A HealthTech Report

Assessment of Willingness to Pay for Oxytocin in the Uniject™ Injection System Among Private Midwives in Indonesia

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Executive Summary

Several studies have assessed the benefits of using oxytocin in the Uniject™* injection system (oxytocin in Uniject) as an alternative mechanism to deliver the preventative dose of oxytocin during active management of the third stage of labor (AMTSL). Oxytocin in Uniject is a prefilled injection device that contains 10 IU of oxytocin. The Uniject technology allows for administration of drugs or vaccines in a single-dose, prefilled, non-reusable, and sterile device. In addition, oxytocin in Uniject has a time-temperature indicator (TTI). TTIs, similar to vaccine vial monitors (VVMs) used in immunization programs, indicate cumulative temperature exposure, which allows for more flexible transportation and storage of the product. At the same time, TTIs are used as a tool for health workers to monitor quality of the product before administration.

USAID Indonesia funded PATH, via the HealthTech program, to conduct an assessment of willingness to pay for oxytocin in Uniject among private midwives in Indonesia. The study was conducted in April of 2011 in collaboration with the Maternal and Child Health Integrated Project (MCHIP) and the Indonesian Midwife Association (IBI).

Under the willingness to pay study among private midwives in Indonesia, we proposed to understand the preferred brands and use of oxytocin, assess the perception of oxytocin in Uniject with or without a TTI, and assess the willingness to pay for oxytocin in Uniject. Secondarily, we proposed to identify challenges and barriers to market introduction and adoption of oxytocin in Uniject in Indonesia.

To fulfill the objectives of the assessment, this activity was divided into two main sections:
1. Training workshops to introduce private midwives in Indonesia to the concept of oxytocin in Uniject with a TTI.
2. Semi-structured interviews with private midwives using a standardized questionnaire.

A total of 164 private midwives from in and around Bandung (n=81) and Jakarta (n=83) participated in the willingness to pay assessment. The majority of the midwives were involved in private practice out of their homes or in a clinic setting.

The results of this assessment showed that the majority (93%) of private midwives prefer oxytocin in Uniject for AMTSL, and 98% believe a TTI will provide a large increase in the quality of AMTSL. The majority (86%) of private midwives reported the cost of oxytocin was not important, since the price of 10 IU of oxytocin comprises approximately 1%–2% of midwives' reported total costs to deliver a child. Although specific to private midwives in and around Jakarta and Bandung involved in the study, the findings are consistent with other studies evaluating acceptability of oxytocin in Uniject by health care providers.

Results from the willingness to pay study showed that Uniject with a TTI is most preferred; oxytocin in an ampoule with a TTI is next-most preferred, followed by oxytocin in Uniject without a TTI. These findings suggest that a TTI is the preferred market differentiator, and therefore may be the priority innovation for oxytocin. However, regulatory oversight and laboratory support would be required to qualify the appropriate TTI based on manufacturer stability data. In addition, manufacturers may perceive a TTI to be a liability, should distribution channels fail to effectively deliver a product in a

* Uniject is a trademark of BD.

controlled-temperature environment and buyers blame manufacturers. Thus, a policy change may be required to drive manufacturer adoption of TTIs. Revising storage temperature guidelines for oxytocin and considering the implementation of TTIs may be advisable in Indonesia.

Background

Oxytocin in Uniject is a prefilled injection device that contains 10 IU of oxytocin. The Uniject technology allows for administration of drugs or vaccines in a single-dose, prefilled, non-reusable, and sterile device. In addition, oxytocin in Uniject has a TTI. TTIs, similar to vaccine vial monitors used in immunization programs, indicate cumulative temperature exposure, which allows for more flexible transportation and storage of the product. At the same time, TTIs are used as a tool for health workers to monitor quality of the product before administration.

Over the last decade, several studies have been performed in developing countries to demonstrate the safety and efficacy of using oxytocin for prevention of postpartum hemorrhage (PPH) during AMTSL. Many of these studies also assessed the benefits of using oxytocin in Uniject as an alternative mechanism to deliver the preventative dose of oxytocin during AMTSL.

The majority of midwives who participated in previous studies reported that Uniject was less time consuming and easier to use.[†,‡] In addition, cost-benefit analyses performed in Indonesia and Vietnam demonstrated significant cost savings with the use of oxytocin, based on its ability to minimize incidence of PPH.[†,§] The midwives in these studies also expressed a preference for oxytocin in Uniject over oxytocin in vial administered with standard needle and syringe.

USAID Indonesia funded PATH, via the HealthTech project, to conduct a willingness to pay assessment for oxytocin in Uniject among private midwives in Indonesia. This study was one of the three components of the overall project: developing an evidence base for introducing oxytocin in Uniject in Indonesia. The study was conducted in April of 2011 in collaboration with MCHIP and IBI.

Objectives

The willingness to pay study among private midwives in Indonesia proposed to understand the preferred brands and use of oxytocin, assess the perception of oxytocin in Uniject with or without a TTI, and assess the willingness to pay for oxytocin in Uniject. Secondarily, the study proposed to identify challenges and barriers to market introduction and adoption of oxytocin in Uniject in Indonesia.

[†] Tsu VD, Levin C, Tran MP, Hoang MV, Luu HT. Cost-effectiveness analysis of active management of third-stage labour in Vietnam. *Health Policy Plan* 2009;24(6):438–444. Epub 2009 Jul 24. Available at: www.heapol.oxfordjournals.org/cgi/reprint/24/6/438.

[‡] Tsu VD, Sutanto A, Vaidya K, Coffey P, Widjaya A. Oxytocin in prefilled Uniject injection devices for managing third-stage labor in Indonesia. *International Journal of Gynaecology and Obstetrics.* 2003;83(1):103–111.

[§] Phuong Mai TT and Tsu V. Reducing Postpartum Hemorrhage in Thanh Hoa, Viet Nam Assessing the Role of Active Management of Third Stage of Labor and of Oxytocin in Ampoules and Uniject Devices, March 2005.

Methodology

Prior to the assessment, a protocol was submitted to PATH's ethics committee, which considered this activity to be non-human subject research. To fulfill the objectives of the assessment, this activity was divided into two main sections:

1. Training workshops to introduce private midwives in Indonesia to the concept of oxytocin in Uniject with a TTI.
2. Semi-structured interviews with private midwives using a standardized questionnaire.

