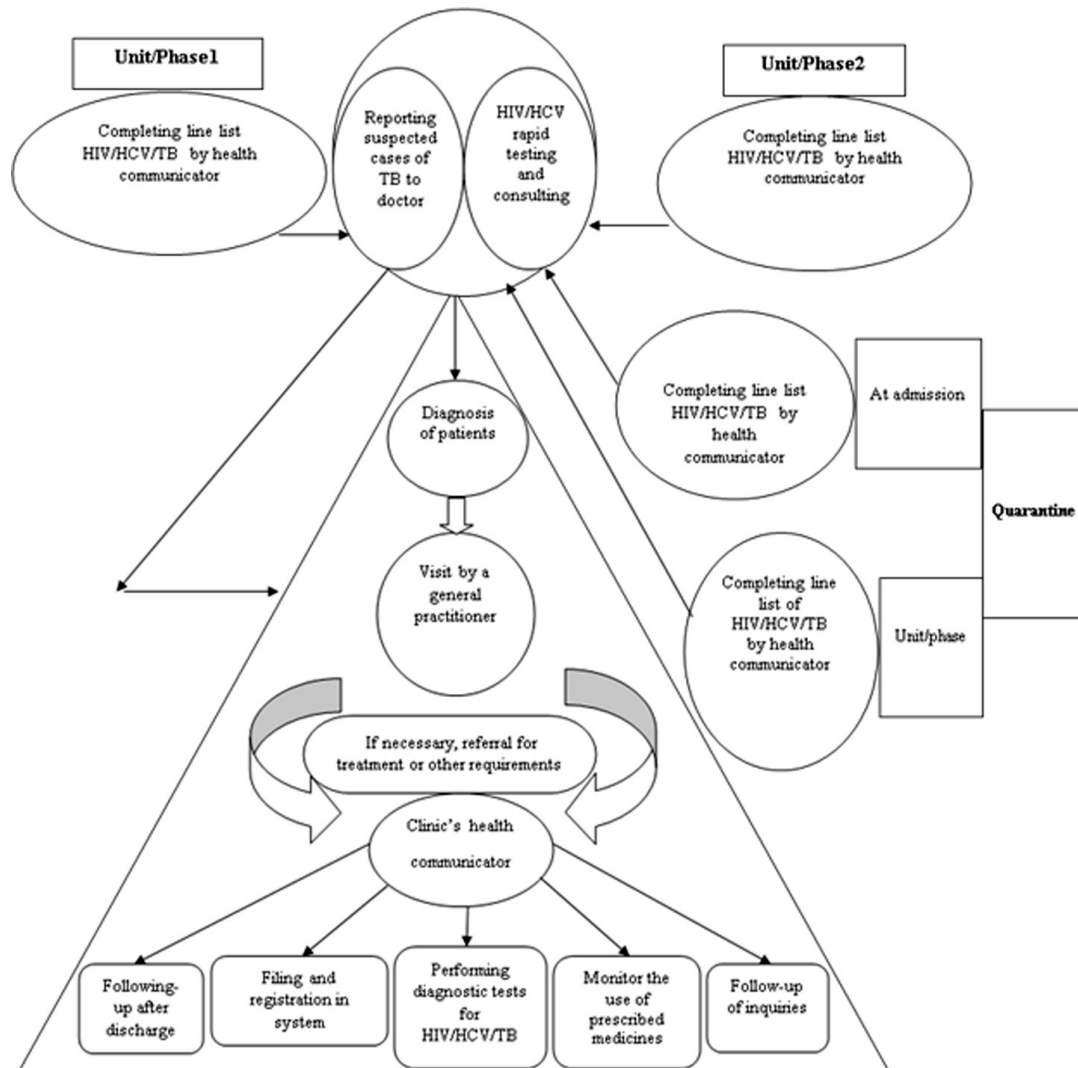


Figure 1. Process of HIV/HCV/TB case finding, diagnosis and treatment in the residential centers, Tehran, Iran

of diseases, the overall wellbeing and quality of life among these groups may be significantly improved. Ultimately, such practical protocols will help to reduce morbidity and mortality among clients with HIV/HCV/TB and the broader community.

Early detection, appropriate management and timely follow up are critical to effectively monitor and control health conditions in Iranian residential centers. Delayed diagnosis and emerging complications lead to an increase in morbidity, mortality and burden of the diseases. Even those whose disease is diagnosed timely, are at risk of not receiving needed services due to conflict of requirements especially arising from the substance use and the absence of active follow-up. This leads to the idea that the protocol should be used to provide services for the infectious diseases that have large individual or public burdens. In agreement with delivering services based on the protocol, clients

should be screened and followed up and subsequently receive care and treatment services.

