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## Urban Health Bulletin: A Compendium of Resources

Issue #7 – March/April 2008 – Compiled by Environmental Health at USAID

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### INTRODUCTION

I would like to draw readers' attention to the first three abstracts in this issue. The first two present important contributions from leading urban health research institutions in India and Kenya regarding health care seeking behavior among the urban poor. The third abstract addresses the topical issue of urban food security.

We welcome your comments and suggestions. If you are not already, please send your email address to receive future *Urban Health Bulletins*. If you have questions or comments about urban health issues, please contact:

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## Urban Health Analysis

*Indian Pediatr.* 2008 Mar; 45(3):229-32.

### Neonatal Morbidity and Care-seeking Behavior in Urban Lucknow.

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We conducted this study to assess the neonatal morbidity and care-seeking behavior amongst slum and non-slum dwellers at Lucknow. One hundred and fifty neonates were recruited within 48 hours of birth from an urban Reproductive and Child Health center and followed up at 6 weeks +/-15 days at home. Twenty five (16.6%) were lost to follow-up. Among those followed up, 46.4% (58/125) developed one or more morbidity; 26% (15/58) of these did not receive qualified medical care. Neonatal morbidity was 56.8% (33/58) among slum dwellers and 37.3% (25/67) among non-slum dwellers (absolute difference=19.5%, 95% CI=3.3 to 34.7; P=0.04). Severe neonatal illnesses were also significantly higher among neonates from slums as compared to those from non-slum areas (OR=4.50, 95% CI=1.28 to 16.38, P=0.007). Male gender was associated with any care-seeking (OR=1.24, 95% CI =1.24 to 91.99; P=0.03) and was more likely to be seen by a qualified provider

(OR=3.8, 95% CI=1.05 to 13.94; P=0.04). Since nearly half of the neonates had morbidity and more than a quarter of them did not receive qualified medical care, there is a need to introduce Community Integrated Management of Neonatal and Childhood Illnesses (IMNCI) program here, emphasizing on the importance of qualified medical care for ill neonates, including females.

*Matern Child Health J. 2008 Feb 23*

**What does Access to Maternal Care Mean Among the Urban Poor? Factors Associated with Use of Appropriate Maternal Health Services in the Slum Settlements of Nairobi, Kenya.**

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**OBJECTIVES** The study seeks to improve understanding of maternity health seeking behaviors in resource-deprived urban settings. The objective of this paper is to identify the factors which influence the choice of place of delivery among the urban poor, with a distinction between sub-standard and "appropriate" health facilities.

**METHODS** The data are from a maternal health project carried out in two slums of Nairobi, Kenya. A total of 1,927 women were interviewed, and 25 health facilities where they delivered, were assessed. Facilities were classified as either "inappropriate" or "appropriate". Place of delivery is the dependent variable. Ordered logit models were used to quantify the effects of covariates on the choice of place of delivery, defined as a three-category ordinal variable.

**RESULTS** Although 70% of women reported that they delivered in a health facility, only 48% delivered in a facility with skilled attendant. Besides education and wealth, the main predictors of place of delivery included being advised during antenatal care to deliver at a health facility, pregnancy "wantedness", and parity. The influence of health promotion (i.e., being advised during antenatal care visits) was significantly higher among the poorest women.

**CONCLUSION** Interventions to improve the health of urban poor women should include improvements in the provision of, and access to, quality obstetric health services. Women should be encouraged to attend antenatal care where they can be given advice on delivery care and other pregnancy-related issues. Target groups should include poorest, less educated and higher parity women.

*J Nutr. 2008 Mar; 138(3):587-92.*

**Development and validation of measure of household food insecurity in urban Costa Rica confirms proposed generic questionnaire.**

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Interest in household food insecurity (FI) within scientific and policy groups

has motivated efforts to develop methods for measuring it. Questionnaires asking about FI experiences have been shown to be valid in the contexts in which they were created. The issue has arisen as to whether such questionnaires need be developed from the ground up or if a generic questionnaire can be adapted to a particular context.

