

A conversation with the Results for Development Institute, September 29, 2016

Participants

- Kanika Bahl – Managing Director, Results for Development Institute (R4D)
- Jean Arkedis – Program Director, Learning and Evaluation, R4D
- Cammie Lee – Senior Program Officer, Market Dynamics, R4D
- Aalia Chatur – Program Officer, Market Dynamics, R4D
- Stephanie Ahn – Program Officer, Market Dynamics, R4D
- Nisal Liyanaarachchi – Program Officer, Market Dynamics, R4D
- Aileen Palmer – Senior Program Associate, Market Dynamics, R4D
- Nabila Hemed – Senior Program Associate, Market Dynamics, R4D
- Elie Hassenfeld – Co-Founder and Co-Executive Director, GiveWell

Note: These notes were compiled by GiveWell and give an overview of the major points made by R4D.

Summary

GiveWell spoke with R4D as an update on a \$6,400,000 grant from Good Ventures. The grant was awarded to R4D in May 2016 to support its pneumonia treatment program in Tanzania. Conversation topics included updates on program operations, monitoring and evaluations (M&E), and two methods for improving program data collection and M&E that R4D is exploring.

Operational updates

Staff

R4D was able to find and hire highly qualified staff in Tanzania ahead of schedule.

Product

Since March, R4D has been monitoring amoxicillin consumption trends at the central, zonal, and healthcare facility level of the Tanzanian healthcare system. Based on these trends, R4D expects the current system-wide stock of amoxicillin to run out in December. R4D has put in an order request with UNICEF for what is forecasted to be six more months' worth of stock. The shipment is scheduled to arrive in Tanzania in December or January and should reach healthcare facilities in March or April, though R4D is staying closely coordinated with the government of Tanzania on these timelines. This may mean a gap in stock availability from December to April. However, consumption trends typically fluctuate, and based on Ms. Bahl's experience, consumption and stock forecasts tend to be approximate, so these dates may change.

In March, R4D had estimated that amoxicillin stock would run out in the latter half of the year. R4D now has a better understanding of the different commodities

involved in pediatric amoxicillin – i.e., amoxicillin oral suspension (amox OS) and amoxicillin dispersible tablets (amox DT) – and has incorporated both into its timeline.

Additional funders of amox DT

R4D has been working closely with the Government of Tanzania and other stakeholders to mobilize additional resources for amoxicillin. So far, limited available funding has been allocated to other essential commodities.

Timeline for next stage of funding

The sooner R4D finds out whether it will receive its next stage of funding or not, the sooner it can a) begin discussing a transition of amoxicillin procurement with the Tanzanian government if the program will not be funded beyond a couple of years, or b) scale operational research findings, such as a mentorship program, if it is successful, and continuing working on amox DT donations. Most of the program M&E data should be ready to share by September or October 2017, so this may be a good time for another conversation with GiveWell.

M&E updates

Initially, R4D expected to have the first round of procurement, availability, stocking, and dispensing data cleaned and analyzed by April or May 2017. However, due to the length of the Institutional Review Board (IRB) application process and other M&E setup time, the timeline for data collection has been pushed back by approximately eight weeks. R4D is planning to accelerate the second round of data collection, so the initial estimates for second-round data are still on target for September or October 2017.

Procurement data

These data will be collected from all importers in the public and private sector. At the aggregate level, the data will show whether the public sector has displaced the private sector in procuring amoxicillin, or if amoxicillin procurement has increased overall.

R4D will look at import records from at least 2015 – when amox DT first entered the market – to the present. R4D is also working to gather historical data from 2014, in order to compare amox DT trends to historic trends in amox OS procurement.

- **Private sector** – R4D has begun to reach out to individual amoxicillin importers. It will aggregate their procurement data to determine private sector trends. There are approximately 10 importers of all amoxicillin commodities, including three who import amox DT and some who import amox OS. Importers keep records of their inventory as they buy and sell it, so the quality of these data should be reasonably high. R4D expects the majority of importers will provide procurement data, though there may be some gaps where R4D will need to extrapolate based on other data or commodities.

- **Public sector** – The data from the public sector will come from government procurement logs of pediatric amoxicillin. Government orders for amox DT and amox OS are tracked centrally, so the data should not be difficult to acquire and should be high quality.

Availability data

R4D will also collect availability data by surveying a sample of public healthcare facilities, asking standard stock audit questions – e.g., how many days of stock-outs have there been in the last 30 days? Amoxicillin not being available in healthcare facilities is a key reason for children not receiving treatment for pneumonia.

Timeline

Surveys will be conducted in February through April 2017. Ideally, R4D would like to administer the surveys before the next shipment of amoxicillin arrives in healthcare facilities, but this may be challenging due to tight timelines.

Verifying the origin of the available amoxicillin

While there are multiple procurers and brands for amox OS, all amox DT available in health facilities in Tanzania in early 2017 will come from UNICEF, through R4D's funding. Since the current amox DT stock is very likely to run out in December, it can be assumed that, unless another procurer enters the market, all the amox DT is R4D's donation.

Stocking and dispensing data

- **Stocking** – is similar to availability data.
- **Dispensing** – is important for verifying that increased availability results in more amoxicillin reaching children. R4D hypothesizes that when the amount of product in the system increases, there may be a lag between when stock is available and when healthcare facilities learn to use it and dispense it.

Diagnosis and treatment data

It is important for R4D to understand the accuracy rate of pneumonia diagnosis in Tanzania, in order to ensure that amoxicillin is prescribed to children who need it. However, acquiring the data on diagnosis and treatment has been more challenging than expected.

