

MIT CITE Data Collection Approaches for the Study: Private Sector Supply Chains for Malaria RDTs in Uganda

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Interview Protocol

PART 1 – Introduction

Interviewees are first thanked for their time and willingness to participate. They are assured that all responses would remain confidential and they did not need to answer something if they did not want to. General questions are asked to get a sense of their organization as a whole. These included:

- What sort of products do you stock in addition to mRDTs? Any other diagnostic tests, medicines, etc.?
- How many warehouses do you have?
- Roughly how many people do you sell to? This can include clinics, pharmacies, stores, etc.
- How have you found working with this bundled service in general?
- What do you think of the malaria diagnostic market in Uganda?

After an introduction, the nature of the value analysis was explained. We want to understand how you made the decision to sell mRDTs. When you were making this decision, you had a few options available to you. As an analogy, say you're hungry and you're at the market. Your options for what to do are:

1. Buy a piece of fruit
2. Buy a rolex from a street vendor
3. Go home and eat food from home
4. Do not buy food and stay hungry

In general, we want you to think back before you entered this contract. You had the option to sell or not to sell mRDTs, correct? And then you had the option to join or not to join this bundled service. We want to explore how you made this decision. So please think back to when you were making this decision. You had four options:

1. Sell WHO approved mRDTs outside of bundle (option C in Table 2)
2. Sell WHO approved mRDTs through current bundle (option E in Table 2)
3. Sell non-WHO approved mRDTs (option B in Table 2)
4. Do not sell mRDTs (option A in Table 2)

We want you to keep in mind these options, as if you were back before you agreed to this contract and had to make the decision all over again.

PART 2 – Identifying Fundamental Objectives

So imagine you're faced with these four options and you need to choose one of them. Now, we want to understand what are the criteria that you would consider when making your decision.

- For example, when I'm at the market and hungry and deciding what to do, I take into consideration: cost, taste, convenience, hunger satisfaction, etc.
- For example, when I'm deciding what shirt to purchase, I take into consideration: cost, quality of the fabric, style, fit, etc.
- For example, when I'm deciding what to eat for dinner I take into consideration: what ingredients do I have on hand, what I feel like eating, how hungry I am, how long would it take to cook a dish, etc.

What are the criteria you thought about when deciding to enter this contract? Interviewer will propose additional criteria for consideration if necessary.

PART 3 – Defining Attributes for Each Fundamental Objective

We now want to set high and low ranges for the criteria you came up with. So for example, for the selling price of the device, we'll say that ranges from \$0.25-\$2. Interviewer will then go through each of the proposed ranges and ask if they seem reasonable.

PART 4 - Comparing Strategic Options along the Fundamental Objectives

So now we have options and the criteria that you're comparing the options with. Now we want to know how each of the criteria do in the options you're considering.

For example, considering the example from above earlier when I'm deciding what to do when I'm at the market and I'm hungry. My options were:

1. Buy a piece of fruit
2. Buy a food from a street vendor
3. Go home and eat food from home
4. Do not buy food and stay hungry

My criteria to evaluate the decision were: cost, taste, convenience, hunger satisfaction.

Now I evaluate each option for each of the criteria. For example, option 1 costs me _____ and satisfies my hunger as a 4 on a scale of 1-5. Option 2 costs more but scores a 5 on satisfying hunger.

Interviewer will assign numbers to each criterion identified.

PART 5 - Deriving Value Functions

So now that we have attributes and ranges, we want to understand what you think are better and worse ---which would you prefer-- in terms of the range of attributes.

For example, when I'm deciding what shirt to buy, I want to consider quality as an important attribute. Say quality ranges from 1 – the shirt will probably last for only a few wears to 5 – the shirt is the highest quality, most luxurious shirt I have seen. To me, I think it's better that the shirt is not low quality but I also don't need the best shirt in the market. So for me, I think it would be better to go from 1 to 3 in quality than from 3 to 5. In other words, it is worse to drop in quality from 3 to 1 compared to 5 to 3.