This study aimed to gain an in-depth understanding of household FI in urban Costa Rica, develop and validate a questionnaire for its measurement, and inform the choice between the 2 methods of development. The study was conducted using qualitative and quantitative methods provided in the Food and Nutrition Technical Assistance (FANTA) guidelines. In-depth interviews were conducted with 49 low-middle-income urban women using a semistructured interview guide. A 14-item FI questionnaire was developed based on results from these interviews. A field study was conducted in 213 households.

The results show that the developed questionnaire provides valid measurement of household FI in urban Costa Rica and is simple and quick to apply in the household setting. FANTA developed a guide during the period that this research was completed that provides a generic questionnaire that can be adapted for use in various countries, rather than building the questionnaire from the ground up. This study provides evidence that careful attention to the procedures in this guide will likely yield a questionnaire suitable for assessing household FI in middle-income countries.

*J Urban Health. 2008 Apr 4*

### **Provision and Use of Maternal Health Services among Urban Poor Women in Kenya: What Do We Know and What Can We Do?**

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In sub-Saharan Africa, the unprecedented population growth that started in the second half of the twentieth century has evolved into unparalleled urbanization and an increasing proportion of urban dwellers living in slums and shanty towns, making it imperative to pay greater attention to the health problems of the urban poor. In particular, urgent efforts need to focus on maternal health. Despite the lack of reliable trend data on maternal mortality, some investigators now believe that progress in maternal health has been very slow in sub-Saharan Africa.

This study uses a unique combination of health facility- and individual-level data collected in the slums of Nairobi, Kenya to: (1) describe the provision of obstetric care in the Nairobi informal settlements; (2) describe the patterns of antenatal and delivery care, notably in terms of timing, frequency, and quality of care; and (3) draw policy implications aimed at improving maternal health among the rapidly growing urban poor populations. It shows that the study area is deprived of public health services, a finding which supports the view that low-income urban residents in developing countries face significant obstacles in accessing health care.

This study also shows that despite the high prevalence of antenatal care (ANC), the proportion of women who made the recommended number of visits or who initiated the visit in the first trimester of pregnancy remains low compared to Nairobi as a

whole and, more importantly, compared to rural populations. Bivariate analyses show that household wealth, education, parity, and place of residence were closely associated with frequency and timing of ANC and with place of delivery.

Finally, there is a strong linkage between use of antenatal care and place of delivery. The findings of this study call for urgent attention by Kenya's Ministry of Health and local authorities to the void of quality health services in poor urban communities and the need to provide focused and sustained health education geared towards promoting use of obstetric services.

*Popul Health Metr.* 2008 Mar 10;6: 1.

### **The burden of disease profile of residents of Nairobi's slums: Results from a Demographic Surveillance System.**

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**BACKGROUND:** With increasing urbanization in sub-Saharan Africa and poor economic performance, the growth of slums is unavoidable. About 71% of urban residents in Kenya live in slums. Slums are characteristically unplanned, underserved by social services, and their residents are largely underemployed and poor. Recent research shows that the urban poor fare worse than their rural counterparts on most health indicators, yet much about the health of the urban poor remains unknown. This study aims to quantify the burden of mortality of the residents in two Nairobi slums, using a Burden of Disease approach and data generated from a Demographic Surveillance System.

**METHODS:** Data from the Nairobi Urban Health and Demographic Surveillance System (NUHDSS) collected between January 2003 and December 2005 were analysed. Core demographic events in the NUHDSS including deaths are updated three times a year; cause of death is ascertained by verbal autopsy and cause of death is assigned according to the ICD 10 classification. Years of Life Lost due to premature mortality (YLL) were calculated by multiplying deaths in each subcategory of sex, age group and cause of death, by the Global Burden of Disease standard life expectancy at that age.

**RESULTS:** The overall mortality burden per capita was 205 YLL/1,000 person years. Children under the age of five years had more than four times the mortality burden of the rest of the population, mostly due to pneumonia and diarrhoeal diseases. Among the population aged five years and above, HIV/AIDS and tuberculosis accounted for about 50% of the mortality burden.

