

# Household willingness to pay for azithromycin treatment for trachoma control in the United Republic of Tanzania

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**Objective** Household willingness to pay for treatment provides important information for programme planning. We tested for relationships between socioeconomic status, risk of trachoma, perceptions of the effects of azithromycin, and the household willingness to pay for future mass treatment with azithromycin.

**Methods** We surveyed 394 households in 6 villages located in central United Republic of Tanzania regarding their willingness to pay for future azithromycin treatment. A random sample of households with children under 8 years of age was selected and interviewed following an initial treatment programme in each village. Data were gathered on risk factors for trachoma, socioeconomic status, and the perceived effect of the initial azithromycin treatment. Ordered probit regression analysis was used to test for statistically significant relationships.

**Findings** 38% of responding households stated that they would not be willing to pay anything for future azithromycin treatment, although they would be willing to participate in the treatment. A proxy for cash availability was positively associated with household willingness to pay for future antibiotic treatment. Cattle ownership (a risk factor) and being a household headed by a female not in a polygamous marriage (lower socioeconomic status) were associated with a lower willingness to pay for future treatment. A perceived benefit from the initial treatment was marginally associated with a willingness to pay a higher amount.

**Conclusions** As those at greatest risk of active trachoma indicated the lowest willingness to pay, imposing a cost recovery fee for azithromycin treatment would likely reduce coverage and could prevent control of the disease at the community level.

**Keywords** Azithromycin/therapeutic use/economics; Trachoma/drug therapy; Fees, Pharmaceutical; Volition; Forecasting; Socio-economic factors; Risk factors; United Republic of Tanzania (*source: MeSH, NLM*).

**Mots clés** Azithromycine/usage thérapeutique/économie; Trachome/chimiothérapie; Tarifs pharmaceutiques; Volition; Facteur socio-économique; Facteur risque; République-Unie de Tanzanie (*source: MeSH, INSERM*).

**Palabras clave** Azitromicina/uso terapéutico/economía; Tracoma/quimioterapia; Honorarios farmacéuticos; Volición; Predicción; Factores socioeconómicos; Factores de riesgo; República Unida de Tanzania (*fuentes: DeCS, BIREME*).

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*Voir page 106 le résumé en français. En la página 106 figura un resumen en español.*

## Introduction

Trachoma is an important cause of blindness worldwide, with estimates of 5–7 million blind and 300–500 million more affected (1). Children form the main reservoir of infection in endemic communities, although complications from blinding occur mainly in adults. Blinding trachoma is caused by repeated or prolonged infection with *Chlamydia trachomatis*, which results in scarring of the conjunctiva and inturning eyelashes which scratch the surface of the eye (trichiasis), causing corneal opacities. In hyperendemic areas such as the Kongwa district of central United Republic of Tanzania, the prevalence of active trachoma in preschool children is around 60%, and that of trichiasis in persons over 55 years of age is about 8% (2).

WHO recommends a four-pronged approach for trachoma control (referred to as SAFE) that includes community-wide treatment with antibiotics, health education, environmental changes, and trichiasis surgery (3, 4). Traditionally trachoma was treated using tetracycline, which is more

readily available than azithromycin, but is more burdensome to administer. Pfizer, Inc., is continuing to make azithromycin donations in a growing consortium of countries. The combination of the promotion of a four-pronged approach, an antibiotic donation programme, and the formation of the Alliance for the Global Elimination of (blinding) Trachoma (GET2020), has spurred interest in trachoma control.

Successful trachoma control efforts require resources that are greater than the costs of antibiotics. Delivery of the antibiotics and provision of other aspects of the SAFE strategy are likely to be expensive. One study in Nigeria estimated the costs of distributing donated ivermectin to be equal to the entire annual government health expenditure (5). Even if, initially, philanthropy covers trachoma control programme expenses, the issue of cost recovery will likely arise as it takes years for control efforts to succeed. The components of the SAFE strategy most likely to be subject to cost-recovery efforts are surgery and antibiotics.

