A conversation with Operation ASHA, May 10, 2019

Participants

- Dr. Shelly Batra – President & Co-Founder, Operation ASHA
- Deepak Joshi – Former Country Director, Cambodia, Operation ASHA
- Andrew Martin – Senior Research Analyst, GiveWell

Note: These notes were compiled by GiveWell and give an overview of the major points made by Dr. Batra and Mr. Joshi.

Summary

GiveWell spoke with Dr. Batra and Mr. Joshi of Operation ASHA (OpASHA) as part of the second round of investigating applicants to the 2019 GiveWell Grants for Global Health and Development in Southeast Asia and Bangladesh (https://www.givewell.org/research/grants-southeast-asia-bangladesh-2019/application-details). Conversation topics included OpASHA's core program model in Cambodia, its training of government health workers in Cambodia, its program impact, its grant proposal for additional work, and its room for more funding.

Core program model in Cambodia

In Cambodia, OpASHA conducts an active case-finding, treatment, and counseling program for tuberculosis (TB) through a network of community health workers (CHWs). OpASHA hires community health workers for the program, and the Cambodian government covers the costs of TB treatment drugs, sputum sample testing, and treatment for drug-resistant TB.

The areas in which OpASHA works are typically selected based on requests from the government. Every province and district in the nation is mapped for TB detection and prevalence rates by the National Tuberculosis Control Programme, and NGOs such as OpASHA are then directed to work in the highest-need areas.

CHW structure

The CHWs that OpASHA hires are local people, who are trained extensively on TB symptoms, necessity of treatment adherence, preventing spread of infection, achieving high-quality nutrition at low cost, and other issues related to TB. After being trained, CHWs receive low-cost tablet computers containing eDetection, eCompliance, and other digital applications developed by OpASHA to find, test, and treat TB patients.

Patient screenings

CHWs screen patients for TB through:

- **Contact tracing** – CHWs screen the family members and close contacts of existing TB patients.
- **General screenings** – General TB screenings are conducted by traveling door-to-door. CHWs also visit religious centers and factories to speak with individuals about TB symptoms and provide contact information for free screenings. Factories are particularly conducive to spread of infection due to overcrowding and lack of ventilation.

Each CHW is responsible for a general population of approximately 20,000 (two health centers). However, the actual number of individuals served by a CHW depends on the patient and population density within a given area. In some areas near the Mekong River, OpASHA's CHWs travel on boats from island to island, visiting only a few patients per day.

Schedule

In the morning, CHWs typically visit the homes of existing patients to deliver and directly observe treatment. In the afternoon, CHWs typically conduct general screenings, perform contact tracing, and visit government laboratories to submit sputum (phlegm) samples collected from patients.

Cash incentives

OpASHA provides CHWs with cash incentives for both detecting TB cases and achieving strong outcomes (e.g. treatment success and adherence).

Management

CHWs are monitored by team supervisors, who report to project directors, who ultimately report to the Country Director.

TB detection

CHWs may not be able to match symptoms to a particular type of TB and particular test. Instead, CHWs administer questionnaires to patients through OpASHA's eDetection application, which uses an algorithm to automatically adjust new questions based on patients' answers to previous questions.

Upon completion of the questionnaire, the application guides CHWs through the detection process, indicating whether a patient should be tested by sputum sample, X-ray, or hospital visit. Instead of referring patients to hospitals for sputum testing, CHWs are trained to collect samples during patient screenings and transport the samples to laboratories.

Inclusion of multiple symptoms in eDetection application

TB can present as either pulmonary or extrapulmonary, both of which have specific symptoms. For example, a common symptom of extrapulmonary TB is enlargement of cervical and axillary lymph nodes (swelling of neck and armpits respectively). Both pulmonary and extrapulmonary TB also typically result in general symptoms such as loss of appetite and weight loss.

When developing its eDetection application, OpASHA received input from World Health Organization (WHO) consultants, government officials, and TB experts based in Cambodia—all of whom insisted on including general symptoms as well as specific symptoms of pulmonary and extrapulmonary TB in the application's questionnaire.

TB treatment

Treatment for drug-sensitive TB

If results are positive from a smear test of a patient's sputum sample, the patient is assumed to have drug-sensitive TB. CHWs—who live in the same neighborhood as patients—are then responsible for returning to patients' homes, advising patients and their family extensively on TB, and commencing treatment.

Treatment includes providing medicine, directly observing patients consuming the required dose, and taking patients' fingerprints (to prove treatment took place). Direct observation of treatment occasionally involves counseling patients, as they may be reluctant to continue taking medicine due to side effects (e.g. nausea).

CHWs typically visit a daily total of 10-12 patients, which are divided into patients on intensive care and those on a continuation phase. During the continuation phase, CHWs directly observe treatment only once a week, and patients self-administer their remaining weekly doses.

Treatment for drug-resistant TB

If results from a smear test are positive after two months of treatment, the patient's sputum sample is sent to laboratories with more advanced technology to determine whether the patient has drug-resistant TB. Once a patient is determined to possess drug-resistant TB, the Cambodian government takes ownership of the treatment process, which is long and complicated. First, patients are admitted into hospitals for a period of at least two weeks, during which a variety of tests are performed (e.g. sputum, kidney function, liver function, thyroid function, electrolyte levels, pregnancy). Patients then begin receiving medication and are tested again every few months.