Assessment site and participants

The assessment of the willingness to pay took place in Jakarta and Bandung. The decision to include private midwives in and around Jakarta and Bandung was based on the density of private midwives with high client volumes and a potentially higher-paying customer base. Rural private midwives from East Java were represented in the study population, but given the relatively small study scope, it was not possible to provide representation of private midwives throughout Indonesia.

Training workshops

Two training workshops were held in a central location of Jakarta and Bandung. Midwives were invited to attend the workshop via phone by the Ikatan Bidan Indonesia or IBI. Each workshop began with an overview of the project (see Appendix 1) and demonstration of Uniject. Throughout the presentation of the background and objectives of the study, midwives were encouraged to ask questions. Following the overview, midwives practiced an injection with Uniject into citrus fruits, and then engaged with one of the ten midwifery students for a one-on-one interview in Bahasa Indonesia.

Semi-structured interviews

Interviews consisted of questions pertaining to current oxytocin use and purchases, feedback on Uniject and TTIs, as well as willingness to pay for oxytocin in Uniject and TTIs (see Appendix 2). Interviews followed a standardized questionnaire that was pretested by ten midwifery students with ten midwives to ensure the questions were understandable, straightforward, and capturing the intended information.

The willingness to pay component of the survey leveraged several methodologies to capture a thorough understanding of price perception in a concise manner. First, midwives' recognition of current oxytocin brands and reference pricing was assessed. Following the pricing responses, midwives were told the reported retail price to ensure that a common understanding of price points was established prior to assessing price sensitivities. Second, the Van Westendorp Price Sensitivity Meter methodology was used to assess optimal product price range among private midwives for oxytocin in Uniject. The Van Westendorp method asked four specific, open-ended price questions to establish price boundaries related to a midwives' willingness to pay for the new product. In order to then assess the midwives' propensity to buy oxytocin in Uniject, a brief series of discrete choice modeling questions were asked. Finally, assessment of price and attribute trade-offs between oxytocin in a vial or Uniject, with or without a TTI, was determined to understand the attributes which drive product willingness to pay.

Analysis

Information collected in the surveys was translated into English and entered into an Excel database. Data was then aggregated, cross-tabulated, and analyzed using SPSS and Excel. Correlations and averages were calculated across workshop groups, private midwives' facility type, and facility setting. Relevant and revealing findings from the analyses are described in the Results section of this paper.

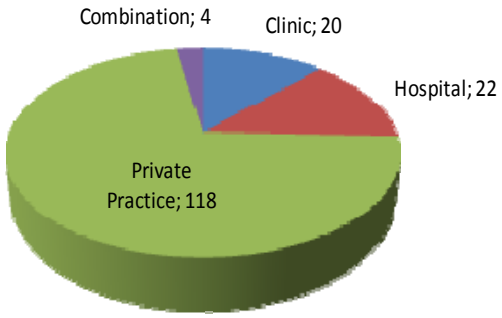
Applied Marketing Science, Incorporated consulted with PATH on the development of the survey questions, particularly around the willingness to pay methodology. Applied Marketing Science confirmed the sample size, survey methodologies, and assisted in the analysis of the survey results.

Results

Background on the private midwives and their practice

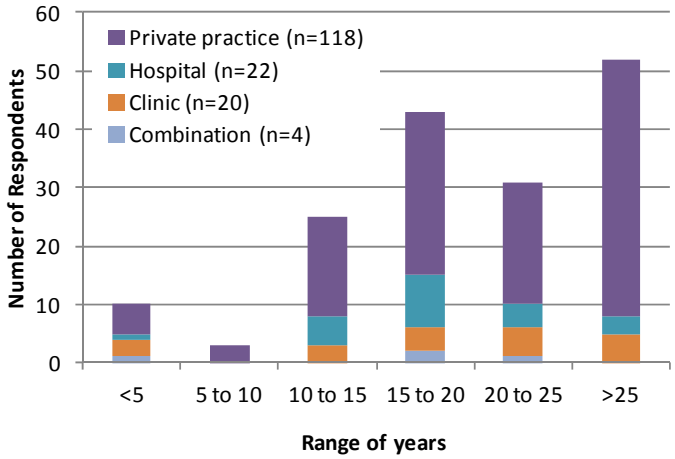
A total of 164 private midwives from in and around Bandung (n=81) and Jakarta (n=83) participated in the willingness to pay assessment. The majority of the midwives were involved in private practice out of their homes or in a clinic setting.

Figure 1: Private midwives' facility type



Ninety-two percent of the private midwives participating in the study brought more than ten years of experience attending births in Indonesia (see Figure 2).

Figure 2: Average number of years attending births by facility type



Across the 164 participating in the study, midwives reported to attend an average of 11.5 births monthly. Midwives practicing in an urban and hospital environment performed more births monthly than those practicing in suburban, rural, or outside-the-hospital setting (see Table 1).

Table 1: Average number of births attended monthly by private midwives' facility type

Midwifery facility type	Average number of births attended per month
Private practice	10.5
Hospital	15.8
Clinic	12.3
Private practice & Hospital	6.0

In order to obtain an understanding of the general cost associated with delivery of a baby, private midwives' were requested to report the range of charges typical for delivery of a child in their practice. The range of charges varied widely across facility type, with hospitals charging on average over 2 million Indonesian rupiah (IDR), and private practices charging on average 727,000 IDR (see Table 2).

Table 2: Average charge per birth (IDR) to a mother for delivery of a child

Midwifery facility type	Average charge per birth (IDR)
Private practice	727,909
Hospital	2,112,500
Clinic	916,350
Private practice & Hospital	954,167

Private midwives were asked to report the typical method and timing of payment for delivery of a baby. Approximately 20% of private midwives reported receiving payment via Jamkesmas. However, the majority of midwives receive payment via cash or credit following delivery (see Figures 3–4).