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Cost-recovery programmes can have a negative impact on utilization of health services. Additionally, the need for repeated mass treatments for a disease that leads to blindness later in life may limit compliance. In the present study we tested for associations between willingness to pay for a follow-up treatment with azithromycin and measures of socioeconomic status, risk factors for active trachoma, and perceived impact of an initial treatment with azithromycin.

Several factors suggest that it is important to assess the willingness to use resources for future azithromycin treatment. First, while the SAFE strategy is integrated from a health planning perspective, the affected population does not necessarily perceive it as an integrated strategy. Second, azithromycin treatment is a key component of the Tanzanian national trachoma control programme. The willingness to pay for azithromycin treatment specifically can be analysed since at the time of the study the villages concerned had only had the antibiotic component of the SAFE strategy, although all have subsequently been enrolled in the national programme. During the study, individuals with trichiasis were referred for additional treatment.

Information about who is willing to use personal resources for follow-up treatment will help to target the promotion of mass treatment programmes for communities with endemic active trachoma, thus maximizing the response to such programmes.

### Conceptual model

In the context of our study, willingness to pay measures the total value of azithromycin treatment for those affected (6). A household's willingness to pay is determined by the household decision-makers' preferences and constraints, which are in turn a function of resources and "prices" such as the value and amount of time required to obtain treatment (opportunity costs). Information also matters; perceptions of the value of the treatment may be affected by personal or family experiences with azithromycin treatment and perceptions of the risk of future active trachoma and its complications.

Extensive use of willingness to pay in health care is a recent phenomenon (7–9). While its use in cost–benefit analyses is sometimes controversial because ethics and fairness are not included explicitly, our results are intended to provide evidence about demand at non-zero prices (10). Even in this context, use of willingness to pay is limited because there is no guarantee that households will behave as indicated in the interviews measuring this parameter. However, in a survey in the Kwimba district, United Republic of Tanzania, Walraven found that when user fees were introduced, the survey results predicted the observed reduction in the use of services at the health facilities (11). However, the same study raised other issues as no association was found between willingness to pay and household consumption, although this willingness should be related to ability to pay (11, 12).

## Methods

### Project site

The project was located in Kongwa district, a rural area with village populations of 1500–8000 located in central United Republic of Tanzania. The villages consist of small central cores and peripheral areas of scattered households of farmers and herders. In all the villages a complete project census of all households was carried out in 1998 prior to treatment.

## Study design

### Village allocation and sample size

The study supplemented an ongoing project which had as its main objective the comparison of alternative azithromycin treatment strategies. This sub-study focused on recruitment methods for mass treatment of trachoma and included six villages selected on the basis of their high expected rates of the disease and their situation within an hour's travel time of the project office in Kongwa.

### Treatment implementation

All households with pre-school children were targeted for azithromycin treatment. In three of the villages, the recruiters were from the village government; in the other three, they were interested community members. All recruiters attended a seminar at which information on trachoma and its treatment was presented. Recruiters went door-to-door making face-to-face contact, explaining treatment, and encouraging participation by households.

Treatment was carried out by the Kongwa Trachoma Project team at a designated site in each neighbourhood of each village. Treatment was free of charge and offered to all members of target households and anyone with clinical signs of trachoma. Treatment was available one day in each neighbourhood. Details of the treatment protocol are described elsewhere (13). Research and treatment protocols were reviewed and approved by the Tanzania National Prevention of Blindness Committee, the Tanzania National Institute for Medical Research, and the Johns Hopkins Hospital Joint Committee on Clinical Investigation.

### Survey methods

In each village, 70–100 households with pre-school children were randomly selected. A survey questionnaire was conducted over two visits to each household. The first occurred one week prior to the azithromycin treatment, and the second two weeks after treatment.

