

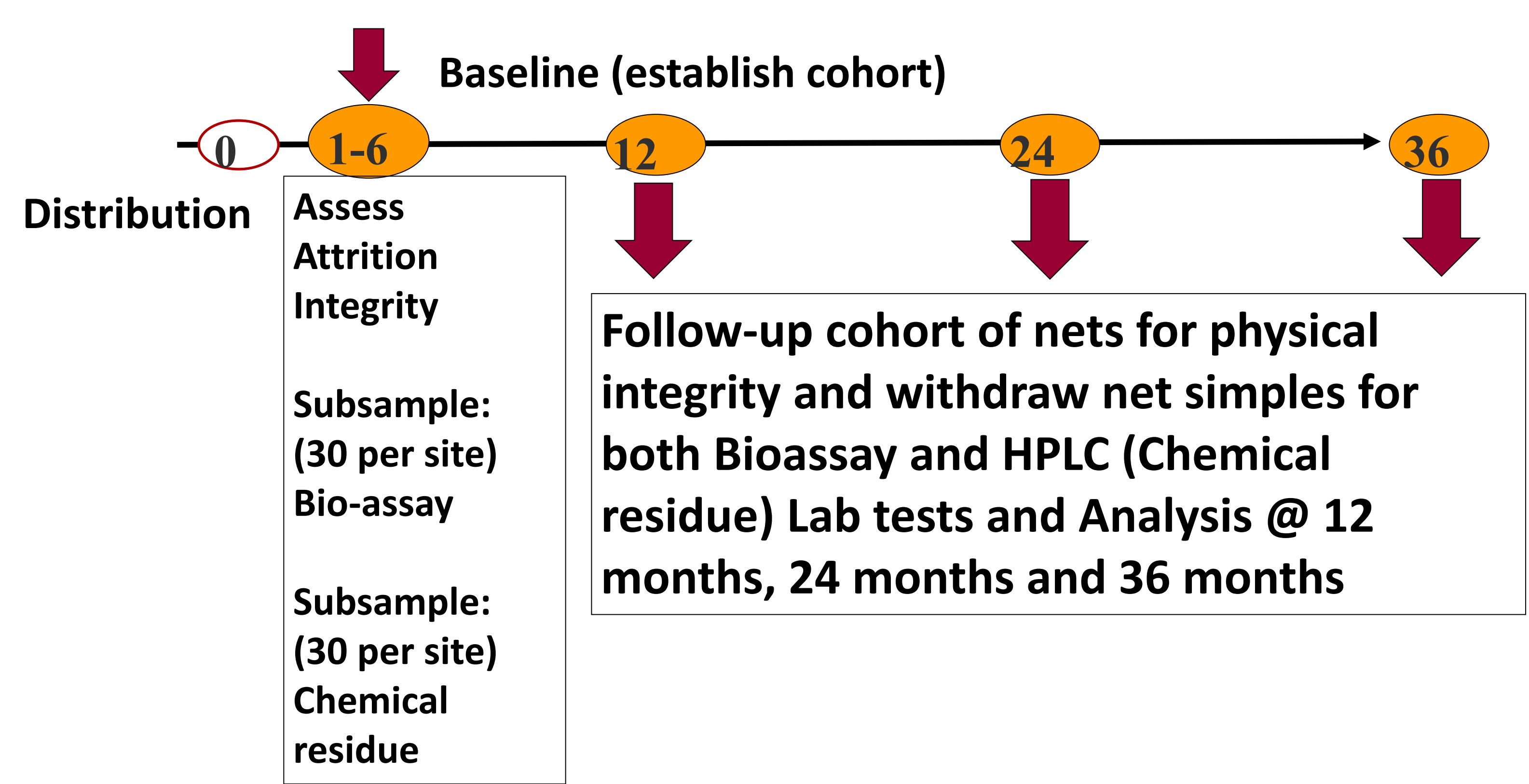
Background

- Between 2020 and 2021, the Uganda National Malaria Control Division (NMCD), Ministry of Health (MOH) conducted a mass distribution campaign in which standard nets (Permanent 2.0, SafeNet, Interceptor, Yorkool), PBO (Permanent 3.0) and Dual Active Ingredient (Royal Guard) were given out.
- Mass distribution campaigns are conducted after every three years based on the assumption that they nets last up to three years. This is the hypothesis that this study set out to test.

