BACKGROUND

The contraceptive prevalence rate among married women in Madagascar increased 20 percentage points from 1997 to 2008. However, as of 2008, only 29.2% of married women were using a modern contraception method and 19% of married women continued to report an unmet need for family planning. [1] Long-acting reversible contraceptive methods (LARC) such as the IUD are increasingly being made available in low income countries to meet this need and to expand the range of contraceptive options available. [2]

In 2008, Population Services International (PSI) introduced a program to scale-up high quality LARC services as part of a range of contraceptive choices in 15 developing countries, including Madagascar. The program, the Women’s Health Project (WHP), provides training in family planning counseling and the safe insertion and removal of IUDs and implants, supportive supervision, supplies, clinical audits, and medical detailing to private sector providers (predominantly doctors) in PSI’s private franchise network. The network of 213 private clinics are characterized by a common brand (Top Réseau), and a bundle of standard services provided by PSI, including training, supplies, and quality assurance.

Among PSI’s basket of modern contraceptive methods, the IUD exhibits two qualities that may deincentivize providers, financially, from providing the method. First, the IUD requires more provider time and skill to insert, increasing client fees. Second, the long-acting nature of the IUD (the TCU 380A IUD is effective for up to 12 years), reduces the likelihood of repeat client visits for family planning. To keep IUD services financially feasible among a lower income population, franchised providers in Madagascar were given donor-funded subsidies to fill the gap between the price they charged for IUD services and PSI’s perception of the price clients would pay.

This process was initiated by PSI outreach workers, who provided women with information on various contraceptive methods and gauged interest in LARC. If a woman was interested in an IUD, the outreach worker used a short, locally developed screening tool to assess a woman’s socio-economic status (SES). If she was in the middle of 3 SES categories, the woman received a voucher for reduced-cost IUD services. If she was in the lowest SES category, she was referred to the public sector. At the time of this study (March 2011), clients without a voucher were charged up to 5,000 Ariary (or AR, equivalent to $2.50)1 for an IUD insertion at PSI franchise clinics. Clients presenting a voucher could receive a subsidized insertion for 1,500AR ($0.75). To offset franchise providers’ time and resource investment, PSI would then

KEY FINDINGS

- When IUDs are unaffordable, over 1/3 of women would use another contraceptive method or not use a method at all.
- The mean willingness to pay for IUDs was similar between two urban areas.
- The mean willingness to pay was similar between IUD users and non-users; however non-users had a higher median willingness to pay.
- The new subsidized cost of 5,000AR represents 68% of IUD users’ willingness to pay. Among all respondents, 43% were willing to pay 7,000AR or more.

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1 March, 2011 exchange rate of 1 USD=2000AR. (www.xe.com)

2 This price was not stipulated by PSI, but is the price suggested for a general consultation visit by the National and Regional Association of Doctors.
reimburse providers 2,100AR ($1.05) for each voucher they received. In order to improve program sustainability, PSI planned to increase the suggested price of a non-subsidized insertion to 7,000AR ($3.50) and a subsidized insertion to 5,000AR ($2.50). One goal of this study was to assess the anticipated impact of this new price structure.

Clients’ willingness to pay (WTP) for contraceptives has been assessed in a handful of low and middle income countries for a range of products. Although WTP studies of family planning services were limited until the 2000s, most have used a “contingent valuation” method since. [3] The method asks the client both closed and open-ended questions about prices they are willing to pay, and frames the questions around a target price. [3] While data from Vietnam and Ghana have found that women are willing to pay the current or increased price for IUDs, no studies were found that assessed the WTP for contraceptives in Madagascar or nearby countries. [4, 5] Additionally, of the few studies conducted on WTP for IUDs, none examined how vouchers in a segmented market affect women’s WTP.

Understanding the appropriate price for clients can help programs like PSI’s design better subsidy and voucher schemes targeted toward those who truly need them. Cutting out the waste from untargeted subsidies can help programs sustainably provide the IUD, and in turn support health policy priorities to reduce the mortality and morbidity associated with unwanted fertility, unsafe abortion, and unsafe birth. [2]

OBJECTIVES

This study sought to:

1. Determine the WTP for IUD services among women of reproductive age in two sites in Madagascar where PSI’s Women’s Health Project is present.
2. Compare the WTP for IUDs among women who had obtained an IUD and those who had not.
3. Assess the current IUD price structure, and provide evidence for price changes as needed.