Figure 3:

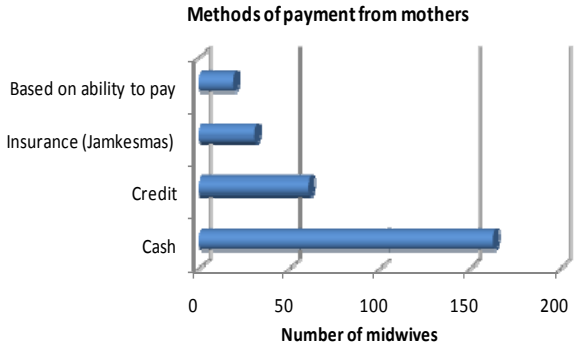
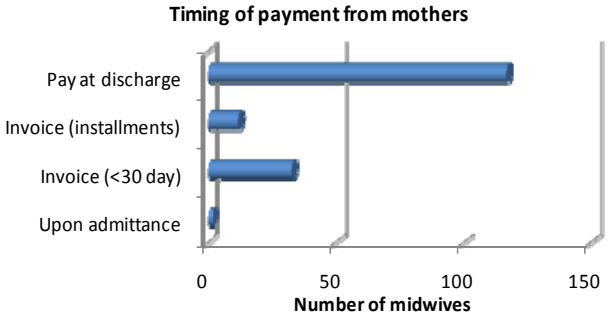


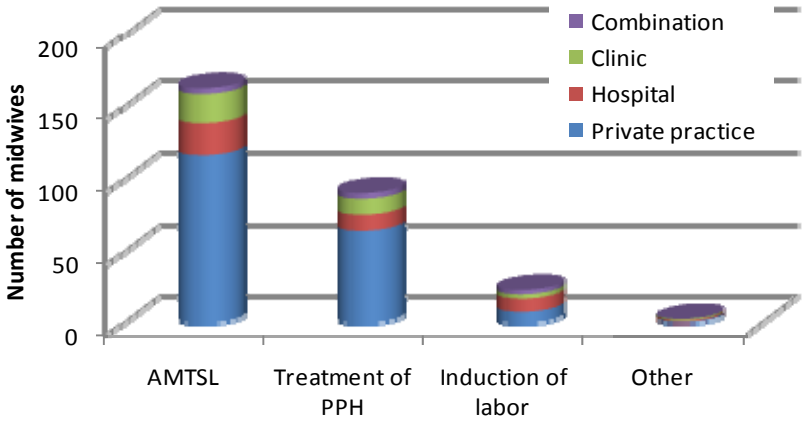
Figure 4:



Private midwives' use of oxytocin

All private midwives reported using oxytocin for AMTSL for every delivery. Among the midwives interviewed, 55% reported using oxytocin for treatment of PPH, and 14% reported using oxytocin to induce labor (see Figure 5). All midwives using oxytocin for induction of labor practice in a hospital setting.

Figure 5: Oxytocin use by private midwives across facility type



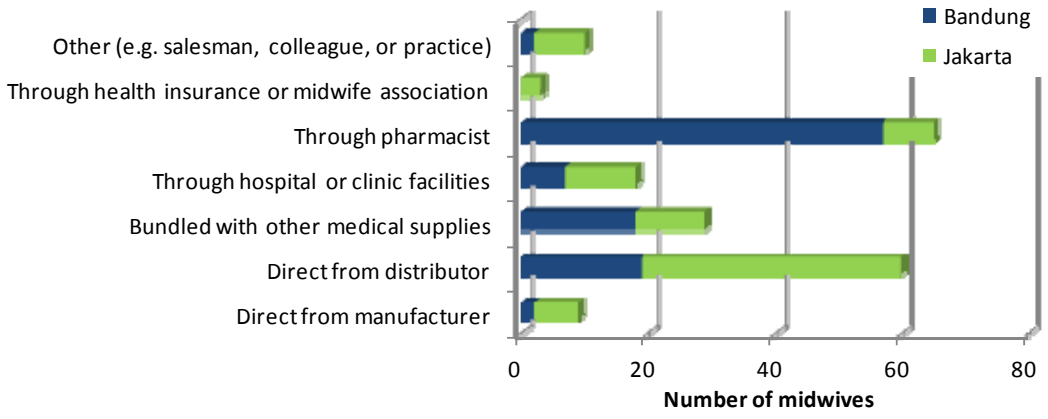
Forty percent of midwives reported attending births that required the use of more than 10 IU of oxytocin during AMTSL. Rationale reported by those midwives for using additional doses of oxytocin was typically driven by the patient's condition, including the need to manage bleeding or postpartum hemorrhage (n=24), to increase the speed of the delivery (n=16), to manage an atonic uterus (n=14), or to manage placenta retention (n=7).

Private midwives' procurement of oxytocin

Private midwives reported using a variety of different procurement channels for purchasing oxytocin for their practice. Oxytocin is distributed to private midwives predominantly through a pharmacist

or distributor. Approximately 20% of midwives reported receiving oxytocin bundled with other medical supplies, but most purchased the product separately (see Figure 6).

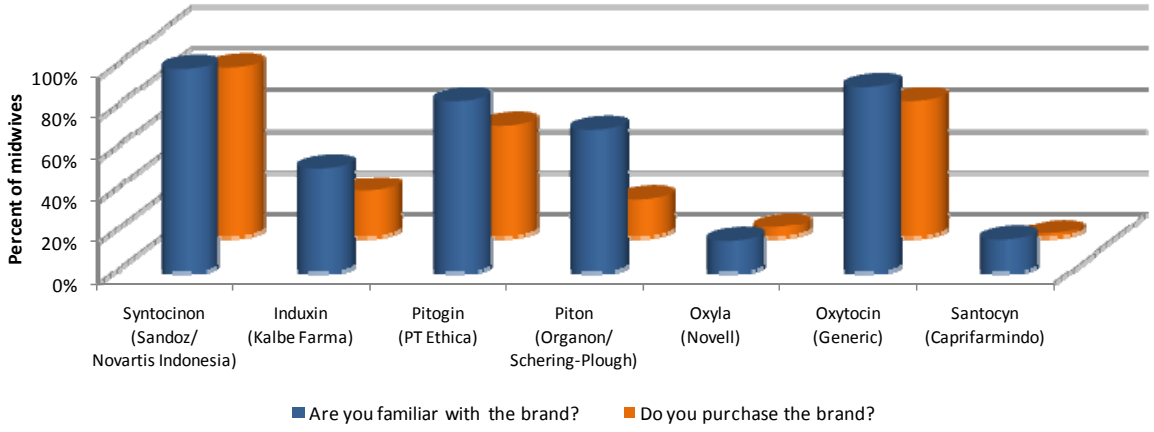
Figure 6: Process for procuring oxytocin



Seventy-three percent of private midwives reported purchasing oxytocin using cash. Only 14% were invoiced for the purchase of oxytocin, and 7% purchased the product on credit.

