



# Durability Monitoring of LLINs distributed in 2020 Mass Campaign in Uganda

IVM Meeting 27<sup>th</sup> July 2022



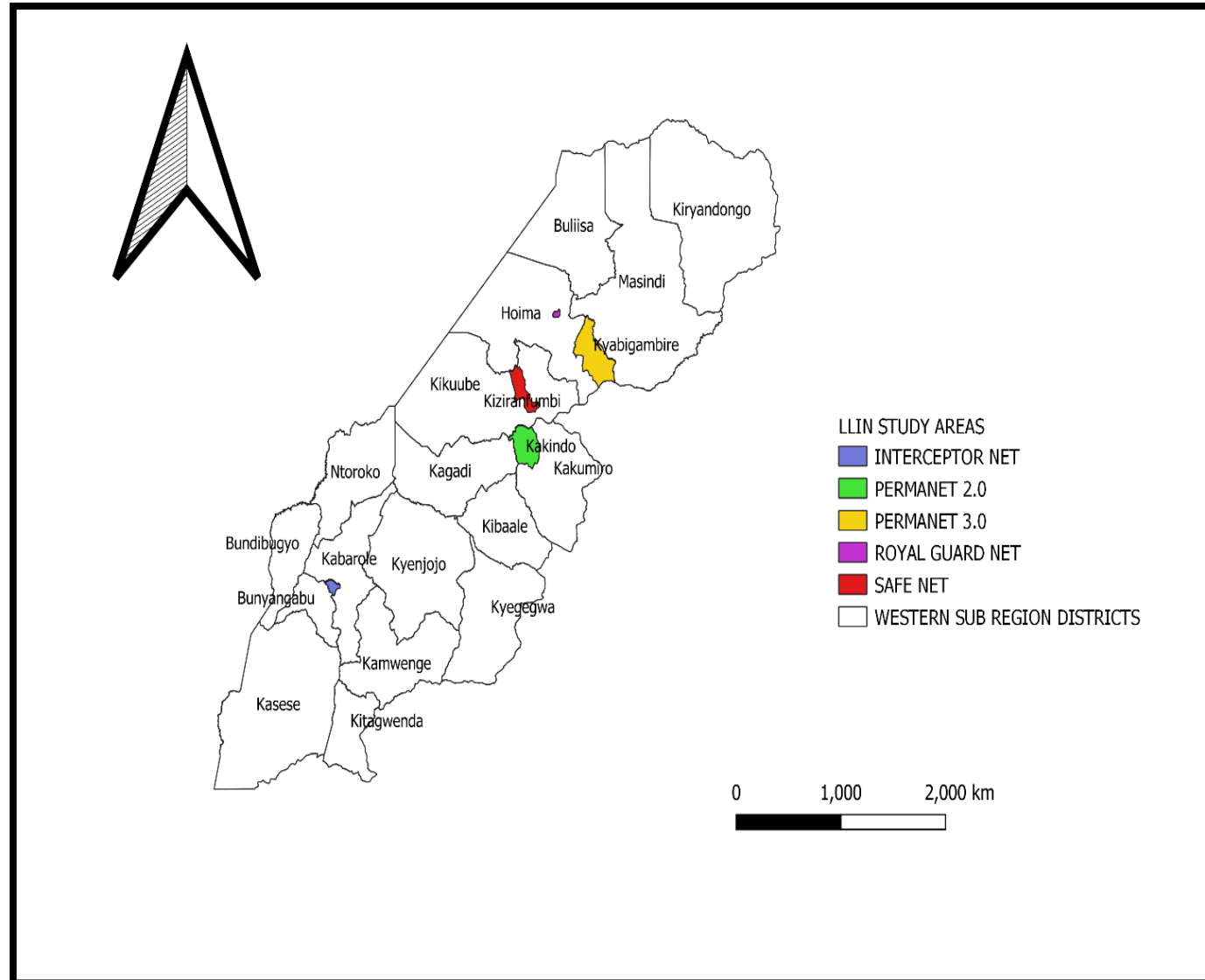
# Study objectives

## Primary objective

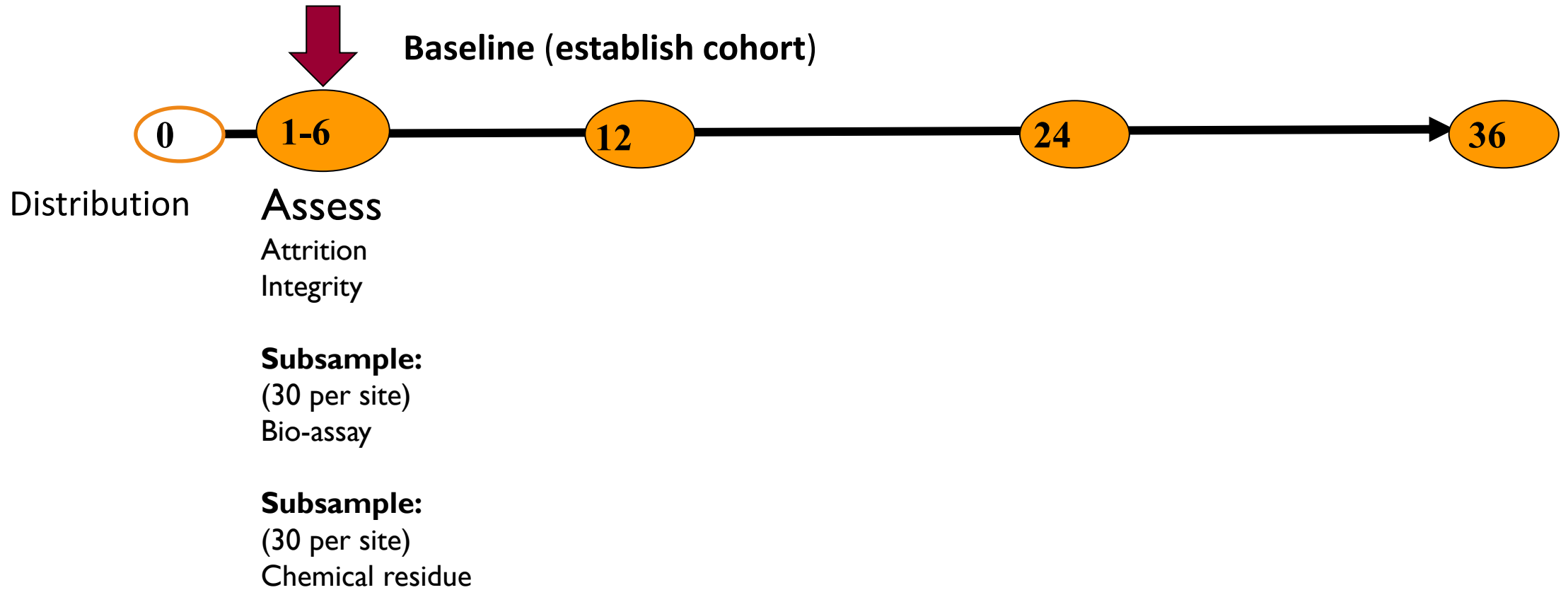
1. To assess the physical durability of LLINs, estimate median survival & identify major determinants of field performance

## Secondary objectives

1. To describe major behavioural aspects of net care and repair and their impact on physical durability
2. To assess the insecticidal effectiveness (residue and bio-assay) after three years of field use



# Study design



- 1) So far we have completed the baseline and 12 months surveys Data collection and analysis.
- 2) The 12 Months Bioassay and chemical residue (HPLC) tests are ongoing.
- 3) The next step is 24 Months survey Data collection (August – December 2022)