Study objectives

- Primary objective**
- To assess the physical durability of LLINs, estimate median survival & identify major determinants of field performance
- Secondary objectives**
- To describe major behavioural aspects of net care and repair and their impact on physical durability
 - To assess the insecticidal effectiveness (residue and bio-assay) after three years of field use

Study Design



Study Progress status

- So far we have completed the baseline and 12 months surveys Data collection and analysis.
- The 12 Months Bioassay and chemical residue (HPLC) tests are ongoing. So far 4 brands are complete for Bioassay and two brands are complete for chemical residue (HPLC)
- The Data collection for 24 Months survey is ongoing (August – December 2022)

Methods

Physical integrity

Hole size categories

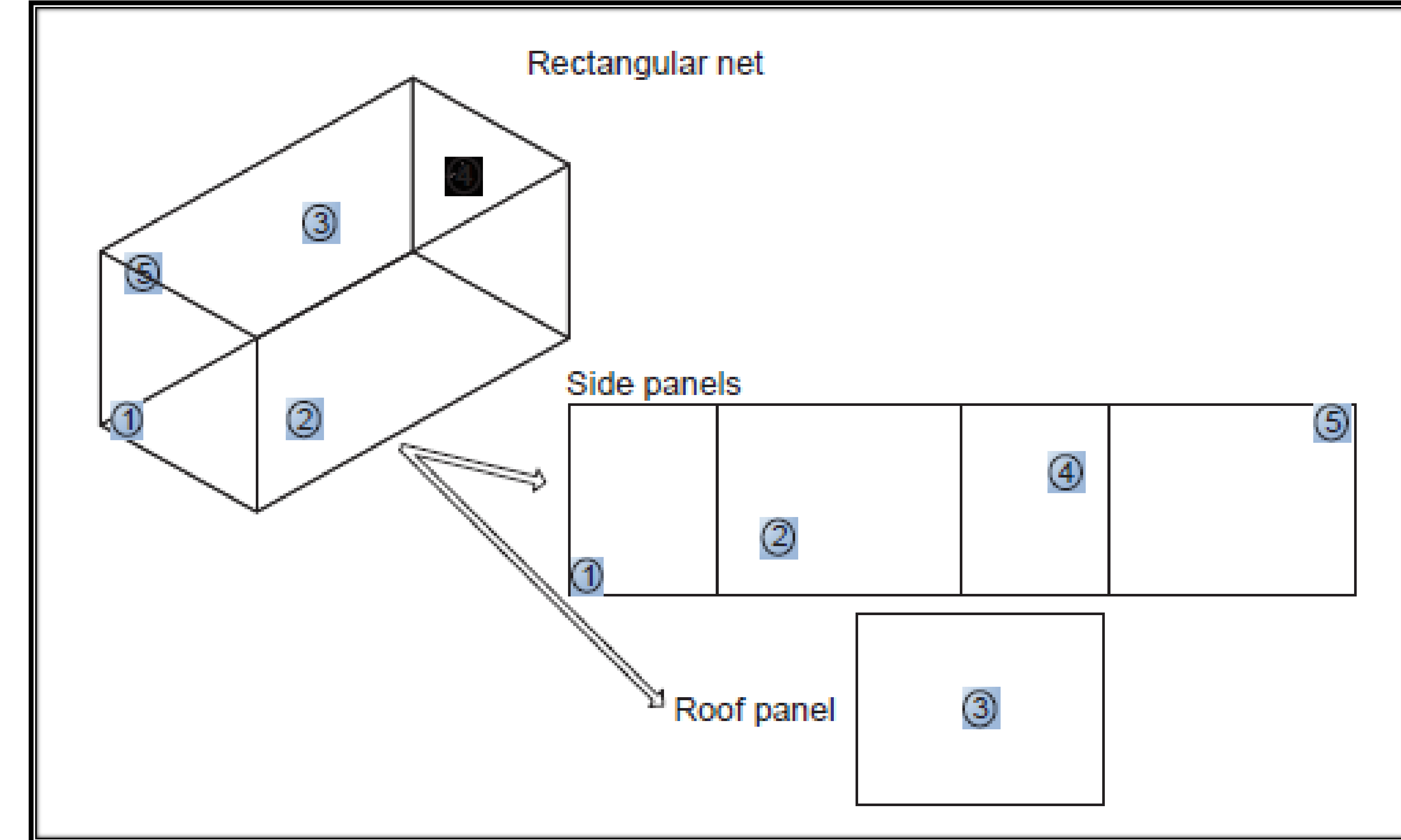
- Size 1: > 0.5 – 2 cm
- Size 2: > 2 – 10 cm
- Size 3: > 10 – 25 cm
- Size 4: > 25 cm

proportionate Hole Index (pHI)

1x # size 1 + 23x # size 2 + 196x # size 3 + 576x # size 4

1) Use a Transparent ruler to measure the hole sizes
 2) Each hole is classified based on its diameter (Sizes 1 -4)
 3) At Analysis each Hole size is multiplied by its respective coefficient and thereafter the sum for all the holes in the net is computed (pHI)

Insecticidal effectiveness (Bioassay and Residue)