At the pretreatment visit, all household members aged under 15 years were offered free eye examinations, in which trachoma status was graded for severity using the WHO Simplified Grading Scheme (14). Parents were informed of the results of the interim eye examination and referred for treatment the following week.

Questions regarding the willingness to pay for future treatment of the children with azithromycin were asked at the post-treatment interview. This approach seeks to avoid two problems: concern that compliance with treatment would be reduced by failure to distinguish between willingness to pay and a necessity to pay for the treatment; and inability to understand the effects of azithromycin without prior treatment. However, the method does not resolve the problem that individuals who have had a free treatment once may expect it to continue to be free in the future.

Respondents were first asked if they would be willing to have their children take this drug if it were offered again. Willingness to pay questions were asked of those who responded "yes" or "maybe". The questions were developed in a formative research process, using local key informants to match the design to local customs as closely as possible. The questions used a closed-ended iterative bidding approach (15). Although this approach typically allows for both increments and decrements to the price, local informants counselled that

starting at the low end would result in few persons willing to pay more than the first price offered; this is consistent with other results suggesting that iterative bidding is sensitive to the initial price offered (14). Respondents were asked if they would be willing to pay 500 Tanzanian shillings (approximately US\$ 0.85) with responses coded as “yes”, “no”, or “maybe”. If the answer was “no” or “maybe” the interviewer proceeded to 100–500 Tanzanian shillings, 1–99 Tanzanian shillings, and zero Tanzanian shillings, using the same response coding. In 1998, 500 Tanzanian shillings represented a day’s wage for a casual labourer in the villages, and key informants considered this amount to be the maximum price most villagers would consider acceptable.

The primary variables of interest in this analysis reflected resources available to pay for treatment, risks of active trachoma, and the perceived benefit of the treatment. The measure of resources available was the presence of any metal (usually corrugated tin sheets) on the roof of the house. Local informants indicated that tin can be removed and sold when cash is needed. Another measure of resources was being a female-headed household, often implying a single mother with few resources. Ownership of cattle, a traditional measure of wealth, was considered a risk factor in this analysis.

A variable measuring perceived risk of trachoma was based on pre-treatment estimates of the likelihood of experiencing an eye problem in the coming year for the respondent personally, an adult in the household, and a child in the household. These three responses were combined in an index measure using their mean, with values greater than or equal to the median value (0.70) classified as “high”. Internal consistency between these three variables was good (Cronbach’s  $\alpha = 0.67$ ). Other variables measuring risk included the presence of more than one child, the presence of any active trachoma in the household, and the prevalence of active disease in children aged 1–7 years in the village. A perceived risk of blindness, such as having a family member blind from trachoma, was not used because even in hyperendemic areas the prevalence of blindness from trachoma is too low.

Respondents were asked about the perceived benefit of treatment in the post-treatment interview. While respondents could indicate positive and negative results, the analysis included an indicator of any positive effect for the respondents or their children.

Other variables were also expected to be correlated with willingness to pay. The time spent to receive treatment was a constraint that might have affected the willingness to pay a monetary price. Further, mothers’ attitudes towards care for and treatment of their children were likely to be affected by their educational attainment. Therefore, adult education only, in combination with no formal education, was compared with any formal education. Past use of social services might have influenced perceptions and preferences, and was measured through attendance at an antenatal clinic during the last pregnancy. Indicators of an “old” head of a household and of a polygamous household were also included in the final analysis.

### Statistical analyses

Ordered regression analyses were used to test for associations between the predictors of interest and being in a higher category of willingness to pay for future azithromycin treatment (16). Since the ordered logit approach makes the assumption that odds ratios are equivalent for all adjacent

outcome levels for each factor, we used ordered probit. The only two individual categories for which the change in probability is unambiguous are the lowest (lower probability) and the highest (higher probability). Three sets of analyses were conducted: each of the main predictor variables separately, all the main predictor variables, and all regressors. The analyses were conducted using Stata 6.0 software (Stata Corporation, College Station, TX, USA).