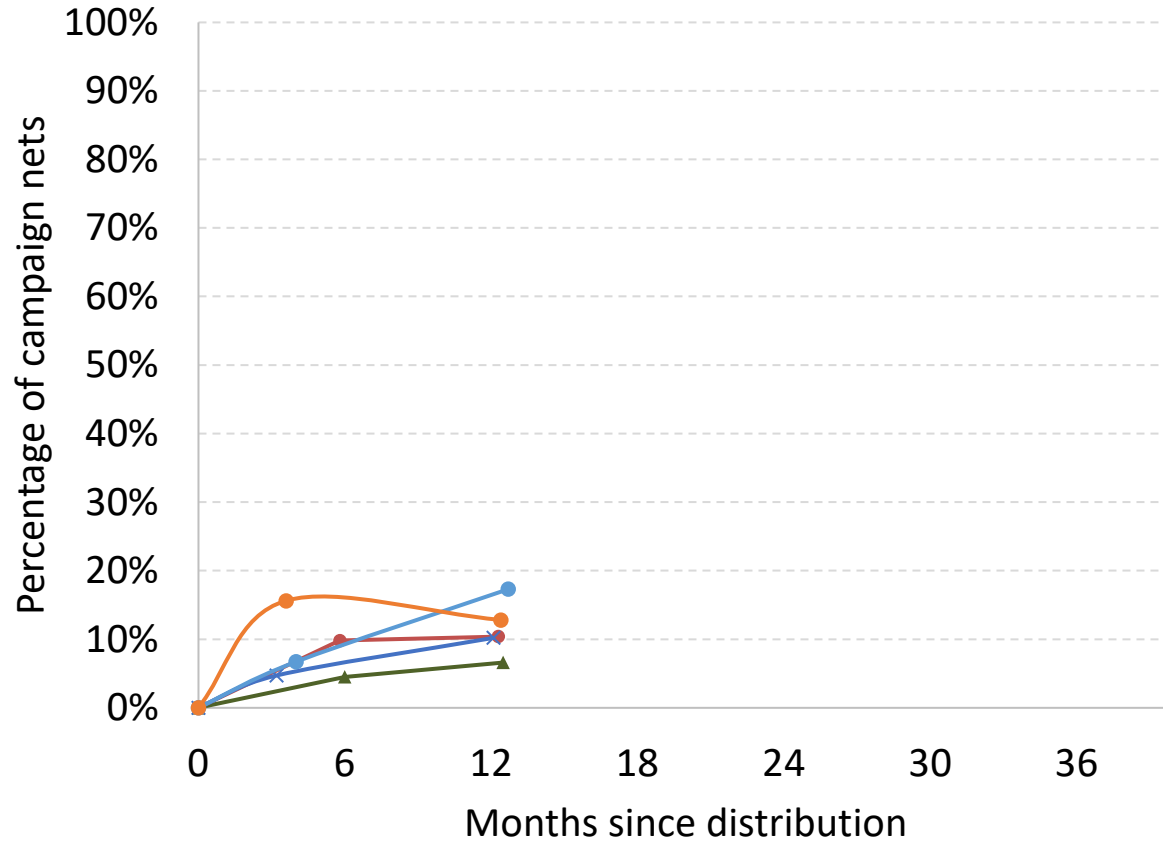
# Study sites and Respective net Brands

<b>Study site</b>	<b>Net Brand</b>	<b>Fabric composition</b>	<b>Denier Yarn</b>
Buheesi	Interceptor	100% Polyester	100
Kakindo	PermaNet 2.0	100% Polyester	100
Kigorobya T/C	Royal Guard	100% Polyethylene	120
Kiziranfumbi	SafeNet	100% Polyester	100
Kyabigambire	PermaNet 3.0	Sides (Polyester), Roof (Polyethylene)	100

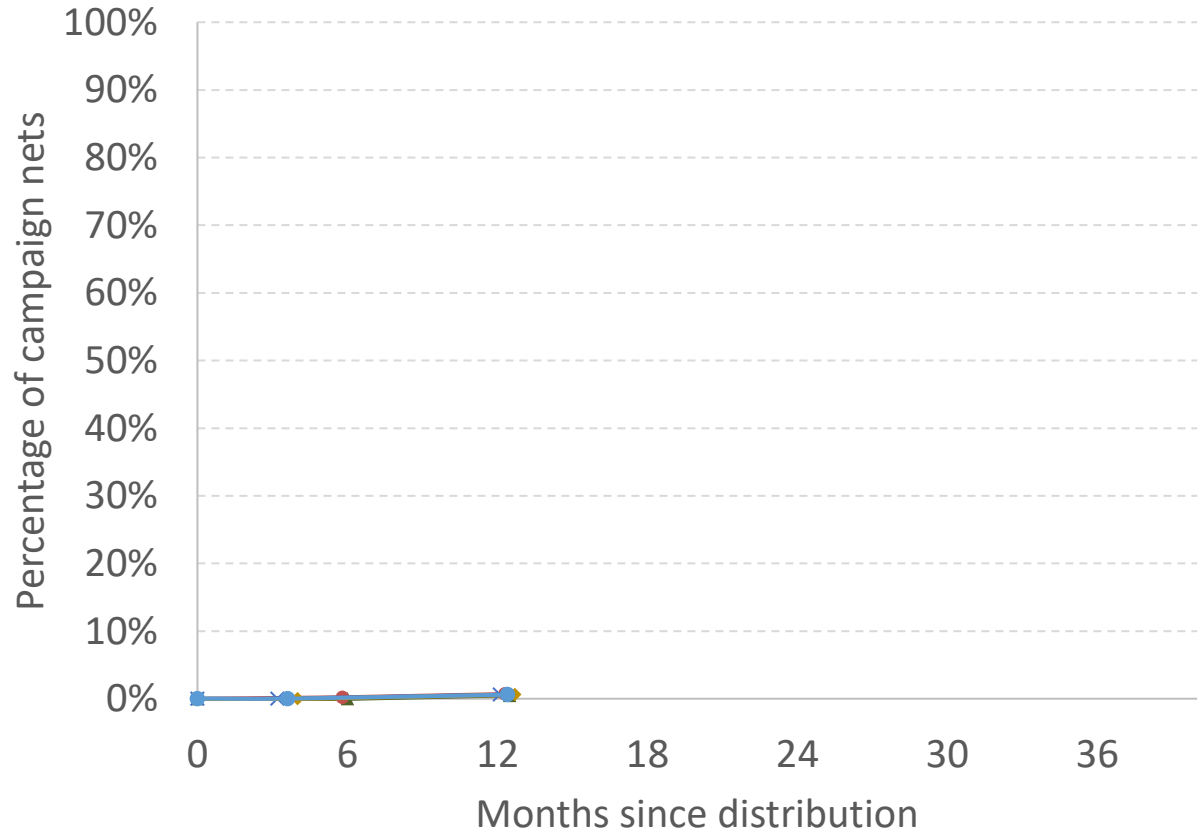


# Campaign cohort net Attrition

## Total campaign ITN attrition



## Attrition due to wear and tear



—▲— Buheesi sub county (Interceptor G2)

—●— Kakindo (Interceptor)