Using data from medical records in public healthcare facilities

R4D staff recently conducted an onsite visit to a public health dispensary – i.e., the lowest level of the public healthcare facility system. This dispensary is located in a rural area of the Mbeya Region, in the southern highlands of Tanzania.

R4D expected to find some information in the facility's outpatient records about patients' diagnoses, treatments, and diagnostic tests performed – e.g., breaths per minute. Instead, it found that the records omitted mention of the diagnosis or treatment in many cases. In terms of diagnostic tests, only the malaria rapid

diagnostic test (RDT) was recorded. While prescriptions were recorded, dosages were not – e.g., penicillin syrup was prescribed for a particular case, but the records did not specify how many bottles over what duration.

So far, this is the only facility where R4D has seen the records. R4D chose it partly because a ministry of health official was also visiting it. It is likely that these medical records are not representative of all healthcare facilities in the country.

Given these findings, R4D is skeptical that medical records will provide accurate data on diagnosis and treatment trends in the country.

Diagnosing pneumonia

In addition to data quality, another challenge with establishing a baseline for diagnosis is that pneumonia – unlike malaria – does not have a biomarker. There is no RDT for pneumonia, which makes it difficult to determine if a patient is suffering from pneumonia or another respiratory issue.

Ways to address challenges in program data collection

R4D is planning to:

1. Use a pilot a mentorship program to gather more data on misdiagnosis, while also improving diagnosis and treatment in healthcare facilities in Tanzania.
2. Partner with IDInsight on ways to improve program M&E.

Mentorship program

Timeline

R4D hopes to begin operational research for the program at the beginning of 2017, assuming that no addendum is required for the IRB application. While R4D is still exploring different operational research options together with IDInsight, its current thinking is to pilot a mentoring program. Setting up the program – e.g., mentor selection, training, scheduling, and travel logistics – is expected to start in the first quarter of 2017. Data from the program should be available at the middle of the second quarter of 2017.

Logistics

1. **Selection and training** – R4D will partner with district-level healthcare workers to identify mentors for the program. R4D will be looking for trained clinicians who have experience working in the health system. Mentors selected for the program will be trained by R4D on establishing trust with healthcare workers and helping with problem solving. They will also be trained on all areas of Integrated Management of Childcare Illness (IMCI), with special focus on the three main conditions – i.e., malaria, diarrhea, and pneumonia. Mentors will receive a baseline knowledge test as part of training to ensure they are qualified.
2. **Working with healthcare facilities** – Mentors will be assigned to a healthcare facility. They will conduct an initial baseline knowledge test of

- facility staff on diagnosis and treatment protocols, dosing recommendations for different ages, etc. Based on this test, they will develop a checklist of issues to work through during subsequent visits, tailored to the needs of the facility.
3. **Assessing improvements at the facility** – Based on the initial visit, facilities will be assessed on the level of their baseline knowledge. Facilities that demonstrate strong knowledge and good implementation of protocols may require less frequent follow-up. R4D hopes that, over time, mentoring leads to improved performance in facilities that received lower baseline grades.
 4. **Observing diagnosis and treatment** – While the mentors conduct visits to healthcare facilities, they will directly observe diagnosis and treatment, to ensure that the healthcare workers are following through on protocols. R4D may use these observational data to understand the impact of mentorship over time. These data could also provide R4D with a baseline for the average rate of pneumonia misdiagnosis. If it is discovered that pneumonia is accurately diagnosed in children only 30% of the time, it may not be possible to determine whether an increase in amox DT improves pneumonia treatment without first improving the accuracy of diagnosis.

Size and scope

R4D recognizes that this is a relatively high-touch program, and that there is some uncertainty about the quality of the results. For these reasons, R4D has scaled the program down from what was initially planned.

R4D would like to establish a pilot in one or two regions of the country, with mentors in two districts per region. It will work with district-level healthcare officials to determine an appropriate, scalable number of mentors needed. The current estimate is approximately five to ten mentors per district. The districts selected will likely be in rural areas, to ensure that the quality of care in the facilities is not significantly higher than the national average.

Potential issues

There are some known risks associated with relying on mentors to collect data:

- **Quality of mentors** – It is not yet known how reliable and qualified each of the mentors will be. However, R4D expects that the baseline IMCI knowledge and skills of mentors selected for the program will be high. R4D is also looking at ways to assess mentors' performance over time – e.g., assigning individuals in the healthcare facility to shadow the mentors and rate their engagement. There are ideas from similar programs that can be leveraged, and R4D hopes to learn and build on what is effective during the pilot. A key factor in getting high quality observational data from the mentors, who may have varying levels of education, is having a consistent and simple reporting system. R4D plans to come up with an effective process to ensure that mentors' reports are as reliable as possible.

- **Reporting biases** – Due to the Hawthorne effect – i.e., people behaving differently when being observed – the data collected by the mentors may not be representative of normal conditions in the facilities. There are several ways that mentors can correct for this, such as: a) asking healthcare staff to talk through the details of cases in the recent case report records, or b) using case vignettes to determine their knowledge of the pneumonia, diarrhea, or malaria protocol. The mentors may also not be a reliable source of program M&E data, since they would be evaluating an intervention that they are a part of. While mentors’ reports could be a cost-effective method of gauging the impact of mentorship over time, R4D will explore additional ways of getting data on the program. IDInsight may also have some ideas for improving the quality of data collected.

IDInsight partnership

R4D is partnering with IDInsight. In addition to helping design the mentorship program, IDInsight will develop a set of options for dealing with misdiagnosis issues. These will be presented to R4D in the first quarter of next year.

All GiveWell conversations are available at <http://www.givewell.org/conversations>