## Results

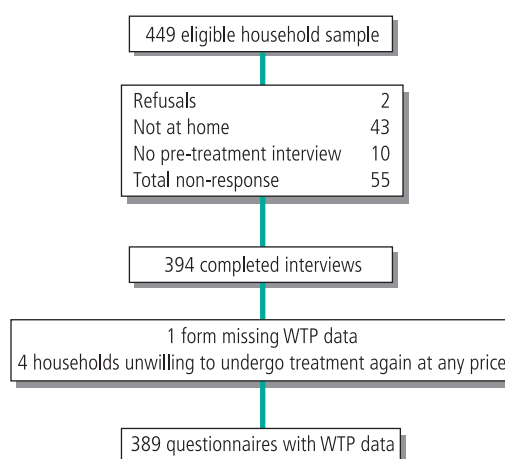
The survey response was high. Only two households refused to be interviewed. Parents not at home after repeated visits, households missing pre-treatment visits, and interviewer errors resulted in a total of 55 missed interviews, giving an 88% response rate for the post-treatment interviews among eligible households (Fig. 1). Four households stated unwillingness to be treated again at any price and were excluded, and the interviewer failed to ask questions about willingness to pay in one household. The 55 households not interviewed post-treatment were compared with the 394 that did respond for several variables including number of young children, and age and sex of the head of the household. The non-responding households had fewer young children (Student’s  $t$  test = 2.74,  $P < 0.01$ ), but did not differ in a statistically significant way for any of the other variables (data not shown).

Although many of the variables under study differed substantially among villages, there was no pattern to the differences in explanatory variables used in the model. Table 1 compares a number of variables by village including the proportions of positive willingness-to-pay responses for future treatment, which ranged from 54% to 75% of households.

Table 2 shows that over one-third of the respondents who would be willing to receive azithromycin treatment for their children in the future would not have been willing to pay anything for it. Approximately 25% of the respondents were willing to pay only 1–99 shillings, with almost the same proportion being willing to pay 500 Tanzanian shillings.

Table 3 shows the results of single predictor ordered probit regression analyses. Both of the socioeconomic status indicators were significantly associated with willingness to pay, and as expected this provided support for the validity of the willingness to pay measure ( $\delta$ ). Having cattle and being in a

Fig. 1. Response to post-treatment interviews



WTP = Willingness to pay.

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Table 1. Comparison of values of key variables in the study villages

Household characteristic	Recruitment by (%): <sup>a</sup>					
	Village government			Interested community members		
	Vil. <sup>b</sup> 1 (n = 46)	Vil. 2 (n = 93)	Vil. 3 (n = 61)	Vil. 4 (n = 65)	Vil. 5 (n = 65)	Vil. 6 (n = 63)
WTP>0 <sup>c</sup>	72	54	75	54	65	54
Households with active trachoma	85	75	65	72	65	78
Active disease among children age 1–7 years	75	80	46	61	53	68
Perceived risk of trachoma "high"	34	48	30	42	45	56
Tin roof on house	26	36	54	58	21	21
Cattle at house	32	40	13	36	43	41
Antenatal care in last pregnancy	69	78	85	77	92	75
School-aged children not in school	16	44	14	35	22	9
Maternal education (n = 405)	55	45	65	42	62	33
Female-headed household	5	17	4	11	12	11
Polygamous	22	28	19	35	30	12
>30 min taken for treatment	51	66	31	27	23	53

<sup>a</sup> % of survey households positive for each factor. Households with WTP = 393 (one missing value and four who were unwilling to repeat treatment); denominators for other variables may vary depending on collection at pre or post interview and missing values for that question.

<sup>b</sup> Vil. = village.

<sup>c</sup> WTP = willingness to pay.