Alternative method: Rank from 0-10 (worst to best). That is to say, how “happy” or pleased are you with changes in the attributes.

For example, if I was going back to the shirt example, I wanted to rank how “likely I would be to get the shirt” or how “happy” I was with the shirt when the cost of the shirt varied.

0 – Very unhappy, makes me less likely to choose that shirt

10 – Very happy, this is a great value

Another example would be if I was deciding whether or not I wanted to order a product from a company. Time to delivery would be something I need to consider. Say I needed this item in 5 days. So I think it the delivery time that was the same 0-5 days and then really poor after 5 days. Therefore, it would be much worse to go from 5 to 6 days of delivery than from 4 to 5 days.

[If it seems appropriate, here would be a good time to sketch a graph. So one can indicate how the dependent variable responds as the independent variable is varied. Interviewer will use this at their discretion and not insist on it if the individual is confused.]

PART 6 – Value Tradeoff Analysis

Now we want to understand the criteria are to you. For example, when I was deciding whether or not to buy food at the market, the most important factor to me was getting rid of my hunger. Cost was less important to me because I was so hungry. And imagine if I was buying a shirt. Perhaps it would be more important to me to get a less expensive shirt and I don't really care how pretty it was.

So imagine an option that you would be considering that ranked the lowest in all of the attributes we discussed. For example, I am buying a shirt that is expensive, ugly, and poor quality. Which of those attributes would be the MOST important thing for me to improve? In my opinion, I want to improve cost because I don't have a lot of money to spend and I can't afford an expensive shirt. So in order for me would be: cost, quality, and appearance.

Now if I wanted to rank the relative importance of these criteria on a scale of 1-100, 100 being the MOST important attribute, I would assign an improvement in cost a 100. Then I would say quality is the next most important and I would say it is much more important to me than appearance. Thus, I would rank cost as 100, quality as 80, and appearance as 10.

Interviewer will then go through and assign a weight to each of the criterion.

Focus Group Survey Instrument

For each of the following criteria, “high” was defined as a 5 on a value scale of 1-5. “Low” was defined as 1. Retailers were asked “how happy or satisfied would you be if” the medium-high and low-medium were true. For example:

“On a scale of 1-5, how happy would you be if the quality of the devices you sold were medium-high? What about if they were low-medium?”

The definitions of each qualitative measure were provided to ensure continuity across respondents.

| | High | Medium-High | Medium | Low-Medium | Low |
|-------------------------|-------------------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------------|-------------------------------------------------------|---------------------------------------------|
| Quality | WHO-approved, very durable, very accurate | WHO-approved, durable, Accurate | Not WHO-approved, but somewhat accurate, and somewhat durable | Not-WHO approved, not very accurate, not very durable | Not-WHO approved, not accurate, not durable |
| Sales of other products | Sales are increased by a lot | Sales are increased by a good amount | Sales increase somewhat | Sales increase a little | Sales increase very little or not at all |
| Customer Satisfaction | Customers are very happy | Customers are somewhat happy | Customers are neutral | Customers are somewhat unhappy | Customers are unhappy |
| Training | Extensive, comprehensive training on all aspects relating to mRDT | Pretty good and comprehensive training | Some training, not comprehensive | A little training, missing detail | Very little or no training |
| Awareness/ Advertising | Extensive advertising in multiple media sources (radio, TV, etc.) | Good advertising, thorough or in multiple media sources | Some advertising in one media source | Little or less effective advertising | Very little or no advertising |
| Opportunities | Many opportunities that are valuable | Good opportunities in both frequency and value | Some opportunities | Little or less valuable opportunities | Very little or nothing |

| | | | | |
|-----------------------------------|------|-----|------|------|
| Price (\$USD) | 1.67 | 1 | 0.67 | 0.33 |
| Cost (\$USD) | 0 | 0.5 | 0.67 | 1 |
| Time to delivery (days) | 1 | 2 | 4 | 7 |
| Volume (kits sold per month) | 50 | 30 | 10 | 0 |
| Time to complete a sale (minutes) | 0 | 10 | 40 | 60 |

