Households' Perceptions and Prioritization of Tropical Endemic Diseases in Nigeria: Implications for Priority Setting for Resource Allocation

Dr. Benjamin S.C. Uzochukwu, Department of Community Medicine, College of Medicine, University of Nigeria, Enugu, Nigeria

Dr. Obinna E Onwujekwe, Department of Health Administration and Management, College of Medicine, University of Nigeria, Enugu, Nigeria =

Dr. Emmanuel A. Nwobi, Department of Community Medicine, College of Medicine, University of Nigeria, Enugu, Nigeria

Dr. Anne C. Ndu, Department of Community Medicine, College of Medicine, University of Nigeria, Enugu, Nigeria

Dr. Chima Onoka, Department of Community Medicine, University of Nigeria, Teaching Hospital, Enugu, Nigeria

Dr. B.S.C. Uzochukwu, Department of Community Medicine, College of Medicine, University of Nigeria, Enugu-campus, P.O. Box 3295 Enugu, Nigeria, Tel: 234-42-259609, Fax: 234-42-259569, Email: bscuzochukwu@yahoo.com

Abstract

This study was undertaken to explore how rural households perceive and prioritize tropical endemic diseases in different Local Government Areas (LGAs) of Southeast Nigeria. Marked differences in perception and prioritization of endemic diseases exist across the LGAs. Malaria is ranked highest as the most serious disease, followed by typhoid fever and HIV/AIDS. In addition, malaria and other endemic diseases are wrongly perceived as not being serious in some population groups.

Introduction

The health situation in Nigeria is typical of that elsewhere in sub-Saharan Africa. It is characterized by high maternal and childhood mortality and morbidity. Mortality in childhood is due mainly to endemic tropical diseases such as malaria, measles, acute respiratory infection and diarrheal diseases (WHO 2004). Other endemic tropical diseases such as onchocerciasis, guinea worm, leprosy, tuberculosis, filariasis and schistosomiasis that are now readily controlled by drugs also cause considerable morbidity and mortality in later life.

Disease prioritization is important in healthcare policy because it guides priority setting and resource allocation by policy makers; no health system can afford to pay for every service it wishes to provide, especially in developing countries (Sonderlund 1998; Klein 1998). However, there is no consensus on the best methods for setting priorities. Guidelines, checklists and minimum packages have been suggested (Ham and Coulter 2000). An unclear mix of criteria is sometimes used in current global health reforms, including cost-effectiveness, equity, individual rights and ideological criteria (Blas 2002). In developing countries, the burden of disease (BOD), measured in terms of Disability Adjusted Life Years (DALY), and cost-effectiveness analysis, which compares cost per outcome of different interventions, have been recommended for priority setting (Jayasinghe et al. 1998; World Bank 1993). Most of these methods have centered on the supply side, which is driven mainly by the central government and ignores the local communities that constitute the demand side of healthcare services.

The acceptance of measures based on the BOD and cost-effectiveness approaches, especially where a cost to the individual is involved, will depend to a large extent on the household's perception of the diseases and the importance attached to the diseases. Professional views usually differ from community priorities and aspirations (Kapiriri and Norheim 2002). For example, although community-perceived health problems were similar to those identified by the burden-of-disease study in Uganda, social stigma and cultural values were not considered in the study, while socially stigmatized diseases were considered to be more serious among community members compared with non-stigmatized conditions, in spite of their low prevalence (Kapiriri and Norheim 2002). The ability to sustain disease control programs depends very much on 'listening to the people' (Vlassof 1992). In Uganda, the community's preferences and disease prioritization were sought on how to set priorities (Kapiriri and Norheim 2004). Many other studies have shown the importance of understanding and adapting health programs to take account of community wishes and priorities if long-term participation is to be guaranteed (Panicker and Dhanda 1992; Bichmann and de Koning 1992; Rifkin 1992).

