

**Fighting Tuberculosis through Community Based Counselors:  
A Randomized Evaluation of Performance  
Based Incentives**

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## Study Questions and Approach to Randomization

The primary research question that this study attempts to address is *“does the provision of incentives to the health workers operating the centers increase their motivation and performance (number of detections and defaults)?* Therefore, the overall objective is to evaluate the effectiveness of offering outcome-based monetary incentives to community DOTS counselors. In addition, the study will also evaluate if the impact varies upon characteristics of the counselors, the area of their operation and patient characteristics.

Moreover, the study will also address secondary research questions such as: *Is the DOTS treatment delivered efficiently? What are the counselors’ interactions within their centers’ communities, and what are some of the resulting effects from this interaction, including increased TB knowledge and changes in behavior resulting in more precaution used to decrease the spread of infection to other individuals?*

The randomization approach consists of randomly allocating counselors to either a fixed salary or financial incentives, as per this intervention. The incentives are designed to encourage the detection of new patients (by active door to door counseling), and penalize the health workers for defaults of patients.

The incentive based salary and the fixed salary are calculated as follows, these are based on computations derived from baseline TB prevalence rates for the study area in the past year.

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*In the first randomization for the period of incentives based on detection, for a duration of 6 months, the counselor is offered one of the 2 following contracts, based on random selection:*

- *Contract 1a: Fixed salary*
- *Contract 1b: Fixed salary (75% of contract 1a) + incentives based on detection*

*In the second stage randomization for incentives based on default, for a duration of 6 months, the health worker is offered one of the 2 following contracts, based on random selection :*

- *Contract 2a: Fixed salary*
  - *Contract 2b: Fixed salary (75% of contract 2a) + incentives based on default*
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The duration of the entire intervention will be for twelve months. Moreover, the study will also undertake extensive surveying of both the health workers and patients as well as collection of public data recorded in TB registers.

### **Estimated Power of the Study**

The original power calculations of the study reflected that a minimum sample size of 120 counselors would be adequate to detect any significant effect of the intervention. However, due to delays in program expansion and intervention roll out, counselor enrolment has been lower than expected; Till date, we have had 100 counselors who have enrolled in the experiment.

Our forthcoming collaboration with CARE will ensure that we will reach the required sample within the given project timeline. By enrolling 51 of CARE's field extension workers in our experiment, we hope to reach a sample size of atleast 150 counselors.

### **Study Sites**

The project began with establishing study sites in Delhi and the three cities of Jalandhar, Ludhiana and Amritsar, in Punjab. The intervention in these cities ended in January, 2012. The study also expanded to five cities in Madhya Pradesh, 1 city in Uttar Pradesh along and 4 cities in Chattisgarh. While operations in 4 cities of Madhya Pradesh: Sagar, Jabalpur, Gwalior and Indore have recently ended, we will continue our operations in Chattisgarh.

Also, as we begin to implement our study with CARE, India, our operations will expand to 6 districts in Chattisgarh, four districts in Madhya Pradesh and six districts in Jharkhand.

### **Updated Project Implementation Plan**

As mentioned earlier, the project will also now collaborate with CARE India, which is another prominent national NGO engaged in TB control in the states of Madhya Pradesh, Chattisgarh and Jharkhand.

We hope to move forward quickly with enrolment of CARE's sites into the study and plan on beginning our experiment in Chattisgarh in December, 2012. Prior to the implementation of the study in Chattisgarh, we are in the process of conducting extensive piloting of survey instruments and mapping of villages in the intervention area.

Moreover, we are also in the process of finalizing field operations, which involves orienting CARE program officers regarding the requirements of the study, obtaining historical data on detection and defaults, calculating the incentive scheme for each district along with formally establishing a salary disbursement structure for FEWs that will be closely monitored by the J-PAL team.

While our operations in Chattisgarh will continue till December 2013, by February, 2013, we plan on beginning operations in Madhya Pradesh and by May, 2013 in Jharkand.

