TB EPIDEMIOLOGY IN ARMENIA (2007-2016)
PUBLIC FUNDING OF TB SERVICES

Fully covered by public funding through the State Health Agency of MOH.

In-patient services

TB Diagnostic services

Out-patient services

TB services in Armenia
OBJECTIVES OF THE FINANCING ADJUSTMENTS FOR TB SERVICES

- To reduce high level of unjustified hospitalization rate for TB patients
- To ensure effective and targeted use of funds
- Strengthen TB out-patient service
CHANGES IN TB FINANCING MECHANISMS IN ARMENIA

In-patient

TB services

Out-patient

Bed/Day

Fixed costs (70%)

Variable costs

Fixed Funding, Per/Capita-Based

DO NOT MOTIVATES PERFORMANCE

Per/capita costs

Performance based

Fixed + Variable Costs

NO MORE FINANCIAL INCENTIVES FOR HOSPITALIZATION

Better Performance

Fixed + Performance Based

MOTIVATES PERFORMANCE
REVISED FINANCING MECHANISMS FOR IN-PATIENT TB SERVICES

**Fixed Costs**
(provision of facility maintenance costs such as wages, utilities etc.)

+ **Variable Costs**
(cost of medicine and food based on the number of discharged patients)
PROCESS OF CHANGING METHODS OF FINANCING OF THE TB INPATIENT SERVICE

ASSESSMENT/STUDY IN TB SERVICE
- NTC
- HSA

INTRODUCTION OF RESULTS TO THE MOH
- NTC
- HSA

GOVERNMENT ORDER
- MOH/NTC/HSA

ADOPTED BY THE GOVERNMENT OF ARMENIA

INTRODUCTION IN HEALTH SYSTEM

...WILLING TO CHANGE...

M & E /NTC-HAS, WHO/

PRECEDENT FOR PSYCHIATRIC AND NARCOLOGIC SERVICES

POLITICAL COMMITMENT
ACHIEVEMENTS

- **Introduced** new hospitalization criteria for TB patients
- **Reduced**
  - Number of hospitalized TB patients and hospitalization rate of TB patients
  - Number of hospitalized TB suspects and TB patients with smear negative results
  - Average length of stay (ALOS) for suspects and smear negative TB patients in hospital
  - Bed Occupancy Rate (BOR)
EXAMPLE: NID INDICATOR

Number of inpatient discharges

- 6513 in 2013
- 5581 in 2014
- 4388 in 2015
- 2703 in 2016
EXAMPLE: BOR INDICATOR

Bed Occupancy Rate (BOR)

- 2013: 72.0%
- 2014: 54.0%
- 2015: 52.0%
- 2016: 36.0%
EXAMPLE: ALOS INDICATOR

Average Length of Stay (ALOS)

- 2013: 23.0
- 2014: 22.2
- 2015: 22.6
- 2016: 37
MONITORING AND EVALUATION OF THE TB SERVICE
FINANCING REFORM

TB SERVICE MANAGEMENT

JOINT

WHO EURO-SHA ARMENIA-
NTC ARMENIA
(WOLFHESE WORKING GROUP)

