Tuberculosis in 2017: Searching for new solutions in the face of new challenges

6th TB Symposium – Ministry of Health of the Republic of Belarus, Republican Scientific and Practical Center for Pulmonology and Tuberculosis, and Médecins Sans Frontières

1-2 March, 2017, MINSK, BELARUS

Ambulatory MDR TB patients management. Experience of PIH projects in Russia and Kazakhstan

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Partners In Health
PIH Projects in Russia

Tomsk and Voronezh
Ambulatory treatment sites in Tomsk

- **Day care hospital** (150-200 patients)
- **Sputnik** (15-18 patients)
- **Center for social adjustment** (10 коек)
- **Video-observed treatment (Video DOT)**
  - 20 patients
- **Patronage team**
  - (3-10 locations every day)
- **Hospital at home** (90-100 patients)
Comprehensive social support

- Daily motivational (food) packages
- Monthly transportation passes
- A social worker (hospital treatment – ID renewal, clothes)
- Trustworthy relationships with the staff
A social worker and psychologists at inpatient and outpatient settings
## Daily food packages for TB patients

<table>
<thead>
<tr>
<th>Day of the week</th>
<th>Food item 1</th>
<th>Food item 2</th>
<th>Food item 3</th>
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</thead>
<tbody>
<tr>
<td>Monday</td>
<td>Canned meat (beef) 338 g.</td>
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<tr>
<td>Tuesday</td>
<td>Rice, 800 g</td>
<td>Pasteurized milk, 2,5% fat, 1 liter</td>
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<tr>
<td>Wednesday</td>
<td>Canned fish (mackerel) in oil, 250 g.</td>
<td>Canned corn, 340 g.</td>
<td>Condensed milk with sugar, 380 g. 8,5% fat,</td>
</tr>
<tr>
<td>Thursday</td>
<td>Canned fish (saury) in oil, 250 g.</td>
<td>Waffles 100 g.</td>
<td>Black tea, 24 bags</td>
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<tr>
<td>Friday</td>
<td>Pasta, 400 g.</td>
<td>Sunflower oil, refined, 1 liter</td>
<td>Sugar,.1000 g.</td>
</tr>
<tr>
<td>Saturday</td>
<td>Canned chicken, 325 g.</td>
<td>Canned peas, 425 g.</td>
<td>Cookies 100 g.</td>
</tr>
</tbody>
</table>
Hospital at home

• Team members: one driver, 2 nurses (4 teams in Tomsk);

• Work days – 7 days a week;

• Work hours – 8 hours a day (8am -4pm);

• Number of patients - 25;

• Visiting the patient at his/her home and patent’s examination by a doctor - 1 time in 7 days;

• Visiting the patient at his/her house and patient’s examination by the Head of TB Department - once a quarter.
Working with patients who interrupt treatment

• Prompt response to treatment interruptions due to the work of patronage nurse service

  Structure:

  ✓ Information center at TB Service (senior visiting nurse)

  ✓ One team who look for patients interrupting treatment, provide DOT, look for the reasons of treatment interruption
Patronage team

Members of the team: a driver, a nurse

Work hours: 4 - 7pm

Objectives:

• Searching

• Assessment of the situation and looking for the reasons of treatment interruption

• Bringing the patient back to treatment – to the previous place of treatment or considering other options available

• Deliver therapy (most often for second dose)
A scheme of information transmission

- If the patient is not able to continue taking treatment in any of the DOT units, he/she is transferred to “Hospital at home” service.
- If the patient cannot be involved in taking therapy using all available resources, he/she is transferred to:
  - Senior Patronage nurse (IC) at TB dispensary
  - Center for social adjustment
  - Day care hospital
  - Adherence council
  - Sputnik
  - Hospital at home
  - Patronage team
  - District service of TB Center
  - TB Hospital of TB Center
Adherence Council

Patronage nurse service and district TB service inform senior patronage nurse on the results of the search; the nurse reports this information to the units of directly observed treatment.

Patients who interrupted treatment for more than 3 days and missed more than 25% of TB drug doses are reported to Adherence Council on a weekly basis.

Members:

- Chair – responsible for adherence
- Representatives from all therapy departments
- Psychologists of TB Hospital
- Senior nurse reports to the Council on the work performed during the week.
Adherence Council

• Objective – identify further tactics to manage patients who interrupt treatment for more than 3 days, and those who miss more than 25% of TB drug doses
• Look for ways to solve the patients’ problems that impact adherence
• Involve police, social, substance addiction and mental health services
• Identify a treatment location based on the situation and concomitant conditions of the patient
Sputnik Program
Sputnik Program
«...shifts the onus of responsibility for adherence from the patient to the program...»