List of Criteria and Definitions for Retailers

| Criteria | Definition |
|-------------------------|--------------------------------------------------------------------------------------------------------------------------|
| Quality | The quality of the device as measured by its WHO-approval status, durability, and accuracy |
| Price device is sold | Price at which the device is sold to customers |
| Cost of device | The amount that the device costs the retailer to purchase |
| Delivery time | Number of days after an order is placed that a distributor delivers new supply |
| Sales of other products | Increase in the sales of other products |
| Customer satisfaction | How happy a customer is after a business interaction |
| Training | The amount of training that the retailer receives on how the device works, why it is important, and how to administer it |
| Volume sold | Number of devices sold per month |
| Awareness/advertising | Amount of advertising and awareness that is generated in consumers |
| Time to complete sale | Amount of time it takes to complete a business transaction |

| | |
|---------------|-------------------------------------------------------------------------|
| Opportunities | Other opportunities, including free apparel, small jobs, and leadership |
|---------------|-------------------------------------------------------------------------|

List of Criteria and Definitions for Distributors

| Criteria | Definition |
|----------------------------|-------------------------------------------------------|
| Volume | Kits sold per month by the distributor |
| Expiration date | Months left to expiry when the kit is sold |
| Profit | Profit margin |
| Cost per kit | Cost to the distributor to purchase the kit |
| Cost per training | Cost for the distributor to hold one training session |
| Efficiency of distribution | Boxes delivered per delivery trip |
| Cross selling | Percent increase in sales |

List of Criteria and Definitions for FLBs

| Criteria | Definition |
|---------------------------------------------|--------------------------------------------------------------------------------|
| Cost per kit | Cost that the FLBs pay to purchase the kits |
| Price per kit | Price at which the FLB sells the kit to the distributor |
| Quality | Quality of the kit in terms of WHO-approval status, accuracy, and durability |
| Administrative time | Hours per week of administrative time that goes into managing the sale of kits |
| Profit | Profit margin |
| Relationship with donor organization/funder | Relationship with any donor organization or HO |
| Increase in sales | Percent increase in sales |

Explanations for the Performance Inputs

Retailers

| Criteria | Explanation |
|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Training | Training inputs were determined based on the amount of, thoroughness, and comprehensiveness of outside education that the retailer is provided with. An option with training included had an input of 4 out of 5. An option that did not explicitly include training was given a 2 out of 5 because it is likely that some small material (including a pamphlet, documentation, etc.) would be provided with WHO-approved devices. Non-WHO approved devices were given a 1 out of 5. |
| Time per sale | Inputs on time to complete a sale were based on focus group discussions with retailers. In conversations, retailers relayed that they spent 30 minutes on a sale with a customer when selling an mRDT involved because it took time not only to convince the customer about the necessity of being tested, but also wait for the test results, and then provide advice about what medicines to purchase. It was assumed options outside of a bundle would take less time because there was less external pressure. It was estimated that an extra 5 minutes would be added when there was a biohazard component and an extra 15 minutes when there was a training component. |
| Customer satisfaction | Customer satisfaction inputs were derived from expert interviews and focus group discussions. It was assumed that customer satisfaction would be high when there are high quality products sold by knowledgeable retailers. |
| Time to delivery | In the focus group discussions, retailers expressed delivery times ranging from 1 to 3 days, so 2 days was set as a base assumption for Option 2. It was assumed that having a barcoding enhanced device would increase the efficiency of the supply chain and result in lower time to deliveries. |
| Quality | It was assumed that WHO-approved devices were of higher quality than non-approved devices. Adding on a biohazard/barcoding feature to the devices would increase quality because they can be tracked and accounted for during delivery and also after market. |
| Sales of other products | Sales of other products inputs were established by assumptions based on conversations in the focus group discussions. This criteria would increase if customers were coming into the store more frequently, staying longer, and/or purchasing other items after receiving an mRDT. It was assumed that advertising and training would increase sales of other products. |
| Other opportunities | Other opportunities was assumed to be higher when an HO is more involved, as they would be providing free items (shirts, other products) and freelance job opportunities. |
| Volume of sales | Option 2 was set at 20 devices sold per month, based on conversations and focus group interviews. It was assumed that providing training and advertising would increase sales. |
| Price and cost | <p>Price and cost of the devices were updated based on new data released from surveys of retailers across Uganda (ACTwatch Group and PACE, 2015). The unsubsidized price that retailers sell at was set to \$0.81 and non-WHO approved devices were set at \$0.73. They are less expensive because they are lower quality have less or no quality assurance. It was assumed a markup of 50% from retailers and thus the cost of non-WHO and WHO approved devices was set at \$0.49 and \$0.54, respectively.</p> <p>FLBs reported the subsidized cost to the FLB in option 2 was \$0.09. Assuming an FLB markup of 250% (to pay for the other services in the bundle) and a distributor markup of 20%, the cost to the retailer was set at \$0.38 and a price of \$0.57 with the 50% markup. The service-based option was assumed to have approximately an 11% increase to account for the extra time the retailer would spend with the customer.</p> |

