Establishing ambulatory care services for patients with tuberculosis in Uzbekistan

Overview

Throughout the early 2000s, tuberculosis (TB) became a growing public health concern in Uzbekistan as rates of multidrug-resistant tuberculosis (MDR-TB) increased. Rising numbers of patients with TB, combined with longer treatment periods required for the management of MDR-TB, called into question the sustainability of the current treatment model that required all patients with TB to be hospitalized during the entire intensive phase of treatment. Ambulatory treatment of TB was increasingly common in other countries, although not typical in Eastern Europe. In the autonomous north-western region of Karakalpakstan, a new design for services delivery was introduced by the Government of the Republic of Karakalpakstan, in partnership with Médecins Sans Frontières (MSF), to provide a comprehensive TB treatment strategy with ambulatory care from day one (ACD1) at its core. The proposed efforts for strengthening services delivery have aimed to provide comprehensive TB care, including rapid diagnosis and directly observed treatment, for all patients in Karakalpakstan. Instead of mandatory hospitalization during the intensive treatment phase, ACD1 allows patients to initiate TB treatment in community settings. Systemwide changes, including a new legal framework and the decentralization of decision-making structures, have accompanied the initiative to allow for locally tailored services delivery. Extensive training for providers was carried out to allow task shifting from TB specialists in hospital settings to generalist providers at the community level. In parallel, TB treatment guidelines and protocols have been simplified to ease their appropriate use by non-TB specialists. Complementary infrastructure and resource investments have ensured local health facilities are adequately equipped to safely deliver care and rapid diagnostic technology has been introduced. Since the initiative began, the proportion of patients receiving ACD1 treatment for TB has steadily increased; approximately half of all patients received treatment with the ACD1 model in 2012. Initially piloted in two of Karakalpakstan's 16 districts, the initiative has since expanded across Karakalpakstan.

Problem definition

Uzbekistan had one of the highest incidence rates of tuberculosis (TB) in the WHO European Region in the early 2000s, at 99 per 100 000 population in 2000.[1] While the incidence rate of TB began to decline in 2010, MDR-TB emerged as a growing challenge and was estimated to account for 23% of all newly diagnosed TB cases and 62% of retreatment cases between 2010 and 2011.[2] With a services delivery model requiring hospitalization of all TB patients throughout the intensive phase of treatment, the health system of Uzbekistan was unable to cope with the high rates of MDR-TB, which had an intensive treatment phase lasting a minimum of eight months and a total treatment time of at least 20 months. When combined with the high number of individuals requiring care, these extended hospital admissions created a bottleneck in the delivery of TB services (Box 1). The continued use of a consilium model, whereby every decision on either drug-sensitive or drug-resistant TB went to a single group of specialists for consideration, further contributed to treatment delays. Patients waiting for treatment risked transmission to the population. Additionally, the lack of segregation of drug-sensitive and drug-resistant patients in hospitals risked cross-contamination of TB strains.

Box 1

What problems did the initiative seek to address?

- High prevalence of TB and rising rate of MDR-TB.
- Increasing treatment delays resulting from the high number of patients with TB, longer treatment times required for

MDR-TB and continued use of a consilium model to review all treatment cases.

- Risk of ongoing transmission from TB patients waiting for treatment, as well as cross-contamination of drug-sensitive and drug-resistant TB strains between hospitalized patients.

Health services delivery transformations

Timeline of transformations

In 2010, recognizing the limitations of the existing services delivery model for contending with MDR-TB, Médecins Sans Frontières (MSF) put forward an alternate strategy for TB care (Table 1). The strategy proposed the expansion of ambulatory treatment for TB with the introduction of ambulatory care from day one (ACD1)* as the standard treatment for all patients. With approval from the Government of the Republic of Karakalpakstan, the new model was piloted in two districts, Karauzyak and Takhtakupir.

In 2011, following the success of this new approach, ACD1 was officially accepted as the new standard of care in the Republic of Karakalpakstan and rolled out across the region. Today, the proportion of patients receiving ACD1 continues to increase and efforts have been made to transfer management of the initiative to the Ministry of Health.

Description of transformations

Selecting services. Introduction of ACD1 has maintained the same pharmaceutical treatment as in inpatient care, but has worked to simplify the process. All services previously provided in hospital, including means assessments, adherence counselling, infection control and management of early side-effects have all been transitioned away from specialized TB facilities and into outpatient care. In addition, a psychosocial care and counselling component has been added to provide health education, as well as social and nutritional support. Rapid testing has also been introduced, allowing patients to commence appropriate drug regimens as quickly as possible.

Designing care. Guidelines and protocols for TB treatment have been streamlined and standardized, with simplified protocols developed for the 10 most common drug regimens for drug-sensitive and drug-resistant TB to enable the delivery of treatment by non-TB specialists. Additionally, a new set of criteria to determine which patients are eligible to receive ambulatory TB treatments has been created by MSF, in partnership with the Ministry of Health, based on past experience and best practices. Patients with severe clinical conditions still require hospitalization.

