and low net access (32%) approximately 7 months following distribution. While the distribution campaign ensured that one net was distributed per sleeping area, achieving an average of one net per 2 residents in 88% of households, a better understanding of the reasons behind the reduction of nets is needed to allow BIMCP to implement strategies against a decrease in net access in future campaigns. An initial analysis of MIS questions regarding net ownership indicated that a high proportion of households reported a dislike of the net (16.2%), while other households reported giving them to relatives on the mainland (12.7%). A mixed quantitative and qualitative study will be performed to determine the reasons behind the reduction in bed net access. A random sample of 150 households on Bioko Island will be selected from BIMCP's Campaign Information Management System (CIMS) and MIS databases. These databases use a GIS-based household mapping system, used to easily locate and track every household location to be sampled. A semi-structured interview will be employed to determine participant household's current net access relative to the number of nets distributed during the campaign and the number of nets reported in the subsequent MIS, what happened to the nets that were lost and the reasons why, current net usage by household member type (e.g. under-5's, pregnant women, etc.), their knowledge and attitudes acquired from the distribution teams and/or other media about LLINs, and their perceptions about the distribution process. The analysis will seek to discern what the primary reasons are for the unexpected decrease in net access. Findings will inform the BIMCP on how to reduce the LLIN loss rates, in planning for the upcoming 2017 LLIN distribution and for future continuous distribution.

426

DETERMINANTS OF BED NET USE CONDITIONAL ON ACCESS IN POPULATION SURVEYS IN GHANA

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Out of 23 African countries surveyed with a Demographic and Health Survey (DHS) in the 2012-2015 period, Ghana ranks 21st in net use conditional on access (NUCA) (with 57.5%), and only Namibia and Nigeria have a larger proportion of people not using nets despite having access to a space under one. In literature, self-reported reasons for not using nets include discomfort (due to heat), disruption of sleeping arrangements, and low mosquito density. We explored if 'geographical region', 'residence' (urban or rural), 'wealth quintile', 'spraying of the dwelling with residual insecticides' (IRS), the 'humidex' in the month of survey, 'connection to electricity', the 'mean age' of the nets in the household, the 'nets : people ratio' in the household and the 'respondent heard a message on the use of nets' could explain NUCA with beta-binomial regression models that corrected for spatially correlated random effects in the Ghana 2014 DHS. Similarly, this was done with these variables (except the not collected one on messaging) for the Ghana 2011 Multiple Indicator Cluster Survey (MICS), with as additional variables 'ethnicity', 'religion' and an estimate of 'vector density in the month of survey'. In the DHS, 'wealth quintile', 'electricity', 'residence', 'messaging', 'humidex' and 'IRS' (in order of decreasing importance) individually improved model fit, as assessed by the deviance information criterion (DIC), compared to a null model without covariates, and also all these variables combined in one model improved the DIC over simpler models. In the MICS, the variables 'region', 'net age', and 'IRS' improved the fit when individually added to the null model. 'Net age' improved the fit when included into a model with 'region' as covariate. Differences in results between 2011 and 2014 are possibly due to the 2011 MICS being held in the midst of a mass distribution campaign, with 4 regions (partly) completed and 6 not yet begun. Surprisingly, the 'nets : people ratio' (the higher the ratio, the less need for sharing nets and possibly disrupting sleeping arrangements) did not explain NUCA and the humidex (a measure of comfort due to heat) only did so in the 2014 DHS.

427

JOINT DISTRIBUTION OF ACUTE RESPIRATORY INFECTION, DIARRHEA AND STUNTING AMONG CHILDREN UNDER THE AGE OF FIVE YEARS IN SOMALIA

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The aim of this study was to assess the spatial co-occurrence of acute respiratory infections (ARI), diarrhoea and stunting among children the age of five years in Somalia. Data were obtained from routine bi-annually nutritional surveys conducted by the Food and Agriculture Organization (FAO) from 2007 - 2010. A Bayesian hierarchical shared component model was fitted to the spatial components of the three health conditions concurrently. Risk maps of the common spatial effects at 1 x 1 km resolution were derived. The empirical correlations of the proportion were 0.37, 0.63 and 0.66 for ARI and stunting; diarrhoea and stunting and ARI and diarrhoea respectively. Spatially, the posterior residual effects ranged from 0.04 to 18, 0.19 to 5.39 and 0.07 to 8.16 for shared component between ARI and stunting; diarrhoea and stunting; and ARI and diarrhoea respectively. This analysis shows clear spatial shared component between ARI, diarrhoea and stunting in Somalia with the southern part of the country experiencing a higher than usual rate of these conditions. Intervention aimed at reducing the rates of these three health conditions should focus on the common risk factors particularly in the South in Somalia.

428

SHANCHOL, THE ORAL CHOLERA VACCINE IS SAFE AND IMMUNOGENIC WHEN STORED AT ELEVATED TEMPERATURES IN BANGLADESHI PARTICIPANTS

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Immunization against cholera is recognized as a major intervention for control of the disease, however the requirement for a cold chain has limited its use in resource poor settings.The aim was to determine the safety and immunogenicity of Shanchol after stored at temperature upto 42°C. The study conducted in adult participants in Dhaka, Bangladesh. The vaccine kept under standard (Group A; 2-8°C) and at three elevated temperatures (Group B; 25°C, Group C; 37°C, Group D; 42°C) for 14 days. Vibriocidal and LPS antibody responses were determined at baseline and 7 days after each dose. 580 participants; 145 in each group (A=2-8 °C ; B=25 °C; C=37 °C and D= 42°C) were vaccinated. Only 17 mild adverse events, which did not differ between groups. Increases of vibriocidal responses observed at day 7 and 21 ($P<0.001$) compared to day 0 in all groups. Over four-fold increases to *V. cholerae* O1 Ogawa were observed at day 7 and/or day 21 after vaccination in at all groups, with responder rates of; 76%, 80% , 69% and 74% in Groups A, B, C, and D ($p=0.240$). Significant vibriocidal antibodies to *V. cholerae* O1 Inaba and O139, and LPS- Ogawa and Inaba antibody responses also observed after each dose ($p<0.001$); with comparable seroconversion rates between Group A and Groups B, C, and D. Interpretation: This is the first report of the testing