

# Public Health Strategy for Tuberculosis among Syrian Refugees in Jordan

July 2013



## Partners:

Hashemite Kingdom of Jordan National Tuberculosis Program (NTP)

United Nations High Commissioner for Refugees (UNHCR)

International Organization for Migration (IOM)

with technical assistance from the World Health Organization (WHO)

The Partners would like to acknowledge the Emergency Response and Recovery Branch  
of the US Centers for Disease Control and Prevention (CDC)



## **Goal**

**To reduce susceptible and resistant tuberculosis transmission, morbidity, and mortality among Syrian refugees residing in Jordan**

## **I. BACKGROUND**

### ***Syrian Refugee Crisis in Jordan***

Since March 2011, the civil war in the Syrian Arab Republic has resulted in a regional humanitarian emergency with an estimated 1.6 million Syrian refugees crossing into neighboring countries as of June 2013 (UNHCR). As of 14 June, the Office of the United Nations High Commissioner for Refugees (UNHCR) estimates there are 479,429 refugees in Jordan who are in need of humanitarian assistance. Less than 30% are residing within Za'atri refugee camp in Mafraq Governorate. Approximately 5,000 refugees reside in Emirati-Jordanian refugee camp with an additional large camp to be established in the coming months for an expected additional total capacity of approximately 120,000 refugees. The majority of refugees are integrated in host communities, concentrated in Mafraq, Irbid, Amman, Zarqa, as well as other governorates of Jordan. Refugees located in host communities have access to Ministry of Health clinics at no cost, if registered. Alternatively, refugees can access designated UNHCR-supported clinics and other NGO clinics, if unregistered.

### ***Tuberculosis in Syria – Potential Impact of Conflict***

Tuberculosis care in Syria was integrated in the health system nationwide with a specialty TB treatment facility located in Aleppo, Homs and other governorates. As the conflict escalated, healthcare workers have fled, drug supply chains have been interrupted, and health infrastructure has been destroyed,<sup>1,2</sup> likely negatively impacting TB diagnosis, treatment and prevention efforts. Living in a conflict zone resulted in delayed TB treatment and increased self-treatment behavior among 226 Ethiopian TB patients interviewed.<sup>3</sup> Interrupted TB treatment is a well-established risk factor for the development of Multi-Drug Resistant (MDR)-TB, which carries substantially increased morbidity and mortality for patients, along with increased cost to the healthcare system. The Jordan National Tuberculosis Program (NTP) noted that the monthly cost of medications for an MDR-TB patient is Jordanian Dinars (JOD) 2,000 compared with JOD 150 for susceptible TB patients; in addition, MDR-TB patients require 24 months of treatment.<sup>4</sup>

Prior to the war, Syria had been making public health gains in tuberculosis prevention with a reduction in TB prevalence from an estimated 85 TB cases per 100,000 persons in 1990 to 23/100,000 in 2011.<sup>5</sup> However, the 2011 TB prevalence in Syria is three times that of Jordan,

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<sup>1</sup> Human Rights Council. Oral update of the Independent International Commission of Inquiry on the Syrian Arab Republic. March 11, 2013. Accessed on June 16, 2013 at:

[http://www.ohchr.org/Documents/HRBodies/HRCouncil/ColSyria/PeriodicUpdate11March2013\\_en.pdf](http://www.ohchr.org/Documents/HRBodies/HRCouncil/ColSyria/PeriodicUpdate11March2013_en.pdf)

<sup>2</sup> UN New Centre. Syria experiencing critical shortage in medicines – WHO. August 7, 2012. Accessed on June 13, 2013 at: <http://www.un.org/apps/news/story.asp?NewsID=42641>

