Secondary Analysis of Behavioural Aspects of Net Hanging and Use from Post-campaign Surveys in Ten States in Nigeria

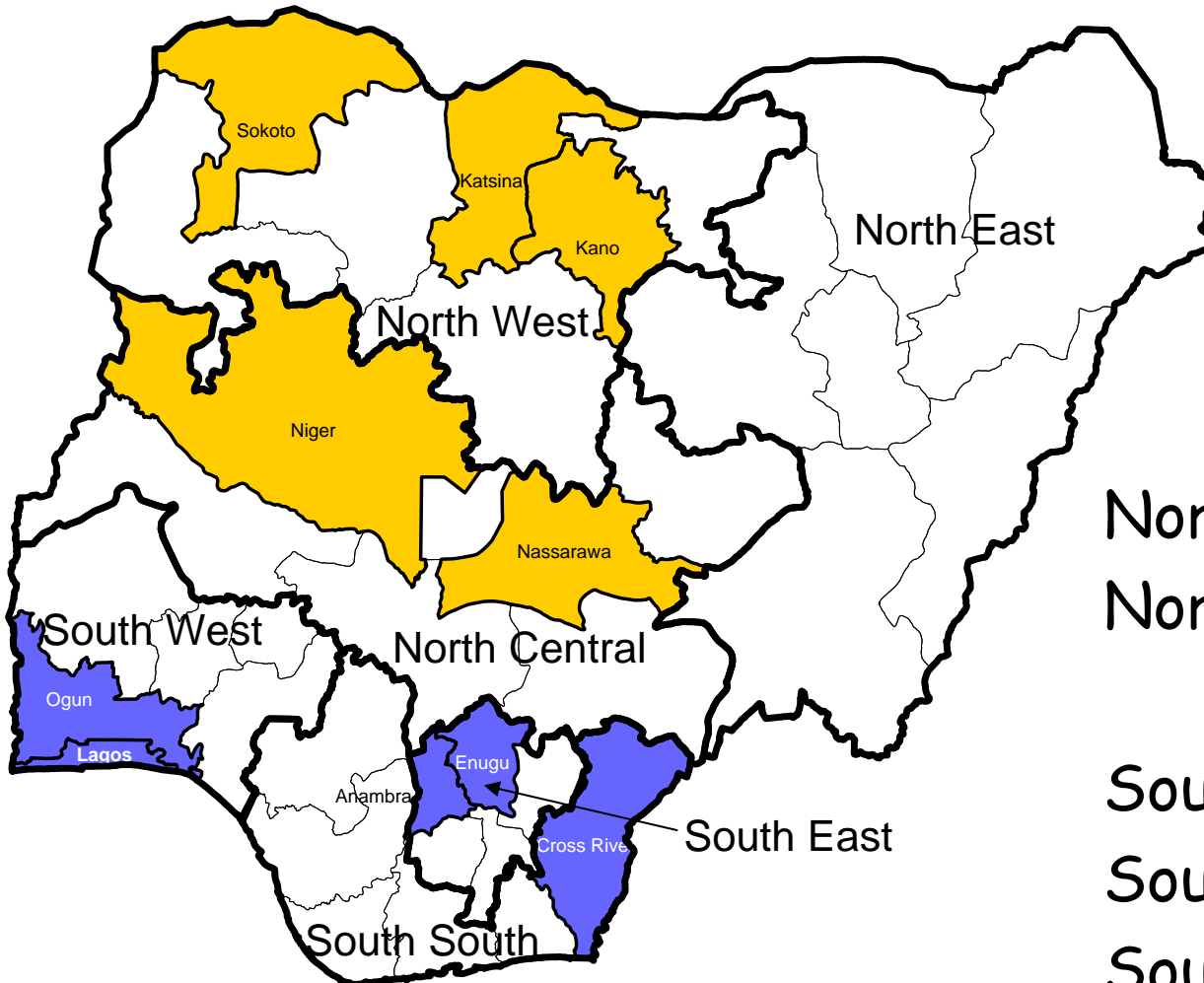## Albert Kilian

Background

- Part of Operations Research initiated by Global Fund and Society for Family Health

- Analysis of survey data from post campaign surveys funded by DFID and USAID/PMI and implemented by Malaria Consortium

Objective

- Assess the impact of BCC message exposure on net hanging and use

- Describe the effects to inform the design and implementation of the second wave of LLIN mass campaigns in Nigeria