Retention in care is a key to ensure the optimal health outcomes are met. To ensure the continuity of care for clients' post-discharge, one example may be the involvement of peer based organizations as well as involvement of support organizations such as Welfare Organization, post-exit care center, and the Imam Khomeini Relief Foundation, Iran's largest charity, to link the clients to facilities after discharge. These organizations may play a key role in the retention of clients in care once discharged.

Clients are typically served for a short time and when healthcare services are not received outside the center, there is an increased risk of morbidity and mortality and transmission of diseases to others; resistance to treatment can occur when treatment is interrupted such as when people enter or leave the center. Encouragement and

giving appropriate incentives and enabling the patients to connect with healthcare services after discharge can be effective practices to continue the treatment program. In order to achieve the goal of protocol, a multidisciplinary approach is required.

Some clients with high risk behaviours and positive HIV screening tests are discharged from the centers before confirmatory test. Thus, it is difficult to have proper follow up for such patients.

A recommendation is that health care services specifically for high burden non-communicable diseases should be integrated into the HIV/HCV/TB service provision structure. A peer for the client can be assigned as the health care communicator or lay health care provider who plays a significant role in the early detection, identification and prevention of both communicable and non-communicable diseases, even to follow-up the patient post discharge. They may be selected from client peers or guardians who

are in regular contact with other clients. Providing specific training for lay health care providers to assess and identify clients who may exhibit high risk factors for specific diseases via screening and to identify disease-specific symptoms may aid in the prevention of non-communicable diseases within the residential center and may potentially decrease the overall prevalence. By promoting the early identification and detection of disease symptoms and initiating referrals to a physician, healthcare workers will have fundamental roles in fast tracking the process, providing an opportunity for earlier diagnosis and treatment at the onset of diseases.

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References

1. Ulett KB, Willig JH, Lin HY, Routman JS, Abroms S, Allison J, et al. The therapeutic implications of timely linkage and early retention in HIV care. *AIDS Patient Care STDS* 2009;23(1):41-9.
2. Farhoudi B, Tashakoriyan M, Pouya MN, Jafarinasab M, Moghaddam MS, Sharafi S, et al. Active health service provision scale up for HIV and Tuberculosis in 16 prisons, Iran. *J International Translational Medicine* 2019;7(1):1-4.
3. Farhoudi B, SeyedAlinaghi S, Dadras O, Tashakoriyan M, Nazari Pouya M, Gouya M, et al. Health service provision for disease control among prisoners: conceptual note. *J Health Res* 2019;23:689-707.
4. Access to hepatitis C testing and treatment for people who inject drugs and people in prisons – a global perspective. Policy brief. Geneva: World Health Organization; 2019 (WHO/CDS/HIV/19.6). Licence: CC BY-NC-SA 3.0 IGO.
5. Farhoudi B, SeyedAlinaghi S, Tabarsi P, Mohraz M, Golrokhy R, Farnia M, et al. Revision and implementation of “Clinical Guideline for Tuberculosis and HIV in Prisons”, Great Tehran Prison, Iran. *Infect Disord Drug Targets* 2018;18(1):72-80.
6. Neduzhko O, Postnov O, Perehinets I, DeHovitz J, Joseph M, Odegaard D, et al. Factors associated with delayed enrolment in HIV medical care among HIV-positive individuals in Odessa Region, Ukraine. *J Int Assoc Provid AIDS Care* 2017;16(2):168-73.
7. Liu Y, Osborn CY, Qian HZ, Yin L, Xiao D, Ruan Y, et al. Barriers and facilitators of linkage to and engagement in HIV care among HIV-positive men who have sex with men in China: a qualitative study. *AIDS Patient Care STDS* 2016;30(2):70-7.
8. Khalili H, Rohani R, Seyedalinaghi S, Hajiabdolbaghi M, Dashti-Khavidaki S, Talasaz AH. Adherence to antiretroviral therapy among Iranian HIV/AIDS patients. *Curr Clin Pharmacol* 2012;7(2):111-5.
9. Moradi G, Mohraz M, Gouya MM, Dejman M, Seyedalinaghi S, Khoshravesh S, et al. Health needs of people living with HIV/AIDS: from the perspective of policy makers, physicians and consultants, and people living with HIV/AIDS. *Iran J Public Health* 2014;43(10):1424-35.