Private midwives were requested to provide feedback on oxytocin brand recognition and preferences based on those oxytocin products currently available in Indonesia. The majority of private midwives reported familiarity with and purchase of Syntocinon (the most expensive brand), Pitogin, or generic oxytocin (see Figure 7).

Figure 7: Midwives' familiarity with and purchase preferences of oxytocin brands



Midwives provided rationale for specific brand preferences, including their perception that a specific brand works faster (n=24), is of higher quality (n=19), is well-known, trusted, or popular (n=18), is easy to obtain (n=18), or there is familiarity with the product (n=12). Only 6 of 163 private midwives reported that clients could specify the brand of oxytocin used for their delivery.

Private midwives were requested to report the typical prices paid for oxytocin brands. The majority of private midwives were aware of the range of oxytocin prices across a few of the brands in Indonesia (see Table 3). Those midwives reporting that they did not know the typical price for a

specific brand were told the IMS Health 2009 reported retail price in order to provide insight into reference pricing for the next series of willingness to pay questions.

Table 3: Private midwives' reported price-per-dose of oxytocin

Oxytocin brand	IMS 2009 price per 10 IU ampoule (IDR)	Number of private midwives' price estimate per 10 IU ampoule (IDR)					
		≤6,000	>6,000 and ≤10,000	>10,000 and ≤20,000	>20,000 and ≤100,000	>100,000	Do not know
Oxytocin (Generic)	2,806	82	14	1	2	1	64
Pitogin (PT Ethica)	2,915	69	9	0	3	1	82
Oxyla (Novell Pharmaceuticals)	4,526	1	1	0	0	0	162
Induxin (Kalbe Farma)	6,336	14	11	5	2	0	132
Santocyn (Caprifarmindo PT)	8,146	2	0	0	0	0	162
Piton (Organon /Schering-Plough)	10,138	13	3	2	1	1	144
Syntocinon (Sandoz /Novartis Indonesia)	10,862	4	38	72	2	5	43

Prior to engaging in the specific willingness to pay questions, private midwives were asked if the cost of oxytocin was an important part of the overall costs they paid to assist with a delivery; 86% responded "no." Based on the input provided by private midwives, the price of 10 IU of oxytocin is approximately 1%–2% of the cost to deliver a child.

Private midwives' perception of oxytocin in Uniject

Prior to the workshop, 92% of the private midwives had used Uniject for infant hepatitis B vaccinations. Ninety percent of midwives perceived the time to prepare and administer oxytocin during AMTSL would be faster with Uniject. Five percent perceived Uniject would take more time, and 4% perceived it would take the same amount of time.

Ninety-three percent of participants perceived Uniject to be safer for delivery of oxytocin during AMTSL. Five percent believed Uniject offered the same level of safety, and 2% perceived Uniject to be less safe. Midwives reporting Uniject to be safer commented that Uniject requires less preparation, less risk of contamination, offers an accurate dose, more effective delivery, and less potential for needle stick. Eight participants offered rationale that Uniject was safer because there was less worry associated with hitting a blood vessel, while two participants commented it was less safe given the risk of hitting a blood vessel.

Ninety four percent of participants perceived Uniject would simplify AMTSL. Overall, 93% of private midwives preferred oxytocin in Uniject for AMTSL over oxytocin in an ampoule with autodisable needle and syringe.

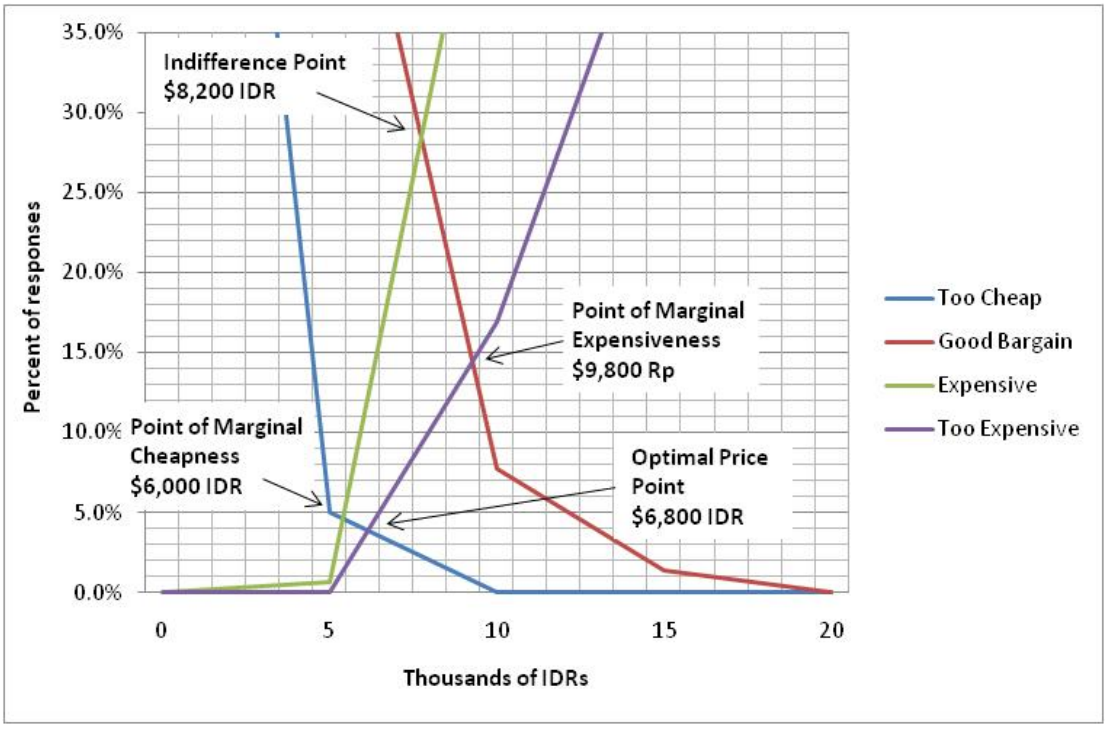
Private midwives' willingness to pay for oxytocin in Uniject