Methods

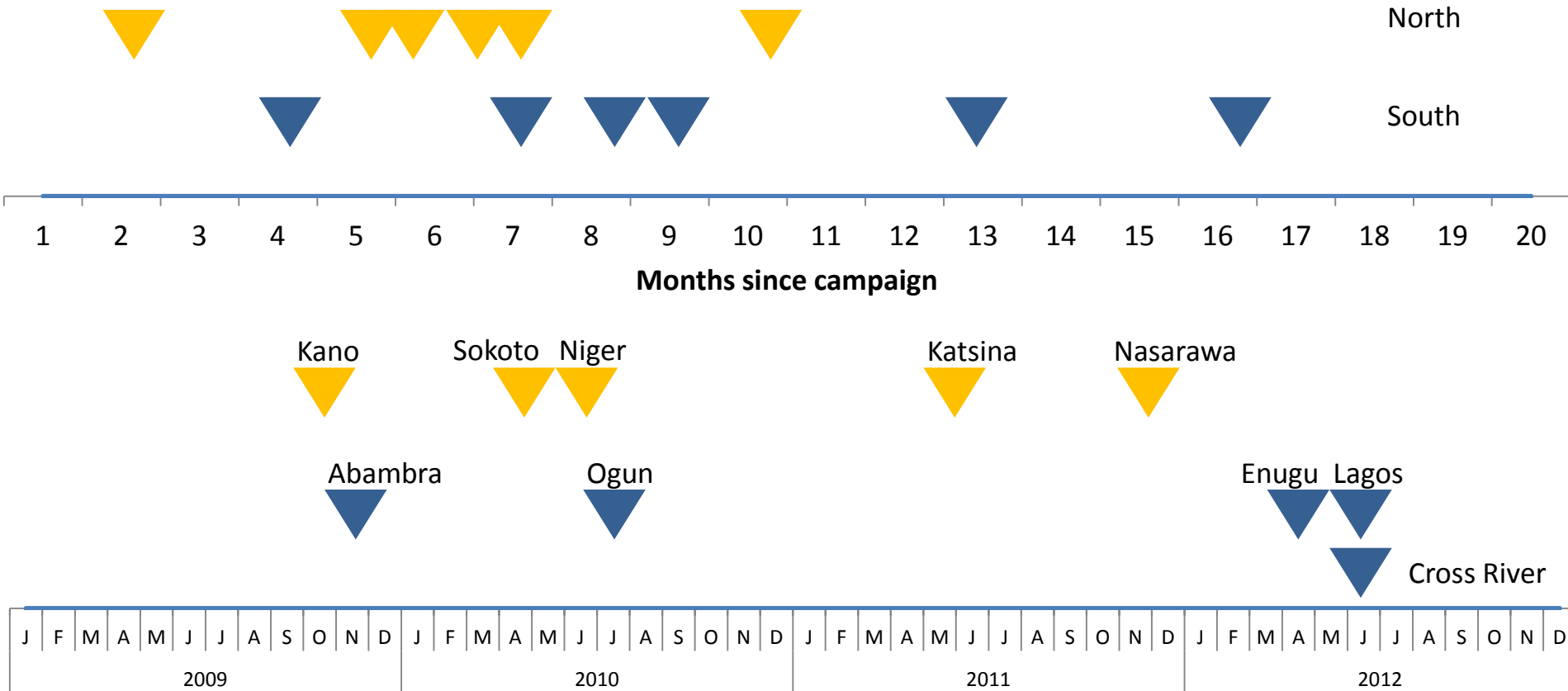- Ten data sets representing 5 states in the North and 5 in the South (except North East)

North West 3
North Central 2

South West 2
South East 2
South South 1

Methods

- All surveys were population representative cross-sectional cluster surveys with 60x17 design (N=1020)
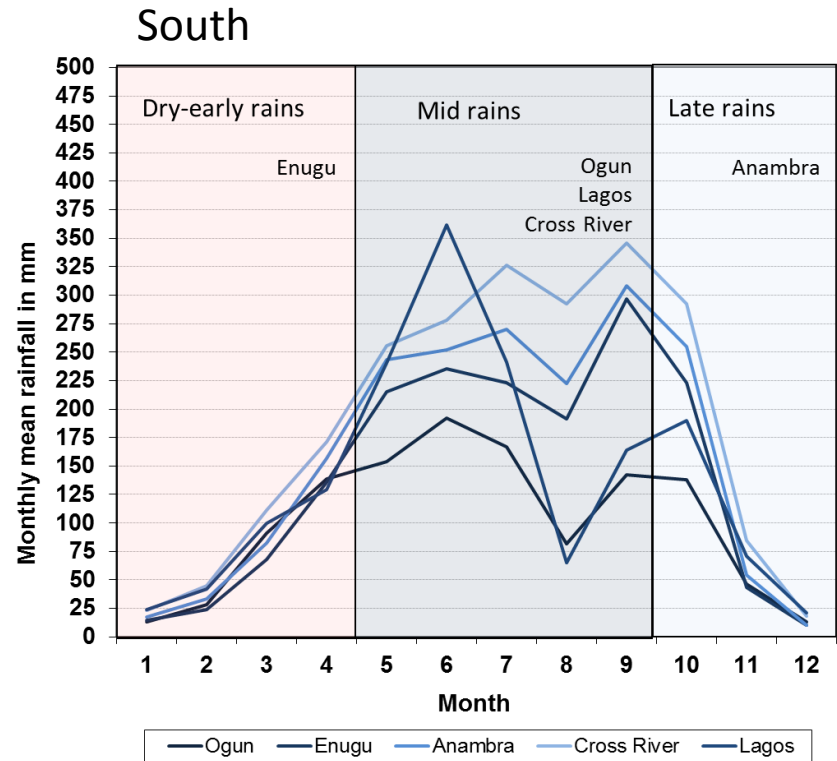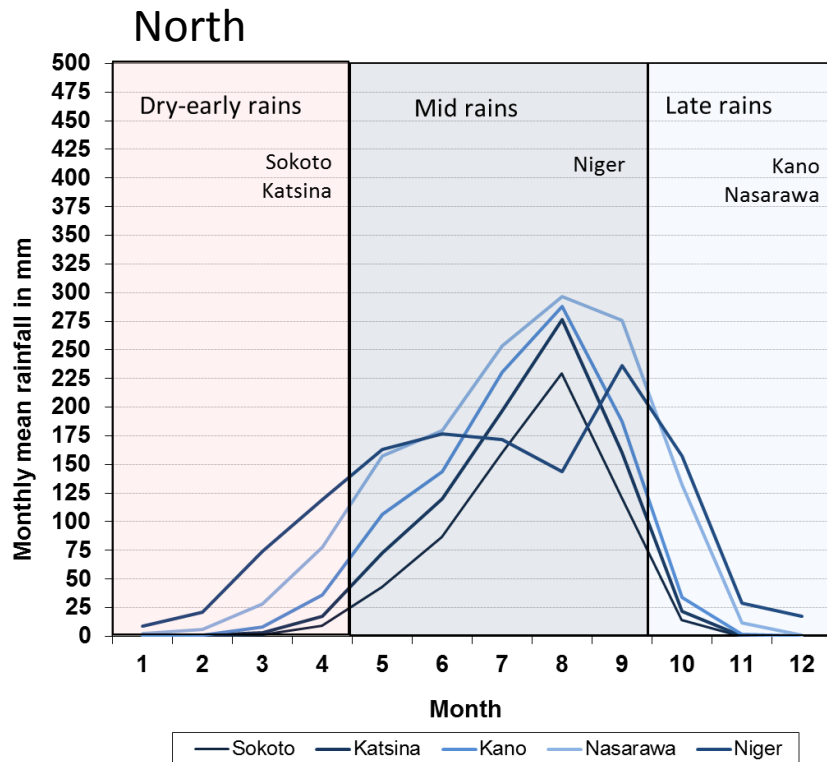- Identical data collection tool