Studies have shown that compliance with disease eradication programs may not be effective if communities perceive the disease as a low-priority health problem (Shu et al. 1999). Therefore, several important questions need to be addressed to effectively set priorities and allocate resources for endemic disease control that would have the greatest impact at the community level. Do communities perceive malaria and other tropical endemic diseases as a problem? Are there differences in perception of seriousness of these tropical endemic diseases among people of different geographic backgrounds? Answers to these questions are important because if the BOD and cost-effectiveness approaches produce results at variance with community expectations, people may end up not using the health services in enough socially desirable quantities, thus leading to program failure.

The need to involve the community in estimating disease burden and setting priorities at the LGA level is an important component in the health-sector reform process, as the ways in which the community responds to malaria and other endemic tropical diseases will depend on their assessment of the importance of those diseases.

Materials and Methods

Study area

The study took place in four rural LGAs in southeast Nigeria from June to September 2004. The

LGAs were selected because of their varying distance from the urban state capital. They are Ihiala and Nnewi-South in Anambra state, and Isi-uzo and Oji-River in Enugu state. Isi-uzo LGA is about 70 kilometers from the state capital, Enugu. It covers a wide area and is sparsely populated; agriculture is the primary occupation. Modern infrastructure is modest, and settlements are strongly nucleated with poor road networks. Oji-River is about 40 km from the state capital. It is the site of a thermal-electricity generating station based on Enugu coal and has a concentration of public health institutions and some industrial establishments. Infrastructure development is moderate and Oji-River is essentially an elite rural LGA when compared with Isi-uzo. In comparison, the two LGAs in Anambra state are less rural and have more educated people than the Enugu state LGAs. Nnewi-South is about 50 km from the state capital, Awka. Modern infrastructure is modest, and trading is the main occupation. Ihiala LGA is about 80 kilometers from the state capital and is less developed than Nnewi-South; agriculture is the main occupation.

Study Design

The cross-sectional survey involved 16 communities in four LGAs. In each LGA, four communities were randomly selected from those with at least one health centre. The sample size was determined using the formula for sample size for a definite population, considering 0.3 as the proportion of the population positive for malaria illness, power of 80%, confidence interval of 95%, and 0.05 as the absolute sampling error that can be tolerated. The Primary Health Care house numbering system was used as the frame for the sampling of 100 households in each community to give a total sample size of 1600 households.

Trained community-health extension workers interviewed the female primary caregiver, or the household head in her absence, using a pre-tested, semi-structured questionnaire. The female primary caregiver or the household head who answered the question was allowed to consult his or her spouse and other household members before responding.

The survey collected information on the households' socio-demographic characteristics. Respondents were asked to indicate the degree of importance attached to 10 different diseases suffered in the community in terms of occurrence and effects, and rank them. The ranking system assigned 1 to the most important disease, 2 to the next most important, and so on. The 10 diseases had been identified during formal discussions with community leaders. Respondents were also asked whether these diseases were more serious for adults only, children only, pregnant women only, equally serious for adults, pregnant women and children, or not serious for anybody. Those who were not sure were also asked to say so. Oral informed consent was obtained from all respondents, and all were given the option of not participating in the study if they so wished.

Data Analysis

Data analysis was performed using the Statistical Package for Social Sciences (SPSS) version 10. Frequency distribution was computed and the Chi-square test for trend was used to test for statistically significant differences across the LGAs and in each LGA, within diseases.

Results

Demographics

Demographic and socio-economic characteristics of the study population are shown in Table 1. Most of the sample, 1594 (99.8%) individuals, responded in the survey. The majority were female primary caregivers, married and farmers. Most were middle aged. The average household size was 5.1 people.

Table 1. Socio-economic and demographic characteristics of the respondents and their households