Following the introduction to the Uniject injection system, a series of questions were asked of the private midwives to determine their perceived optimal price for oxytocin in Uniject. Responses to the following questions served as the basis of the Van Westendorp Price Sensitivity Meter analysis:

- At what price would you consider a 10 IU oxytocin in Uniject to be priced so low that you would feel the quality could not be very good?
- At what price would you consider a 10 IU oxytocin in Uniject to be a bargain—a great buy for the money?
- At what price would you consider a 10 IU oxytocin in Uniject starting to get expensive, so that it is not out of the question, but you would have to give some thought to buying it?
- At what price would you consider a 10 IU oxytocin in Uniject to be so expensive that you would not consider buying it?

The price responses to these questions were aggregated across the 164 private midwives to produce the price-sensitivity curves depicted in Figure 8. Based on the results, the private midwives' willingness to pay for oxytocin in Uniject falls between $6,000 IDR and $9,800 IDR, with the optimal price point being $6,800 IDR per 10 IU dose.

Figure 8: Van Westendorp Price Sensitivity Meter results of private midwives' optimal price for oxytocin in Uniject



Following the willingness to pay price-range assessment, a discrete choice modeling assessment of private midwives' propensity to buy was undertaken. Private midwives were asked to check which one oxytocin product in each of three distinct scenarios (outlined in Table 4) they would purchase for use during AMTSL for their next delivery.

Table 4: Private midwives' propensity to buy among three scenarios

Brand (Manufacturer)	Check one	Estimated 10 IU price (IDR)	Check one	Estimated 10 IU price (IDR)	Check one	Estimated 10 IU price (IDR)
Syntocinon (Sandoz/Novartis Indonesia)		10,862		10,862		10,862
Oxytocin in Uniject (TBD)		10,862		7,336		8,850
Oxytocin (Generic)		2,806		2,806		2,806

The aggregated results of the discrete modeling choices presented to the midwives are illustrated in Table 5. The majority of private midwives selected oxytocin in Uniject over other oxytocin products, regardless of price. Sixty-nine percent of midwives chose oxytocin in Uniject when price matched the premium-priced product, Syntocinon (Sandoz/Novartis Indonesia), currently on the market in Indonesia. Midwives provided rationale for their preference of oxytocin in Uniject, indicating that it was practical and easy to use (n=20), guaranteed good quality (n=15), offered fast, efficient delivery (n=12), or appreciated the novelty of a new delivery device (n=7).

Table 5: Private midwives' willingness to pay based on discrete product and price choices

	Price per 10 IU	Proposed price per 10 IU oxytocin in Uniject		
Brand (Manufacturer)		7,336 IDR	8,850 IDR	10,862 IDR
Oxytocin in Uniject (To be determined)		**81%**	**78%**	**69%**
Syntocinon (Sandoz/Novartis Indonesia)	10,862 IDR	11%	12%	16%
Oxytocin (Generic)	2,806 IDR	8%	10%	15%

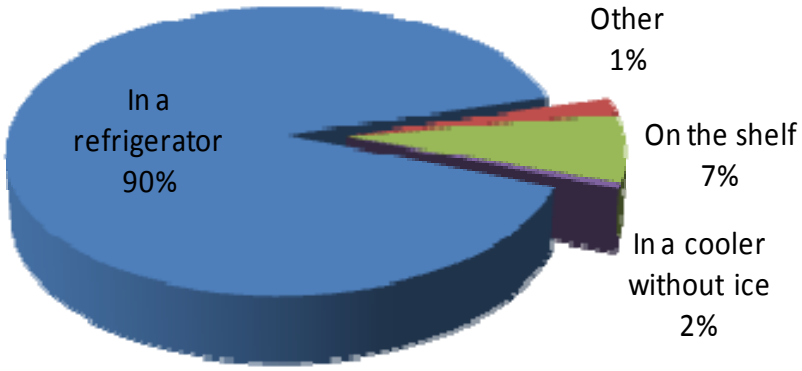
Private midwives' perception of oxytocin with a TTI

After receiving an overview of the concept and characteristics of a TTI, 98% of private midwives reported perceiving a TTI would provide a large increase in quality of AMTSL services provided to patients. Midwives reported the benefits of a TTI to include lower oxytocin wastage (19%), familiarity due to their experience with VVMs (8%), safety (5%) and effectiveness (4%).

Given that oxytocin is a temperature-sensitive product, midwives were asked how oxytocin is typically stored in their practice (see Figure 9). Ninety percent of private midwives reported storing their oxytocin in a refrigerator, indicating that storage of oxytocin in a refrigerator would allow the

product to last longer and maintain its effectiveness and quality. Midwives did, however, express concerns about the storage environments at other segments of the supply chain.

Figure 9: Private midwives' reported storage environment for oxytocin.



Price and attribute trade-offs between oxytocin in a vial or oxytocin in Uniject, with or without a TTI, was assessed by requesting that private midwives rank the following scenarios based on preference to purchase for use during AMTSL, assuming: 1=first choice and 4=last choice. Ninety-one percent of private midwives selected oxytocin in Uniject with a TTI at the highest comparative price as their first choice for AMTSL (see Tables 6-7). Results demonstrated a propensity for midwives to prefer a TTI with or without Uniject over Uniject without a TTI. This suggests that a TTI was a stronger driver of willingness to pay a premium for oxytocin.

