

Willingness to Pay for Cataract Surgery in Rural Southern China

Mingguang He, Vicki Chan, Elaine Baruwa, Donna Gilbert, Kevin Frick, Nathan Congdon

Helen Keller International, New York

Zhongshan Ophthalmic Center, Guangzhou, China

Department of Ophthalmology, Johns Hopkins School of Medicine

Department of International Health, Johns Hopkins University

Department of Health Policy and Management, Johns Hopkins University



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Background

- **Cataract is a significant global health problem, surgery is the only available treatment.**
- **Demand for surgery in developing countries is often low.**
- **Cataract surgical rate is low in China: 290 /mil/year**
- **Inability or unwillingness to pay plays an important role in poor uptake of cataract surgery.**



Goals and Objectives

Goals

- Establish an appropriate pricing system affordable to the users and financially sustainable for the providers.
- Design sustainable cataract surgical programs for a large-scale cataract intervention program in rural Southern China.

Objectives

- Evaluate the willingness to pay (WTP) for surgery in a typical poor rural region of South China during the pilot phase of the project (2001)
- Understand the factors associated with WTP



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Setting and Subjects

- **Yangjiang City**
 - 2.5 million population
 - 500 cataract surgeries per year
 - Representative of poor rural areas of Southern China
- **Subjects**
 - Enrolled from rural screening camps established in towns
 - People aged 50+, presenting visual acuity $\leq 6/60$ due to cataract in at least one eye
 - Exclusion: Persons with previous cataract surgery



Willingness to Pay (WTP) Interview

- Interviewed in a separate area by trained interviewer
- Heads of household or financially responsible persons were also invited for discussion in order to facilitate the interview
- 15-30 minutes per interview
- Questionnaire: “Bidding” format questions; subjects were asked the amount willing to pay for cataract surgery
- Reasons were asked when unwilling to pay anything
- Family income for the last year was asked



Willingness to Pay (WTP) Interview

- “Bidding” format:
 - Initially ask “Will you pay 1000 RMB (US\$125)?”
 - Raise or lower in 100 RMB increments depending on response
- **Context** is crucial if responses are to reflect what the interviewee is really willing to spend for a service



Context provided in our interview

- **Cataract is the cause of visual impairment**
- **Surgery is the only clinical option**
- **Most patients can expect good vision after surgery**
- **Payment of surgery represents a one-time out-of-pocket cost and fee for post-op care is minimal**
- **This expense will require they decrease their budget for other family expenses**
- **Payments from patients are major source of financial support for this cataract surgical program**
- **Responses on WTP do not affect the quality and price of surgery**



Community screening (2001)



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Interview (2001)



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Results

- 339 consecutive eligible subjects participated, 325 (95.9%) were able to complete questionnaire, 14 subjects refused.
- All with presenting VA \leq 6/60 in worse eye, 2/3 had presenting VA \leq 6/18 in both eyes
- 2/3 female, half illiterate, 2/3 current working, all were farmers
- 2/3 household annual income $<$ 5000 RMB (US\$625), mean for Guangdong US\$500



Willingness to Pay results

- **257 (80%) willing to pay something**
- **Mean amount willing to pay 442 RMB (\$US55)**
- **Reasons for unwilling to pay**
 - **Felt vision still good: 40%**
 - **Don't believe surgery will benefit: 24%**
 - **Too old for surgery: 19%**
 - **Not enough income: 2%**



Willingness to Pay results

- **Two multiple regression models created:**
 - **Logistic regression examining willingness or unwillingness to pay anything for surgery, includes all participants (n = 325)**
 - **Linear regression analysis of determinants of the amount which those who would pay something (n = 257) were prepared to pay**



Logistic regression Model

- Older persons less likely to be willing to pay for cataract surgery (OR = 0.91 per year of age, 95% CI 0.87-095)
- Persons with low vision (VA \leq 6/18) (OR = 3.6, 95% CI 1.5-8.3) and blindness (VA \leq 6/60) (OR = 5.7, 95% CI 1.7-19.3) were significantly more likely to be willing to pay anything compared to persons with good vision ($>$ 6/12)
- Gender, literacy and income not significant in this model.



Linear regression Model

- Older subjects willing to pay less than younger ones by 8 RMB (US\$1) per year of age ($P = 0.01$).
- Literate persons would pay 104 RMB (US\$13) more for cataract surgery than illiterate persons ($P = 0.05$)
- Persons with an annual income of ≥ 10000 RMB (US\$1250) would pay 400 RMB (US\$50) more than subjects earning < 5000 RMB (US\$625) ($P = 0.0003$).



Linear regression Model

- **Blindness/Low vision:**
 - More willing to pay anything for cataract surgery
 - Amount that they were willing to pay was significantly less than for persons with good vision.
 - Persons with low vision would pay \$12 less for cataract surgery ($P = .15$) than those with $VA > 6/12$
 - Blind subjects would pay 255 RMB (US\$32) less ($P = 0.004$).



Policy implications

- **80% of subjects potentially benefit from surgery are willing to pay something**
- **Mean amount they are willing to pay, US\$55, is well below current pricing in this setting (\$US500-650)**
- **HKI program now charges \$US65 for cataract surgery**



Policy implications

- **Additional amounts that richer and younger groups willing to pay, up to 80% beyond current price, could greatly benefit sustainability of the program**
- **Need to target groups such as young, wealthy and literate, who will pay more, while keeping program open to those with greatest need**



Methodology

- **Several potential strategies to improve accuracy of willingness to pay questionnaires:**
 - **Closed-ended questions, face-to-face interviews**
 - **Context: clearly state benefits AND costs of service**
 - **Internal checks: expect those with higher income willing to pay more, etc.**