Organizing providers. Considerable task shifting from TB specialists in hospital settings to generalist providers in ambulatory and community settings has taken place. In urban areas, TB treatments are now delivered out of polyclinics on an outpatient basis. In rural areas, providers supervise treatment and manage side-effects for patients but treatment regimens continue to be determined by a consilium of TB specialists. To facilitate this change in roles the organization of the consilium has been decentralized and responsibility for case review devolved to district-level providers.

Treating patients on an outpatient basis called for an influx of new staff, a shifting of professional roles and extensive training. To support health providers to fulfil their new responsibilities, clear roles have been defined and a nurse adherence officer has been appointed to each district to provide informational support at the district level. To assist community practices in managing new roles in TB care, non-TB nurses at rural medical centres have been tasked with overseeing the delivery of Directly Observed Treatment, Short Course (DOTS).

Table 1

What were the chronological milestones for the initiative?

Early 2010	MSF proposes the Comprehensive TB Care for All Strategy as a potential solution to the growing challenges in TB care observed in the Republic of Karakalpakstan.
August 2010	Government approves use of MSF's Comprehensive TB Care for All Strategy in Karakalpakstan; ACD1 approach piloted in two districts.
February 2011	ACD1 officially accepted as the model of care for TB in Karakalpakstan.
2011–2014	ACD1 approach scaled up across Karakalpakstan with all 16 districts covered by the end of 2014; gradual transition of responsibility for the initiative from MSF to the Ministry of Health.
Present	Continued transfer of responsibility from MSF to the Ministry of Health.

Managing services. MSF and the Ministry of Health currently share the responsibility for managing TB care. When the project began, management and implementation was largely directed by MSF; more recently, the Ministry of Health has demonstrated growth in their management capacity and has taken over responsibility for implementation in six districts. First- and second-line TB drugs are supplied by the Global Fund with MSF maintaining buffer supplies. MSF has full responsibility for managing drug procurement and the distribution of specialized second- and third-line TB drugs. MSF works closely with a central warehouse to ensure a steady supply of high-quality drugs and best-practice pharmacy management. Six dedicated vehicles, donated by the Global Fund, facilitate general medication and test sample transfers. Structural upgrades and renovations were carried out in hospitals and rural medical centres and GeneXpert has been introduced in microlaboratories to enable rapid testing of sputum samples at the district level without the need for specialist equipment.

Establishing this TB programme has meant a devolution of decision-making for TB diagnosis and treatment protocols which, prior to the initiative, were centralized within the Ministry of Health of Karakpalkastan, but have since been devolved to local councils in eight of nine districts where ACD1 has been implemented.

Table 2
How was the delivery of health services transformed through the initiative?

Before	After
Selecting services	
TB diagnosis and inpatient treatment programmes available to population.	Expansion of outpatient TB services; psychosocial care and counselling incorporated into TB treatment.
Designing care	
Guidelines and protocols for TB treatment in place, but lengthy and complicated; culture testing allows drug regimen personalization for patients, but takes several months to complete; all patients hospitalized during intensive TB treatment phase.	Guidelines and protocols for TB treatment simplified for easier implementation; introduction of rapid testing enables patients to start appropriate treatment sooner; patients can start (and continue) TB treatment in ambulatory settings.
Organizing providers	
TB care delivered by specialists in hospital settings; vertical organization of TB providers confines TB knowledge and skills to TB specialists; central consilium resides over all TB treatment initiation; all patients must be admitted to hospital resulting in isolation.	Task shifting from TB specialists in hospitals to generalist providers in ambulatory and community settings; consilium decentralized to district level; position of nurse adherence officer created to support delivery of TB care in non-TB specialized settings; TB care delivered closer to patients' homes, increasing access to care.
Managing services	
Management of TB care centrally organized with responsibility shared between Ministry of Health and MSF; testing managed by a central laboratory.	Gradual shift in management from MSF to the Ministry of Health; structural upgrades carried out in health facilities and rapid testing technology introduced in microlaboratories at the district level.
Improving performance	
Knowledge and skills relating to TB care limited to TB specialists.	Substantial training conducted to ensure non-TB specialists have necessary capabilities to deliver TB care; information toolkit developed to support implementation; nurse adherence officers receive additional training.

Improving performance. Substantial training was given to all providers on TB protocols, drug regimens and side-effects; an information toolkit to facilitate implementation of acquired knowledge was also made available. Additionally, MSF implemented a cascade-training programme to provide nurse adherence officers with the continuing education necessary to fulfil their role. Monitoring and evaluation of the initiative has been integrated with national efforts to strengthen the evaluation of TB, using a holistic measure developed for treatment outcomes. This information is compiled at district, regional and national levels to ensure consistently high-quality TB control.