**CONCLUSION:** Slum residents in Nairobi have a high mortality burden from preventable and treatable conditions. It is necessary to focus on these vulnerable populations since their health outcomes are comparable to or even worse than the health outcomes of rural dwellers who are often the focus of most interventions.

*Sex Transm Dis. 2008 Mar 20*

**Provider Characteristics Among Staff Providing Care to Sexually Transmitted Infection Self-Medicating Patients in Retail Pharmacies in Kibera Slum, Nairobi, Kenya.**

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**OBJECTIVES:** To evaluate the characteristics of providers in management of STI self-medicating patients in retail pharmacies within the largest informal settlement in Kenya.

**METHODS:** We collected sociodemographic, training, and work history attributes among pharmacy staff from a convenience sample of 50 retail pharmacies in Kibera slum using a self-administered questionnaire. We gathered the required data in 8 weeks, collecting completed self-administered questionnaires within 7 to 14 days after distribution. Two data collectors subsequently presented at these pharmacies as mystery patients seeking care for symptoms of genital ulcer disease and gonorrhea and completed a structured observation form within 10 minutes of leaving the pharmacy.

**RESULTS:** Approximately half the respondents were men aged less than 28 years. Over 90% had 12 years of formal education and an additional 3 years of medical professional training. Two thirds (66%) had been trained in Government institutions. About 65% reported that patients presented without prescriptions, and 45% noted that patients requested specific medicines but were open to advice. One-third (36%) of the patients used the pharmacy as their first point of care. Using mystery patients to evaluate syndromic management of gonorrhea and genital ulcer disease, only 10% offered appropriate treatment per the Kenya Ministry of Health STI syndromic management guidelines.

**CONCLUSION:** Although the majority of the pharmacy staff in this informal settlement have some medical training and some experience, a very low proportion offered adequate treatment for 2 common STIs.

*J Urban Health. 2008 Apr 5*

**Social Determinants, Suboptimal Health Behavior, and Morbidity in Urban Slum Population: An Indian Perspective.**

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Improving the health of urban residents, particularly those living in slum areas, requires an integrated approach. Appropriate interventions must be based on a well-grounded understanding of health determinants. Social factors are as important as physical factors in determining health status and suggest alternative interventions. Employment, stress, social exclusion, social support, substance use, nutrition,

transport, and conditions during childhood are among the most important social determinants of health status identified by the International Center for Health and Society.

This paper uses social determinants of health approach to understand morbidity outcomes for people residing in the slums of Surat City, India. To quantify suboptimal health behavior and identify the determinants of health status for this population survey data on household characteristics, health-seeking behavior, socioeconomic status, food and personal habits, social life, and physical activity has been used.

After controlling for socioeconomic and demographic factors, logistic regression analysis reveals that social exclusion, stress, and lack of social support are significantly associated with morbidity. Thus, understanding of social determinants of health by policy makers is important as the health sector has a crucial role in addressing disparities in social determinants.

## Urban Health Programming

*J Nutr. 2008 Apr; 138(4):793-8.*

### **The Oportunidades program increases the linear growth of children enrolled at young ages in urban Mexico.**

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The goal of this study was to evaluate the impact of Mexico's conditional cash transfer program, Oportunidades, on the growth of children <24 mo of age living in urban areas. Beneficiary families received cash transfers, a fortified food (targeted to pregnant and lactating women, children 6-23 mo, and children with low weight 2-4 y), and curative health services, among other benefits. Program benefits were conditional on preventative health care utilization and attendance of health and nutrition education sessions.

We estimated the impact of the program after 2 y of operation in a panel of 432 children <24 mo of age at baseline (2002). We used difference-in-difference propensity score matching, which takes into account nonrandom program participation and the effects of unobserved fixed characteristics on outcomes. All models controlled for child age, sex, baseline anthropometry, and maternal height. Anthropometric Z-scores were calculated using the new WHO growth reference standards.