Variables	Ihiala *n* = 397	Nnewi-South *n* = 397	Isi-uzo *n* = 400	Oji-River *n* = 400
Status: head of household: *n* (%) representative	177 (44.6) 200 (55.4)	201 (50.6) 196 (49.4)	223 (55.8) 177 (44.2)	187 (36.7) 213 (53.3)
No. of household residents: mean (S.D.)	5 (2.8)	5.3 (2.9)	5 (2.3)	5 (5.1)
Age (years): mean (S.D.)	45.9 (13.5)	49.1 (14.9)	42.7 (12.20)	50 (15.9)
Sex: male: *n* (%) female	178 (44.8) 219 (55.2)	169 (42.6) 228 (57.4)	228 (57) 172 (43)	185 (46.2) 215 (53.8)
Years of formal education: mean (S.D.)	5.6 (6.3)	5.7 (5.8)	7.3 (6.3)	5.4 (5)
Marital status: married: *n* (%) not married	348 (87.7) 49 (12.3)	372 (93.7) 25 (6.3)	359 (89.7) 41 (10.3)	385 (96.3) 15 (3.7)

Priority Ranking of Diseases

Table 2 shows the ranking of diseases when respondents were asked the question, "What do you think is the most serious disease suffered in your village in terms of occurrence and its effects?" Thus, malaria was ranked highest as the most serious in all the LGAs studied. Typhoid fever and HIV/AIDS featured as the second and third leading health problems respectively in all the LGAs except in Isi-uzo, where HIV/AIDS was ranked ninth. Malnutrition was ranked fourth in two of the LGAs, while all ranked tuberculosis very low. Pneumonia was ranked high (third) by only one LGA. Onchocerciasis was ranked high by Oji-river LGA.

Table 2. Priority ranking of diseases by LGA

Rank	Ihiala	Nnewi-South	Isi-uzo	Oji-River
1	Malaria	Malaria	Malaria	Malaria
2	Typhoid fever	Typhoid fever	Typhoid fever	Typhoid fever
3	HIV/AIDS	HIV/AIDS	Pneumonia	HIV/AIDS
4	Guinea worm	Malnutrition	Diarrhea	Onchocerciasis
5	Eye disease	Diarrhea	Eye disease	Eye disease
6	Pneumonia	Pneumonia	Malnutrition	Malnutrition
7	Diarrhea	Eye disease	Guinea worm	Diarrhea
8	Malnutrition	Onchocerciasis	Tuberculosis	Pneumonia
9	Onchocerciasis	Tuberculosis	HIV/AIDS	Tuberculosis
10	Tuberculosis	Guinea worm	Onchocerciasis	Guinea worm

Perception of Seriousness of Diseases

Table 3 shows respondents' responses when asked the question, "Are the illnesses more serious for adults, children or pregnant women in terms of causing discomfort and death?" Thus for malaria, respondents perceived some seriousness among the different population groups in terms of disability and mortality. However, in all LGAs respondents felt malaria was more serious for adults, and only very few thought it was serious for pregnant women alone. A few in three of the LGAs also thought it was not serious for any group, while a good number thought the illness equally serious

for adults, children and pregnant women. Across the LGAs, there was a statistically significant difference among those who reported that malaria was serious for children alone, equally serious for adults, children and pregnant women, and not serious for any population group. Typhoid fever was ranked second and perceived to be more serious in only adults, although a few thought it was serious for children. A majority of respondents in all the study areas thought HIV/AIDS was more serious in adults and pregnant women. A few thought that HIV/AIDS was serious for children and not serious for any group. A good number felt that HIV/AIDS was equally serious for all three population groups. Across LGAs, there was a statistically significant difference among those who reported that HIV/AIDS was more serious only in adults and pregnant women. For malnutrition, a majority thought it was serious for children alone, while some thought it was equally serious for the three population groups and a few thought it was not serious for any group. Across LGAs, there was a statistically significant difference among those who reported that malnutrition was equally serious among all groups.

Within each LGA there was a statistically significant difference in the perception of seriousness of all the diseases among different population groups, except in Oji-River LGA, where there was no statistically significant difference in the perception of seriousness of malaria among different population groups.