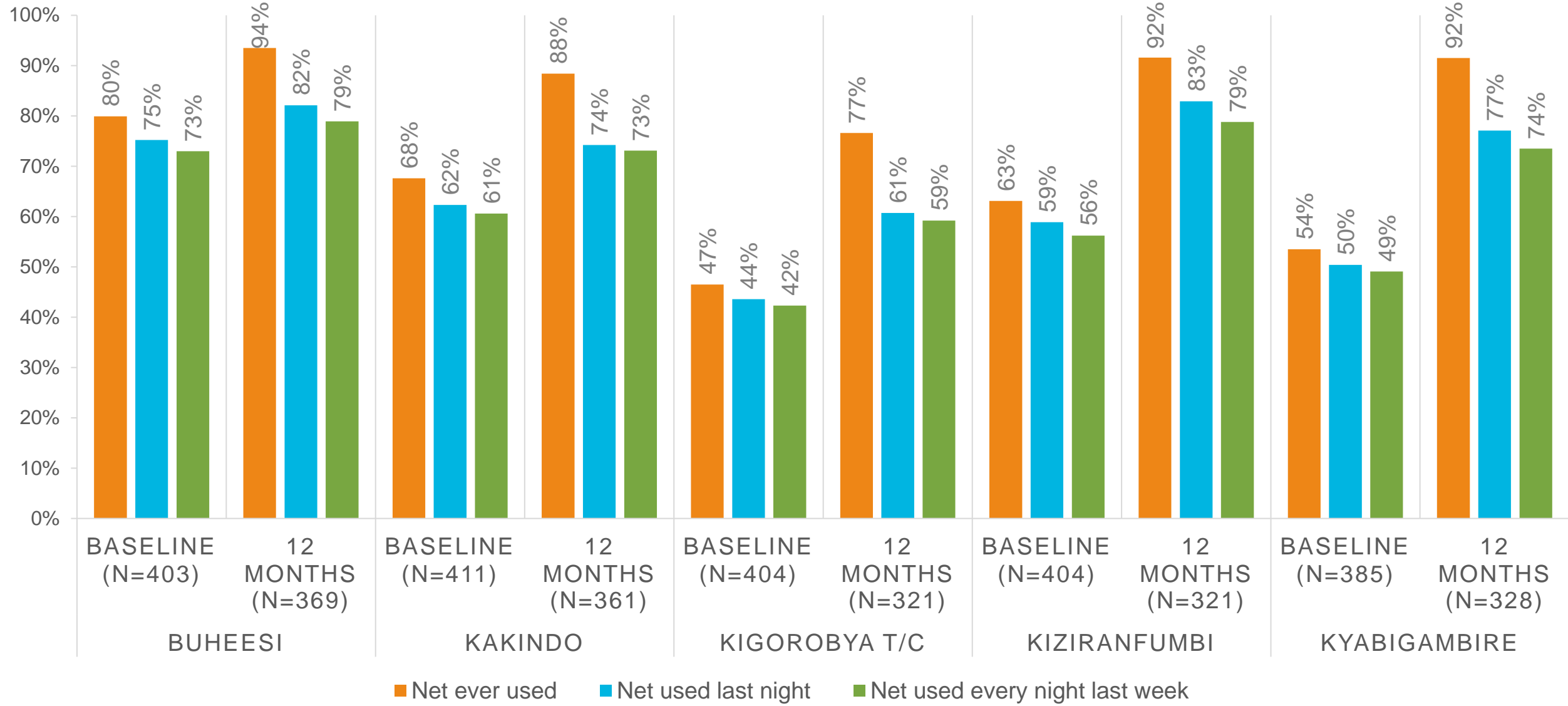
—×— Kigorobya town council (PermaNet 3.0)

—●— Kiziranfumbi ( )

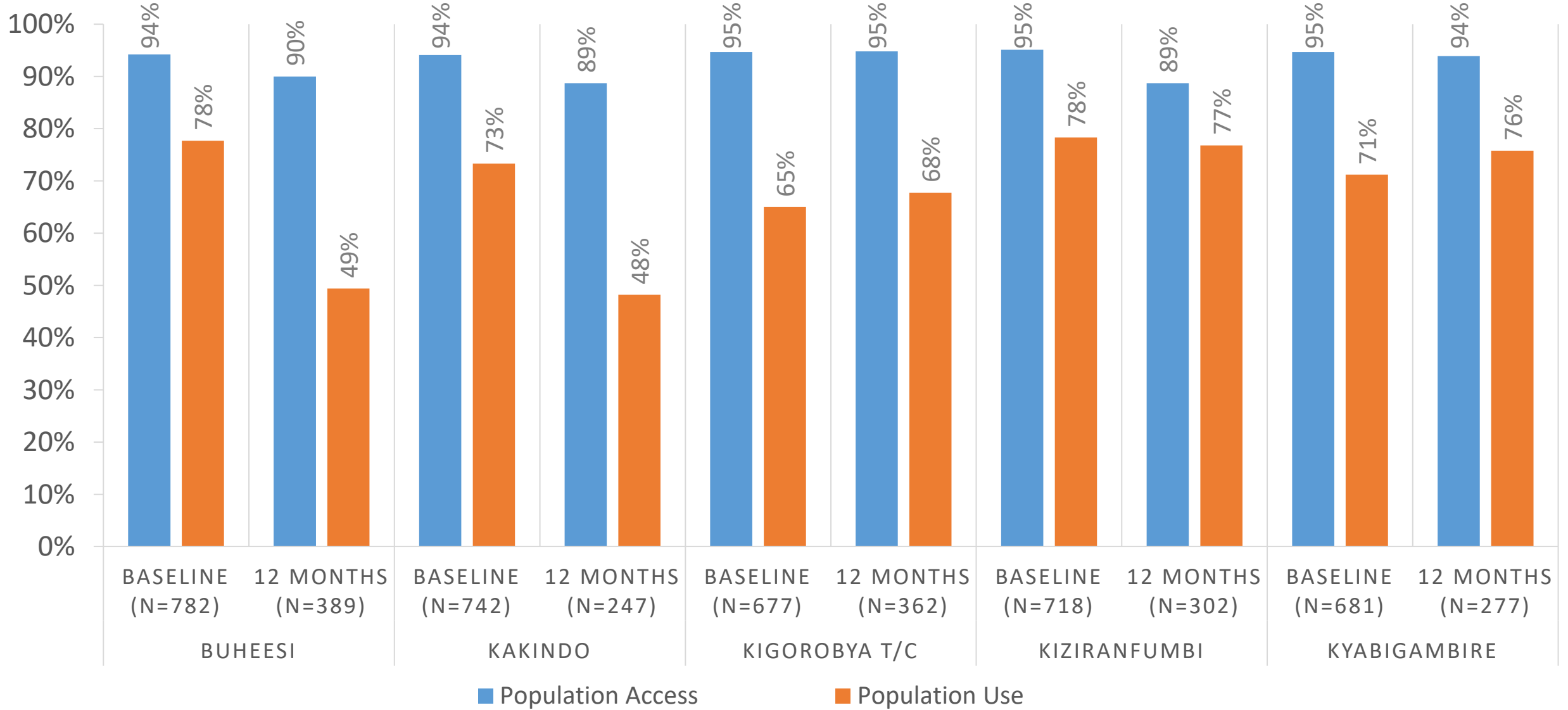
—●— Kyabigambire ( )