METHODOLOGY

The study selected 100 women in Madagascar’s capital city of Antananarivo and 100 women in Mahajanga (a smaller city on the north-west coast). (See both cities marked in the map below.) In each city, 50 IUD users were randomly selected from the contact lists of PSI outreach workers, and 50 non-users were randomly chosen from a multistage probability sample of households meeting the eligibility criteria in the area. Eligibility criteria for non-IUD users included that they were between 15–49 years old, use or intend to use family planning in the next two years, had heard of the IUD, and had not been approached by a PSI outreach worker.

Interviews with each woman captured her socio-economic and demographic characteristics, recent family planning history, and health care expenditures. Questions on other expenditures were used to ‘prime’ respondents into thinking about their WTP for family planning. WTP for the IUD was assessed using the contingent valuation method since. [3] While data from Vietnam and Ghana have found that women are willing to pay the current or increased price for IUDs, no studies were found that assessed the WTP for contraceptives in Madagascar or nearby countries. [4, 5] Additionally, of the few studies conducted on WTP for IUDs, none examined how vouchers in a segmented market affect women’s WTP.

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Descriptive characteristics between groups (users vs. non-users and Antananarivo vs. Mahajanga) were compared using t-tests for continuous variables and chi-squared tests for categorical variables. Given the skewed distribution of the maximum prices respondents were willing to pay, both the mean and median WTP values were examined. The mean WTP was compared between IUD users and non-users in each city, and then between cities. The median WTP was compared using a nonparametric K-sample test, with a null hypothesis that medians were drawn from the same populations. Values at the median were equally split above and below the median for the test. Log-rank tests were used to compare the demand curves in each segment by equally weighting each maximum value. One outlier of 100,000AR was dropped in the WTP results.

Figure 1: Contingent valuation flowchart

[Diagram showing the contingent valuation flowchart with decision points for 5000 AR, 6000 AR, 7500 AR, 5500 AR, and Max Price?]

For current non-users, the bidding game began with a starting price of 5,000AR, while the starting price for current users equaled the price actually paid for the IUD, or 5,000 AR if the price paid was zero. When each individual’s maximum WTP was assessed, it was assumed that the demand curve was transitive downwards (that each client willing to pay a given price was also willing to pay a lower price).

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KEY FINDINGS

- Users and non-users in both cities had similar demographic characteristics.
  Women in all four groups were fairly similar, with a mean age of 30.5 years and a mean household size of approximately 5 people. All groups had a similar proportion of household heads who were salaried employees. In Antananarivo, IUD non-users had significantly fewer children than IUD users (2.0 vs. 2.8, \( p=0.01 \)). In Mahajanga, non-users had significantly fewer children under 5 years old (0.7 vs. 1.0, \( p=0.01 \)) and were more likely to own their home (50% vs. 28%, \( p=0.01 \)) than IUD users.
- When IUDs are unaffordable, over 1/3 of women would use another contraceptive method or not use a method at all.

When women were asked what they would do if IUD prices were higher than the price they were willing to pay, 36% of all women responded that they would use another method or no method at all. (See Figure 2.)

- The average price IUD users paid for their insertion differed between the two cities. The price ranged from 0 to 5,000AR in Antananarivo and 0 to 3,000AR in Mahajanga; however, current IUD users in Mahajanga had a significantly higher mean out-of-pocket price (2,136AR vs. 1,420AR, \( p<0.01 \)). In both cities, 97% of users paid lower than the suggested consultation price for IUD services at PSI franchises (5,000AR). This indicates that franchised providers did not ask clients to pay full price – including those without a voucher.

Table 1 shows the mean and quartile-specific WTP for an IUD, by city and whether or not the woman was an IUD user. The mean WTP did not differ significantly across cities (7,856AR in Antananarivo vs. 6,977AR in Mahajanga) or within a city (7,563AR vs. 8,150AR in Antananarivo and 6,096AR vs. 7,877AR in Mahajanga).