Table 3. Perception of seriousness of diseases by LGA

Variables	Ihiala (%)	Nnewi-South (%)	Isi-uzo (%)	Oji-River (%)	*p*-value
Malaria					
Serious for adults only	26.7	35.5	33.5	29.3	.847
Serious for children only	41.6	11.3	31.3	7.2	.00001*
Serious for pregnant women only	1.3	1.3	1.5	1.0	.840
Equally serious for adults, children and pregnant women	19.4	37.0	29.8	49.5	.00005 *
Not serious for anybody	7.3	13.9	3.0	0.0	.0026 *
Not sure	3.8	1.0	1.0	13.0	.00460
p-value	.0000*	.00003*	.0000*	.0956	
Typhoid Fever					
Serious for adults only	75.2	70.0	81.4	64.0	.271
Serious for children only	15.2	12.0	9.0	21.0	.338
Serious for pregnant women only	1.5	5.6	2.9	1.2	.4323
Equally serious for adults, children and pregnant women	1.7	3.5	2.1	0.5	.451
Not serious for anybody	2.6	4.9	3.0	5.8	.438
Not sure	3.8	4.0	1.6	7.5	.281
p-value	.0000*	.0000*	.0000*	.0000*	
HIV/AIDS					
Serious for adults only	42	39.2	53.1	58.0	.00558*
Serious for children only	1.5	4.0	2.0	5.0	.377
Serious for pregnant women only	43.6	24.8	9.6	19.0	.0000*
Equally serious for adults, children and pregnant women	9.5	24.8	30.0	15.0	.264
Not serious for anybody	2.0	3.0	1.9	1.0	.523
Not sure	1.4	4.2	3.4	2.0	.775
p-value	.0000*	.0000*	.0000*	.0000*	
Malnutrition					
Serious for adults only	.5	1.7	2.0	2.8	.338
Serious for children only	72.6	66.0	74.0	82.0	.075
Serious for pregnant women only	.8	0.0	1.0	0.0	.669
Equally serious for adults, children and pregnant women	22.2	22.0	18.0	12.0	.05*
Not serious for anybody	2.4	6.3	3.6	2.2	.81
Not sure	1.5	4.0	1.4	1.0	.338
p-value	.0000*	.0000*	.0000*	.0000*	

*$p < .05$ = statistically significant.

Discussion

Overall, malaria featured as a foremost priority disease in terms of both prevalence and seriousness in all the LGAs surveyed. It is possible that repeated attacks of malaria over the years and the amount of money and illness days involved have made it a very common and serious disease. This ranking corresponds with data from health facilities in Nigeria that show malaria to be a leading disease (National Bureau of Statistics [NBOS] 2005) and with data from sub-Saharan Africa on the burden of disease (Murray 1996).

Apart from malaria, there is a complete disconnect between the ranking of the other diseases and the social statistics data of the Nigeria National Bureau of Statistics (NBOS). For example, typhoid fever, HIV/AIDS and malnutrition were ranked second, third or fourth as the largest health problems by the communities in this study, but this is not so with the NBOS data, where diarrhea and acute respiratory infection were ranked second and third after malaria. In the NBOS data, malaria, diarrheal diseases and acute respiratory infection accounted for 62.4%, 20.9% and 5.8% of all cases reported in 2004 (NBOS 2005). Also, malaria, measles, diarrheal diseases and acute respiratory infection accounted for 25.7%, 16.4%, 14.8% and 7.2%, respectively, of deaths recorded.

Typhoid fever was ranked high as an important disease by the communities. The classification of typhoid fever in this environment is based on laboratory diagnosis with the Widal test, which is non-specific, and its usefulness is limited (Shukla et al. 1997). Most persistent illness episodes with severe headache and fever are regarded as typhoid fever. However, typhoid fever is an important cause of morbidity and mortality in resource-poor regions of the world (Parry et al. 1998), and the global BOD estimate for typhoid fever shows that it is common and more serious among younger age groups (Crump et al. 2004). This contrasts with the findings in this study, where majority of respondents perceive it as more serious in adults. The importance attached to typhoid fever among Nigerians is such that the National Assembly passed a bill for mass immunization of Nigerians with typhoid fever vaccines in 2005. Yet this disease is not ranked high in the BOD estimate in the country, and policy makers and healthcare providers have not considered this disease to be as important as the community members are saying in this survey.