Table 2. Distribution of willingness to pay for future child treatment for trachoma among the study respondents

Willingness to pay (Tanzanian shillings)	No. of respondents
0	149 (38.3) <sup>a</sup>
1–99	92 (23.7)
100–499	60 (15.4)
≥ 500	88 (22.6)

<sup>a</sup> Figures in parentheses are percentages.

village with a higher prevalence of active disease were negatively associated with willingness to pay, suggesting that those at higher risk of trachoma were willing to pay less for future treatment. Perceiving a benefit from treatment was associated with being willing to pay more for future treatment. In a further analysis (not shown here), we found that the type of recruitment was not related to willingness to pay.

Table 4 shows the results of two multivariate ordered probit analyses. The first regression included only the socioeconomic status, risk, and perceived benefit variables. The metal roof and cattle ownership indicators were only marginally significant ( $P = 0.059$  and  $P = 0.089$ , respectively), and the risk factor variables together were not significant ( $\chi^2$  test (5) = 3.70,  $P = 0.5934$ ). Prevalence of active disease in young children was not significantly related to willingness to pay. The direction of the other significant associations remained the same as in the single predictor ordered probit regressions.

The second regression model included the other potential explanatory variables. Only maternal education was significant and was associated with being willing to pay a greater amount. The group of additional variables was significantly associated with willingness to pay ( $P = 0.029$ ). The perceived benefit variable was only marginally significant ( $P = 0.079$ ). None of the risk factors, individually or as a group,

Table 3. Results of the single predictor ordered probit regression analyses

Variable	n	Coefficient	Standard error
<b>Socioeconomic status</b>			
Metal on roof	389	0.355 <sup>a</sup>	0.116
Female-headed household	362	-0.700 <sup>b</sup>	0.189
<b>Risks</b>			
Perceived risk	355	-0.051	0.117
Any active disease	389	0.016	0.116
Cattle	389	-0.236 <sup>c</sup>	0.118
No. of children	389	0.090	0.121
Village prevalence of active trachoma among children aged 1–7 years	389	-0.009 <sup>c</sup>	0.004
<b>Perceived benefit</b>			
Any positive benefit	389	0.451 <sup>c</sup>	0.222

<sup>a</sup>  $P < 0.01$ .

<sup>b</sup>  $P < 0.001$ .

<sup>c</sup>  $P < 0.05$ .

were significantly related to willingness to pay, even marginally. Missing data on the additional variables led to a loss of 40 observations, and this may have been responsible for the loss of significance for cattle ownership since neither the sign nor the magnitude of the coefficient changed substantially.

## Discussion

The results suggest the following: willingness to pay is correlated with ability to pay; a perceived benefit of treatment is associated with a willingness to use more resources in obtaining treatment in the future; but those for whom utilization is most important for achieving community-wide trachoma control are willing to pay less. This suggests that cost-recovery for azithromycin treatment could limit coverage.

Table 4. Coefficients obtained in the multivariate ordered probit analysis

Variable	Coefficient, first model <sup>a</sup>	Coefficient, second model <sup>b</sup>
<b>Socioeconomic status</b>		
Metal on roof	0.242 (0.128) <sup>c</sup>	0.314 <sup>d</sup> (0.139)
Female-headed household	-0.763 <sup>e</sup> (0.206)	-0.765 <sup>d</sup> (0.225)
<b>Risks</b>		
Perceived risk	-0.000 (0.123)	0.018 (0.134)
Any active disease	-0.014 (0.134)	-0.008 (0.147)
Cattle	-0.222 (0.131)	-0.181 (0.143)
No. of children	0.013 (0.137)	-0.021 (0.151)
Village prevalence of active trachoma in children age 1–7 years	-0.003 (0.005)	-0.004 (0.006)
<b>Perceived benefit</b>		
Any positive benefit	0.448 (0.231)	0.412 (0.234)
<b>Other variables</b>		
Time cost	–	0.064 (0.143)
Antenatal care	–	0.084 (0.180)
Polygamous family	–	-0.183 (0.158)
Maternal education	–	0.353 (0.137) <sup>e</sup>
Old head of household	–	-0.202 (0.139)
<i>n</i>	332	292
LR (full model)	27.63 <sup>f</sup>	43.21 <sup>f</sup>
$\chi^2$ test for incremental model <sup>g</sup>		12.49 <sup>d</sup>

<sup>a</sup> Includes only socioeconomic status, risk, and perceived benefit variables.