Table 6: Discrete choice preference based on product attributes and price: scenario 1

Private midwives' product choice				Product	Estimated 10 IU price (IDR)
1st	2nd	3rd	4th		
1%	1%	8%	**89%**	Oxytocin product in a vial	6,336
4%	17%	**70%**	9%	Oxytocin in Uniject	7,500
3%	**76%**	20%	1%	Oxytocin product in a vial with a TTI	6,511
91%	5%	2%	1%	**Oxytocin in Uniject with a TTI**	**7,675**

Table 7: Discrete choice preference based on product attributes and price: scenario 2

Private midwives' product choice				Product	Estimated 10 IU price (IDR)
1st	2nd	3rd	4th		
1%	1%	9%	**89%**	Oxytocin product in a vial	6,336
4%	19%	**68%**	9%	Oxytocin in Uniject	7,500
4%	**74%**	21%	1%	Oxytocin product in a vial with a TTI	7,214
91%	5%	2%	1%	**Oxytocin in Uniject with a TTI**	**8,378**

Discussion and Conclusions

Several studies have assessed the acceptability and feasibility of oxytocin in Uniject for PPH prevention during AMTSL. These studies have shown positive results in favor of oxytocin in Uniject. Midwives and health workers have indicated that oxytocin in Uniject is easier to use, simplifies service delivery, and improves safety and quality of the oxytocin administered for the prevention of PPH. A cost-effectiveness study has also been conducted, indicating that oxytocin in Uniject is a cost-effective intervention for the prevention of PPH in births occurring in the public sector.[**]

All the reported evidence on oxytocin in Uniject has been gathered from births occurring in the public sector. In reviewing the literature, no information has been found on willingness to pay or preference for oxytocin in Uniject by private providers. This assessment aimed to understand oxytocin brand and presentation preferences, assess the perception of oxytocin in Uniject with or without a TTI, and assess the willingness to pay for oxytocin in Uniject among private midwives in Indonesia.

The results of this assessment showed that the majority (93%) of private midwives prefer oxytocin in Uniject for AMTSL, and 98% believe a TTI will provide a large increase in the quality of AMTSL. Another important finding is that most (86%) private midwives reported that the cost of oxytocin is not an important part of the overall costs they paid to assist with a delivery, since it is only a small portion of private midwives' total costs to deliver a child.

Despite the evidence from the study that 69% of private midwives report a willingness to choose oxytocin in Uniject over the most expensive product on the market at the same price, there is no guarantee that a manufacturer would be profitable, given the potentially small margins on a generic pharmaceutical product. A manufacturer would likely require a portfolio of products for application in Uniject, some with significantly higher price points than oxytocin, in order for packaging in this device to be economically feasible. One Indonesian pharmaceutical producer, Kalbe Farma, has initiated some of the early technical product development studies on oxytocin in Uniject; however, the company has stated that it has significant concerns about making the full investment necessary to launch the product.

[**] Tsu VD, Levin D, Tran MPT, et al. Cost-effectiveness analysis of active management of third-stage labour in Vietnam. Health Policy and Planning. 2009;24(6):438–444. Available at: http://heapol.oxfordjournals.org/content/24/6/438.full. Accessed September 24, 2011.

In summary, results from the willingness to pay study showed that Uniject with a TTI is most preferred; oxytocin in an ampoule with a TTI is next-most preferred, followed by oxytocin in Uniject without a TTI. These findings suggest that a TTI is the preferred market differentiator, and, therefore, may be the priority innovation for oxytocin. However, regulatory oversight and laboratory support would be required to qualify the appropriate TTI based on manufacturer stability data. In addition, manufacturers may perceive a TTI to be a liability, should distribution channels fail to effectively deliver a product in a controlled-temperature environment and buyers blame manufacturers. Thus, a policy change may be required to drive manufacturer adoption of TTIs. Revising storage temperature guidelines for oxytocin and considering the implementation of TTIs may be advisable in Indonesia.

Acknowledgment

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Appendix 1. Willingness to Pay Study Background Presentation

Situation in Indonesia

Postpartum Hemorrhage (PPH) Situation in Indonesia

- 4.4 million births per year
- 73% of births are attended by a skilled provider (OBGYN, doctor, or midwife)
- 53% of births take place in the home
- Each year, 228 maternal deaths occur per 100,000 live births
- Postpartum hemorrhage and eclampsia are the two leading causes of maternal death

Sources: Calculated from CIA World Factbook, 2010 data; and Indonesia Demographic Health Survey, 2007.

Importance of AMTSL

- PPH is a leading cause of maternal mortality in Indonesia
- Active management of the third stage of labor (AMTSL) is proven to help prevent PPH by over 60%
- Key components of AMTSL are:
  - Delivery of a uterotonic (10 IU of oxytocin)
  - Controlled cord traction
  - Uterine massage

Importance of Oxytocin for AMTSL

Oxytocin is recommended by the World Health Organization as the preferred uterotonic for use with AMTSL because:

- It is effective in 2-3 minutes after injection
- It has minimal side effects
- It can be used in all women
- It is more stable in storage than ergometrine

Project Description

Current Maternal Health Work in Indonesia

The government of Indonesia is working to improve maternal and newborn health service delivery and to strengthen district programs.

PATH is helping with this goal through three projects:

1. A quality assessment of oxytocin currently available in the country
2. Technical support for a manufacturer of oxytocin in Uniject
3. Today's workshop and survey to understand use and preferences of oxytocin by private midwives

Today's Workshop and Survey

Objectives:

- Understand the use of oxytocin by private midwives
- Understand the preferred brands of oxytocin by private midwives
- Gain the perspective of private midwives' thoughts about oxytocin in Uniject

Today's Workshop and Survey

Methodology:

- Demonstrate the Uniject injection system
- Practice giving injections with Uniject into citrus fruits
- Conduct one-on-one surveys with private midwives

Uniject injection system

What is Uniject?

The Uniject injection system was developed by PATH in 1987 in response to WHO's call for improved injection delivery designs

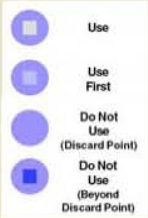
- **Single dose** for minimal waste of drug or vaccine
- **Prefilled, sterile** and **easy to use** by a wide variety of health workers
- **Non-reusable** to prevent the spread of HIV and other diseases

What is a Time Temperature Indicator (TTI)?