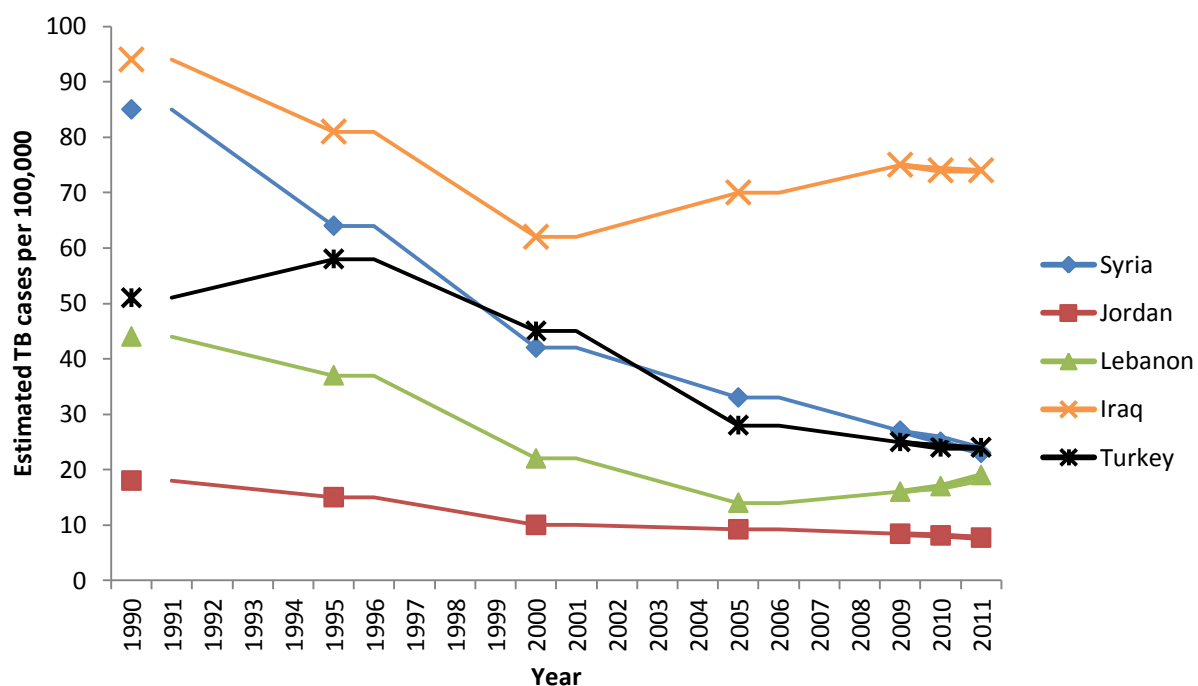
<sup>3</sup> Gele and Bjune: Armed conflicts have an impact on the spread of tuberculosis: the case of the Somali Regional State of Ethiopia. *Conflict and Health* 2010 4:1.

<sup>4</sup> Malkawi K. High prevalence of TB among Syrians to affect local efforts to eliminate it. *The Jordan Times*, Mar 24, 2013. Accessed on June 17, 2013 at: <http://jordantimes.com/high-prevalence-of-tb-among-syrians-to-affect-local-efforts-to-eliminate-it>

<sup>5</sup> WHO. Global tuberculosis report, 2012. Accessed on June 13, 2013 at: [http://www.who.int/tb/publications/global\\_report/en/](http://www.who.int/tb/publications/global_report/en/)

which reports a 2011 TB prevalence of 7.7/100,000, including foreign-born population. Rising TB prevalence, representing lost public health gains in TB control, has been documented in the region following a complex humanitarian emergency. Iraq had an estimated TB prevalence of 94/100,000 in 1990, dropping to 62/100,000 in 2000, finally rising to 74/100,000 in 2011 following years of armed conflict (Figure 1). In Bosnia and Herzegovina, TB cases increased 50% over the war-time period during the early 1990s.<sup>6</sup> An increasing TB prevalence in Syria may result in the future with prolonged interruption in TB prevention, diagnosis, and treatment and increased MDR-TB. The Syrian refugee influx in Jordan will certainly result in increased TB patients seeking treatment at both camp and non-camp healthcare facilities, placing pressure on NTP resources.

**FIGURE 1. Tuberculosis Prevalence among Countries in the Region, 2011\***



\*SOURCE: WHO, Global Tuberculosis Report 2012. Method: Markers indicate available data points. A running two point average was used to estimate trends over time.

### ***Implications for Tuberculosis Control in Jordan***

The current humanitarian emergency and subsequent population movements have the potential to negatively impact the TB control program in Jordan. Tuberculosis control in Jordan is a model for the region, with the lowest TB prevalence when compared with Syria, Iraq, Lebanon, and Turkey (Figure 1). The Jordanian NTP reached the Millennium Development Goal (MDG) for TB reduction in 2011 and was preparing to shift to TB elimination. However, TB

<sup>6</sup> Ljubic B and Hrabac B. Priority setting and scarce resources: Case of the Federation of Bosnia and Herzegovina. Croatian Medical Journal, 39(3), 1998.

elimination planning has been postponed due to the Syrian emergency.<sup>7</sup> Assuming stable 2011 TB prevalence rates, a Jordanian population of 6 million is estimated to have annually 462 TB patients, including national and foreign-born patients. Similarly, a Syrian refugee population of 480,000 can be estimated to have approximately 110 TB patients annually, representing 19% of the total TB treatment burden in Jordan. Should the refugee population increase to 1 million, one-third of TB treatment nationally will need to target Syrian refugees. Additionally and, assuming stable incidence, the TB prevalence in Jordan would increase to 9.9/100,000, which is a rate last seen in 2000. This would effectively reverse TB programmatic gains achieved by Jordan prior to the humanitarian emergency.