# Campaign nets used



# LLIN access and use



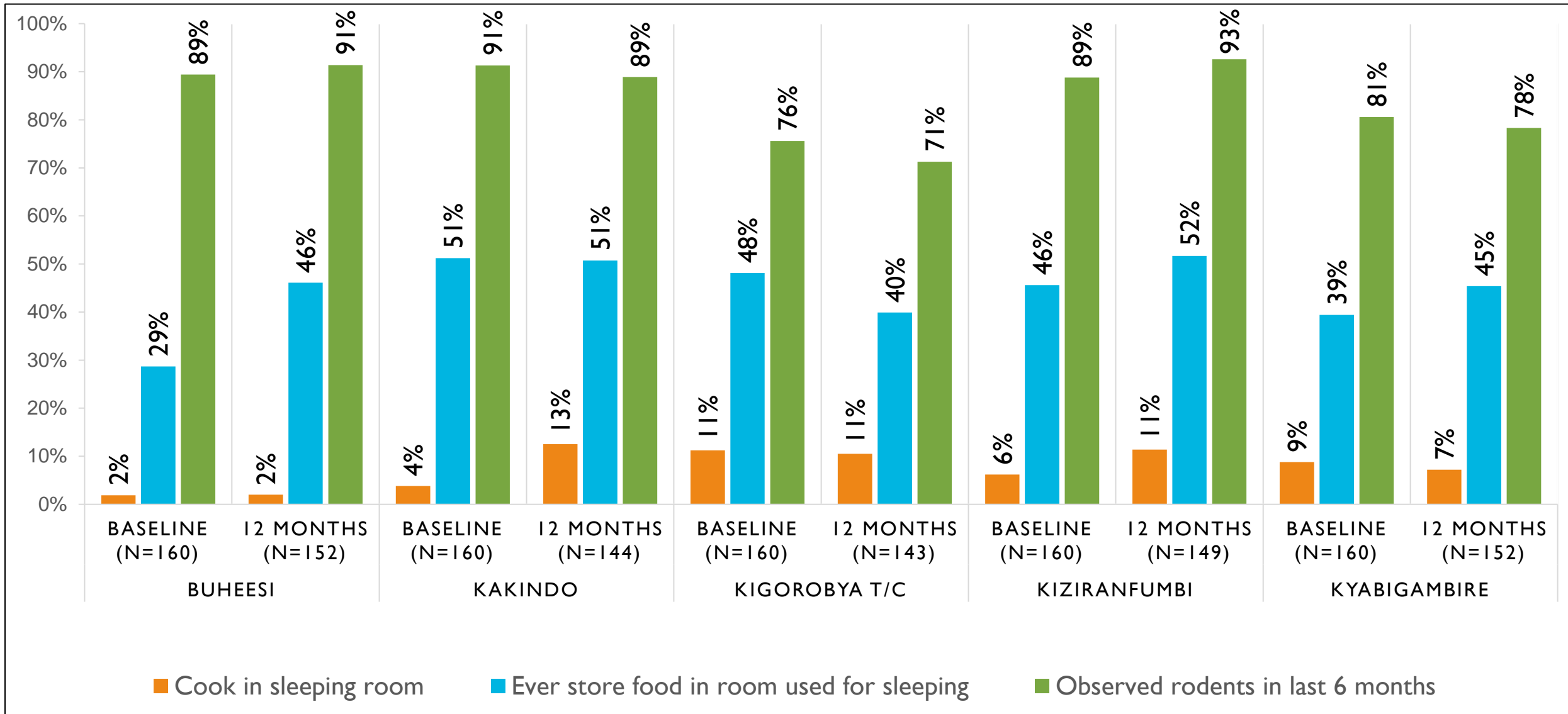
# Overall LLIN access and use (All Study sites)