Although new international guidelines for TB treatment stipulate testing for drug resistance prior to treatment, many countries such as India and Cambodia are unable to follow these guidelines due to a lack of infrastructure for the diagnosis and treatment of drug-resistant TB.

Monitoring activities

OpASHA developed its eCompliance application to be the core monitoring system for CHWs, ensuring that no data fabrication or absenteeism occurs. Its eCompliance technology is now being used in eight countries.

Collection of and follow-up on fingerprint data

During each home visit, CHWs use the eCompliance application to record the fingerprints of patients, which appear in real time on OpASHA's database. If a CHW's scheduled visit does not occur, a text message is sent to the relevant supervisor indicating that a patient's fingerprint is missing, and the supervisor immediately follows-up with the CHW. OpASHA ensures that action is taken on every missed dose, and CHWs are unable to fabricate data due to the uniqueness of fingerprints.

Data verification

OpASHA verifies its data on TB detection, treatment adherence, and treatment success with government registers.

Other monitoring activities

Other monitoring activities conducted by OpASHA in Cambodia include:

- **Independent audits** – Independent auditors visit patients to observe the quality of patient treatment.
- **Patient satisfaction surveys** – OpASHA regularly requests feedback from patients about CHW performance (e.g. supportiveness, kindness).

Training of government health workers in Cambodia

In addition to hiring and paying its own CHWs, OpASHA is also one of the sub-implementers for a grant from the Global Fund to Fight AIDS, Tuberculosis and Malaria (the Global Fund) to the Cambodian government. Due to the government's focus on TB detection (almost 50% of TB patients in the nation are undetected), OpASHA works with government staff on active TB case-finding in the southwest region of Cambodia.

Through its role as a sub-implementer, OpASHA has trained over 4,000 government-employed village health workers on its model and technology for TB detection.

Program impact

Evidence from India

Improved detection

A large-scale evaluation of OpASHA's eDetection application in India was conducted with assistance from the Indian government, WHO, the Revised National Tuberculosis Control Programme, district-level TB officers, and the National Tuberculosis Institute. The study found that, due to its eDetection software, OpASHA's detection rate was 2.4 times the national average and 1.6 times WHO targets.

Similarly, a research paper by Professor Marc Lipman of University College London analyzed data collected by OpASHA in India and found that its detection rate for women and children is higher than the national average and that it is able to detect the most vulnerable and remote patients.

Improved treatment adherence

A randomized controlled trial found that OpASHA's TB program in India achieves higher treatment adherence than the national average. It believes this evidence is largely applicable to Cambodia, as its program model is largely the same across the two nations. One minor difference between OpASHA's work in the two countries is that in India, it hires more CHWs in poor urban areas. However, most of OpASHA's CHWs in both India and Cambodia work in rural and peri-urban areas.

Evidence from Cambodia

Status quo detection and treatment in Cambodia

In areas of Cambodia where OpASHA is not working, infrastructure for TB treatment exists, but the government's reach is limited. Patients reside in remote locations without easy access to public hospitals and are unable to visit health centers daily to consume medicine. Alternative sites where volunteers can provide medication to patients are also relatively rare.

The government also implements active case-finding programs, but the geographic reach and frequency of the programs is limited.

Potential for evaluation of detection rate

OpASHA is hoping to leverage its existing research partnerships with the University of Southern California and the London School of Hygiene & Tropical Medicine to conduct an analysis of its TB detection data in Cambodia. OpASHA currently only works in two "operational districts" across a few provinces rather than one large area, preventing it from conducting a cross-sectional analysis that demonstrates improved detection rates.

Research partners have promised to continue seeking funding for an evaluation of existing data in Cambodia but have also suggested that OpASHA conduct a large-scale detection project in one area, reaching approximately 500,000 people. Data could be collected and analyzed after the program has been operating for three years.

Grant proposal for additional work in Cambodia

The government of Cambodia has requested OpASHA extend its TB case finding and treatment program to other areas of the country, specifically Kampong Thom (a province with an estimated TB detection rate below 30%). For its application to the 2019 GiveWell Grants for Global Health and Development in Southeast Asia and Bangladesh, OpASHA is proposing a program that would reach an area representing approximately 50% of the population in Kampong Thom (around 420,000 people) and increase TB detection in this area to 100% over three years. The remainder of the budget for this program (64%) would be in-kind support provided by the Cambodian government.

Room for more funding

Current budget and sources of funding

OpASHA's annual budget for work in Cambodia is around $600,000. Apart from in-kind contributions from the government, its sources of funding for work in Cambodia include:

- **The Global Fund** – OpASHA has received two rounds of funding (each lasting three years) from the Global Fund.
- **The Pierre Fabre Foundation**
- **The Marshall Foundation**
- **Various small donors**

Use of additional funding

OpASHA has already received donor funding for its Cambodia Country Director, and other donors are interested in funding the continuation of its existing work in the country. With significant additional funding, OpASHA could undertake a variety of projects in Cambodia, including:

- **Training NGOs** – OpASHA hopes to train other NGOs on its model and technology.
- **Training and evaluating government health workers** – The Cambodian government has requested that OpASHA train additional village health workers and evaluate increases in TB detection resulting from its training.
- **Scaling core program**