### ***Rationale for Tuberculosis Prevention and Treatment among Syrian Refugees in Jordan***

The World Health Organization (WHO) has outlined essential criteria that should be met before implementing TB programs in emergencies.<sup>8</sup> These include:

- Data from the population indicate TB is an important health problem  
*Current situation:* TB prevalence in Syria is three-fold higher than Jordan
- The acute phase of the emergency is over  
*Current situation:* Although new arrivals continue in large numbers, mortality estimates among refugees in Za'atri camp are below emergency levels and the health response has been increasingly focused on chronic disease management
- Stability of the population is envisaged for at least 6 months  
*Current situation:* Syrian crisis is likely to be protracted given ongoing conflict
- Basic needs are met
- Essential health care services and drugs for common illnesses are available
- Basic [primary care] health services are accessible so that TB suspects can be identified, investigated, and referred if necessary.

One can reasonably conclude that these criteria have been met in Jordan where refugees are likely to remain for an extended period of time and have free access to basic and health services through government and humanitarian partners and to TB control services through the NTP.

Since March 2012, the NTP, International Organization for Migration (IOM), and UNHCR have supported enhanced TB case detection and treatment access for Syrian refugees with fifty-six (56) confirmed TB cases initiated on treatment through June 14, 2013. Although Syria and Jordan are low burden countries for tuberculosis, the potential negative impact of the Syrian humanitarian emergency on public health gains in tuberculosis control in Jordan, warrants supporting enhanced NTP efforts to diagnose and prevent tuberculosis amongst Syrian

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<sup>7</sup> Personal communication with Dr. Khaled Abu Rumman, Director of Chest Diseases Directorate & Migrant Health, Jordan Ministry of Health.

<sup>8</sup> WHO. Tuberculosis care and control in emergencies, April 2009. Accessed on June 16, 2013 at: [http://www.who.int/diseasecontrol\\_emergencies/publications/idhe\\_2009\\_london\\_tuberculosis.pdf](http://www.who.int/diseasecontrol_emergencies/publications/idhe_2009_london_tuberculosis.pdf)

refugees. The potential for imported MDR-TB requires continued vigilance in active case detection, thorough contact tracing, laboratory diagnostics, and linkage to treatment services.

Despite challenges to TB control outlined above, the strength of TB control program in Jordan offers a unique opportunity to improve refugee health, prevent new cases, and minimize the emergence of MDR-TB. A cohesive strategy is necessary to ensure close linkages between partners (NTP, UNHCR, IOM with technical assistance from WHO), improve case detection, and ensure directly observed therapy short-course (DOTS) implementation to achieve treatment success. This public health strategy will be integrated into the Jordan NTP national strategy. An effective TB public health strategy for Syrian refugees in Jordan has the potential to inform future treatment and control efforts in the region. Lessons learned from implementing this strategy can be applied regionally to enhance other NTP capacity.

### ***Situation analysis for TB care and control in the Jordanian National TB Program***

#### ***1. Lead agency and coordination mechanism***

The NTP of Jordanian Ministry of Health (MOH) is a vertical program partially integrated into general health services; it is the sole provider of care for TB patients throughout the country operated on 3 levels of responsibilities: Central level, District (Governorate) level, and Peripheral level. TB control is centralized through the network of 12 Chest Centers (one in each governorate) with Central (Chest Disease Division in Amman) responsible for coordination and management of the TB Control Program. Annoor Sanitarium in Mafraq governorate is also considered as one of the TB centers, which deals with MDR-TB cases under a project approved by Green Light Committee (GLC). Annoor Sanitarium provides services to patients with chest diseases particularly TB from Jordan and other countries of the region. At the peripheral level, primary health centers have a trained nurse to supervise DOTS for patients, but no facility to diagnose TB cases. Private sector and prisons refer TB suspects to NTP.

#### ***2. National TB program control policies and DOTS coverage***

The NTP strategy provides standardized short-course chemotherapy under DOTS strategy during the initial and continuation treatment phases to all identified TB patients. This began in 1997, with a pilot, and has expanded through the extensive network of primary health centers throughout Jordan to achieve universal access to DOT. NTP has set the following targets: detect more than 70% of existing cases of sputum smear-positive TB and cure more than 85% of detected new cases of sputum smear-positive TB.

#### ***3. Human resources available to dedicate to TB program***

Human resources are available in two levels: the central level and the governorate level.

##### ***a) Central level, NTP staff, Task force /steering committee***

- Public – Private Mix (PPM) Coordinator,
- Advocacy, Communication and Social Mobilization (ACSM) Coordinator,
- Private Sector Coordinator,
- National health information personnel,
- Private practitioners working in the public sectors,
- NGOs' practitioners working in the public sector,

- Consultative committee members working in the public sector,
- Epidemiologist (on task basis),
- Health Economist (on task basis),
- Administrative staff (Programmer, Financial analyst, data entry, secretary)

**b) Governorate level**

- PPM-DOTS Panel Headed by undersecretary,
- Private Sector Director,
- NGO representative,
- Consultative committee for the Governorate,
- Administrative staff (Programmer, Financial analyst, data entry, secretary)

Focal persons in the Ministry of Defense, United Nations Relief and Works Agency (UNRWA), Ministry of Interior, some universities, NGOs and other entities also collaborate with the NTP.