## Project PMP

| Outcomes of interest  | Indicator   | Method of data collection   | Frequency of data collection   |
|---|---|---|--|
| <ul style="list-style-type: none"> <li>• Counselor performance</li> <li>• Effect of incentives on motivation and job satisfaction</li> <li>• How incentives affect non-incentivized activities</li> <li>• Quality and scope of care and service delivery</li> </ul> | Counselor socioeconomic details                                 | Counselor surveys and organization data on performance  | Counselor surveys - Ongoing as new counselors are randomized and others exit the experiment; Organization data on performance – collected every month  |
|   | Detection and default prevention activities                     |   |  |
|   | Quality and range of care provided during each incentive system |   |  |
|   | Commitment and satisfaction with job and organization           |   |  |
| <ul style="list-style-type: none"> <li>• Quality of care received</li> <li>• TB and other health outcomes</li> <li>• Awareness of TB care and treatment</li> <li>• Impact of incentive scheme on patients</li> </ul>  | TB related health outcomes                                      | Patient surveys   | Entry and endline administered at most 1.5 months into treatment and at 6 months post baseline; Endline+ administered at point of default or transfer out or at 6 months of treatment (if no baseline was administered). |
|   | Care received   |   |  |
|   | Interactions with counselor                                     |   |  |
|   | Knowledge of TB   |   |  |
|   | Interactions with other healthcare providers                    |   |  |
|   | Impact and severity of disease on overall health                |   |  |
| Patient socioeconomic indicators  |   |   |  |
| <ul style="list-style-type: none"> <li>• Patient compliance</li> <li>• Counselor treatment standards</li> <li>• Irregularity in the reporting of missed pills</li> </ul>  | Daily missed pills  | Patient treatment information and monitoring data – photographs of treatment cards and surprise visits to observe functioning of center | Monthly visits to centers to take photographs of treatment cards and monthly surprise visits for observation   |
|   | Ongoing TB test results   |   |  |
|   | Detection   |   |  |
|   | Default   |   |  |
|   | Number of patient visits  |   |  |
| Mode of visit   |   |   |  |

## Methodology for cost effectiveness calculations

The cost-effectiveness of the interventions will be assessed by comparing the cost of providing incentives with their impact on detections and default.

The very design of the interventions will make the cost-effectiveness calculation straightforward: the cost of providing incentives to counsellors does not have a fixed component. It is a variable cost determined by the number of additional detections or reduced defaults.

The cost per additional detection is equal to the amount of money given for any detection and similarly for the cost per reduced default. In other words, the exact cost-effectiveness of the interventions is known by design, provided they have a significant impact.

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**MILESTONE #5**

**July, 2013**

## Current Status

### Chhattisgarh

As outlined in the previous milestone, the study is ongoing in two districts of Chhattisgarh since February, where six Field Extension Workers have been successfully randomized and enrolled in the study. These counselors are about to complete their fourth month of randomization with their salaries and incentives being disbursed according to study guidelines. After August, 2013, these counselors will move into the default phase of the study, where their incentives will be based on the prevention of defaults in their respective catchment areas. Preparations for this transition, including the administering of a midline survey to all counselors will begin at the end of July, 2013.

Since the last progress report, our team has conducted scoping visits to North Chhattisgarh, where we were able to closely interact with Field Extension Workers and their District Co-ordinators to explain the study to them in detail. Moreover, we were also able to chalk out an operational plan with Care and their partner organizations for salary and incentives verification and disbursement every month. The survey team has also piloted the patient surveys in the southern districts and have established a protocol for locating patients, which will assist the team to locate patients to surveys in a timely manner.

Unfortunately, since the last progress report, the project has faced significant delays in other aspects of the study. We have been unable expand the project to the districts in the North of Chhattisgarh in accordance to the timeline specified in the last milestone. Our team has also not yet begun the patient surveys that were slated to begin in May.

Unfortunately, this delay has largely been due to the sudden and untimely death of Care's Project Manager, who was supervising the experiment on their side.

Care, India has assured us that they are committed to the study and are in the midst of minor organizational restructuring, which will enable the study to move ahead.