However, the median – the cost 50% of the sampled women would be willing to pay for an IUD – differed significantly between users and non-users. As seen in Table 1, the median WTP was significantly higher among non-users in both Antananarivo (6,000AR vs. 5,000AR, \( p=0.025 \)) and Mahajanga (8,000AR vs. 4,000AR, \( p<0.001 \)).

The differences in WTP between users and non-users in the two cities are shown graphically in Figure 3. A log-rank test confirmed that all four groups’ demand curves are significantly different (\( p<0.001 \)). Figure 3 also shows that the disparity between IUD users and non-users’ WTP is greater in Mahajanga than Antananarivo.

![Figure 2: Woman’s response if IUD unaffordable](image-url)

**Table 1: Willingness to pay for IUD, by city and IUD use (mean, quartile)**

<table>
<thead>
<tr>
<th>City</th>
<th>IUD user</th>
<th>25%</th>
<th>50%</th>
<th>75%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antananarivo</td>
<td>7563</td>
<td>3000AR</td>
<td>5000AR</td>
<td>10000AR</td>
</tr>
<tr>
<td></td>
<td>8150</td>
<td>5000AR</td>
<td>6000AR*</td>
<td>10000AR</td>
</tr>
<tr>
<td></td>
<td>7856</td>
<td>3000AR</td>
<td>6000AR</td>
<td>10000AR</td>
</tr>
<tr>
<td>Mahajanga</td>
<td>6096</td>
<td>2600AR</td>
<td>4000AR</td>
<td>8000AR</td>
</tr>
<tr>
<td></td>
<td>7877</td>
<td>5500AR</td>
<td>8000AR*</td>
<td>10000AR</td>
</tr>
<tr>
<td></td>
<td>6977</td>
<td>3000AR</td>
<td>6000AR</td>
<td>10000AR</td>
</tr>
</tbody>
</table>

Significant differences between users and non-users in the same city are indicated with a * in the “Non-user” column.

This suggests that 1/3 of potential IUD users would be lost. This number was more pronounced in Mahajanga, where 44% of women provided one of these two responses.

- Women in Mahajanga paid more for IUDs than those in Antananarivo.

The mean willingness to pay was similar between IUD users and non-users; however, non-users had a higher median willingness to pay.
The new subsidized cost of 5,000AR represents 68% of users’ willingness to pay. Among all respondents, 43% were willing to pay 7,000AR or more.

The data from this study supports PSI’s increase in the cost of subsidized insertions in May 2011 from 1,500AR to 5,000AR. As seen in Figure 3, 97% of potential users were willing to pay higher than the previous subsidized value of 1,500AR. (Indicated by Figure 3’s first vertical line). The relative price inelasticity of demand among respondents, particularly at the lower prices, indicates that increasing the price of subsidized IUDs should not have a large deleterious impact on demand. Nevertheless, the new subsidized price of 5,000AR may result in fewer women seeking IUDs in the private sector. This new price meets the willingness to pay of 68% of respondents with an IUD, and 85% of respondents without an IUD.

Findings also indicate that 43% of all respondents would be willing to pay 7,000AR or more for IUD services. (Shown by Figure 3’s second vertical line.) Given that 7,000AR is the new, unsubsidized cost of IUD services at PSI franchises, this finding suggests that many clients could benefit from quality-assured franchised services, without incurring a cost to PSI (or donors) for the subsidy.

Unexpectedly high WTP figures suggest that the screening tool used by PSI outreach workers to assess economic need may have been mis-targeted. Indeed, when the tool was applied to this study’s sampled population, 30% of the women it considered qualified for a voucher were actually willing to pay over 7,000AR for IUD services.

As with any price change, a program such as the Women’s Health Project should continue to monitor changes in the actual demand for the IUD. If demand for the IUD drops, particularly in Antananarivo, the program could consider differential pricing by city. Women in Mahajanga appear to have a higher median WTP, however, reasons behind this need to be further explored.

Since the study’s completion, PSI revised its screening tool to improve targeting for vouchers. Future research might be considered to assess the willingness to pay for women targeted with vouchers.

Finally, the study found that 2/3 of women who are “priced out” of IUD services would prefer to receive it elsewhere. This illustrates the need to ensure that PSI’s public sector referral network is strong. Public sector referrals can increase access to lower-cost family planning options for those unable to pay private sector prices.

REFERENCES