**4. Coverage of the local population in the TB control program**

NTP emphasizes quality and improved access of all populations in Jordan, including migrant workers and refugees to TB services. For that reason this strategy has been developed to include the Syrian refugees.

**5. Type and location of laboratory facilities**

Currently, there are 12 diagnostic (direct sputum microscopy) centers and Annoor Sanitarium. Culture and Drug Susceptibility Testing (DST) is performed at the National Reference Laboratory (NRL) in Amman. Sputum samples of all sputum smear positive and negative pulmonary patients are sent by a private courier company within 24 hours to NRL for culture; if a culture is positive, DST is performed.

**6. Identification of diagnostic facilities (laboratories suitable for smear examination including quality control)**

Quality assurance of direct smear examinations of District (Governorate) level laboratories is done by the NRL.

**7. TB treatment includes pan-sensitive and drug-resistant TB**

For treating TB susceptible patients, NTP recommends the initial phase of 2-3 months, and the continuation phase of 4-6 months with Rifampicin (R), Isoniazid (H), Pyrazinamide (Z), Ethambutol (E), and Streptomycin (S) delivered as fixed-dose combination of 2 drugs (H+R), 3 drugs (H+R+Z) or 4 drugs (H+R+Z+E). Drug-resistant TB patients treatment is based on individual DST results or by epidemiologic evidence. An epidemiologic defined group or category receives the same regimen and individual suspected MDR-TB patients are confirmed by DST, whenever possible.

**8. Channels of drug procurement - customs regulations, duties**

Within the MOH, the Directorate of Supplies and Procurement) is responsible for procurement of all drugs, commodities, and supplies. All commodities and drugs are procured through open competitive bid process announcement that includes technical specification requirements. The Food and Drug Association in Jordan (FDAJ) verifies and confirms pharmaceutical products' compliance with applicable specifications and the quality of the drugs. In addition, the FDAJ

performs physico-chemical analyses of the pharmaceutical products, and certifies that the product is fit for local consumption. Any single, limited, or multi-source pharmaceutical product intended for use by NTP, must be authorized and approved by the FDAJ. Suppliers are pre-qualified by the Hashemite Kingdom of Jordan. The supply chain is maintained and monitored by the Jordanian MOH.

#### ***9. Storage facilities for drugs***

Jordanian procedures monitor the delivery, use and location of the commodities procured to ensure quality is maintained. NTP takes responsibility for distribution of. NTP stores the pharmaceutical products and laboratory reagents and supplies centrally with one year buffer stock. NTP distributes the pharmaceutical and health products (e.g. anti-TB drugs and other laboratory reagents and supplies) on quarterly basis to all TB centers at governorates based on distribution tables and according to the number of cases detected. In the Governorate level, the drugs and other materials are stored in the MOH TB centers.

#### ***10. Procedures for follow up of cases***

All detected TB cases are followed through DOT supporters with home visits to ensure and guarantee the highest possible extent of treatment success. Periodic follow-up is done in the TB diagnostic centers to verify adherence to treatment, determine any symptoms possibly related to the anti-TB drugs, and perform follow-up examinations. For each smear-positive TB patient, three (3) sputum samples are obtained at the second, fifth and sixth month of treatment. At the end of the second month, the case is classified as smear converted if sputum smear is negative for bacilli. Seriously ill patients are either admitted to the local MOH public hospitals or to Annoor sanatorium.

## **II. GOAL AND OBJECTIVES**

Since 2010, there has been a concept note agreement between the Ministry of Health/NTP and IOM, with approval from WHO outlining IOM health activities targeting foreign-born migrants in Jordan. This concept note has been applied to IOM's programs during the current Syria crisis. Since March 2012, repeat agreements between IOM and UNHCR have guided TB support programs for refugees implemented by IOM.

The goal and objectives for this TB strategy outlined herein are as follows:

**GOAL:** To reduce susceptible and resistant tuberculosis transmission, morbidity, and mortality among Syrian refugees residing in Jordan

**Objective 1:** Increase TB screening among Syrian refugees

**Objective 2:** Increase TB diagnosis among Syrian refugees

**Objective 3:** Maximize treatment success/completion of Syrian refugees

**Objective 4:** Increase TB awareness and knowledge of treatment services among Syrian refugees and healthcare workers

**Objective 5:** (Subject to global finalized latent TB guidelines by WHO expected February 2014), support Jordan MOH in the development and implementation of national guidelines for effective management of latent TB infection (LTBI) treatment to improve TB control



## OBJECTIVES AND ACTIVITIES

Suggested activities to ensure awareness, detection, care and control of tuberculosis among camp- and community-based Syrian refugees living in Jordan are listed below by strategic objective. Some are already occurring, some may be occurring and need augmenting, and some should be started as soon as possible (see Appendix 1 for each activity with indicators, frequencies, and responsible partner(s)).