Despite the fact that the respondents ranked HIV/AIDS as important, they considered tuberculosis less so. This perception portends danger for the control of the disease, and people still do not appreciate the relationship between HIV/AIDS and tuberculosis. So efforts should be made by government and non-governmental organizations to address this issue through appropriate and targeted information, education and communication strategies. The high ranking of HIV/AIDS is not unconnected with its severity among the population, and the fact that it is not curable.

The differences in ranking of illness between the LGAs can be explained by differences in prevalence and endemicity. For example, onchocerciasis is highly endemic in Oji-River (Okonkwo et al. 1991), hence it was ranked high only in this LGA.

In contrast to clinical evidence and evidence from the medical profession that malaria and other endemic tropical diseases are more serious in children and pregnant women, participants in this survey do not think so as exemplified by their responses. Some even think the diseases are not serious in any group. Because it is such a common condition in children in malaria-endemic countries, fever is most often treated at an early stage in the home. This could have contributed to the low perception of the seriousness of malaria, as most fevers/cases of malaria are mild, and only a few become severe. This is likely to have far-reaching consequences in the health seeking practices of these vulnerable groups. Thus their perception of the severity of the diseases will not only influence what they do at home, but also their choice of healthcare provider, their compliance with treatment and even their cooperation in control programs. Studies have shown that the poor rural population does not use healthcare services when experiencing perceived minor illness; instead they resort to self-treatment, buying drugs with or without prescription and seeking medical services only in more severe cases (Liu and Goa 2002).

The inability of some groups to associate the severity of malaria with younger age is a source for concern and poses a great danger to the campaign for prompt treatment of children suffering from

malaria. The implication for the treatment of childhood malaria is that the delay in seeking treatment will lead to death and subsequently increase the burden of malaria disease. Also of concern is the failure to acknowledge the danger of malaria to pregnant women; this will contribute to an increase in maternal and infant mortality/morbidity.

Across the LGAs and within the LGAs, there are statistically significant differences in the perception of these diseases. In Nigeria, the differences between states and LGAs as well as the differences within LGAs are well recognized. It is always important to elicit community perceptions about diseases and health programs, because studies have indicated that differences exist in community preferences, knowledge and perception about disease control and health programs, as well as in geographical constraints in community participation in health programs (Haddad at al. 1998; Uzochukwu and Onwujekwe 2004, Uzochukwu et al. 2004). According to some reports, provision of healthcare is expected to respond directly to patients' preferences, perceptions and demands (Calnan 1988). Thus our finding is important for geographical targeting of health education programs for disease control to have maximum effect. The relative impact of targeted and random controls have been demonstrated (Ghebreyesus at al. 2000).

Conclusions

The policy implication of our findings is that, given the concern the community expressed on certain diseases as reflected in their ranking, and the WHO recommendation that services should be responsive to the needs of the people (within limits) (WHO 1993, 2000), there is a need to change the incorrect perceptions about those diseases through appropriate information, education and communication. Thus the community perceptions as expressed by ranking in the current survey can be modified by education. Also, in order to decide where to invest funds for the greatest impact on the health of the largest possible number of people in the community, it is important that decision makers and program managers consider the concerns expressed by the community on certain diseases.

Acknowledgments

We thank Dr. Kara Hanson for the comments on an earlier draft of the paper. The study was financially supported by UNDP/World Bank/WHO Special Programme for Research and Training in Tropical Diseases (TDR).

References

Bichmann, W. and K. de Koning, K. 1992. "Participatory Community Diagnosis in Cameroon." Proceedings from the 7th Symposium on Interdisciplinary Research in Tropical Medicine. *Tropical Medicine and Parasitology* 43: 294.

Blas, E. 2002. "Setting Priorities – Illusion or Reality?" *TDR News* 67: 9.

Calnan, 1988. M. "Towards a Conceptual Framework for Lay Evaluation of Health Care." *Social Science & Medicine* 27:927–33.

Crump, J.A., S.P. Luby and E.D. Mintz. 2004. "The Global Burden of Typhoid Fever." *Bulletin of the World Health Organization* 82(5): 346–53.