<sup>b</sup> Includes variables shown in footnote a plus other explanatory variables.

<sup>c</sup> Figures in parentheses are standard errors.

<sup>d</sup>  $P \leq 0.05$ .

<sup>e</sup>  $P \leq 0.01$ .

<sup>f</sup>  $P \leq 0.001$ .

<sup>g</sup> Five degrees of freedom.

Our primary proxy measure of cash availability, presence of tin on the house roof, was positively correlated with willingness to pay. We did not attempt to collect data on household consumption, as there is little interhousehold variation. Cattle ownership and multiple wives — traditional concepts of status and wealth — were either negatively or not significantly related to willingness to pay, and hence consistent with these indicators being associated more with status than wealth.

Both the type of roof and cattle ownership are risk factors as well as indicators of wealth (2, 17), and our findings with regard to these variables suggest that families at greater risk are willing to pay smaller amounts. Other measures of risk were not associated with willingness to pay, unlike findings in the Nigerian onchocerciasis programme (5). This most likely reflects the wide prevalence of trachoma and the perception that it may not be abnormal to have children with the disease.

The relationship between education and willingness to pay may result from more-educated women paying more attention to preventing negative health outcomes. Such women may be more forward-looking or better understand the effects of antibiotics (18). If the latter reason predominates, providing more information about the effectiveness of

treatment may mitigate the effects of cost-recovery programmes. Higher education was also a significant positive factor in predicting willingness to pay for a Nigerian onchocerciasis treatment project (5).

The lower willingness to pay of female heads of households not in polygamous marriages may also be linked to their tighter economic circumstances. This finding, in combination with results from a previous case-control study of trichiasis among women in Kongwa, which suggested that never married status was a marker for a group of women at high risk for trichiasis (19), indicates that single mothers should be a key target group for mass treatment with azithromycin, with or without a cost-recovery programme.

Methodologically, the responses to the willingness to pay questions may also have been influenced by political considerations: for instance, socialist-era attitudes that health services should be free of charge. Finally, as one of every four respondents chose the highest category, future research should allow at least one more category, for example, willingness to pay at least 1000 Tanzanian shillings.

The relationships between household characteristics and willingness to pay for future azithromycin treatment may generalize to that for tetracycline, although the willingness to pay for this drug would likely be lower, regardless of household characteristics, because of the greater burden of treatment. The development of a measure of willingness to pay for the entire SAFE strategy requires future research.

Policy-makers considering cost-recovery schemes for azithromycin distribution in a trachoma control programme should be wary. While some studies find positive results from the imposition of user fees, these are generally attributed to improvement in service quality, notably in increased drug provision (20, 21). This is not relevant in this context of community-wide treatment. An azithromycin distribution effort may be able to lower costs and make cost recovery less necessary through efficient interactions with ongoing programmes (22) or may provide targeted information to households with a low willingness to pay. Given the characteristics of such households, our results suggest that, if at all possible, NGOs and governments should continue to make antibiotics available free of charge in trachoma control programmes. ■

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**Conflicts of interest:** none declared.

## Résumé

**Attitude des ménages vis-à-vis du paiement d'un traitement par l'azithromycine dans la lutte contre le trachome en République-Unie de Tanzanie**

**Objectif** L'attitude des ménages vis-à-vis du paiement d'un traitement est une donnée importante pour la planification des programmes. Nous avons examiné les relations entre la situation socio-économique, le risque de trachome, la perception des effets de l'azithromycine et le consentement des ménages à une participation financière à la future campagne de traitement de masse par l'azithromycine.