### ***Objective 1: Increase TB screening among Syrian refugees***

- i. ***Initial processing of new arrival refugees:*** At Za'atri camp, IOM performs a rapid assessment to determine any immediate health needs of newly arriving refugees. Current respiratory symptoms are asked as part of this assessment. This is to facilitate active TB screening.
- ii. ***Camp-based community healthcare volunteers (CHVs):*** CHVs should refer refugees with suspected TB to the IOM TB program using standardized referral procedures and the IOM referral form.
- iii. ***Syrian refugee-focused NGOs:*** Syrian refugee CHVs need a clear, regular reporting mechanism back to IOM of any potential TB suspects on a bi-weekly to monthly basis. The IOM mobile team should confirm the refugee as a TB suspect and follow accordingly. The NGO and CHV's contact information and bi-weekly to monthly reports should be maintained in a database by IOM and shared with the NTP.
- iv. ***Primary healthcare workers:*** All healthcare workers reminded of active TB and LTBI, need to bring refugees with suspected TB and their contacts to IOM's attention for evaluation and follow-up with NTP.

### ***Objective 2: Increase TB diagnosis among Syrian refugees***

- i. ***TB diagnosis through the NTP:*** Once a Syrian refugee is identified as a TB suspect, IOM, using developed standard operating procedures (***SOPs***) for their part, assists with patient referral to a Ministry of Health (MOH)/NTP TB physician to ensure the diagnostic evaluation has been completed according to NTP guidelines. Chest x-rays can be facilitated through MOH fixed or mobile chest x-ray services. All refugees with suspect TB because of symptoms and abnormal chest x-ray will receive microscopic and culture diagnostics. NTP laboratories will conduct the sputum smear and culture diagnostics. A study that compared sputum smear results with culture as the 'gold standard' among immigrants bound for the US found the sensitivity of serial acid-fast bacilli microscopy to be only 34.4%.<sup>9</sup> Because of the risk of MDR-TB among Syrian refugees, the NTP with

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<sup>9</sup> Maloney SA, Fielding KL, Laserson KF, Jones W, Ngoc Yen NT, An DQ, et al. Assessing the performance of overseas tuberculosis screening programs: a study among US-bound immigrants in Vietnam. Arch Intern Med 2006; 166:234-240.

assistance from WHO, should consider using the Xpert TB/RIF diagnostic test, in addition to culture, among TB suspects with prior (failure, default, relapse) TB treatment or for symptomatic contacts of known MDR-TB patients.<sup>10</sup>

**Objective 3: Maximize treatment success among Syrian refugees**

- i. **TB case management:** All refugee TB patients are treated by the governorate or national TB program with DOTS and adherence support is provided by IOM, which will develop standard operating procedures for their part. Either daily or three times per week (if susceptible TB) continuation phase dosing for TB disease is acceptable depending on DOTS resource availability. A DOTS approach will be applied by IOM using **SOPs** throughout the duration of treatment using standardized NTP forms.<sup>11</sup> Drug toxicity monitoring should be conducted per NTP guidelines.
- ii. **Contingency plans for movement to other countries:** Any Syrian refugee TB patient should be counseled to complete treatment in Jordan once started explaining the risks of treatment interruption. At time of treatment initiation and throughout the regimen, the patient must have with him/her a simple DOTS card that includes: 1) current regimen; 2) last dose taken; 3) pertinent lab results as per NTP guidelines. Also at start of treatment, contact information, including cellular phone numbers, if possible, needs to be recorded. Interrupted treatment can carry worse hazards than no treatment at all, i.e. MDR-TB. This can be emphasized by using the NTP patient charter or the modified World Care Council patient charter found in the CDC Evaluation Tool for Tuberculosis Programs in Resource-limited, Refugee and Post-Conflict Settings, version 2 (<http://www.cdc.gov/globalhealth/gdder/ierh/researchhandsurvey/tbtool.htm>).