Ghebreyesus TA, Haile M, Witten KH, Getachew A, Yohannes M, Lindsay SW, Byass P. 2000. "Household Risk Factors for Malaria among Children in the Ethiopian Highlands." *Transactions of the Royal Society of Tropical Medicine and Hygiene* 94: 17–21.

Haddad, S., P. Fournier, N. Machouf and F. Yatara. 1998. "What Does Quality Mean to Lay People? Community Perception of Primary Health Care Services in Guinea." *Social Science & Medicine* 47: 381–94.

Ham, C. and A. Coulter. 2000. "International Experience of Rationing (or Priority Setting)." In A. Coulter and C. Ham, eds., *The Global Challenge of Health Care Rationing* pp. 1–12. Buckingham: Open University Press.

Jayasinghe, K.S.A., D. De Silva, N. Mendis and R.K. Lie. 1998. "Ethics of Resource Allocation in Developing Countries: The Case of Sri-Lanka." *Social Science & Medicine* 47: 1619–25.

Kapiriri, L. and O.F. Norheim. 2002. "Whose Priority Count? Comparison of Community-Identified Health Problems and Burden-of-Disease-Assessed Health Priorities in a District in Uganda." *Health Expectations* 5(1): 55–62.

Kapiriri, L. and O.F. Norheim. 2004. "Criteria for Priority-Setting in Health Care in Uganda. Exploration of Stakeholders' Values." *Bulletin of the World Health Organization* 82(3): 172–9.

Klein, R. 1998. "Puzzling out Priorities: Why We Must Acknowledge That Rationing Is a Political Process." *British Medical Journal* 317: 959–60.

Liu, Y. and J. Goa. 2002. *The Experiences and Lessons of Improving Basic Health Care for Rural Poor People of China.* Publications of Chinese Public Health.

Murray, C.J.L. 1996. "Rethinking DALYs." In C.J.L. and A.D. Lopez, eds., *The Global Burden of Disease* pp. 1–98. Cambridge, MA: Harvard School of Public Health.

National Bureau of Statistics (NBOS). 2005. *Social Statistics in Nigeria.* Federal Government of Nigeria, Abuja.

Okonkwo, P.O., A. Akpa, A. Ihekwaba, D. Nwagbo, R. Umeh, S. Adibua Ezike V, Ogbuokiri J 1991. "Studies on Onchocerciasis in Forest Savannah Mosaic Areas of Nigeria. I. Investigations in Gbaragu, Oji River." *Annals of Tropical Medicine and Parasitology* 85: 617–23.

Panicker, K.N. and V. Dhanda. 1992. "Community Participation in the Control of Filariasis." *World Health Forum* 13: 177–81.

Parry, C., J. Wain, N.T. Chinh, H. Vinh and J.J. Farrh. 1998. "Quinolone-resistant Salmonella typhi in Vietnam." *Lancet* 351: 1289.

Rifkin, S.B. 1992. "Rapid Appraisal: Qualitative versus Quantitative Methodologies." Proceedings from the 7th Symposium on Interdisciplinary Research in Tropical Medicine. *Tropical Medicine and Parasitology* 43: 292–3.

Shu, E.N., P.O. Okonkwo and E.O. Onwujekwe. 1999. "Health Education to School Children in Okpatu, Nigeria: Impact on Onchocerciasis-Related Knowledge." *Public Health* 113: 215–8.

Shukla, S., B. Pate and D.S. Chitnis. 1997. "100 Years of Widal Test and Its Reappraisal in an Endemic Area." *Indian Journal of Medical Research* 105: 53–7.

Soderlund, N. 1998. "Possible Objectives and Resulting Entitlements of Essential Health Care Packages." *Health Policy* 45: 195–208.

UNICEF. 1987. "Toward Maternal and Child Health for All: a Bamako Initiative." Address by James P. Grant, Executive Director of UNICEF to the thirty-seventh session of the WHO Regional Committee for Africa. Bamako, Mali.

Uzochukwu B.S.C. and O.E. Onwujekwe. 2004. "Socio-economic Differences and Health Seeking Behaviour for the Diagnosis and Treatment of Malaria: A Case Study of Four Local Government Areas Operating the Bamako Initiative Programme in South-East Nigeria." *International Journal for Equity in Health* 3:6.

