

Title: Social Behavior Change Communication and bednet retention, care, repair, use and impact in Benin

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The use of durable, long-lasting insecticide treated nets (LLINs) is key to tackle malaria in Benin. In 2014, the President's Malaria Initiative (PMI) supported PADNET with an experimental random cluster study to increase net durability in a 900 household (HH) sample in Seme Podji commune, distributing one LLIN (PermaNet 3) per HH. The sample was split into 3 groups (arms) of 300 HH: arm1 received only Social Behavior Change Communication (SBCC); arm2 received SBCC and a net repair kit; and arm3 was the control. SBCC consisted of monthly HH visits by Care Group Leaders, and community dialogues through interpersonal communication to promote continuous net use, reducing damage and repairing nets. For monitoring purposes, all HHs were visited every four months over a 33 month period. Data was collected using android tablets through Open Data Kit software. Databases were developed and analyzed using Excel pivot tables and SPSS 17. Results show that for net loss due to physical damage beyond repair as stated by net owners, the retention rate for arm1 was 90%, 94% for arm2 and 75% for arm3 ($p < 0.0001$). Net washing more than once per trimester was more frequent in arm3 (60%) than arm1 (37%) and arm2 (30%) ($p < 0.0001$). The % of nets with a proportional Hole Index (pHI) of 0 (no/few tiny holes) in arm3 was 20% while arm1 had 64% and arm2 had 75% ($p < 0.0001$). The % of nets with a pHI > 64 (not deemed a good barrier), was 38% in arm3, while arm1 had 4% and arm2 had 2%. The % of ever-damaged LLINs with signs of repair in arm3 was 34%, while arm1 had 95%, and arm2 had 98% $p < 0.0001$. The proportion of children <5 that slept under any LLIN with pHI=0 was 21% in arm3, 62% in arm1 and 55% in arm2. The proportion of <5 sleeping under a net deemed as a good barrier (pHI < 65) was 51% in arm3, 88% in arm1 and 73% in arm2 ($p < 0.0001$). The relative risk of developing fever in the fortnight prior to the survey associated with the lack of SBCC in arm3 was 1.9 ($p < 0.001$), suggestive that SBCC cut fever risk by half via improved net integrity and continuous net use. SBCC for net use and preservation should be promoted in order to improve net durability in the protection against malaria.

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