Should the patient insist on returning or moving to another country, to reduce the risk of defaulting treatment, cross border communication needs to be established with the TB control program in the other country. The location of where the patient wishes to transfer needs to be linked with the nearest TB treatment center in the resettlement area, if possible. In order for this to take place, regional NTPs with the support of WHO need to share locations and contact information of functioning TB treatment centers and referral procedures that protect confidentiality of these persons of concern. The patient will be given the TB control program information and only with the consent of the patient, his or her information will be shared with the respective country TB control program. In addition, where IOM offices exist, an IOM focal point person in the

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<sup>10</sup> World Health Organization. Rapid implementation of the Xpert MTB/RIF diagnostic test: Technical and operational 'how-to' practical considerations, 2011. Accessed on June 17, 2013 at: [http://whqlibdoc.who.int/publications/2011/9789241501569\\_eng.pdf](http://whqlibdoc.who.int/publications/2011/9789241501569_eng.pdf)

<sup>11</sup> International Standards for Tuberculosis Care, National TB Program, Directorate of Chest Diseases/MOH, 2011

resettlement or repatriation country can assist with this sharing of information. If no local TB control program is available, other options need to be explored with ongoing communication with the patient ensured.

- iii. **Provision of psychosocial support:** Routinely refer TB patients to psychosocial support center/worker to increase treatment success, alleviate fears, and reduce stigma. Resources from the mental health services through IOM, WHO-supported centers, and Jordanian Anti-Tuberculosis Association (JATA) are available.
- iv. **Ongoing monitoring and evaluation:** Routine TB cohort data collection will be conducted since all refugee TB care is integrated within the NTP. Additionally, NTP has agreed to use the CDC Evaluation Tool for Tuberculosis Programs in Resource-limited, Refugee and Post-Conflict Settings, version 2 (<http://www.cdc.gov/globalhealth/gdder/ierh/researchandsurvey/tbtool.htm>) at each governorate and the national diagnostic TB center. Initial evaluations at all TB centers should be completed by the end of 2013 with a repeat evaluation performed per the scoring obtained (Table 2). Part of evaluation includes systematic internal quality assurance with feedback of governorates by NTP, especially of the direct smear microscopy. Finally, external quality assurance testing will be conducted by the end of 2013 with the Cairo Super-National Regional laboratory with facilitation by WHO and transportation by IOM.

**TABLE 2. Recommended TB center evaluation frequency based on CDC Evaluation Tool score**

SUGGESTED SCORE GUIDE		
TOTAL SCORE		
TOTAL SCORE POSSIBLE		
PERCENTAGE (Total Score ÷ Total Score Possible) * 100	RATING	SUGGESTED TIME UNTIL NEXT ASSESSMENT
>=85%	Excellent	Needs assessment in 12-18 months
70-84%	Good	Needs assessment in 9-11 months
50-69%	Poor	Needs assessment in 6-8 months
<=49%	Failed	Needs assessment in 2-5 months

- v. **Recording of and reporting for Syrian refugees:** NTP has a web-based TB reporting system, which will capture Syrian refugees in addition to Jordanian citizens. In addition, IOM maintains a separate database of Syrian TB patients to support program operations. IOM will provide quarterly cohort analysis to NTP and refugee health partners.

**Objective 4: Increase TB awareness and knowledge of treatment services among Syrian refugees and healthcare workers**

The first step of TB care and control is the awareness of the public and healthcare providers of tuberculosis. If one does not think about TB as a possible etiology for a cough, it will never be detected. Because the Syrian refugees are both camp- and community-based, different approaches and partners need to be used for these settings for awareness.

**A. Both camp and non-camp settings – Communication resources**

- i. **Information, Education, and Communication (IEC) material:** NTP and IOM have developed some IEC material and presentations on TB. In a 2005 Jordanian study, only 45% of rural and 55% of urban TB suspects sought medical care; an obstacle to seeking care was the mistaken belief that symptoms were not serious.<sup>12</sup> Therefore, additional **refugee-level material** needs to be developed that is more pictorial, with fewer words. Two 1-page sheets conveying a **few key messages** to improve knowledge retention should be used: 1) outlining TB symptoms, TB is curable, and how and where to access TB services; 2) alleviating fears, reducing stigma, and telling where to access TB care. This material should also be shared with community health volunteers (CHVs) and non-governmental organization (NGO) partners for distribution during TB awareness sessions or routine health promotion activities, in both camp and non-camp settings. Also, the **TB physician** may find these sheets useful once a refugee is found to be a TB patient. For **patient-level** material, once the refugee is diagnosed with TB or LTBI, IEC material needs to be developed to emphasize the risk movement may have on continuity of treatment. A modification of the TB Admission Talk in Appendix A of the CDC Evaluation Tool for Tuberculosis Programs in Resource-limited, Refugee and Post-Conflict Settings, version 2 (<http://www.cdc.gov/globalhealth/gdder/ierh/researchandsurvey/tbtool.htm>) is one suggestion. In addition, patient fact sheet for LTBI treatment with isoniazid (INH) need to be provided to **TB physicians**. This will not only serve as a reminder for physician-patient education but for the patient once home and taking treatment. Similar **physician-level** material for physician-patient education in active TB, such as a modified TB Admission Talk (see above), needs to be used.
- ii. **Tuberculosis information hotline:** Currently, IOM operates a phone hotline where refugees, healthcare workers, and NGO staff can learn more about TB and referrals for TB treatment services; this should continue as a low-cost resource.