➢ **Staff:**

A driver and two certified nurses work in shifts

- TB doctor who combines healthcare jobs
- PIH Coordinator

➢ **Resources:**

- Vehicle and gasoline, cellular service
- Cell phones, clothes/shoes, bags

➢ **For patients:**

- Food packages (given to patients after the daily dose of TB drugs is taken)
- Medications, counseling of specialists
<table>
<thead>
<tr>
<th>Patients’ characteristics, 2006 - 2012</th>
<th>Sputnik (n = 138),%</th>
<th>Others (n = 3265),%</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unemployed</td>
<td>82.6</td>
<td>53.3</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Previously incarcerated</td>
<td>38.4</td>
<td>19.5</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Previous default</td>
<td>6.5</td>
<td>1.0</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Homeless</td>
<td>10.1</td>
<td>8.2</td>
<td>0.427</td>
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<tr>
<td>Chronic alcoholism</td>
<td>80.4</td>
<td>30</td>
<td>&lt;0.001</td>
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<tr>
<td>Drug abuse, before or during the treatment</td>
<td>35.5</td>
<td>7.9</td>
<td>&lt;0.001</td>
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<tr>
<td>Hepatitis</td>
<td>45.6</td>
<td>17.9</td>
<td>&lt;0.001</td>
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<tr>
<td>HIV – infection</td>
<td>4.3</td>
<td>2.5</td>
<td>0.193</td>
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<tr>
<td>Newly diagnosed (first treatment course)</td>
<td>30.4</td>
<td>69.5</td>
<td>&lt;0.001</td>
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<tr>
<td>Smear/culture positive at the treatment start</td>
<td>96.4</td>
<td>64.2</td>
<td>&lt;0.001</td>
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<tr>
<td>MDR-TB</td>
<td>75.4</td>
<td>27.2</td>
<td>&lt;0.001</td>
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</tbody>
</table>
Sputnik: Treatment outcomes (N=129)

- Successfully Treated: 70.5%
- Defaulted: 10.8%
- Treatment failure: 4.0%
- Died*: 1.55%
- Incarcerated - outcome unknown: 1.55%
- Incarcerated - successfully treated in prison (cured): 10.8%
- Still receiving treatment (smear/culture converted): 0.8%

*Deaths unrelated to tuberculosis; 4 of 5 patients were smear/culture converted prior to death
The system of directly observed treatment in Voronezh

Total number of patients on DOT - 231, of them 130 patients are on outpatient treatment.

“Video-observed treatment” Program / Component 1 (Patient enrollment since 23 March 2016)

- Patients who have proper equipment and internet service
- Patients who have basic equipment (procurement of video-camera, headsets, and provision of a SIM-card / modem)

Program advantages

- Reduces transportation costs for the patients
- Saves time for employed patients
- Reduces HR and fuel costs for TB service in providing outpatient treatment
Video DOT in Voronezh

Patients
- Training
- Instruction
- TB drug container
- 2 agreements signed
  (informed consent)

TB service
- An assigned employee
- A laptop
- External memory storage for video recording
Video DOT in Voronezh

Patients
- Selection of patients (no longer sputum or culture positive, no longer on injectable TB drug)
- Instructions for the patient

General Healthcare Network
- Video DOT Room
- A laptop
- Juice (0.2 liter) to take TB drugs with
- An assigned and motivated employee

TB Service
- An assigned employee (Video DOT Room)
- A laptop
- External memory storage for video recording
Video DOT in Voronezh
PIH projects in Kazakhstan

Astana and Almaty
Туберкулез в 2017 году: поиск новых решений перед лицом новых вызовов

Симпозиум по вопросам лечения туберкулеза
Министерство здравоохранения Республики Беларусь, Республиканский научно-практический центр пульмонологии и фтизиатрии,
"Врачи без границ"/ Médecins Sans Frontières

Treatment sites

Akmolinskaya oblast
Astana
NSCP
Almaty oblast
Almaty
Introduction of new TB drugs

- Total cohort of patients in endTB Project – 573;
- Treatment started on February 17, 2016;
- End of enrollment expected on September 30, 2018;
- NFM GFATM grant – 450 patients (summer 2017).