Indicator	Baseline (6 Months)	12 Months
Access	95%	91%
Use	73%	64%
Access: Use Ratio	0.77	0.70
Net use Gap	0.23	0.30

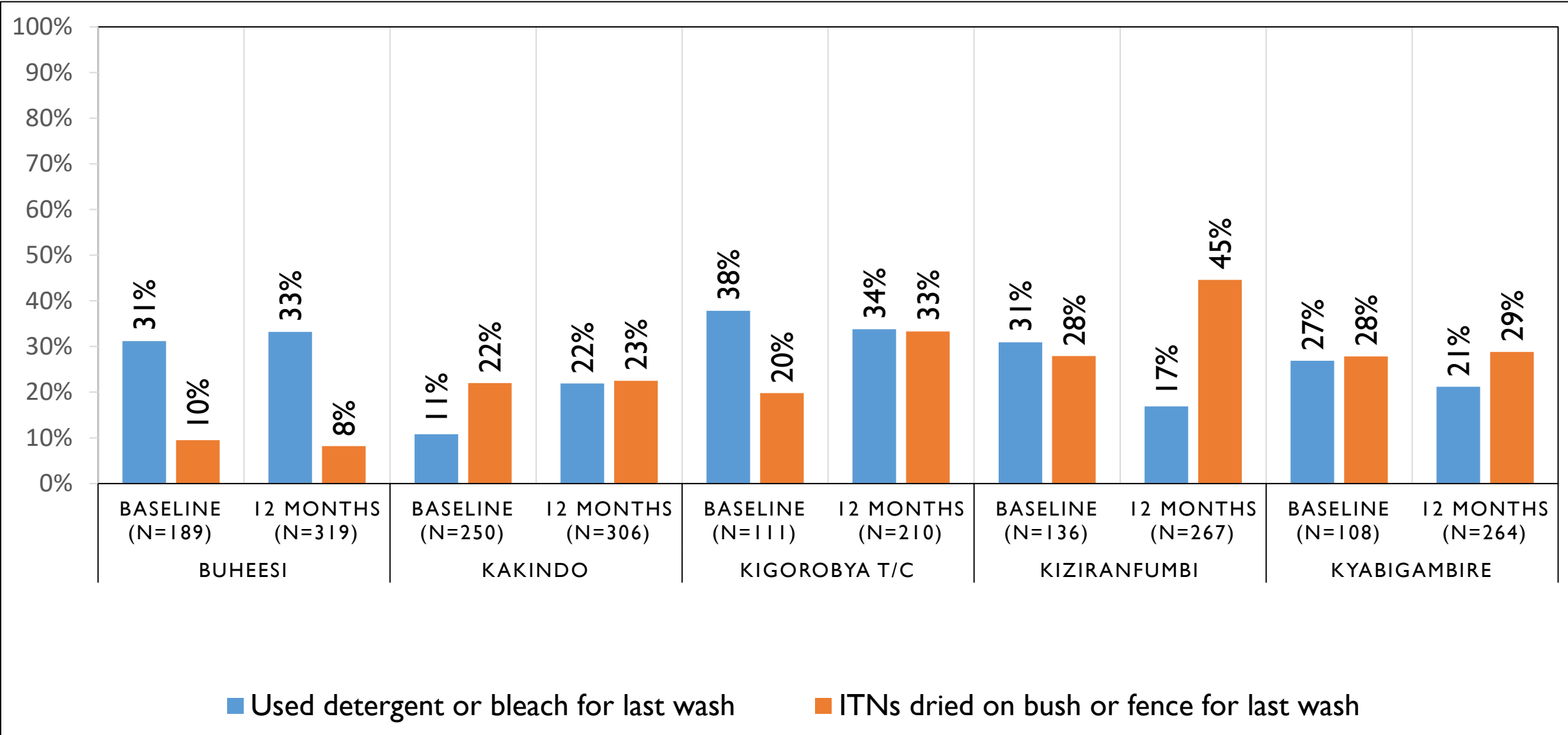




# Prevalence of Risk Factors

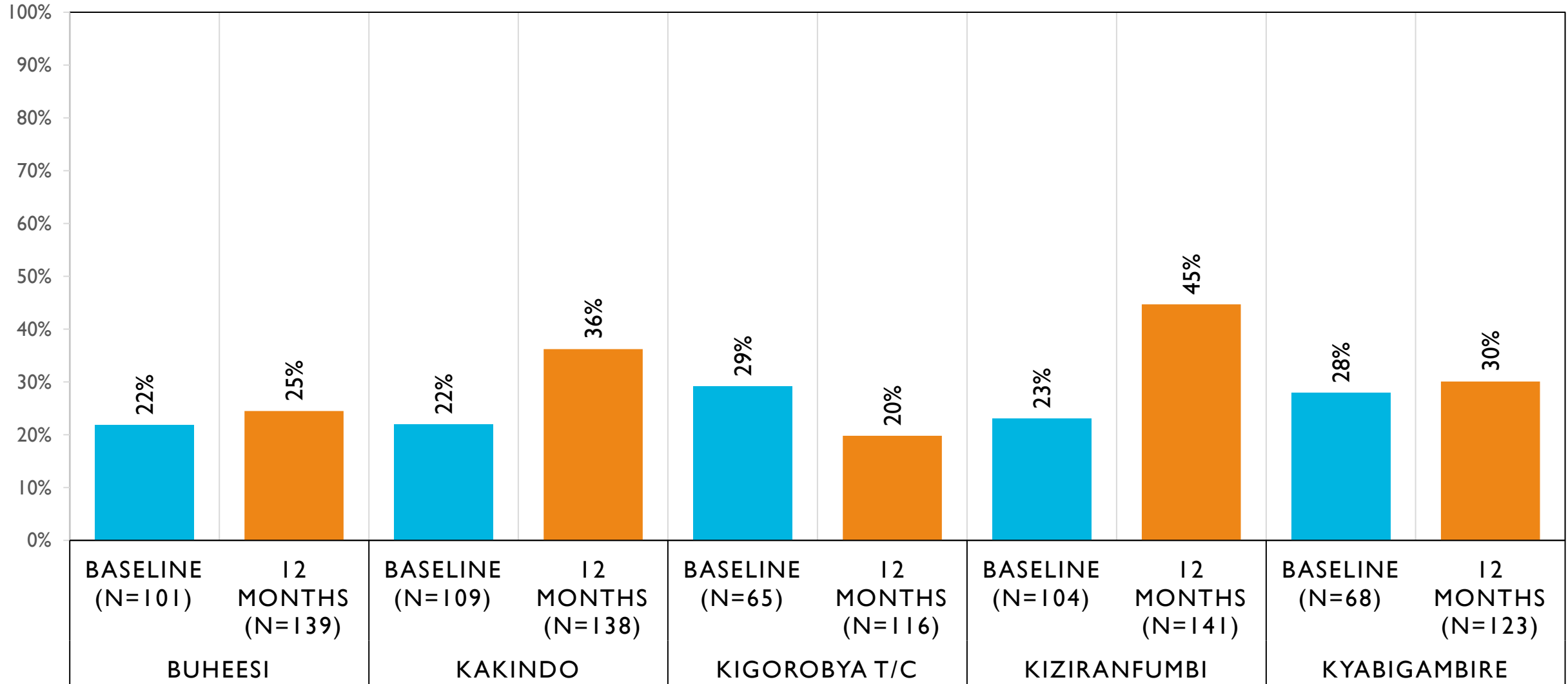