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<sup>12</sup> Rumman KA, Sabra NA, Bakri F, Seita A, and Bassili A. Prevalence of tuberculosis suspects and their healthcare-seeking behavior in urban and rural Jordan. Am J Trop Med & Hyg 2008; 79(4):545–551.

## **B. Camp settings**

- i. **Community healthcare volunteers (CHVs):** Currently, IOM has designated Syrian CHVs for TB awareness activities. All CHVs, UNHCR-identified Syrian volunteers or other NGO-associated workers, such as International Relief and Development (IRD), should be educated on TB and have TB awareness incorporated into their routine health promotion activities through use of refugee-level IEC materials.
- ii. **Other camp leaders:** Once the camp structure with sub-camp leaders and committees is established, these individuals should be educated on TB and have TB awareness incorporated into their routine activities through use of refugee-level IEC materials.
- iii. **Primary healthcare workers:** Sensitize healthcare workers providing care within camp-based clinics to the signs and symptoms of active TB. Tuberculosis continuing education should include relevant case management updates and referral procedures outlined under subsequent strategic objectives.
- iv. **Distribution of food and non-food items:** During routine distributions, health promotion activities should incorporate TB education and awareness. Refugee-level IEC materials should be made available and clear referral procedures for TB screening are outlined.

## **C. Non-camp Settings**

- i. **Syrian refugee-focused NGOs:** IOM should engage NGO consortiums supporting Syrian refugee communities with the aim of achieving broad national coverage for TB awareness. IOM needs to continue to work with appropriate Syrian refugee-focused and Jordanian NGOs to provide TB awareness sessions among Syrian refugees. During TB awareness sessions, if not previously done, identify and maintain contact with one or two (female and male) Syrian refugees who have good TB understanding and who are willing to work with their respective communities on improving TB awareness as CHVs.
- ii. **Primary healthcare workers:** Sensitize healthcare workers in Ministry of Health clinics and UNHCR-funded static and mobile Jordan Health Aid Society (JHAS) clinics on the signs and symptoms of active TB. Tuberculosis continuing education should include relevant case management updates and referral procedures outlined under subsequent strategic objectives.
- iii. **Outreach workers:** UNHCR-funded JHAS and IRD outreach workers need to be educated in TB and have TB awareness incorporated into their routine activities through use of refugee-level IEC materials, for both registered and unregistered refugees.
- iv. **Distribution of food and non-food items:** During routine distributions, health promotion activities should incorporate TB education and awareness. Refugee-level IEC materials should be made available and clear referral procedures for TB screening are outlined.

**Objective 5:** Support Jordan MOH in the development and implementation of national guidelines for effective management of latent TB infection (LTBI) treatment to improve TB control

- i. **TB contact detection:** Between 30% and 50% of household contacts can have LTBI;<sup>13,14</sup> this may be even higher in crowded housing conditions that are poorly ventilated. All contacts of pulmonary TB cases should be screened for TB in order to identify LTBI and active disease. For many years, it has been known that tuberculosis transmission can occur in both sputum smear-positive and smear-negative patients. For sputum smear-negative studies, this transmission rate has been reported around 20% or higher.<sup>15,16,17</sup>
- ii. **TB contact management:** LTBI management national guidelines will be developed and implemented by the NTP with the support of WHO. Routine LTBI adherence tools will be utilized with follow-up support provided by IOM.

Mr. Davide Terzi  
Chief of Mission, Jordan  
IOM

Signature \_\_\_\_\_

Date \_\_\_\_\_

Dr. Khaled Abu Rumman  
NTP Manager  
Director of Chest Diseases Directorate  
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Signature \_\_\_\_\_

Date \_\_\_\_\_

Mr. Andrew Harper  
Representative UNHCR Jordan and  
Humanitarian Coordinator a.i

Signature \_\_\_\_\_

Date \_\_\_\_\_

Dr. Akram Eltom  
WHO Representative for Jordan

Signature \_\_\_\_\_

Date \_\_\_\_\_

<sup>13</sup> Morrison J, Pai M, Hopewell PC. Tuberculosis and latent tuberculosis infection in close contacts of people with pulmonary tuberculosis in low-income and middle-income countries: a systematic review and meta-analysis. *Lancet Infect Dis.* 2008; 8(6):359-68.

<sup>14</sup> Fox GJ, Barry SE, Britton WJ, Marks GB. Contact investigation for tuberculosis: a systematic review and meta-analysis. *Eur Respir J.* 2013 Jan; 41(1):140-56.

<sup>15</sup> Behr MA, Warren SA, Salamon H, et al. Transmission of *Mycobacterium tuberculosis* from patients smear-negative for acid-fast bacilli. *Lancet* 6 Feb 1999; 353(9151):444-449.