There was no overall association between program participation and growth in children 6 to 24 mo of age. Children in intervention families younger than 6 mo of age at baseline grew 1.5 cm ( $P < 0.05$ ) more than children in comparison families, corresponding to 0.41 height-for-age Z-scores (HAZ) ( $P < 0.05$ ). They also gained an additional 0.76 kg ( $P < 0.01$ ) or 0.47 weight-for-height Z-scores ( $P < 0.05$ ). Children living in the poorest intervention households tended ( $0.05 < P < 0.10$ ) to be taller than comparison children (0.9 cm, 0.27 HAZ). Oportunidades, with its strong

nutrition component, is an effective tool to improve the growth of infants in poor urban households.

## **Urban Environmental Health**

*Trop Med Int Health. 2008 Mar 24*

### **Associations among handwashing indicators, wealth, and symptoms of childhood respiratory illness in urban Bangladesh.**

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**OBJECTIVES** To explore the relationship of easy to collect handwashing indicators with socioeconomic status and reported respiratory disease among children <5 years of age.

**METHODS** We added several handwashing indicators to a population-based, cross-sectional study of respiratory illness in Dhaka, Bangladesh. We constructed a wealth index using 12 household characteristics analysed with principal component analysis to assess socioeconomic status.

**RESULTS** Of 6970 households, 92% had a bar of body soap, 41% had a place with water to wash hands inside the house, and 40% had soap present at the most convenient place to wash hands. Handwashing indicators were more common among households with higher socioeconomic status. Within each wealth quintile a place to wash hands within the household was strongly associated with the presence of soap at the handwashing location (odds ratios 13-70). In general estimated equation models that controlled for socioeconomic status, the presence of a place inside the house with water to wash hands was the only handwashing indicator significantly associated with a child in the household who reported cough or difficulty breathing in the preceding 7 days (adjusted odds ratio 0.95, 95% confidence interval 0.93-0.98,  $P < 0.001$ ).

**CONCLUSION** Handwashing indicators were strongly influenced by socio-economic status and so would not be an independent measure of handwashing behaviour. Handwashing promotion efforts in urban Dhaka that include specific efforts to provide handwashing facilities inside the house are more likely to improve handwashing behaviour than interventions that ignore this component.

*Asia Pac J Public Health. 2007; 19(3):29-37.*

### **Relationship between blood lead concentration and nutritional status among Malay primary school children in Kuala Lumpur, Malaysia.**

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A cross-sectional study was conducted to identify the relationship between blood lead concentration and nutritional status among primary school children in Kuala Lumpur.

A total of 225 Malay students, 113 male and 112 female, aged 6.3 to 9.8 were selected through a stratified random sampling method. The random blood samples were collected and blood lead concentration was measured by a Graphite Furnace Atomic Absorption Spectrophotometer. The nutrient intake was determined by the 24-hour Dietary Recall method and Food Frequency Questionnaire. An anthropometric assessment was reported according to growth indices (z-scores of weight-for-age, height-for-age, and weight-for-height).

The mean blood lead concentration was low (3.4 +/- 1.91 ug/dL) and was significantly different between gender. Only 14.7% of the respondents fulfilled the daily energy requirement. The protein and iron intakes were adequate for a majority of the children. However, 34.7% of the total children showed inadequate intake of calcium. The energy, protein, fat and carbohydrate intakes were significantly different by gender, that is, males had better intake than females. Majority of respondents had normal mean z-score of growth indices. Ten percent of the respondents were underweight, 2.8% wasted and 5.4% stunted. Multiple linear regression showed inverse significant relationships between blood lead concentration with children's age (beta = -0.647, p < 0.001) and per capita income (beta = -0.001, p = 0.018).

There were inverse significant relationships between blood lead concentration with children's age (beta = -0.877, p = 0.001) and calcium intake (beta = -0.011, p = 0.014) and positive significant relationship with weight-for-height (beta = 0.326, p = 0.041) among those with inadequate calcium intake. Among children with inadequate energy intake, children's age (beta = -0.621, p < 0.001), per capita income (beta = -0.001, p = 0.025) and protein intake (beta = -0.019, p = 0.027) were inversely and significantly related with blood lead concentration.