# Prevalence of Risk Factors (Among nets Ever washed)

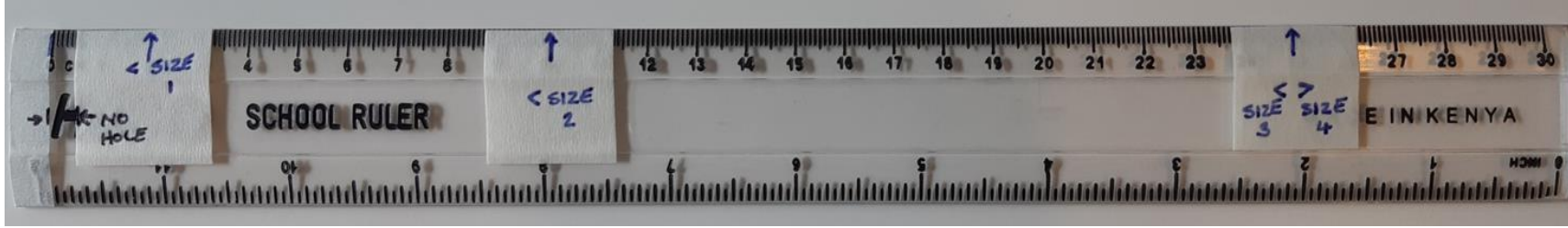


Median washes (Last 6 months) at Baseline were 1 for Kigorobya T/C and 2 for the other four Sub counties  
 Median washes at (Last 6 months) 12 Months were 3 for Kakindo and 2 for the other four Sub counties