**Méthodes** Nous avons interrogé 394 ménages de 6 villages du centre de la République-Unie de Tanzanie au sujet de leur éventuel consentement au paiement d'un traitement futur par l'azithromycine. Un échantillon de ménages comptant des enfants de moins de 8 ans a été sélectionné par tirage au sort et interrogé à la suite d'un programme de traitement initial conduit dans chaque village. Nous avons rassemblé des données sur les facteurs de risque de trachome, la situation socio-économique des ménages et l'effet perçu du traitement initial par l'azithromycine. Une analyse par la méthode de régression des probits ordonnés a été réalisée afin de déterminer les relations statistiquement significatives.

**Résultats** Parmi les ménages interrogés, 38 % ont déclaré de rien vouloir payer pour un traitement futur par l'azithromycine, même s'ils acceptaient volontiers de participer au traitement. Un indicateur indirect de la capacité des ménages à payer en espèces présentait une corrélation positive avec le consentement au paiement d'un traitement antibiotique. La possession de bétail (facteur de risque) et la non-appartenance de la femme chef de ménage à un mariage polygame (plus faible statut socio-économique) étaient associées à une moindre disposition à payer pour un futur traitement. L'avantage perçu du traitement initial n'était que marginalement associé au consentement au paiement d'une somme plus élevée.

**Conclusion** Comme les personnes les plus exposées au risque de trachome évolutif sont les moins disposées à payer, une demande de participation financière au traitement par l'azithromycine entraînerait probablement une réduction de la couverture et pourrait entraver la lutte contre cette maladie au niveau communautaire.

## Resumen

**Disposición de los hogares a pagar para recibir azitromicina contra el tracoma en la República Unida de Tanzania**

**Objetivo** La disposición de los hogares a pagar para obtener tratamiento es un dato importante a la hora de planificar los programas. Analizamos las relaciones entre el nivel socioeconómico, el riesgo de tracoma, la percepción de los efectos de la azitromicina y la disposición de los hogares a pagar para beneficiarse en el futuro de un tratamiento masivo con azitromicina.

**Métodos** Llevamos a cabo una encuesta entre 394 hogares de 6 aldeas del centro de la República Unida de Tanzania para determinar su disposición a pagar por obtener tratamiento con azitromicina en el futuro. Se seleccionó una muestra aleatoria de hogares con niños menores de 8 años, a cuyos miembros se entrevistó con posterioridad a un programa de tratamiento inicial emprendido en cada aldea. Se reunieron datos sobre los factores de riesgo de tracoma, el estatus socioeconómico y el efecto percibido del tratamiento inicial con azitromicina. Para determinar las relaciones estadísticamente significativas se efectuó un análisis de regresión de probit ordenados.

**Resultados** El 38% de los hogares que respondieron declararon que no estaban dispuestos a pagar nada por el futuro tratamiento con azitromicina, aunque sí a participar en el tratamiento. Se observó una asociación positiva entre un indicador indirecto de la posesión de dinero en efectivo y la disposición de la familia a pagar para recibir tratamiento antibiótico en el futuro. La posesión de ganado (un factor de riesgo) y la condición de hogar dirigido por una mujer no vinculada en un matrimonio polígamo (estatus socioeconómico inferior) se asociaron a una menor disposición a pagar. La percepción del beneficio reportado por el tratamiento inicial se asoció sólo débilmente a una disposición a pagar una suma mayor.

**Conclusión** Dado que las personas con mayor riesgo de desarrollar tracoma activo son las que mostraban una menor disposición a pagar, la imposición de una tarifa de recuperación de costos por el tratamiento con azitromicina probablemente reduciría la cobertura y podría ser un impedimento para controlar la enfermedad en la comunidad.