Health system enabling factors

MDR-TB has drawn increasing focus and support from the Ministry of Health of the Republic of Karakalpakstan. The Ministry has been closely involved with the introduction of MSF's Comprehensive Care for All Strategy from the beginning of the project and has supported activities throughout. In 2011, the Ministry of Health issued Prikaz 39, formally recognizing ACD1 as the model of care for all TB treatment. Furthermore, the Ministry has drafted new legislation in support of each medical development and change in protocol, indicating their full support for policy reform and helping embed the initiative within the health system. Changes to the legislative framework have also enabled existing health system structures to be adapted to allow the diagnosis, care and treatment of patients with TB to be decentralized for greater control at the district level. Oversight of TB care has been devolved to district-level councils.

Outcomes

Only preliminary data on the impact of treatment with ACD1 is available as the number of patients who have completed treatment remains modest. Early outcomes, however, are positive and suggest the initiative is performing at least as well as the institutional treatment model (Box 2).

Box 2

What were the main outcomes of the initiative?

- In 2012, approximately half of the 1420 patients who started TB treatment received ACD1; the proportion of patients receiving ACD1 has been steadily increasing over time.
- ACD1 enables patients to start TB treatment sooner; the median time between diagnostic sputum collection and starting treatment fell from six weeks prior to the initiative to less than two weeks in the beginning of 2015.
- ACD1 treatment success rates appear to match those of the traditional care model; success rate data for MDR-TB patients are not yet available due to longer treatment duration.
- Patients receiving ACD1 have shown better adherence to prescribed drug regimens during the non-intensive phase compared to previously hospitalized patients.

Change management

Key actors

With considerable experience and expertise in TB services delivery in the Republic of Karakalpakstan, MSF developed the Comprehensive Care for All TB Strategy and advocated for its introduction. The strong working relationship MSF had already developed with the Ministry of Health of the Republic of Karakalpakstan from collaborations on other TB programmes in the region helped secure government support for the initiative. The Ministry demonstrated an increasing commitment throughout the 2000s towards addressing TB challenges; as TB was a high priority, the Ministry was a willing partner in the initiative. While introduction and early management of the initiative was led by MSF, the Ministry played a critical role in establishing the necessary legal frameworks to enable the initiative's successful introduction. Furthermore, while MSF continues to be involved in leading implementation of the initiative, a gradual handover of responsibilities to the Ministry has started, with the Ministry now responsible for implementation in six districts. It is expected that the Ministry will assume full responsibility for comprehensive TB programmes in the region by 2017.

Initiating change

In light of the urgent need to meet growing MDR-TB challenges, both MSF and the Ministry of Health were motivated to explore new models of TB services delivery. Strong evidence supporting the effectiveness of ACD1 treatment programmes and a wealth of examples of community-based TB programmes in other countries provided a starting point for the design of the initiative. Research on the implementation and operation of other ACD1 treatment models abroad was undertaken to gain understanding of the approach. Following this, a pilot study to test potential implementation strategies was carried out, helping determine the best way to proceed.

Implementation

The initiative was implemented in just two of Karakalpakstan's 16 districts before being rolled out across the region. The Ministry of Health led the development of the necessary political and legal framework on which to build the intervention and MSF led the coordination of managerial issues, such as conducting provider trainings and procuring certain TB drugs. Decentralization and division

of responsibilities was a key part of the implementation strategy and considerable time and resource investments were made in training local providers to take on new responsibilities.

Moving forward

MSF and the Ministry of Health continue to work towards increasing access to comprehensive TB treatment in Karakalpakstan. The Ministry has begun to assume greater responsibility over management of the initiative and, by 2017, will have full control over comprehensive TB programmes in the region.

Highlights

- An understanding of epidemiological and services delivery challenges was key for developing a solution that effectively met patients' needs.
- A supportive political and legal framework for the initiative was developed prior to implementation, helping to embed reforms within health system structures and create a sustainable foundation for the initiative prior to implementation.
- The considerable experience and legitimacy of macro-level partners, in this case MSF and the Ministry of Health, provided the necessary expertise to develop the initiative and secure necessary resources.
- Strong working relationships between key actors, established through a history of working together, helped carry the initiative forward.

1 World Bank. (2015). *World Bank development indicators*. Retrieved from http://data.worldbank.org/indicator/SH.TBS.INCD?page=3
2 Khamraev, A., Tillashaikhov, M., & Parprieva, N. (2014). The Path to Scale-up: Decentralisation and Ambulatory TB Care from Day 1 in Uzbekistan. Uzbekistan: Medecins Sans Frontieres
* Ambulatory care from day one (ACD1) enables patients to start TB treatment in ambulatory settings, avoiding the need for hospitalization. This approach is significantly different to the traditional model of care practised in Eastern European countries where all patients with TB are traditionally hospitalized during the entire intensive phase of treatment.