Methods

- Sample composition for analysis

State	Sample Size		
	Households	Nets	Individuals
Sokoto	1,008	1,271	4,468
Katsina	1,017	1,532	4,630
Kano	987	1,173	4,642
Niger	1,001	1,280	6,270
Nasarawa	1,015	1,136	5,323
Anambra	1,012	1,781	4,546
Enugu	1,020	1,444	4,644
Ogun	952	745	4,373
Lagos	1,020	937	4,486
Cross River	1,254	1,316	5,656
TOTAL	**10,286**	**12,615**	**49,038**

Methods

- Relation to rains divided into three categories
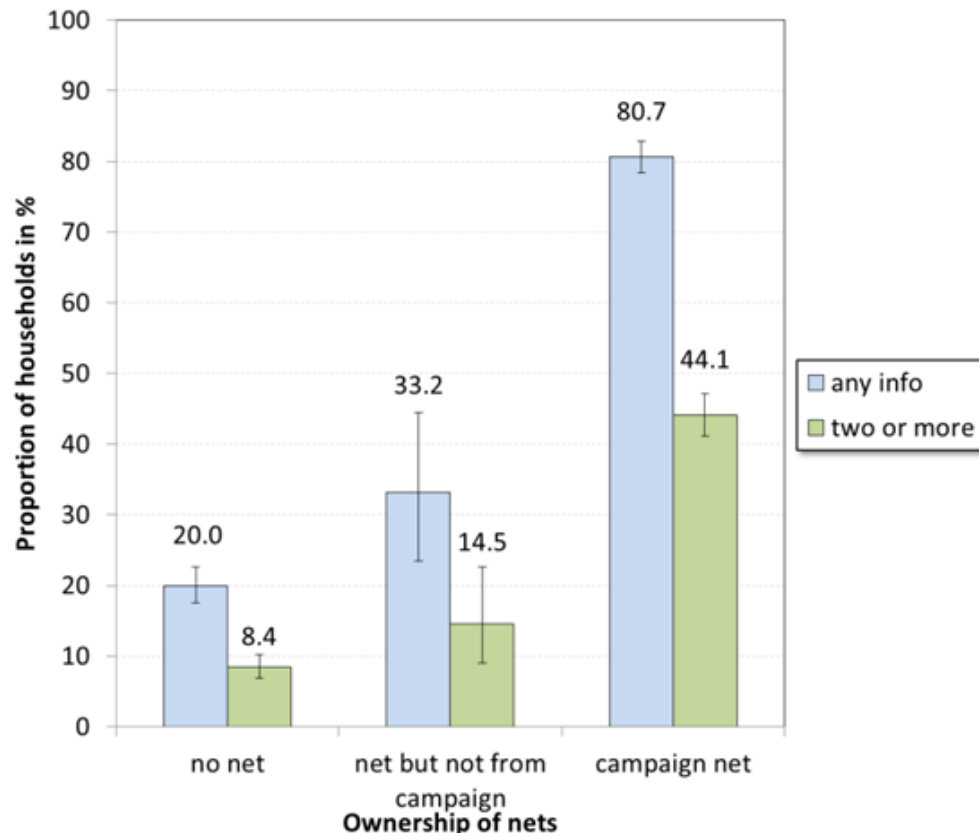
Methods

Analytical Approach

- Exposure to BCC information/channels
- Recall of messages
- Resulting attitude and actions (KAP outcome)
  – Intention to use nets
  – Discussing net use in family
  – Composite action score for malaria prevention (Likert score)
- Impact on hanging and use of nets