We are currently working on a revised timeline with Care, which we can send your way as soon as it is finalized. We plan to begin the patient surveys in July and to randomize the Field Extension Workers in North Chhattisgarh by the end of August, tentatively.

### Number of Field Extension Workers:

The number of counselors or Field Extension Workers and their corresponding DOTS centres (DMCs) are outlined in the Table 1. While, the number of FEWs and DMCs for Kanker and Dhamteri districts remains the same, we have added the numbers for the Northern districts of Chattisgarh: Sarguja, Koriya and Jashpur.

As the table reflects, by the end of August, 2013, there will be 15 FEWs and 26 DMCs in the study in Chhattisgarh.

*Table 1: Number of FEWs and DOTS centres in two districts of Chhattisgarh*

| District     | Number of FEWs | Number of DMCs |
|--------------|----------------|----------------|
| Kanker       | 3              | 5              |
| Dhamteri     | 3              | 3              |
| Sarguja      | 3              | 6              |
| Koriya       | 3              | 6              |
| Jashpur      | 3              | 6              |
| <b>Total</b> | <b>15</b>      | <b>26</b>      |

### Number of Patients:

As mentioned in the last milestone, we expect to survey 60-65 patients every 2 to 3 months in Dhamteri and 60 patients every 2 to 3 months in Kanker. The team was unable to start patient surveys in May (as explained above) and now plans to start surveys in July, where we will survey all patients undergoing treatment at the DMCs over the last four months according to the study's sampling plan.

## Number of Detections:

Table 2, below, summarises the number of detections in the study DMCs from the 26<sup>th</sup> of February to the 25<sup>th</sup> May, 2013. These detection figures are utilized to calculate detection incentives for treatment counselors and will be collected monthly throughout the course of the experiment.

*Table 2: Number of detections in Control and Treatment Areas*

| District | DMC            | Detections | Type      |
|----------|----------------|------------|-----------|
| Kanker   | Amoda          | 3          | Treatment |
|          | Narharpur      | 10         | Treatment |
|          | Bhanupratappur | 33         | Control   |
|          | Daneilikanhar  | 8          | Control   |
|          | Antagarh       | 9          | Treatment |
| Dhamteri | Magarload      | 8          | Control   |
|          | Kurud          | 13         | Control   |
|          | Dhamteri       | 30         | Treatment |

## Jharkhand and Madhya Pradesh

Due to operational delays in Chhattisgarh, the expansion in Jharkhand and Madhya Pradesh will likely be postponed to September and October respectively. Again, we can confirm these dates as soon as we have finalized the revised timeline with CARE. We are trying to ensure that CARE begins the process of disseminating the study guidelines to their field staff in these states in order to minimize further operational difficulties and delays.

## Costs

Since the study is on-going only in Chhattisgarh, Table 3 below reflects the incentives and the total salary paid to six Field Extension Workers in the two southern districts for the past three months of the experiment: March, April and May. We have not incurred any financial costs apart from the implementation of the study till date.

Table 3: Incentive amounts and total salaries paid out to FEWs, Chhattisgarh: March to May, 2013

| <b>District</b> | <b>FEW</b>   | <b>Incentives (INR)</b> | <b>Total Salary(INR)</b> |
|-----------------|--------------|-------------------------|--------------------------|
| Kanker          | FEW 1        | 3575                    | 12000                    |
|                 | FEW 2        | None                    | 10500                    |
|                 | FEW 3        | 2475                    | 10900                    |
| Dhamteri        | FEW 1        | None                    | 10350                    |
|                 | FEW 2        | None                    | 10500                    |
|                 | FEW 3        | 95                      | 3450                     |
|                 | <b>Total</b> | <b>6145</b>             | <b>57700</b>             |

### Challenges

The most important challenge that the study has faced is delays in the operationalization of patient surveys in south Chhattisgarh and the expansion of the study in the North. This delay has, unfortunately, affected the timeline of the entire study. The team is trying its best to minimize further delays at this point and work closely with our partner organization to begin hindered operations as soon as possible. We are confident that CARE, India is as committed to the project as we are and will support us in adhering to the timeline we are currently finalizing with them.