- Oxytocin is a heat sensitive medication.
- Storage requirements of oxytocin vary depending on the stability studies performed by the manufacturer.
- In general, the recommendation is to store oxytocin in a refrigerator when available to ensure it is effective for its intended shelf-life (usually 2 years).
- Oxytocin may be stored in a cool place (< 30°C) for a maximum of 3 months if a refrigerator is not available.
- If a refrigerator or ice box is not available, a Time Temperature Indicator (TTI) will indicate when the product has expired.

Oxytocin in Uniject with a Time-Temperature Indicator (TTI)

- Check the TTI on the Uniject package to see if the inner square is lighter than the outside circle
- Discard the oxytocin-Uniject if the inner square is the same color or darker than the outside circle



Successful Unject Use
Select Examples

- Hepatitis B Vaccine
- Tetanus Toxoid
- Injectable contraceptives
- Oxytocin

More than 73 million Unject injections have been administered over the last 10 years

Successful Oxytocin in Unject Use
Selected Examples

Indonesia: Acceptability and use by village midwives during AMTSL in 1998-2000

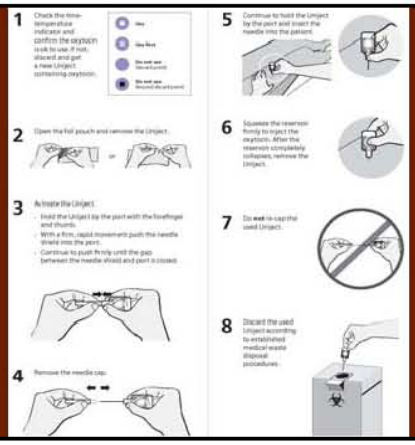
Argentina and Guatemala: Pilot introductions and evaluations in institutions in 2009

Mali: Pilot introductions and evaluations by matronas in 2007

Vietnam: Delivery by midwives in 2005

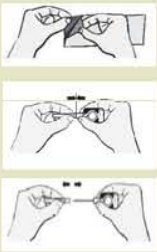
Questions?

How to Use Oxytocin in Unject



Using oxytocin in Unject

- Open the foil pouch and remove the Unject
- Activate the Unject:
  - Hold the Unject by the port with the forefinger and the thumb
  - With a firm, rapid movement push the needle shield into the port
  - Continue to push firmly until the gap between the needle shield and port is closed
- Remove the needle shield



Using oxytocin in Uniject

- Continue to hold the Uniject by the port and insert the needle into the patient.
- Squeeze the reservoir firmly to inject the oxytocin.
- After the reservoir completely collapses, remove the Uniject

Using oxytocin in Uniject

- Immediately after removing the Uniject, safely dispose of it in a sharps container.
- Do not re-cap the Uniject or delay disposal

Thank you!

Appendix 2. Willingness to Pay Study Survey Tool

Use of Oxytocin Questionnaire for Private Midwives in Indonesia

Name of student interviewing

Location of practice (Name of town or village):

Facility or clinic name:

This survey is designed to gather opinions about the use of oxytocin, and new systems for injecting the drug. USAID and PATH will use the information obtained in this study to better inform oxytocin manufacturers, donors and midwives of the perceived benefits of new delivery systems. We would prefer you to be as candid as possible; this is not a quiz, only a process for obtaining your honest opinions. Information shared in this workshop is for research purposes only. Your feedback will remain strictly confidential.

Experience as a midwife

1. On average, how many years have you been attending births?

2. On average, how many births do you attend per month?

3. What is the typical range of costs that a mother is charged for your services to attend their delivery?

4. When do you receive payment from a mother for the delivery?

☐ Upon admittance to the clinic or hospital

☐ Immediately following the delivery of the child

☐ Client is invoiced*

*If "client is invoiced" is checked, ask how many days after child birth receipt of payment is required? ___ ☐ Other

If other, please describe.

5. How do you receive payment for the delivery? Please check all that apply.

☐ Cash

☐ Credit

☐ Insurance reimbursement

☐ Other

If other, please describe.

6. Can the client request a specific brand of oxytocin be used?

☐ Yes

☐ No

If yes, do they pay extra for higher priced oxytocin?

Perspective on oxytocin brands

7. In which settings do you use oxytocin?

☐ Induction of labor

☐ Active management of third stage of labor (AMTSL) [if unchecked, skip to question 9]

☐ Treatment of postpartum hemorrhage (PPH)

☐ Other

If other, please describe.

8. Have you felt the need to use more than 10 IU oxytocin during active management of third stage of labor (AMTSL)?

☐ Yes

☐ No

If yes, please explain why.

9. For each of the oxytocin products listed below, please indicate by writing a "Yes" or a "No" in the boxes below regarding: your familiarity; whether you purchase the brand for use in your practice; and the estimated price per 10 IU ampoule.

Brand	Are you familiar with the brand?	Do you purchase the brand?	What is the estimated price per 10 IU ampoule (IDR)?
Syntocinon (Sandoz/Novartis Indonesia)			
Induxin (Kalbe Farma)			
Pitogin (PT Ethica)			
Piton (Organon/Schering-Plough)			
Oxyla (Novell Pharmaceuticals)			
Oxytocin (Generic)			
Santocyn (Caprifarmindo PT)			

10. How do you order oxytocin for your practice?

- ☐ Direct from the manufacturer
- ☐ Direct from a distributor
- ☐ Bundled with other medical supplies
- ☐ Through hospital or clinic facilities
- ☐ Other

If other, please describe.

11. How do you pay for oxytocin?

- ☐ Cash upon receipt of product
- ☐ Invoice
- ☐ On credit until client payment is received
- ☐ Other

If other, please describe.

12. Is the cost of oxytocin an important part of the overall costs you pay to assist with a delivery?

- ☐ Yes
- ☐ No
- ☐ Don't know

Please explain the reason behind your answer.

Focusing on the use of oxytocin for the active management of third stage of labor (AMTSL)

13. If all of the oxytocin products listed in the table below were priced the same, which products would you prefer for use in active management of third stage of labor (AMTSL)?

    For each product brand in the table below, indicate with check marks if the product is highly preferred, neutral, or least preferred.