Statistical Approach

- Sampling weights and cluster analysis
- Regression models adjusting for place, year and time since campaign
- Treatments effect models to assess overall BCC impact
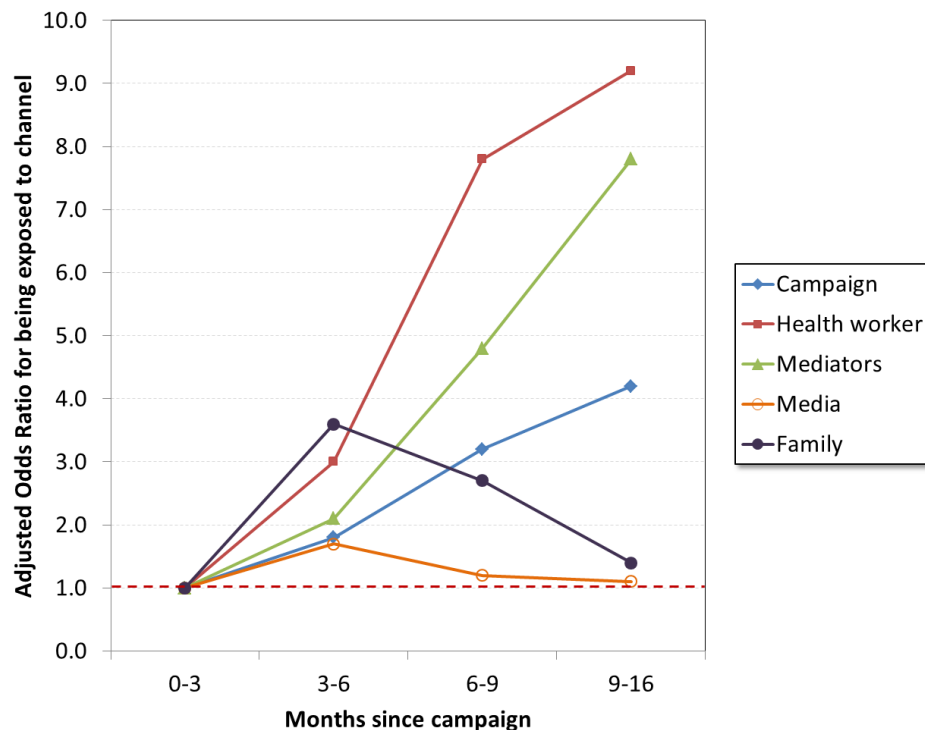
Exposure to BCC

- Overall 58% of households had been exposed to messages on net hanging and use

- Strongest positive association:
  - net ownership and campaign participation
  - time since campaign

- Other positive factors: larger family with children, female headed HH, radio ownership

- No association: wealth quintiles education of head of HH urban/rural North/South
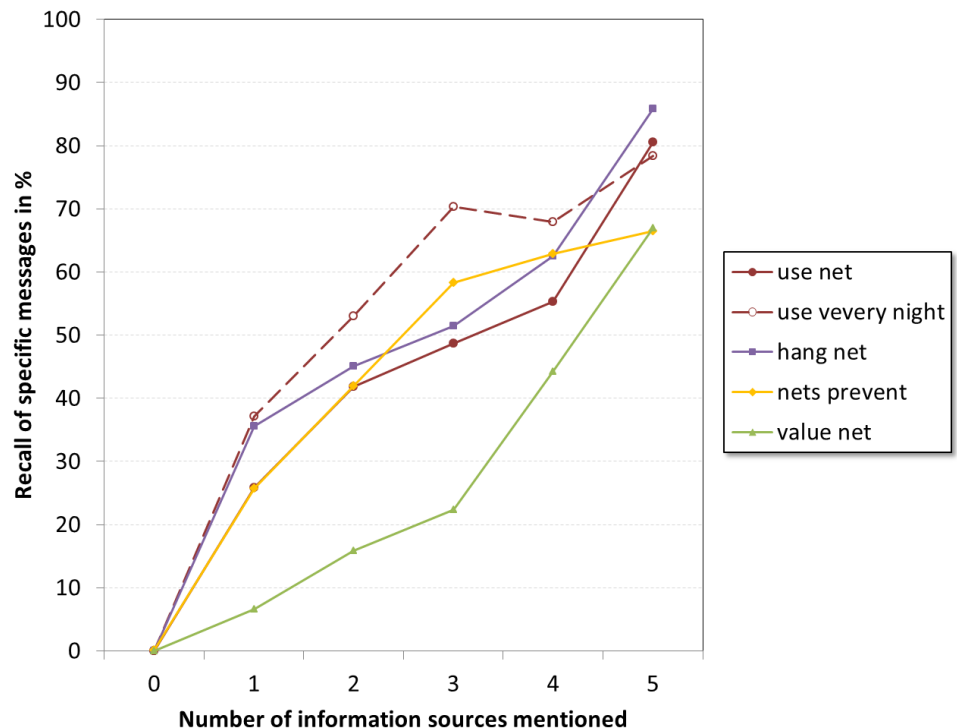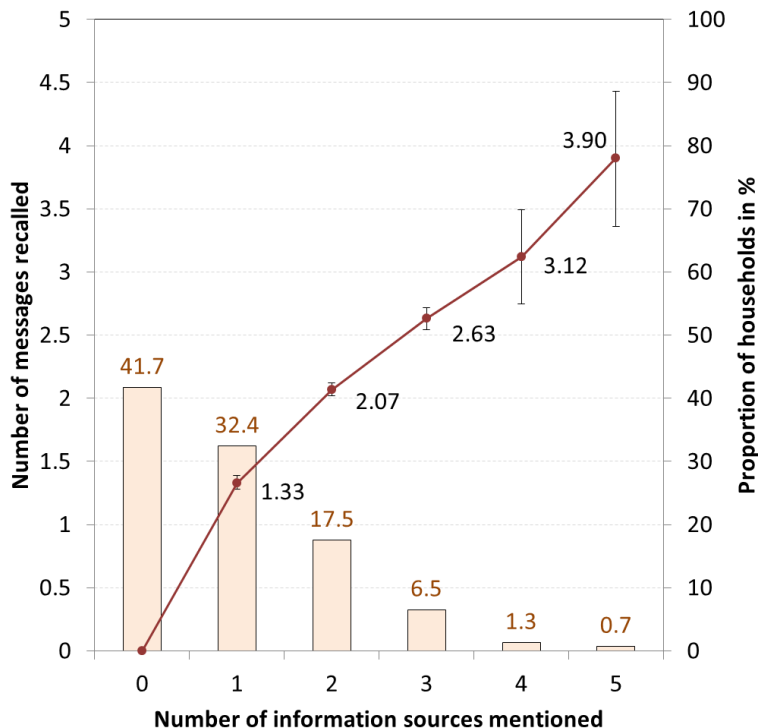
Information Channels