Distributors

| Criteria | Explanation |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Expiration date | Months left to expiry upon sale was assumed to be the lowest in option 2, because the HO subsidy came with a requirement to purchase a certain volume of product. Thus, if sales were not high enough, product would expire on the shelf. In a hypothetical bundle where there was not an upfront purchase requirement, months left before expiry would be higher because agents in the supply chain have more flexibility in how much and when they purchase devices. |
| Cost of training | Cost of training for Option 2 was set at \$1,500, which was an average of the two costs reported by distributors. It was assumed that outside of a formal training program a small amount of funding (\$100) would be spent on some educational materials by the distributors. |
| Cost of device | The cost of the device to the distributor was set the same as the price to the retailer (as described above). |
| Profit | A margin of 20% was assumed from our expert interviews. |
| Efficiency of distribution | Efficiency of distribution was updated to reflect new sales volumes. Additionally, the two distributors we spoke with had different preferences and norms for this. One was used to deliveries an order of magnitude greater than the other. The inputs reflected this difference. |
| Volume of sales | Volume of sales was adjusted based on new data on sales of mRDTs in Uganda (Dalberg and Unitaid, 2016). In hypothetical situations, it was assumed that volume would increase significantly with advertising and to a lesser extent with training of providers. |

FLBs

| Criteria | Explanation |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Sales of other products | Sales of other products was based on interviews with FLBs. From a base number of 10% increase in sales, It was assumed that including advertising in a bundle would increase 5%. Selling non-WHO approved devices would be lower. |
| Relationship with HO | The relationship with an HO would be highest when the HO is directly involved in most aspects of selling the devices. Thus options including two or more bundle amenities have the highest score and options without involvement have the lowest. Option 13 had a score of 3 out of 5 despite not having direct HO involvement because the service-based model should adhere to standard of healthcare and lead to decreased prescription of non-necessary medication. |
| Administrative time | Administrative time was taken directly and averaged from FLBs interviewed. It was assumed that the more involved the HO was, the greater the administrative time (due to necessary reporting, evaluations, etc.). Administrative time for other options was assumed to have a nominal increase with each additional service (advertising, etc.) provided because some amount of oversight will be necessary. |
| Price and cost of device | The subsidized (\$0.09) and unsubsidized (\$0.35) costs for the device were reported by the FLBs. The unsubsidized cost was confirmed by comparing with UNICEF's catalog and report (UNICEF Supply Division, 2016; First Response Malaria). |
| Profit | Profit margins were informed by discussion with FLBs. It was assumed a 30% margin without a subsidy. With a subsidy, margins on the product were higher. |

Sources for the Estimations of Performances

ACTwatch Group and PACE. (2015). ACTwatch Study Reference Document: The Republic of Uganda Outlet Survey 2015. Washington DC: PSI.

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