Brand	Highly preferred	Neutral	Least preferred
Syntocinon (Sandoz/Novartis Indonesia)			
Piton (Organon/Schering-Plough)			
Induxin (Kalbe Farma)			
Pitogin (PT Ethica)			
Oxytocin (Generic)			
Oxyla (Novell Pharmaceuticals)			
Santocyn (Caprifarmindo PT)			

Please explain the reason behind your answers.

Perspective on oxytocin in Uniject

[Demonstrate to the midwives how to activate the water prefilled Uniject, inject the water into a citrus fruit, then dispose the Uniject into a nearby safety box and dispose the needle shield (cap) into the trash.

Allow each of the midwives to try it themselves with their own prefilled Uniject. Following a successful injection and disposal of the syringe, proceed with next set of questions.]

Now that you are familiar with Uniject, we would like to ask a few questions on your perspective of oxytocin in Uniject.

14. Prior to today's workshop, have you ever used a compact prefilled autodisable Uniject?

☐ Yes

☐ No

☐ Don't know

If yes, for what purpose was Uniject used and when?

15. Compared to your experiences with oxytocin in a vial using a standard needle and syringe, do you believe that it will take more time, the same amount of time, or less time to administer and prepare oxytocin in Uniject during active management of third stage of labor (AMTSL)?

☐ Takes more time with Uniject

☐ Takes same amount of time

☐ Takes less time with Uniject

☐ Don't know

16. Compared to your previous experiences administering oxytocin with a standard needle and syringe, do you think:

☐ Uniject is safer than a standard needle and syringe

☐ Uniject offers the same level of safety as a standard needle and syringe

☐ Uniject is less safe than a standard needle and syringe

☐ Don't know

Please explain the reasons behind your answer.

17. Do you believe that having oxytocin in Uniject will simplify AMTSL?

☐ Yes

☐ No

☐ Don't know

Please explain the reasons behind your answer.

18. Do you think the experience for a mother receiving oxytocin in Uniject will be different from oxytocin delivered with a standard needle and syringe?

☐ Yes

☐ No

☐ Don't know

If yes, in what way do you believe the experience may be different?

19. At what price would you consider a 10 IU oxytocin in Uniject to be priced so low that you would feel the quality could not be very good?

20. At what price would you consider a 10 IU oxytocin in Uniject to be a bargain—a great buy for the money?

21. At what price would you consider a 10 IU oxytocin in Uniject starting to get expensive, so that it is not out of the question, but you would have to give some thought to buying it?

22. At what price would you consider a 10 IU oxytocin in Uniject to be so expensive that you would not consider buying it?

23. Would you prefer to use oxytocin in Uniject or oxytocin in a vial with traditional needle and syringe during AMTSL?

- ☐ Oxytocin in Uniject
- ☐ Oxytocin in a vial with traditional needle and syringe
- ☐ Don't know

Please explain the reasons behind your answer.

24. For your next delivery, given the following product choices of oxytocin, please check which one product you would purchase for use during AMTSL?

Check one	Brand (Manufacturer)	Estimated 10 IU price
☐	Syntocinon (Sandoz/Novartis Indonesia)	10,862
☐	Oxytocin in Uniject (To be determined)	10,862
☐	Oxytocin (Generic)	2,806

25. For your next delivery, given the following product choices of oxytocin, please check which one product you would purchase for use during AMTSL?

Check one	Brand (Manufacturer)	Estimated 10 IU price
☐	Syntocinon (Sandoz/Novartis Indonesia)	10,862
☐	Oxytocin in Uniject (To be determined)	7,336

☐	Oxytocin (Generic)	2,806

26. For your next delivery, given the following product choices of oxytocin, please check which one product you would purchase for use during AMTSL?

Check one	Brand (Manufacturer)	Estimated 10 IU price
☐	Syntocinon (Sandoz/Novartis Indonesia)	10,862
☐	Oxytocin in Uniject (To be determined)	8,850
☐	Oxytocin (Generic)	2,806

Please explain the reasons behind your response for questions 23-25.

Perspective on oxytocin in Uniject with Time Temperature Indicator (TTI)

Oxytocin is a heat sensitive medication. Storage requirements of oxytocin vary depending on the stability studies performed by the manufacturer. In general, the recommendation is to store oxytocin in a refrigerator when available or to store in a cool place (< 30°C) for a maximum of 3 months if a refrigerator is not available.

Oxytocin that is not stored in the proper temperature control environment will compromise the quality and potency of the product over time. If oxytocin is exposed to temperatures that are too high for an extended duration, the product will lose its effectiveness in stopping uterine bleeding following child birth. One way to indicate if oxytocin has been exposed to temperatures that may cause it to lose potency is to use a Time Temperature Indicator (TTI).

27. Do you feel the Time Temperature Indicator (TTI) will change in the quality of AMTSL services you provide to patients?

☐ Large increase in quality

☐ Small increase in quality

☐ Decrease in quality

☐ No change

☐ Don't know

Please explain the reasons behind your response.

28. Please rank the following from 1 to 4 based on your preference to purchase for use during AMTSL assuming: 1=first choice to 4=last choice.

Rank	Brand (Manufacturer)	Estimated 10 IU price (IDR)
	Oxytocin product in a vial	6,336
	Oxytocin in Uniject	7,500
	Oxytocin product in a vial with TTI	7,214
	Oxytocin in Uniject with TTI	8,378

29. Please rank the following from 1 to 4 based on your preference to purchase for use during AMTSL assuming: 1=first choice to 4=last choice.

Rank	Brand (Manufacturer)	Estimated 10 IU price (IDR)
	Oxytocin product in a vial	6,336
	Oxytocin in Uniject	7,500
	Oxytocin product in a vial with TTI	6,511
	Oxytocin in Uniject with TTI	7,675

Please explain the reasons behind your responses for questions 27-28.

30. How do you store oxytocin for use in your practice?

- ☐ In a refrigerator
- ☐ In a cooler with ice
- ☐ In a cooler without ice
- ☐ On the shelf
- ☐ Other

If other, please explain.

31. How do you store hepatitis B vaccine for use in your practice?

- ☐ In a refrigerator

- ☐ In a cooler with ice
- ☐ In a cooler without ice
- ☐ On the shelf
- ☐ Other

If other, please explain.

32. Would you like to share anything about your experience administering the hepatitis B vaccine with Uniject?