<sup>16</sup> Hernández-Garduño E, Cook V, Kunimoto D, Elwood RK, Black WA, and FitzGerald JM. Transmission of tuberculosis from smear negative patients: a molecular epidemiology study. *Thorax* 2004; 59:286-290.

<sup>17</sup> Tostmann A, Kik SV, Kalisvaart NA, Sebek MM, Verver S, Boeree MJ, et al. Tuberculosis transmission by patients with smear-negative pulmonary tuberculosis in a large cohort in the Netherlands. *Clin Infect Dis.* 2008 Nov 1; 47(9):1135-42.

**APPENDIX 1A. Objective 1-3 TB activities for Syrian refugees with indicators and their frequency and responsible partner(s)**

Objectives	Activities description	Indicator	Frequency	Responsible Partner
<b>Objective 1:</b> Increase TB screening among Syrian refugees	<b>Indicators are exclusively for each activity below:</b>	1. # cases ÷ # suspects	quarterly with face-to-face meeting	IOM and NTP databases, shared with UNHCR and WHO
	Initial processing of arrivals screening	2. # on TB treatment, with interruption		
	Community (CHVs, other leaders and NGO) screening	# cases ÷ # suspects		
	Healthcare worker screening	# cases ÷ # suspects		
	IOM, non initial processing screening	# cases ÷ # suspects		
<b>Objective 2:</b> Increase TB diagnosis among Syrian refugees (Target >70%)	Diagnosis includes culture and DST, in addition to microscopy and x-ray	1. # CXRs done ÷ # suspects		
		2. # patients (pts) with smears ÷ # suspects		
		3. # pts with cultures ÷ # suspects		
		4. # DST ÷ positive culture		
<b>Objective 3:</b> Maximize treatment success among Syrian refugees (Target >85% completion)	Directly observed therapy (DOT)	1. # cases currently on DOTS / # cases	quarterly with face-to-face meeting	IOM and NTP databases, shared with UNHCR and WHO
		2. # direct smear negative at end initial RX ÷ # cases		
		3. # treatment success		
		4. # defaulted		
		5. # died		
	All patients receive JATA or IOM mental health and psychosocial support using refugee/patient-level material	# cases receiving social support ÷ # cases	quarterly	IOM and NTP databases, shared with (JATA for psychosocial component), UNHCR and WHO
	Contingency planning	1. Re-activation of NET CI	quarterly	
	2. # transferred out of care			
		3. # pts on RX after transfer ÷ # transferred out	per tool	
	Ongoing monitoring and evaluation	1. # chest clinics evaluated as good or excellent ÷ # evaluated	semi-annual	
		2. # adequate smears ÷ # evaluated by external proficiency testing		

**APPENDIX 1B. Objective 4-5 TB activities for Syrian refugees with indicators and their frequency and responsible partner(s)**

Objectives	Activities description	Indicator	Frequency	Responsible Partner
<b>Objective 4:</b> Increase TB awareness and knowledge of treatment services among Syrian refugees and healthcare workers	Refugee-level IEC mainly pictorial material of TB symptoms, TB is curable, where to seek care	Conduct refugee focus group discussions or random surveys on draft materials appropriateness and level of TB knowledge	by end October and annually	IOM, approval from NTP and UNHCR
	Refugee-level IEC mainly pictorial material of alleviating fears and reducing stigma			
	Physician-level IEC LTBI treatment material			
	TB hotline	Number calls	monthly	IOM
	Community Health Volunteers (CHVs) education for TB awareness (ETA): camp and non-camp and use refugee-level IEC	Number trained	semi-annually	IOM, approval from UNHCR
	Other camp leaders ETA and use refugee-level IEC	Number trained	monthly	
	Syrian-focused NGO supported community ETA sessions, including during distributions, and designated CHVs with ETA and use refugee-level IEC	1. Number of ETA sessions 2. Number of CHVs per community (goal: 1 ÷ community)	semi-annually	IOM to maintain database of NGOs and contact with CHVs
	Healthcare worker ETA: camp implementing health partners and JHAS/MOH	Number trained	monthly	IOM maintain data
<b>Objective 5:</b> Support Jordan MOH in the development and implementation of national guidelines for effective management of latent TB infection (LTBI) treatment to improve TB control	JHAS/IRD outreach workers ETA and use refugee-level IEC	Number trained		
	Development of LTBI management national guidelines	1.Guidlines developed 2.# of training sessions conducted for MOH chest diseases centers in different governorates on the new national guidlines 3. # of health providers received training of health providers	quarterly	IOM , NTP and WHO shared with UNHCR
	Implementation of contact management according to the developed national guidelines	1. # MOH chest diseases centers started to implement the new national guidelines 2. % of contacts identified by implementing the new guidelines	quarterly	