<table>
<thead>
<tr>
<th>Treatment site</th>
<th>Enrollment as of 02/01/2017</th>
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<tbody>
<tr>
<td>Almaty city</td>
<td>35</td>
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<tr>
<td>Astana city</td>
<td>55</td>
</tr>
<tr>
<td>Almaty oblast (North)</td>
<td>1</td>
</tr>
<tr>
<td>Almaty oblast (South)</td>
<td>19</td>
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<tr>
<td>Akmolinskaya oblast</td>
<td>40</td>
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<tr>
<td>NSCP MOH</td>
<td>77</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td><strong>227</strong></td>
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</table>
Cohort characteristics

Drug resistance profile

- MDR: 27.9%
- Pre-XDR with FQ: 1.0%
- Pre-XDR with SLI: 8.1%
- XDR: 4.0%
- Clinical XDR: 12.1%
- Other: 47.7%
Introduction of new TB drugs (227)

Number of patients enrolled into endTB Project

- BDQ: 139
- DLM: 66
- BDQ+DLM: 22
endTB Project in Kazakhstan

- 89 patients receive therapy with new TB drugs at outpatient settings (February 1, 2017):
  - Almaty oblast (North) – 5;
  - Almaty oblast (South) – 19;
  - Akmolinskaya oblast – 8;
  - Almaty city – 22;
  - Astana city – 35.
# endTB Clinical Monitoring

<table>
<thead>
<tr>
<th>Таблица 8. График мониторинга</th>
<th>Первичный визит</th>
<th>Неделя 2</th>
<th>Месец 1</th>
<th>Месец 2</th>
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<th>Месец 4</th>
<th>Месец 5</th>
<th>Месец 6</th>
<th>В период назначения инъекционного препарата</th>
<th>До завершения лечения</th>
<th>Завершение лечения</th>
<th>Пост-лечебное наблюдение 6-й месяц</th>
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<td>Оценка и наблюдение за побочными реакциями</td>
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**Бактериологические исследования**

| Микроскопия мазка              | X               | X       | X       | X       | X       | X       |         |         | Ежемесячно                              | X                      | X                 |                             |
| Посев                          | X               | X       | X       | X       | X       | X       |         |         | Ежемесячно                              | X                      |                   |                             |
| Xpert MTB/RIF                 | X               |         |         |         |         |         |         |         |                                           |                        |                   |                             |
| Hain GenoType MTBDrsI (в некоторых ур原件иях) | X               |         |         |         |         |         |         |         | При положительном результате микроскопии мазка или посева |
| ТЛЧ 1-го ряда методом посева | X               |         |         |         |         |         |         |         | При положительном результате микроскопии мазка или посева |
| ТЛЧ 2-го ряда методом посева (в некоторых ур原件иях) | X               |         |         |         |         |         |         |         | При положительном результате микроскопии мазка или посева |

**Лабораторные исследования**

| ЭНГ | X | X | X | X | X |         | X |         |                                           |                        |                   |                             |
| Общий анализ крови           | X | X | X | X | X | X | X |         | Ежемесячно                              |                        |                   |                             |
| Мочевина, креатинин         | X | X | X | X | X | X |         | X | Ежемесячно                              |                        |                   |                             |
DOT: Astana

- Population: 880,191;
- Three city districts: Sary-Arka, Almaty, Yesil;
- Climate: extreme continental;
- Treatment with new TB drugs (55), at outpatient (35);

DOT cabinets PHC (26)
Video DOT (4)
Mobile hospital at home (9)

DOT cabinet, TB Dispensary (31)

Mobile hospital at home (31)
Video DOT (4)

Monday - Friday  Saturday  Sunday
DOT: Almaty

- Population: 2.5 million people;
- Eight city district;
- Climate: continental;
- Treatment with new TB drugs (35), at outpatient settings (22);

DOT cabinets PHC and TB (22)
DOT cabinets TB (22)
Video DOT (22)

Monday - Friday  Saturday  Sunday
Astana: Mobile hospital at home
Astana: Mobile hospital at home
Video DOT in Kazakhstan

**Astana:**
- 7 days/week;
- Skype: 6 days/week;
- WhatsApp: recording on Sunday;

**Almaty:**
- Sunday (WhatsApp);
- DOT cabinets: 6 days/week;
- WhatsApp recording on Sunday.
DOT coordination: Astana

- Video DOT
- DOT cabinets PHC
- DOT cabinets TB
- Mobile hospital at home
- Coordinator on ambulatory care
- Adherence Council (Head doctor) Daily report at 3:00 pm
- Partners In Health
Monitoring of outpatient treatment: Astana
Monitoring of outpatient treatment: Astana
Acknowledgement

• Partners In Health, Boston, MA
• Partners In Health, Kazakhstan
• Ministry of Health of Kazakhstan
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• Regional TB Services of Astana, Almaty cities, Akmolinskaya and Almaty oblasts.