- Increase of effects with time since campaign differed by information channel
- Who was reached by each channel differed (profile)
- **Campaign** (leaflet, team): 20%; up with time, wealth, year, South
- **Health worker**: 19%; up with time, education of head of HH, larger HH with children, younger HH

- **Media** (radio, drama): 22%; up with wealth, education, female HH, radio
- **Mediators** (leaders, town announcer) 16%; up with time, less educated, older HH, North
- **Social networks** (family, friend) 15%; down with time, up with urban, wealth, younger and larger HH
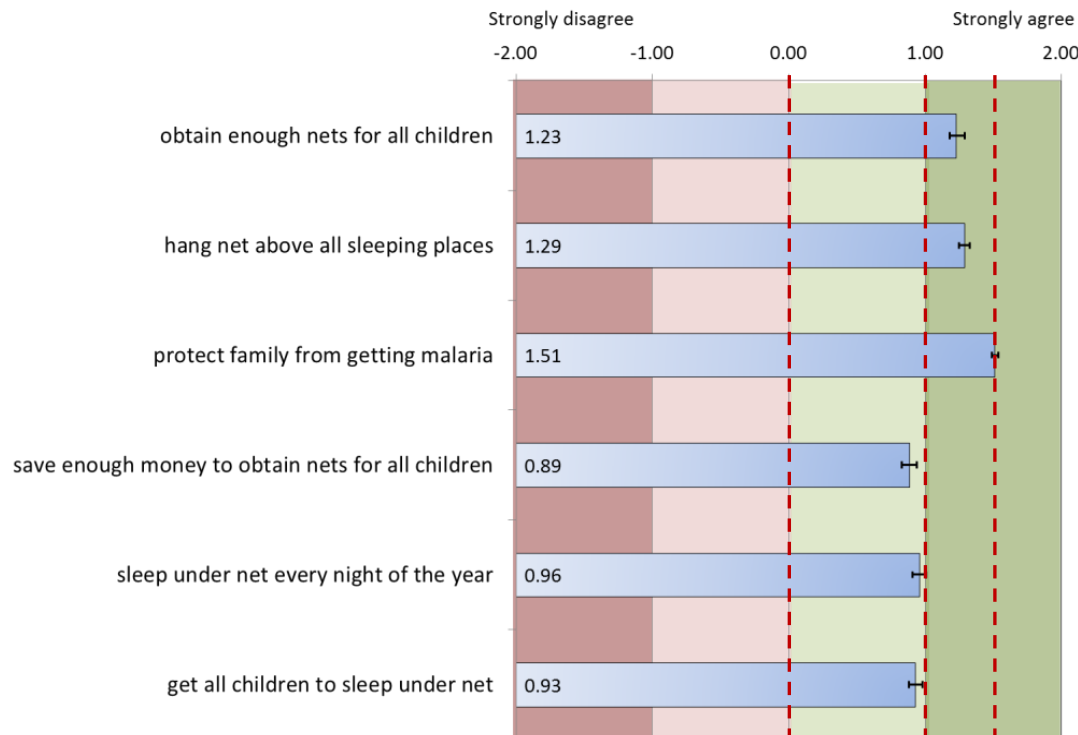
Message Recall

- Recall of messages increased with increasing exposure, but less than 10% of households mentioned three or more information sources

- "Hang net" and "use very night" were most easily recalled messages

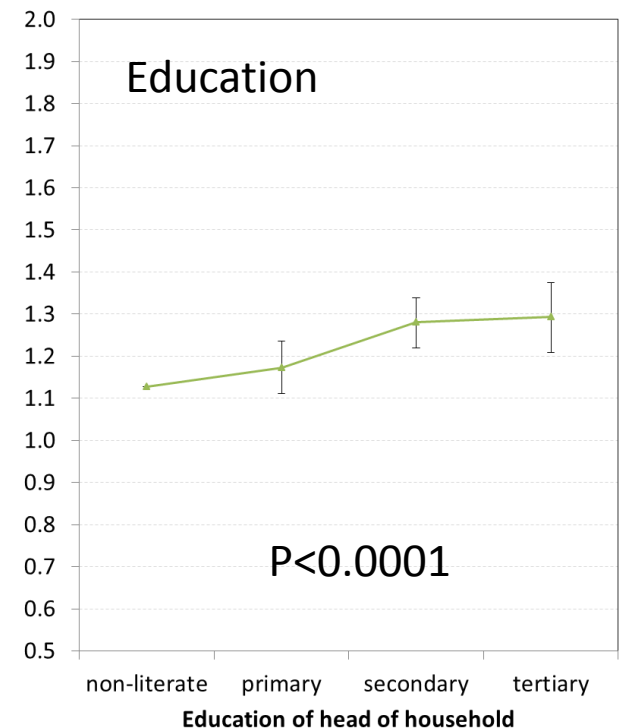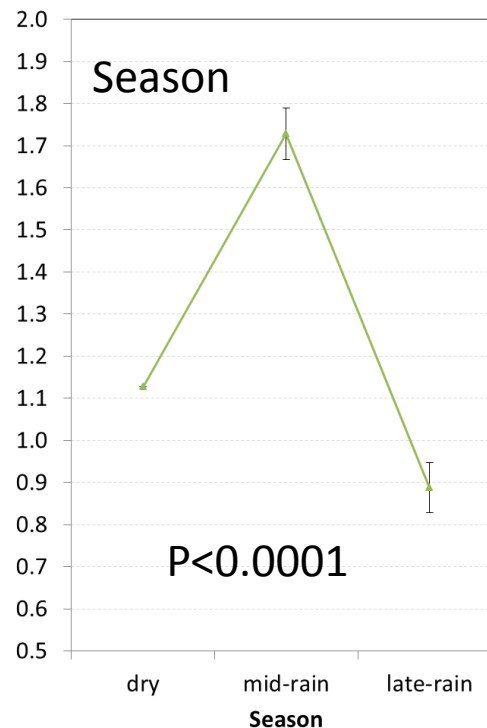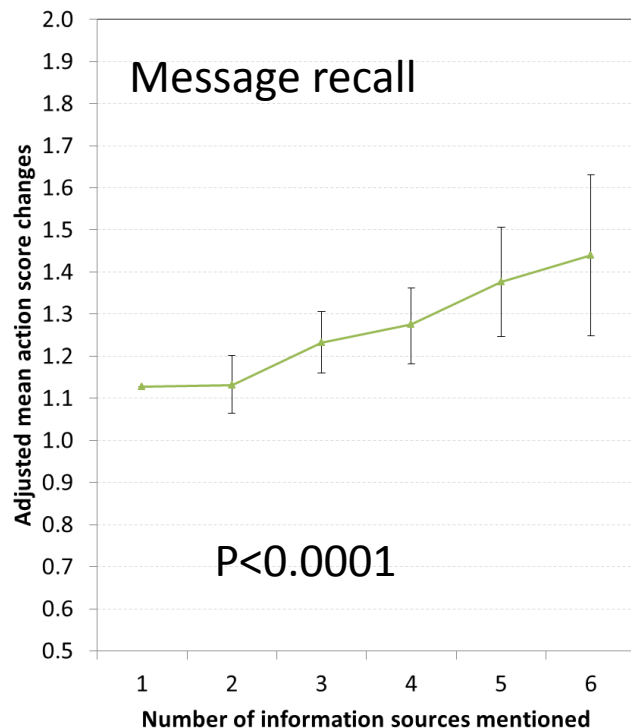- "Value net" was lowest and needed repeated exposusure

