Impact Evaluation: From Promise to Evidence

The Impact Evaluation of the New Essential Drug Procurement System of China

Beijing, China
July 24th, 2009
1. Background

- The current drug procurement system in China has a very limited effect in controlling the price and preventing the misuse of drugs.

- New essential drug procurement system: centralized drug procurement based on competitive bidding given the price, quality and quantity of essential drugs.
2. Result Chain

**Input**

1. Investment to build a new county level procurement center and procurement platform
2. Training Expense inputs
3. Operational Cost inputs
4. Funding for Evaluation

**Activities**

1. Build new county level procurement centers and procurement platform
2. Training
3. Establish the new procurement policy and supplementary regulations
4. Streamline the drug distribution system
5. Build monitoring and evaluation system

**Outputs**

1. Lower prices of essential drugs
2. Higher quality of essential drugs
3. Improved accessibility of essential drugs

**Outcomes**

1. Lower drug cost per illness
2. Lower public drug expenditure over total public medical expenditure
3. Lower the growth rate of total health expenditure (including private spending)

**Goal**

1. Improved population health
3. Research Question

- Whether the implementation of county level new essential drug procurement system:
  - Improves the quality of prescribed essential drugs;
  - Lowers the cost for both the public system, and the household, and;
  - Increases accessibility to effective treatment.
4. Impact Indicators

- **Primary Indicators**
  1. County level drug price index
  2. Quality index of sampled essential drugs
  3. Proportion of essential drug over the total procured drugs

- **Secondary Indirect Indicators**
  1. Proportion of essential drug expenses over total hospital drug sales at the county level
  2. Incidence rate of drug related complications especially due to poor pharma quality
  3. Rate of treatment foregone due to high costs of care (at household level)
5. Identification Strategy

- Randomization
- DiD to control for any remaining differences between the treatment and control groups at baseline

Impact = \( (Y_{t1} - Y_{t0}) - (Y_{c1} - Y_{c0}) \)

**Impact**

- **Intervention**
- **Average Treatment Effect**

- **Treatment**
- **Control**

<table>
<thead>
<tr>
<th>Year</th>
<th>Treatment</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td></td>
<td></td>
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<tr>
<td>2010</td>
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Sampling:

- Randomly select 30% of counties in each province.
- Randomly assign treatment (new essential drug procurement system) to half of the selected counties and the rest constitutes the control group.

- 2500 counties in China
- Randomly select 30% of counties in each province
- Randomly assign treatment
- 375 counties receive treatment
- 375 counties as controls
6. Sample and Data (Cont’d)

- **Primary/Direct Indicators**

  1. County level drug price index
     - Collect data from health bureau, drug inspection administration, essential drug procurement office, NCMS/healthcare security management center, and obtain weighted average drug price index

  2. Quality index of sampled essential drugs
     - Drug inspection administration

  3. Proportion of essential drug over the total procured drugs
     - health bureau, drug inspection bureau, essential drug procurement office
6. Sample and Data (Cont’d)

- **Secondary Indicators**

1. Proportion of essential drug expenses over total hospital drug sales at the county level
   - Health bureau, NCMS/ healthcare security management center, and new survey

2. Incidence rate of drug related complications especially due to poor pharma quality
   - Health bureau and new survey

3. Rate of treatment foregone due to high costs of care (at household level)
   - New survey & 2008 Fourth National China Health Survey (for baseline measures)
# 7. Work Plan

<table>
<thead>
<tr>
<th>Activities</th>
<th>Project Calendar</th>
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<tbody>
<tr>
<td>Conduct Literature Review</td>
<td>1 2 3 4 5 one year</td>
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<tr>
<td>Design the Project</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>Case study, collect and analyze the regulations provisions of essential drug procurement.</td>
<td>1 2 3 4 5 6</td>
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<tr>
<td>Design, test and finalize survey questionnaire</td>
<td>1 2 3 4 5 6</td>
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<tr>
<td>Administrate survey</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>Clean and analyze survey data</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>Intervene</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>Conduct data collection post intervention</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>Clean and analyze survey data</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>Organize conference and solicitate comments on the project and draft report</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>Revise and submit impact evaluation report</td>
<td>1 2 3 4 5 6</td>
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**Note:**
- Activities in progress are indicated with colors: yellow for ongoing, blue for completed, and red for planned.
- The project calendar extends over one year, with months 1 through 6.
8. Funding Sources

- **Ear-marked Grant from Government Revenue**
  - Central government
  - Local government

- **International Support**
  - The World Bank
  - The Spanish Impact Evaluation Fund for China
  - The World Health Organization
  - Others
Thank you!