In conclusion, nutritional status might affect the children's absorption of lead and further investigation is required for confirmation.

*PLoS Negl Trop Dis. 2008 Jan 30;2(1):e154.*

### **Household transmission of leptospira infection in urban slum communities.**

Maciel EA, de Carvalho AL, Nascimento SF, de Matos RB, Gouveia EL, Reis MG, Ko AI.

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**BACKGROUND:** Leptospirosis, a spirochaetal zoonotic disease, is the cause of epidemics associated with high mortality in urban slum communities. Infection with pathogenic *Leptospira* occurs during environmental exposures and is traditionally associated with occupational risk activities. However, slum inhabitants reside in close proximity to environmental sources of contamination, suggesting that transmission during urban epidemics occurs in the household environment.

**METHODS AND FINDINGS:** A survey was performed to determine whether *Leptospira* infection clustered within households located in slum communities in the city of Salvador, Brazil. Hospital-based surveillance identified 89 confirmed cases of leptospirosis during an outbreak. Serum samples were obtained from members of 22 households with index cases of leptospirosis and 52 control households located in the

same slum communities. The presence of anti-*Leptospira* agglutinating antibodies was used as a marker for previous infection. In households with index cases, 22 (30%) of 74 members had anti-*Leptospira* antibodies, whereas 16 (8%) of 195 members from control households had anti-*Leptospira* antibodies. Highest titres were directed against *L. interrogans* serovars of the Icterohaemorrhagiae serogroup in 95% and 100% of the subjects with agglutinating antibodies from case and control households, respectively. Residence in a household with an index case of leptospirosis was associated with increased risk (OR 5.29, 95% CI 2.13-13.12) of having had a *Leptospira* infection. Increased infection risk was found for all age groups who resided in a household with an index case, including children <15 years of age (P = 0.008).

**CONCLUSIONS:** This study identified significant household clustering of *Leptospira* infection in slum communities where recurrent epidemics of leptospirosis occur. The findings support the hypothesis that the household environment is an important transmission determinant in the urban slum setting. Prevention therefore needs to target sources of contamination and risk activities which occur in the places where slum inhabitants reside.

*Int J Environ Health Res. 2008 Apr; 18(2): 129-48.*

### **Environmental factors influencing the prevalence of respiratory diseases and allergies among schoolchildren in Chiang Mai, Thailand.**

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Air quality has seriously deteriorated as a consequence of population growth and urbanisation and respiratory diseases increased among residents of urban areas in Chiang Mai Province, Thailand. An International Study of Asthma and Allergies in Childhood (ISAAC) study was conducted among children attending schools located in the selected sites to assess the potential impacts of air pollution on health. The results showed that the prevalence of asthma was similar in all of the schools (approximately 5%; p = 1.000) but that the prevalence of rhinitis [24.3% (CI = 19.4-30.1) vs. 15.7% (CI = 10.3-23.0); p = 0.029] and atopic dermatitis [12.5% (CI = 9.1-16.8) vs. 7.2% (CI = 3.7-12.6); p = 0.093] was higher in the urban schools, which were exposed to more pollution. Logistic regression analysis identified factors that may be involved, including air pollution, some components of the diet and contact with animals.

### **Urban Vector Disease**

*Ann Trop Med Parasitol. 2008 Mar; 102(2): 161-71.*

### **Assessment of a new strategy, based on *Aedes aegypti* (L.) pupal productivity, for the surveillance and control of dengue transmission in Thailand.**

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In the countries where the disease is endemic, control of dengue is mainly based on the elimination or treatment of the water-filled containers where the main vector, *Aedes aegypti*, breeds, in interventions usually reliant on community participation. Although such control activities must be continuous, since vector eradication appears impossible, it should be possible to reduce the incidence of dengue significantly, in a cost-effective manner, by targeting only those types of containers in which large numbers of *Ae. aegypti* are produced.