Confidence to take Action

- Major outcome measure of exposure and recall of messages was "actionscore" as a measure of confidence to take action to prevent malaria in the family
- Categoriezed as:
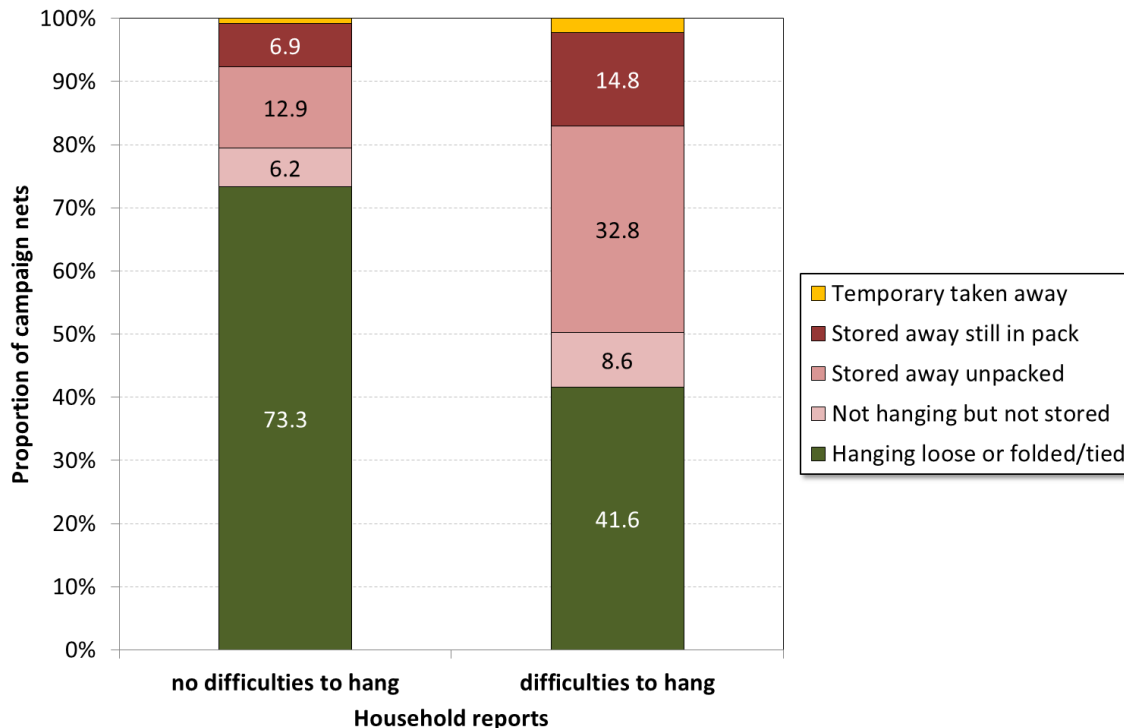 - poor (<0); good (0-1.0); very good (1-1.5); excellent (1.5-2.0)