Uzochukwu B., O. Onwujekwe and B. Eriksson. 2004. "Inequity in the Bamako Initiative Programme – Implications for the Treatment of Malaria in South-East Nigeria." *International Journal of Health Planning and Management* 19: S107–16.

Vlassof, C. 1992. "Listening to the People: Improving Disease Control using Social Science Approaches." *Transactions of the Royal Society of Tropical Medicine and Hygiene* 86: 465–6.

World Bank. 1993. *World Development Report: Investing in Health.* New York: Oxford University Press.

World Health Organization. 1993. "Evaluation of Recent Changes in the Financing of Health Services." In *Changes in Sources of Financing. Report of a WHO Study Group, WHO Technical Report Series.* Geneva: WHO.

World Health Organization. 2000. *Health Systems: Improving Performance: The World Health Report.* Geneva: WHO.

World Health Organization. 2004. *Integrated Management of Childhood Illness.* Geneva: World Health Organization. Retrieved March 10, 2004. <http://www.who.int/child.adolescent.health/integer.htm>

APPENDIX 1

1. Household Questionnaire

Dear respondent,

We are trained local workers sent by staff of the University of Nigeria Teaching Hospital (UNTH) Enugu. We are interested in your opinion about the diseases that trouble this community. To achieve this aim, we wish to conduct a questionnaire survey on your perceptions about the diseases, together with your experiences in treating them. You shall in the future get the results of this exercise, which

we hope to use to help your community and the government to control the diseases and improve your health. All information given will be private. Your participation is voluntary, and you do not have to answer questions you do not want to answer.

Please tick the appropriate answers and also enter the appropriate number representing the answer given in the spaces provided.

What is your state? [ ]
1 = Anambra. 2 = Enugu.
What is your LGA? [ ]
1 = Ihiala. 2 = Nnewi-South. 3 = Isi-uzo. 4 = Oji-River.

1: DEMOGRAPHIC INFORMATION

I would like to begin by asking a few questions about you and your household.

1. What is your status in this household? [ ]
1 = household head. 0 = representative of household.

*[Note: **Only** the spouse, or the head of household in her absence, should be interviewed.]*

2. How many people live in this household, including yourself? [ ]
3. [**Enumerator:** What is the gender of the respondent?] [ ] 1 = male 0 = female
4. How old are you? [ ]
5. Did you go to school? [ ] 1 = yes 0 = no
6. If #5 is yes, what was the total number of years that you spent schooling? [ ]
7. What occupation is your major source of getting money? [ ]
8. Are you married [ ] 1 = yes 0 = no
9. What is your current marital status? [ ]
1 = single. 2 = married. 3 = widowed. 4 = divorced/separated.

2. UTILIZATION

2a. Diseases prioritization

10. What do you think is the most serious disease suffered in your village in terms of occurrence and its effect? ***(Enumerator: Do not read list of responses. Rank from 1 to 10 as they are mentioned: 1 being most important and 10 least important.)***

_____ (1) Malaria
_____ (2) Tuberculosis
_____ (3) Pneumonia
_____ (4) Diarrhea
_____ (5) Onchocerciasis
_____ (6) Eye disease
_____ (7) Malnutrition
_____ (8) Guinea worm
_____ (9) HIV/AIDS
_____ (10) Typhoid fever
_____ (-98) Don't know/Not sure

2b. Disease perceptions

Now I would like to ask you what you know about the sicknesses that trouble you and your household.