## References

1. Thylefors B, Negrel AD, Pararajasegaram R, Dadzie KY. Global data on blindness. *Bulletin of the World Health Organization* 1995;73:115-21.
2. West SK, Munoz B, Turner VM, Mmbaga BB, Taylor HR. The epidemiology of trachoma in central Tanzania. *International Journal of Epidemiology* 1991;20:1088-92.
3. Munoz B, West S. Trachoma: the forgotten cause of blindness. *Epidemiologic Reviews* 1997;19:205-17.
4. *Control of major blinding diseases and disorders. Vision 2020: the Right to Sight*. Geneva: World Health Organization; 1999. Fact Sheet No: 214.
5. Onwujekwe OE, Shu EN, Nwagbo D, Akpala CO, Okonkwo PO. Willingness to pay for community-based ivermectin distribution: a study of three onchocerciasis-endemic communities in Nigeria. *Tropical Medicine and International Health* 1998;3:802-8.
6. Olsen JA. Aiding priority setting in health care: is there a role for the contingent valuation method? *Health Economics* 1997;6:603-12.
7. Diener A, O'Brien B, Gafni A. Health care contingent valuation studies: a review and classification of the literature. *Health Economics* 1998;7:313-26.
8. Johannesson M, Johannesson PO, Jonsson B. Economic evaluation of drug therapy: a review of the contingent valuation method. *Pharmacoeconomics* 1992;1:325-37.
9. Onwujekwe OE, Chima R, Shu E, Nwagbo D, Okonkwo P. Hypothetical and actual willingness to pay for insecticide-treated nets in five Nigerian communities. *Tropical Medicine and International Health* 2001;6:545-53.
10. Gafni A. Willingness to pay. What's in a name? *Pharmacoeconomics* 1998;14:465-70.

11. Walraven G. Willingness to pay for district hospital services in rural Tanzania. *Health Policy and Planning* 1996;11:428-37.
12. Yacoob M. Community self-financing of water supply and sanitation: what are the promises and pitfalls? *Health Policy and Planning* 1990;5:358-66.
13. Lynch M, West S, Munoz B, Frick K, Mkocho H. Azithromycin treatment coverage in Tanzania children using community volunteers. *Ophthalmic Epidemiology* (forthcoming).
14. Thylefors B, Dawson CR, Jones BR, West S, Taylor HR. A simple system for the assessment of trachoma and its complications. *Bulletin of the World Health Organization* 1987;65:477-83.
15. Boardman AE, Greenberg DH, Vining AR, Weimer DL. *Cost-benefit analysis: concepts and practice*. Upper Saddle River (NJ): Prentice Hall; 1996.
16. Greene WH. *Econometric Analysis*. New York: Macmillan; 1990.
17. Taylor HR, West SK, Mmbaga BBO, Katala SJ, Turner V, Lynch M, et al. Hygiene factors and increased risk of trachoma in Central Tanzania. *Archives of Ophthalmology* 1989;107:1821-5.
18. Kenkel DS. The demand for preventative medical care. *Applied Economics*. 1994;26:313-25.
19. Turner, VM, West SK, Munoz, B, Katala SJ, Taylor HR, Halsey N, et al. Risk factors for trichiasis in women in Kongwa, Tanzania: a case-control study. *International Journal of Epidemiology* 1993;22:341-7.
20. Yazbeck A, Leighton C. Research Note: Does cost recovery for curative care affect preventive care utilization? *Health Policy and Planning* 1995;10: 296-300.
21. Collins D, Quick JD, Musau SN, Kraushaar D, Hussein IM. The fall and rise of cost sharing in Kenya: the impact of phased implementation. *Health Policy and Planning* 1996;11:52-63.
22. Kipp W, Burnham G, Bamuhiiga J, Weis P, Buttner DW. Ivermectin distribution using community volunteers in Kabarole district, Uganda. *Health Policy and Planning* 1998;13:167-73.