Confidence to take Action

- Number of messages recalled , rain and education of head of HH were the strongest positive determinants
- Other strong factores were: owning net, large family with children, North
- Weak positive effects: time since distribution, younger head HH
- No effect: wealth
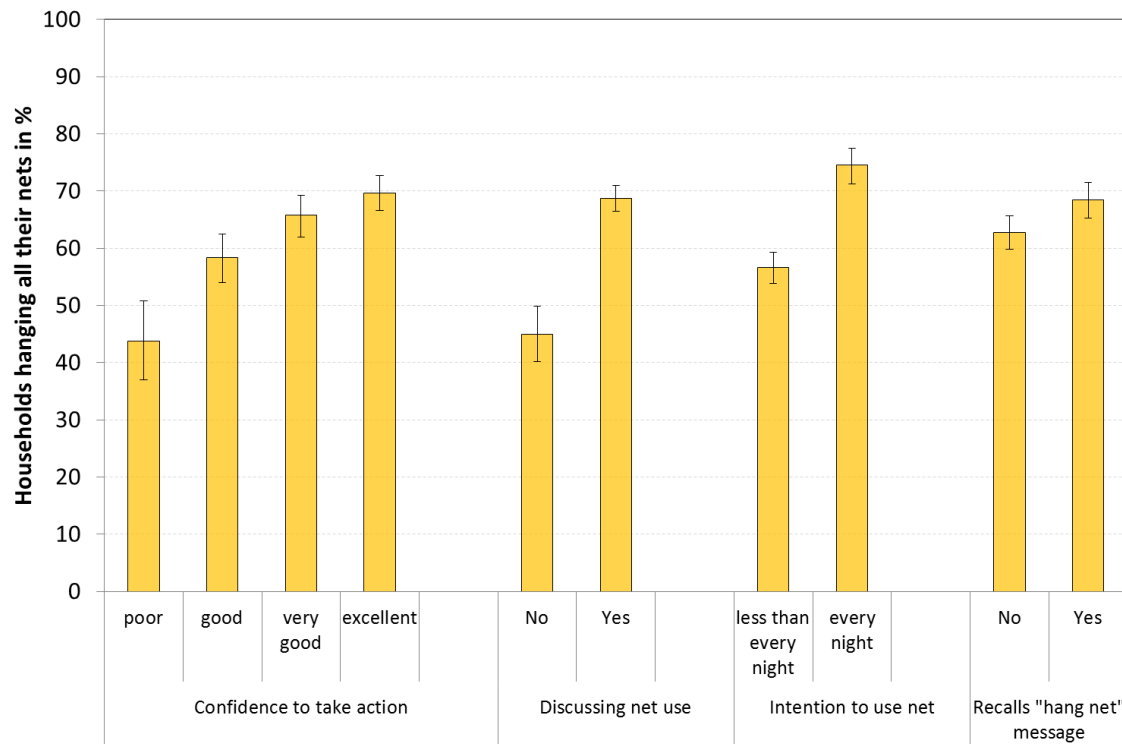
Difficulties to Hang

- Only 4.3% of households stated to have had difficulties in hanging net; main reasons "don't know how to" and "no place to hang"

- But 42% of nets in households with reported difficulties were hanging

- Reporting difficulties much less in North, during mid-rains, among HH with high action score, exposure to hang-up message, discussing net use and young families

- Higher reporting from better educated

- No impact of having seen hanging demonstration at campaign site

Proportion of campaign nets

no difficulties to hang	difficulties to hang
6.9	14.8
12.9	32.8
6.2	8.6
73.3	41.6

Legend:
- Temporary taken away
- Stored away still in pack
- Stored away unpacked
- Not hanging but not stored
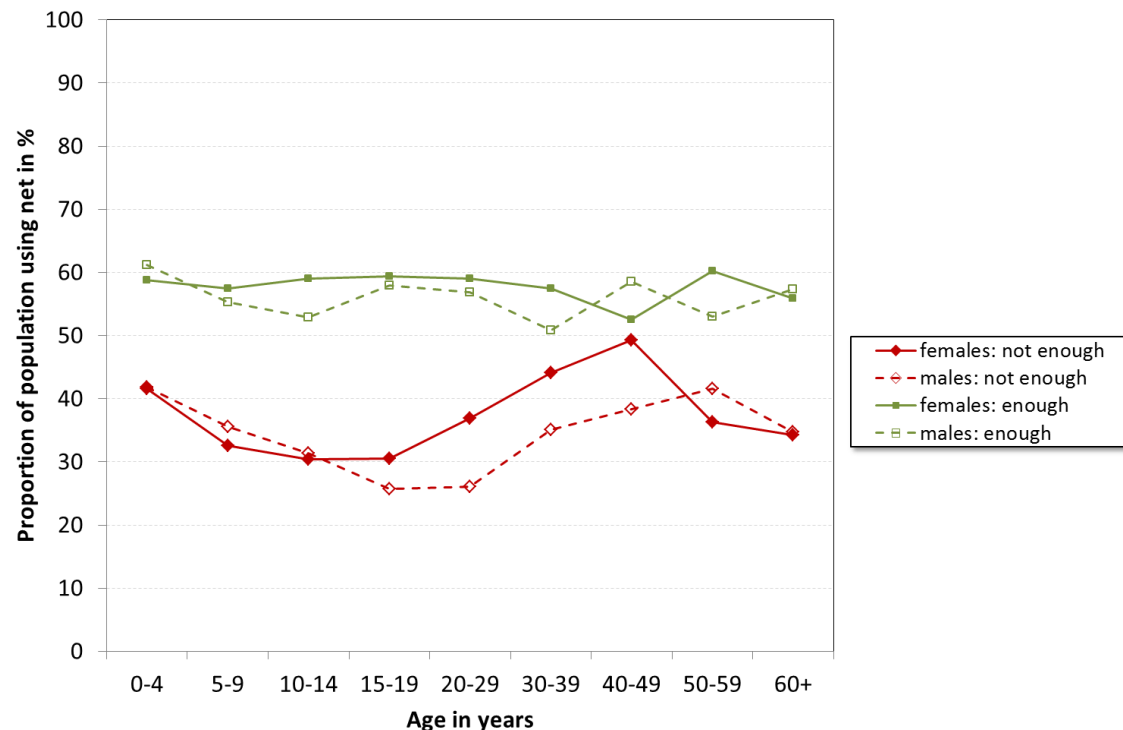- Hanging loose or folded/tied

Household reports

Hanging of Nets

- All KAP outcomes showed significant impact on all nets in the HH being hung

- Other strong positive predictors for hanging all nets were: North (OR 3.0), rains (OR (2.0), having children (OR 1.6)