11. Are illnesses more serious for adults, children or pregnant women in terms of causing death? ***(Enumerator: Mark one response only for each disease)***

____ (1) Malaria
____ (1) Adults

____ (2) Children
____ (3) Pregnant women
____ (4) Equally serious for all of them
____ (5) Not serious for any of them
____ (-98) Don't know/Not sure

(2) Tuberculosis
____ (1) Adults
____ (2) Children
____ (3) Pregnant women
____ (4) Equally serious for all of them
____ (5) Not serious for any of them
____ (-98) Don't know/Not sure

(3) Pneumonia
____ (1) Adults
____ (2) Children
____ (3) Pregnant women
____ (4) Equally serious for all of them
____ (5) Not serious for any of them
____ (-98) Don't know/Not sure

(4) Diarrhea
____ (1) Adults
____ (2) Children
____ (3) Pregnant women
____ (4) Equally serious for all of them
____ (5) Not serious for any of them
____ (-98) Don't know/Not sure

(5) Onchocerciasis
____ (1) Adults
____ (2) Children
____ (3) Pregnant women
____ (4) Equally serious for all of them
____ (5) Not serious for any of them
____ (-98) Don't know/Not sure

6) Eye Disease
____ (1) Adults
____ (2) Children
____ (3) Pregnant women
____ (4) Equally serious for all of them
____ (5) Not serious for any of them
____ (-98) Don't know/Not sure

(7) Malnutrition
____ (1) Adults
____ (2) Children
____ (3) Pregnant women
____ (4) Equally serious for all of them

____ (5) Not serious for any of them
____ (-98) Don't know/Not sure

(8) Guinea worm
____ (1) Adults
____ (2) Children
____ (3) Pregnant women
____ (4) Equally serious for all of them
____ (5) Not serious for any of them
____ (-98) Don't know/Not sure

(9) HIV/AIDS
____ (1) Adults
____ (2) Children
____ (3) Pregnant women
____ (4) Equally serious for all of them
____ (5) Not serious for any of them
____ (-98) Don't know/Not sure

(10) Typhoid fever
____ (1) Adults
____ (2) Children
____ (3) Pregnant women
____ (4) Equally serious for all of them
____ (5) Not serious for any of them
____ (-98) Don't know/Not sure

2c. Health seeking and cost of illness (respondent)
12. Which diseases did you and or other member(s) of your household have in the past one month?
(Enumerator: Do not read list of responses. Mark as many as mentioned 1 = yes 0 = no)
12a. Malaria [ ]
12b. Tuberculosis [ ]
12c. Respiratory problems, not including tuberculosis (for example, asthma or bronchitis) [ ]
12d. Diarrhea [ ]
12e. Onchocerciasis [ ]
12f. Eye disease [ ]
12g. Malnutrition [ ]
12h. Guinea worm [ ]
12i. HIV/AIDS [ ]
12j. Other (please specify) _____ [ ]
12k. Don't know/Not Sure [ ]

13. How did you know that either you or some body in your household was sick? ***(Enumerator: Mark first response only.)***
____ (1) Medical tests
____ (2)Community health worker told me
____ (3)Traditional healer told me
____ (4)I recognized the symptoms myself
____ (5) A family member told me that I was sick
____ (6) Others _____

____ (-98)Don't know/Don't remember

14. Did you seek treatment? [ ] 1 = yes 0 = no

15. If yes to Q 14, what treatment did you first seek? ***(Enumerator: Do not read list. Mark first response only.)***
[ ] (1) Traditional medicines:
[ ] (2) Went to the clinic:
[ ] (3) Went to chemist (patent medicine dealer):
[ ] (4) Went to the Community health worker:
[ ] (5) Went to the health center:
[ ] (6) Went to the hospital:
[ ] (7) Clean the environment
[ ] (-95) Other (specify:)

16. Why did you seek treatment where you did? ***(Enumerator: Mark as many as mentioned)***
1 = yes 0 = no
16a. Good services provided [ ]
16b. Readily available drugs [ ]
16c. Near [ ]
16d. Affordable services [ ]
16e. Prompt attention [ ]
16f. Polite health workers [ ]
16g. Others (specify) [ ] _____

17. How much did it cost to receive this treatment not including the cost of transportation?
a. ____ Naira
b. ____ (-98) Don't know/Not Sure

18. What kind of medicine did you receive? ***(Enumerator: Mark first response only)***
____ (0)None
____ (1) Chloroquine
____ (2) Antibiotics
____ (3) Pain relievers
____ (4)Quinine
____ (5) Herbal treatment (specify:) _____
____ (-95) Other (specify): _____
____ (-98) Don't know