Willingness to Pay for Cataract Surgery in Rural Southern China

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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
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 <=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)
Results

- 339 consecutive eligible subjects participated, 325 (95.9%) were able to complete questionnaire, 14 subjects refused.
- All with presenting VA ≤ 6/60 in worse eye, 2/3 had presenting VA ≤ 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 0.87-0.95)
- 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.