This strategy is now recommended by the World Health Organization, although it depends on the most productive types of container being carefully identified, in each endemic region. In Thailand, exhaustive surveys of 3125 wet containers in 240 houses in either an urban area (100-120 houses) or a rural area (120 houses) were conducted during a rainy and a dry season in 2004-2005. Indices based on the numbers of *Ae. aegypti* pupae observed were found to correlate with the 'classical' entomological indices that are based on all of the immature stages of the vector. Overall, 2.3 and 0.8 *Ae. aegypti* pupae were observed per person in the rural and urban areas, respectively.

Although adult female *Ae. aegypti* laid eggs in all 10 types of wet container that were identified, large water-storage containers produced the majority of the pupae, especially at the end of the dry season (when such containers accounted for 90% of the pupae detected in the rural area and 60% of those in the urban area). Since these containers are large, easy to reach and account for, <50% of all wet containers, it should be relatively easy and quick to treat them with larvicide or to cover them. If even such targeted treatment is to be sustainable, however, it will have to be integrated, as one of several activities in which the at-risk communities are encouraged to participate.

*PLoS ONE. 2008 Mar 12; 3(3):e1788.*

### **Rural-urban differences in maternal responses to childhood fever in South East Nigeria.**

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**BACKGROUND:** Childhood fevers due to malaria remain a major cause of morbidity and mortality among under-five children in Nigeria. The degree of vulnerability perceived by mothers will affect their perception of the severity and threat of their child's fever and the patterns of health care use. This study was undertaken to compare maternal responses to childhood fever in urban and rural areas of Enugu, south east Nigeria.

**METHODOLOGY/PRINCIPAL FINDINGS:** Data was collected with pre-tested interviewer-administered questionnaires from 276 and 124 urban and rural households respectively. In each household, only one woman aged 15-49 years who had lived in each of the urban and rural communities for at least one year and had at least one child less than 5 years old was interviewed. Malaria was mentioned as the

commonest cause of childhood fevers. Rural mothers were more likely to recognize danger signs and symptoms than urban mothers. Rural mothers use more of informal than formal health services, and there is more home management of the fever with urban than rural mothers. Chloroquine, ACT, SP and Paracetamol are the main drugs given at home for childhood fevers, but the rural mothers were more likely to use leftover drugs from previous treatment to treat the fevers than urban mothers. The urban respondents were also more likely to use a preventive measure. Urban mothers sought actions faster than rural mothers and the total cost of treatment was also higher in urban areas.

**CONCLUSIONS/SIGNIFICANCE:** Both urban and rural mothers are aware that malaria is the major cause of childhood fevers. Although rural mothers recognize childhood fever and danger signs better than urban mothers, the urban mothers' responses to fever seem to be better than that for rural mothers. These responses and differences may be important for geographical targeting by policy makers for malaria interventions.

*Ethiop Med J. 2007 Oct;45(4):343-51.*

### **Community perceptions and practices about urban malaria prevention and control in Gondar Town, northwest Ethiopia.**

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**BACKGROUND:** Malaria is becoming a major health problem in urban areas. Community perceptions, knowledge and practices have a major role in the implementation of effective malaria control interventions. Yet little is known about the perceptions and practices of urban community about urban malaria prevention and control.

**OBJECTIVE:** The aim of this study was to assess the knowledge, attitudes and practices of an urban community about malaria prevention and control. **METHODS:** A community-based cross-sectional study was carried out in three randomly selected malarious Kebeles of Gondar Town during November-December 2004. Knowledge, attitudes and practices were assessed for 489 household members > or =18 years old.