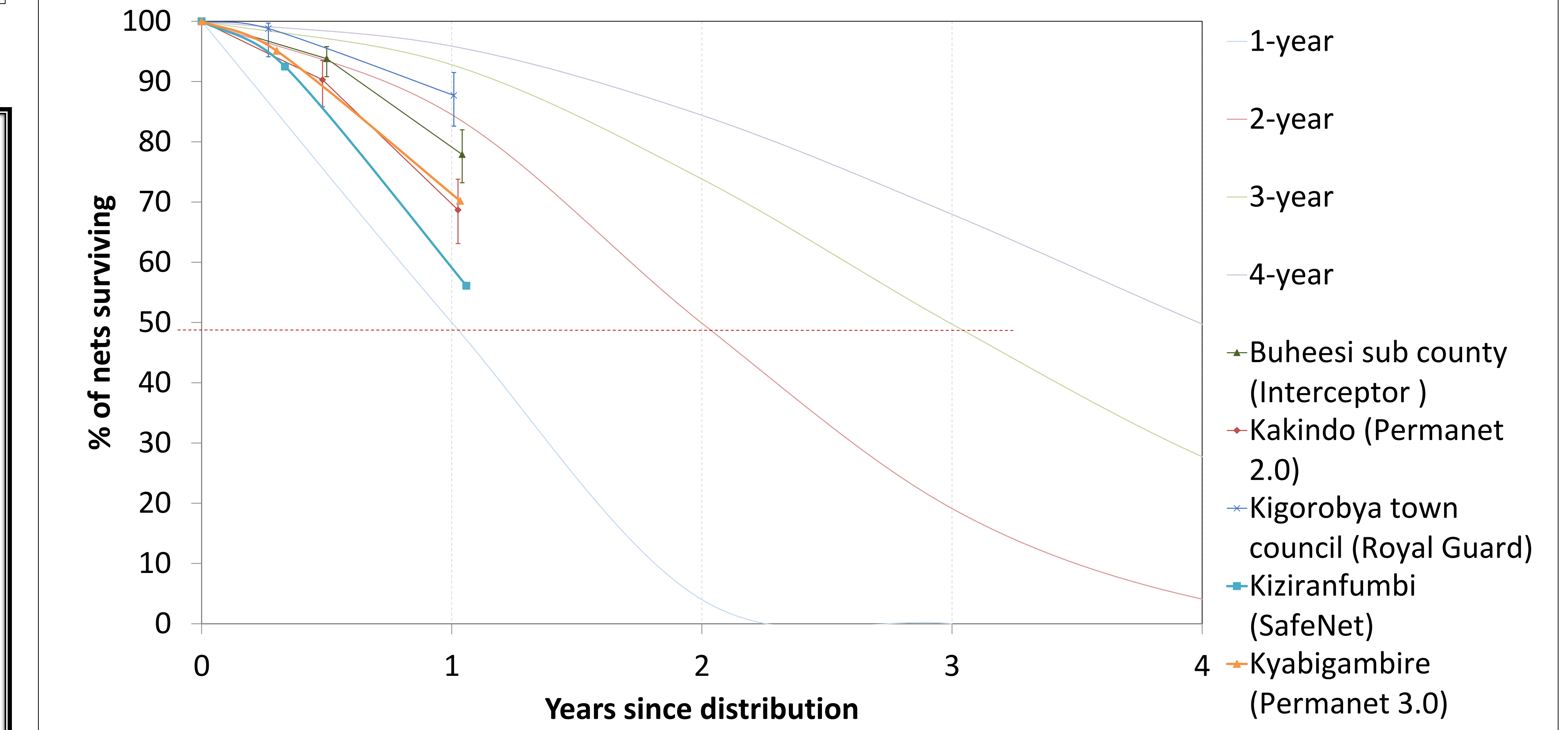
- Net samples are cut from standard net positions as shown in the diagram above following WHO guidelines.
- Susceptible species of Anopheles Gambia .SS and resistant species of Anopheles Gambia Busia strain
- Mosquitoes are exposed for 3 minutes.
- Knock Down at 60 minutes and mortality after 2 hours are observed as output measure.
- Pieces of net samples were cut from the same standard positions and the insecticide residue was extracted and quantified against the target dose based on the denier of the net brands. This was done in accordance to the CIPAC and WHO guidelines

Preliminary Results (Baseline and Partial 12 Months)

Key Indicators (Net Access and use)

Indicator	Baseline	12 Months
Access	95%	91%
Use	73%	64%
Access: Use Ratio	0.77	0.7
Net use Gap	0.23	0.3

LLIN Median Survival



Insecticidal effectiveness (Bioassay)

Net Brand	Nets Attained Optimal effectiveness (Either KD or Mortality)			
	Baseline	12 Months		
Interceptor	24	80.0%	4	13.30%
Permanet 2.0	20	66.7%	3	10%
Safenet	30	100.0%	Ongoing	Ongoing
Permanet 3.0 (Roof)	30	100.0%	24	80%
Permanet 3.0 (sides)	28	93.3%	Ongoing	Ongoing
Royal Guard (Susceptible species)	30	100.0%	30	100.00%
Royal Guard Oviposition	30	100.0%	7	23.30%

Acknowledgements

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