FINANCING INDICATORS
<table>
<thead>
<tr>
<th></th>
<th>INDICATORS</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>Percentage of completed or cured</td>
<td>80.0%</td>
<td>77.2%</td>
<td>79.3%</td>
<td>79.6%</td>
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<tr>
<td>1</td>
<td>Retreatment TB rate</td>
<td>22.6%</td>
<td>25.8%</td>
<td>23.6%</td>
<td>24.3%</td>
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<tr>
<td></td>
<td>Percentage of people diagnosed among those screened and tested</td>
<td>33.4%</td>
<td>38.3%</td>
<td>38.3%</td>
<td>32.0%</td>
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<tr>
<td>2</td>
<td>Cost per patient treated for drug susceptible patients (AMD, thousands)</td>
<td>144.1</td>
<td>159.2</td>
<td>298.7</td>
<td>298.7</td>
</tr>
<tr>
<td></td>
<td>Cost per patient treated for MDR patients (AMD thousands)</td>
<td>323.4</td>
<td>338.1</td>
<td>351.9</td>
<td>351.9</td>
</tr>
<tr>
<td>5</td>
<td>Percentage of lost patients</td>
<td>9.8%</td>
<td>11.7%</td>
<td>6.7%</td>
<td>8.5%</td>
</tr>
<tr>
<td></td>
<td>Cost per sucessfully treated (completed treatment or cured) drug</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
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<tr>
<td>6.1</td>
<td>susceptible TB patient</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cost per sucessfully treated (completed treatment or cured) M/XDR-TB</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>6.2</td>
<td>patient</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Bed Occupancy Rate (BOR)</td>
<td>72.0%</td>
<td>54.0%</td>
<td>45.0%</td>
<td>36.0%</td>
</tr>
<tr>
<td>8</td>
<td>Average Length of Stay (ALOS)</td>
<td>23</td>
<td>22.2</td>
<td>22.6</td>
<td>37</td>
</tr>
<tr>
<td>9</td>
<td>Number of inpatient discharges</td>
<td>6513</td>
<td>5581</td>
<td>4388</td>
<td>2703</td>
</tr>
<tr>
<td>10</td>
<td>Cost per inpatient discharge (AMD thousands)</td>
<td>226.6</td>
<td>233.8</td>
<td>406.8</td>
<td>406.8</td>
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<tr>
<td>11</td>
<td>Inpatient readmissions rate in 30 days</td>
<td>2.99%</td>
<td>2.63%</td>
<td>3.23%</td>
<td>1.33%</td>
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<tr>
<td>12</td>
<td>Admission rate of new smear positive patients</td>
<td>98.00%</td>
<td>98.40%</td>
<td>89.70%</td>
<td>95%</td>
</tr>
<tr>
<td>13</td>
<td>Case detection rate in outpatient facilities</td>
<td>2.00%</td>
<td>1.62%</td>
<td>9.88%</td>
<td>12.0%</td>
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<tr>
<td>14</td>
<td>Percentage of DR-TB patients followed in outpatient facilities</td>
<td>144.80%</td>
<td>218.50%</td>
<td>294.00%</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>INDICATORS</td>
<td>2013</td>
<td>2014</td>
<td>2015</td>
<td>2016</td>
</tr>
<tr>
<td>----</td>
<td>-----------------------------------------------------------------------------</td>
<td>-----------</td>
<td>-----------</td>
<td>-----------</td>
<td>-----------</td>
</tr>
<tr>
<td>15</td>
<td>Physicians visits per 100.000 inhabitants</td>
<td>394,559</td>
<td>395,933</td>
<td>406,813</td>
<td>-</td>
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<tr>
<td>16</td>
<td>Medical visits per outpatient</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>17</td>
<td>Cost per medical visit (AMD thousands)</td>
<td>2.5</td>
<td>2.6</td>
<td>2.7</td>
<td>2.7</td>
</tr>
<tr>
<td>18</td>
<td>Percentage of patients treated exclusively in outpatient settings</td>
<td>8.00%</td>
<td>14.80%</td>
<td>15.70%</td>
<td>11%</td>
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<tr>
<td>19</td>
<td>Cost per outpatient</td>
<td>157.2</td>
<td>148.8</td>
<td>155</td>
<td>155</td>
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<tr>
<td>20</td>
<td>Joint assessment of resource allocation and efficiency indicators by the NTP and SHA</td>
<td>Ongoing</td>
<td>Ongoing</td>
<td>Ongoing</td>
<td>Ongoing</td>
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<tr>
<td>21</td>
<td>External assessment of the implementation and impacts of health finance reforms</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Inpatient discharges per 10.000 inhabitants</td>
<td>21.5</td>
<td>18.5</td>
<td>14.6</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Percentage of smear negative patients that are hospitalized</td>
<td>0.67</td>
<td>0.298</td>
<td>0.297</td>
<td>0.49</td>
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<tr>
<td>24</td>
<td>Change in percentage of resources allocated to outpatient care</td>
<td>-3.40%</td>
<td>-0.20%</td>
<td>-</td>
<td></td>
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<tr>
<td>25</td>
<td>Percentage of physicians trained for people centered care and offered by the NTC</td>
<td>98.10%</td>
<td>98.10%</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>Percentage of nurses trained for people centered care and offered by the NTC</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>Number of hospital beds for TB</td>
<td>428</td>
<td>428</td>
<td>428</td>
<td>398</td>
</tr>
<tr>
<td>28</td>
<td>Inpatient physicians (FTE) per 10.000 inhabitants</td>
<td>0.086</td>
<td>0.099</td>
<td>0.116</td>
<td>0.144</td>
</tr>
<tr>
<td>29</td>
<td>Inpatient nurses (FTE) per 10.000 inhabitants</td>
<td>0.55</td>
<td>0.55</td>
<td>0.5</td>
<td>0.5</td>
</tr>
<tr>
<td>30</td>
<td>Percentage of funding allocated to Inpatient Care</td>
<td>76.60%</td>
<td>80.00%</td>
<td>80.20%</td>
<td>80.2%</td>
</tr>
<tr>
<td>31</td>
<td>Physicians (FTE) providing outpatient services per 10.000 inhabitants</td>
<td>0.25</td>
<td>0.25</td>
<td>0.3</td>
<td>0.3</td>
</tr>
<tr>
<td>32</td>
<td>Outpatient nurses (FTE) providing outpatient services per 10.000 inhabitants</td>
<td>0.29</td>
<td>0.28</td>
<td>0.3</td>
<td>0.3</td>
</tr>
<tr>
<td>33</td>
<td>Percentage of funding allocated to Outpatient Care</td>
<td>23.40%</td>
<td>20.00%</td>
<td>19.80%</td>
<td>19.8%</td>
</tr>
</tbody>
</table>
FUTURE ACTIVITIES

- Regularly monitoring and evaluation
- Establishment of a **Continuous Quality Improvement System** at the National Tuberculosis Control Center
  - Data management, including the traceability of the documentation
  - Standardization of procedures and SOP document development
  - Qualification of service providers/staff trainings
- New **Training center** for TB service management best practices in Armenia
- Introduction of the implementation of new model of DOT at home with the support of family members based on results of study “Patient-centered TB treatment approach: A cluster randomized controlled trial in Armenia” implemented by AUA and NTBCC
- Redesigning the Yerevan CTBD to the Center of Lung Diseases and Tuberculosis
CONTINUOUS QUALITY IMPROVEMENT SYSTEM

CENTER FOR HEALTH SERVICES RESEARCH AND DEVELOPMENT
GERALD AND PATRICIA TURPANJIAN SCHOOL OF PUBLIC HEALTH
AMERICAN UNIVERSITY OF ARMENIA

IN-PATIENT TUBERCULOSIS (TB) TREATMENT IN ARMENIA: ESTABLISHMENT OF A CONTINUOUS QUALITY IMPROVEMENT SYSTEM
A NEEDS ASSESSMENT

Prepared for the Armenian Medical Fund

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A CLUSTER RANDOMIZED CONTROLLED TRIAL IN ARMENIA

People-centered tuberculosis care versus standard directly observed therapy: study protocol for a cluster randomized controlled trial

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