**RESULTS:** Almost all respondents knew about malaria and recognized it as one of the major health problems of the community. About 58% knew that malaria could be transmitted from one person to another, and most (97.2%) associated malaria with the bite of mosquito. The most frequently reported symptoms of malaria included fever (96.3%), chills and shivering (96.3%), headache (96.1%), loss of appetite (92.2%) and joint pain (90.2%). Knowledge about the names of the currently used antimalarials, sulfadoxine-pyrimethamine (90.4%) and chloroquine (81.6%), was high. About 39% of the total 163 surveyed households possessed at least one mosquito net; of these, 55 (83.7%) possessed one, 7 (11%) had two and 2 (2.3%) possessed three. Most respondents practiced draining stagnant water (46.3%) and clearing vegetation (43.3%) for malaria prevention.

**CONCLUSIONS:** Although considerable gaps were observed between knowledge and practices of malaria prevention and control methods, community knowledge, attitudes and practices on the cause, treatment and prevention of the disease were

encouraging. Since malaria is identified as a major health problem, the use of personal protection methods such as insecticide treated mosquito nets should be encouraged through increasing access to it.

## **HIV/AIDS among the Urban Poor**

*AIDS. 2008 Mar 30;22(6):759-66.*

### **From affected to infected? Orphanhood and HIV risk among female adolescents in urban Zimbabwe.**

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**BACKGROUND:** Despite the 15 million children orphaned by AIDS, and fears of sexual vulnerability, little is known about the link between orphanhood and HIV risk.

**METHODS:** A random sample of 1283 15 to 19-year-old girls in a high-density suburb of Harare was identified in a cross-sectional survey in 2004. A total of 863 agreed to be interviewed and 839 provided a specimen for HIV and herpes simplex virus type-2 (HSV-2) testing. Sexual health outcomes, sexual behaviours and marriage were assessed by type and timing of orphanhood.

**RESULTS:** Half of the participants were single or double orphans. Prevalence of HIV and/or HSV-2 was higher among orphans than non-orphans [17 versus 12%; age-adjusted odds ratio (aOR) = 1.5; 95% confidence interval (CI) 1.0-2.3]. Associations with orphan status were only significant among the 743 never-married participants. In comparison with non-orphaned peers, increased sexual risk (defined as HSV2-positive, HIV-positive or ever pregnant) was seen among maternal orphans (aOR = 3.6; 95% CI, 1.7-7.8), double orphans (aOR = 2.4; 95% CI, 1.2-4.9), and girls who lost their father before age 12 (aOR = 2.1; 95% CI, 0.9-4.8) but not later (aOR = 0.8; 95% CI, 0.3-2.2). Maternal and double orphans were most likely to initiate sex early and to have had multiple partners. Maternal orphans were least likely to have used a condom at first sex, and to have a regular sexual partner. Experience of forced sex was high in all groups.

**CONCLUSIONS:** In urban Zimbabwe, female adolescent orphans are at increased risk of HIV and HSV-2 infection. Infection rates vary by type and age of orphanhood, and marital status, and are associated with high-risk sexual behaviours.

*J Int Assoc Physicians AIDS Care (Chic Ill). 2008 Jun;7(2):74-81.*

### **Psychosocial Impact of Poverty on Antiretroviral Nonadherence Among HIV-TB Coinfected Patients in Lima, Peru.**

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**OBJECTIVE:** Tuberculosis and HIV coinfection poses unique clinical and psychosocial complexities that can impact nonadherence to highly active antiretroviral treatment (HAART).

**METHODS:** This was a prospective case series to identify risk factors for HAART nonadherence among 43 patients with HIV and tuberculosis (TB) in Lima, Peru. Nonadherence was defined by patient self-report.

**RESULTS:** The median initial CD4 and HIV viral load were 63 and 159,000, respectively. Patients had received a median of 6.1 months of ART. Univariable analysis found low social support, substance use, and depression to be associated with nonadherence. In multivariable analysis, low social support was associated with nonadherence.

**CONCLUSIONS:** In the authors' urban cohort of HIV-TB coinfecting individuals in Lima, Peru, substance use, depression, and lack of social support were key barriers to adherence. These findings suggest that adherence interventions may be unsuccessful unless they target the underlying psychosocial challenges faced by patients living with TB and AIDS.