- Strong negative effect: over-supply with nets (OR 0.10), urban setting (OR 0.65)
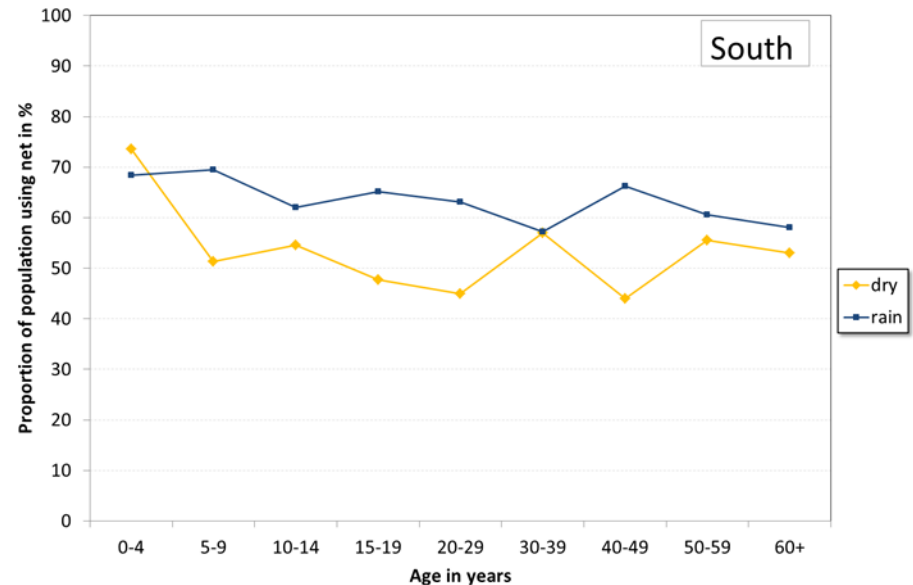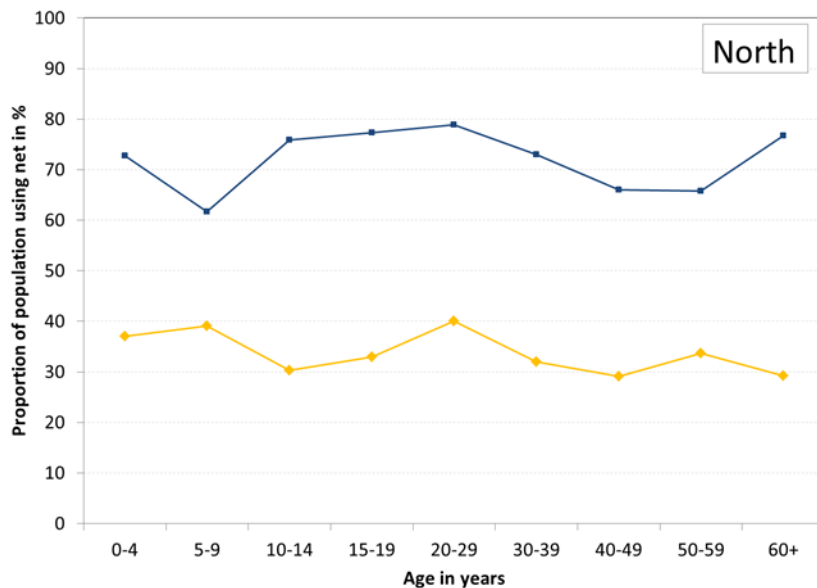
Use of Nets

- If a household has enough ITN for all members use is equitable across age and gender
- If insufficient nets, children <5yr and women in reproductive age are prioritized
- OR compared to males 15-49yrs: child 2.3, pregnant 2.1, not pregnant 1.7

Use of Nets

- Significant differences between seasons and North and South
- In North strong variation with rains, but overall better net culture
- This explains "contradicting" findings from MIS and MICS or DHS surveys

Households with enough nets for all

Use Gap

- Comparing access to ITN and actual use shows significant impact of KAP outcomes on use (actionscore, discussion & intent to use)

- Other factors in addition to rain, age and gender: enough ITN (OR 3.4), North (OR 1.6), urban (OR 0.82)

Overall Impact of BCC

BCC outcomes	Outcome: population net use			
	Uni-variable		Treatment effects model	
	Estimate	95% CI	Estimate	95% CI
Confidence to take action on nets				
Poor	22.9%	18.6, 27.9	27.4%	25.1, 29.7
Good	32.9%	29.8, 36.2	36.5%	35.2, 37.8
Very good	41.7%	38.8, 44.7	42.5%	41.5, 43.6
Excellent	49.7%	47.4, 52.0	44.9%	44.1, 45.6
Treatment effect (poor vs excellent)	**26.8%**		**17.4%**	**15.0, 19.0**
Intention to use net				
Use less than every night	32.2%	29.8, 34.6	35.1%	34.3, 35.9
Use every night	54.5%	52.3, 56.6	50.5%	49.5, 51.4
Treatment effect	**22.3%**		**15.4%**	**14.2, 16.6**
Discussing net use				
No discussion	30.6%	26.6, 34.9	34.7%	33.1, 36.3
Discuss	44.7%	42.7, 44.6	43.1%	43.0, 44.2
Treatment effect	**14.1%**		**8.4%**	**6.7, 10.1**

Conclusions

- BCC around campaigns reached households
- Different channels have different profiles and complement each other
- Multiple channels and repeated exposure are needed to achieve positive changes in attitude and perception
- Strong evidence that positive attitude improves net hanging and use behaviour
- Overall impact can be estimated at up to 17% increase in net use
- Other factors that could be identified a influencing behaviour were season (mid- rains) and region (North consistently better)