Improving Availability and Reducing the Price of MDR-TB Drugs

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Clinton Health Access Initiative (CHAI)
Context: The availability and high price of second-line drugs (SLDs) are, or will become, a barrier to MDR treatment access

SLD availability is problematic...

- 5 out of 9 drugs could not be awarded in India’s 2009/10 World Bank tender
- In India ~3600 out of 5400 diagnosed MDR patients actually started treatment due partly to lack of availability of drugs

...and the drugs are expensive.

- GLC/GDF drugs cost $4400+ per patient

![Bar Graph](image)

- 4 drugs >80% of GFATM 2008-10 SLD Expenditure

1. DR-TB Drugs Under the Microscope - MSF and The Union, March 2011.
Key messages

- Together, through coordinated actions, **we can improve the availability and dramatically reduce the price of WHO Prequalified drugs for MDR-TB**

- However, demand for key drugs is too low, below a key threshold, leading to a natural monopoly situation¹

- The first and most important step to achieving the intended outcome is to grow demand for key drugs (with limited availability and/or high price)
  - By harmonizing quality standards and regimens, one can consolidate demand
  - By investing further in case finding, one can create demand

¹ Exceeding this threshold would enable the sustainably entry of additional suppliers and the application of certain market dynamics techniques
Case Study

Price reduction
TDF price reductions were achieved through a multifold approach

58% price reduction for tenofovir from $207 in 2006 to $87 in 2010.

69% price reduction for efavirenz from $240 in 2006 to $75 in 2010.
Price reduction strategies/methods

- Develop FDCs
- Reformulation
- Dose reduction

- Simplify guidelines
- Support program scale-up
- Pool/coordinate procurement

- Actively induce supplier entry (API and FDF)
- Liberalize procurement practices
- Expand regulatory approvals

- Improve process chemistry
- Optimize raw material sourcing
- Improve demand forecasts
- Stabilize input prices

- Cost-plus negotiations
- Guaranteed volumes

Key Prerequisites for progress on pricing
- Potential for rapid demand growth and high absolute demand
- Reliable procurement mechanisms
- Coordinating entity/entities with presence on demand & supply sides
Case Study

Procurement Practices to expand supply base, reduce supply risks and reduce prices
Splitting and allocating tenders in advance facilitated the entry of additional suppliers into the market... leading to lower prices, improved availability and reduced supply risks.

While nearly $2 million was initially invested for a premium price, this resulted in even greater rewards by broadening the supply base and achieving significant price reductions.

Source: CHAI-UNITAID order data; price for LPV/r (200mg/50 mg); cost savings based on patient volumes and price reductions relative to the innovator’s original price ($500 pp/py).
Case Study

Avoiding supply disruptions by working transparently with suppliers
By transparently working with suppliers to supply accurate on-the-ground demand data, one can avoid supply disruptions.

- TDF supply was constrained in 2H, 2010
- Leveraging data gathered in the field, CHAI worked with suppliers to ensure rapid capacity expansion
- Further expansion needed for 2014

Annualized Demand and Capacity
(Metric tons per annum)

- Installed capacity
- Demand

* CHAI estimates; accounts for only approved capacities, does not include capacities that are yet to be approved
Demand growth is needed before CHAI can apply these techniques and the SLD marketplace can sustainably support more than one supplier.

### Estimated monthly API demand & volume threshold for supplier entry*

<table>
<thead>
<tr>
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<th>Monthly API Demand (000s Kg)</th>
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<tbody>
<tr>
<td>Current</td>
<td>Threshold</td>
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<td>Cs</td>
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<tr>
<td>PAS</td>
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<tr>
<td>Cm</td>
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<tr>
<td>Km</td>
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*Preliminary Analysis. Volume thresholds based on minimum volumes required for reasonably efficient manufacturing under the best possible assumptions; market cannot sustain multiple manufacturers below these volumes at competitive price levels. Current Demand data source = 2010 GFATM PQR Delivery Data.

- Current demand does not support more than 1 supplier per formulation.
- Significant demand growth is needed—to a level that is a *multiple* of the current levels.
Achieving threshold levels of demand creates possibilities to reduce the price of key SLDs through similar targeted interventions.
We can more rapidly achieve these threshold levels of demand by harmonizing quality standards and consolidating regimens.

Demand is currently fragmented across 2 dimensions:

1. **Quality Standards**
   - On the supply side: Different standards effectively creates two distinct markets for the same drug.
   - On the program side: it doubles the effort for ordering and in-country logistics.

2. **Treatment Regimens**

<table>
<thead>
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<th>Continuation Phase</th>
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<td>Eto, Lvx, Cs, E</td>
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</table>
Thank you

“It just struck me that this was a problem that cried out for organization and entrepreneurial skill. And that for a relatively small amount of money, we could have a huge impact.”

– President William J. Clinton
The 10 – 15 commonly used SLDs are broadly categorized into three groups

<table>
<thead>
<tr>
<th>Category</th>
<th>Characteristics</th>
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</table>
| "Commoditized" TB drugs                      | • Drugs already at low prices  
• No further scope for price reduction  
• Low need for intervention |
| Broad-spectrum anti-infectives used for multiple indications | • Drugs are prescribed for other indications, TB use is small fraction of overall demand  
• Inexpensive, or potentially inexpensive  
• Medium need for intervention |
| Expensive MDR-TB drugs                        | • Drugs specific to MDR-TB  
• High price is a major barrier to access  
• Dysfunctional market  
• **High need for intervention** |

Opportunities for intervention investigated
4 key SLDs with scope for price reduction

- **Cycloserine (Cs)**
  - Highest volume SLD, second by value
  - Cost: ~$1000 per patient treatment*

- **P-Amino Salicyclic acid (PAS)**
  - Second highest volume, highest by value
  - Cost: ~$2,500 per patient treatment*

- **Capreomycin (Cm)**
  - Low volume drug (intensive phase only)
  - Cost: ~$600 per patient treatment**

- **Kanamycin (Km)**
  - Quality and forecasting issues have been a challenge, resulting in higher costs and supply disruptions

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* Estimated 2012 demand by value (GF-funded programs)*

- PAS (37%)
- Cs (33%)
- Cm (10%)
- Km (5%)

% 100% = US$54.1M

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* Average GDF prices over 2008-2009, assuming adult of 51-70kg weight band, 24 months of treatment at WHO recommended dosages
** Average GDF prices over 2008-2009, assuming adult of 51-70kg weight band, 6 months of treatment (Cm is only used in intensive phase) at WHO recommended dosages
Resources for SLD procurement

• Lab scale up to be undertaken with support from
  – UNITAID Expand TB
  – Global Fund –RCC and Rd 9
  – World Bank
  – USAID through WHO

• Second line drugs

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