# Net Repair Practices (Repaired holes out of those that Experienced holes in nets)



# Physical integrity Assessment Methodology (Hole Assessment)

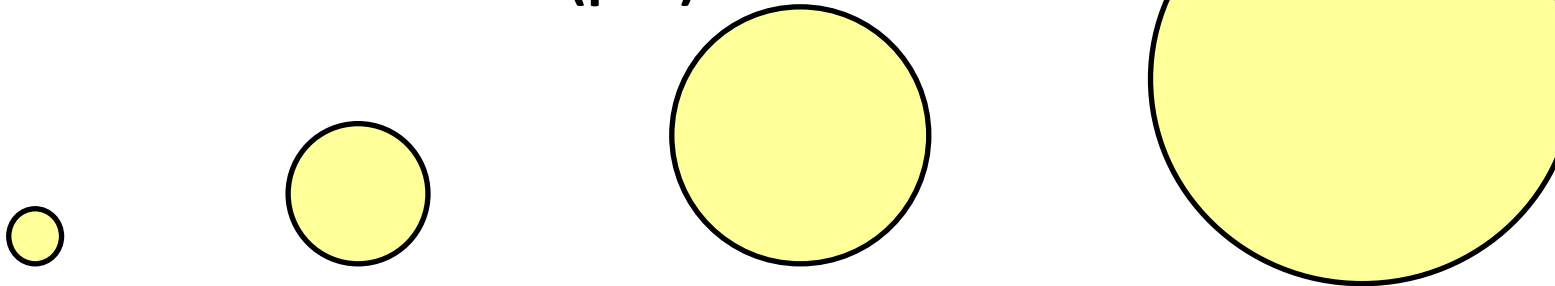


## Hole size categories

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

- 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)

## proportionate Hole Index (pHI)



$$1 \times \# \text{ size 1} + 23 \times \# \text{ size 2} + 196 \times \# \text{ size 3} + 576 \times \# \text{ size 4}$$



# Physical integrity Assessment Methodology (Analysis & Outcome Measurement)

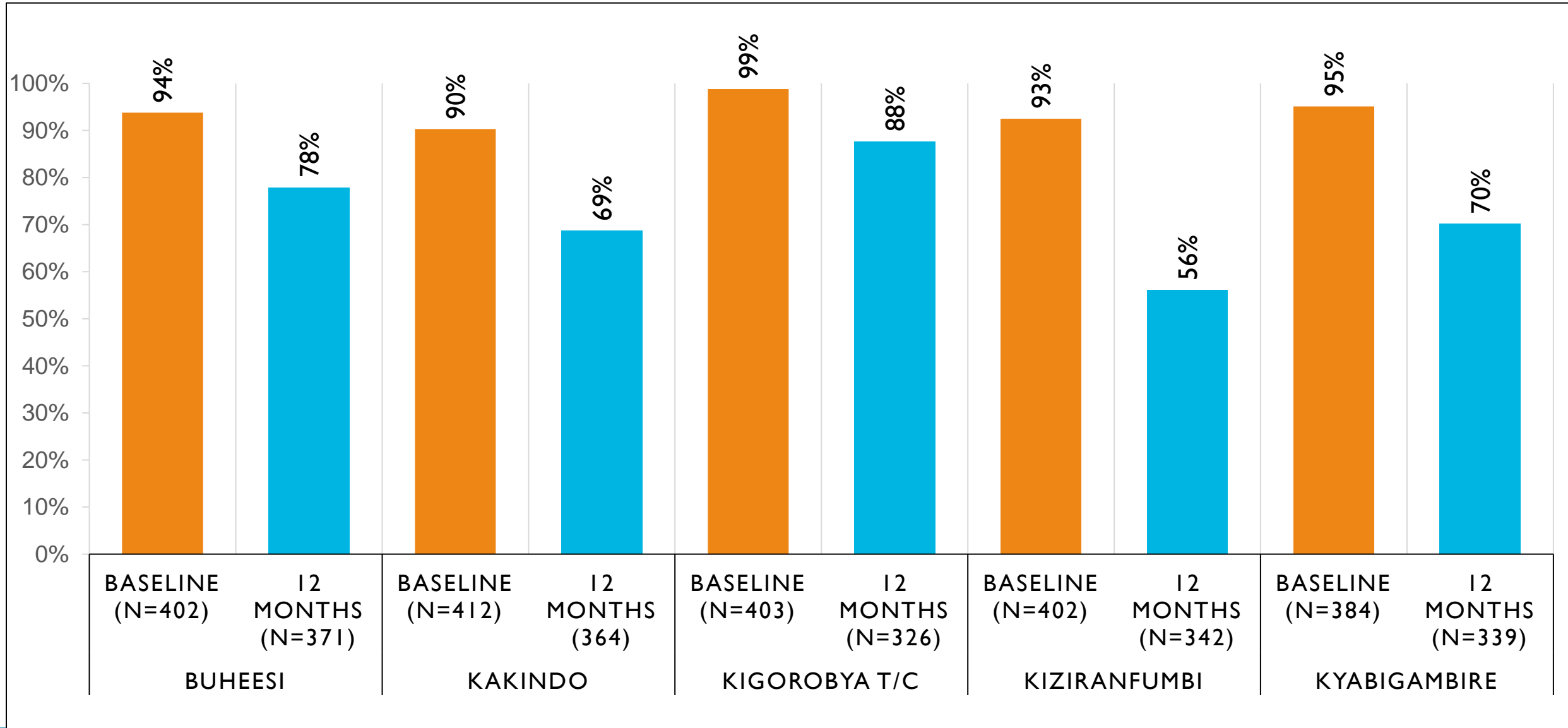
$$pHI = \text{Number of size 1 holes} + (\text{No. of size 2 holes} \times 23) + (\text{No. of size 3 holes} \times 196) + (\text{No. of size 4 holes} \times 576)$$

Based on the pHI value, ITNs were categorized as “good”, “serviceable” or “torn” as defined below. Note that “good” is a subset of all “serviceable” ITNs.

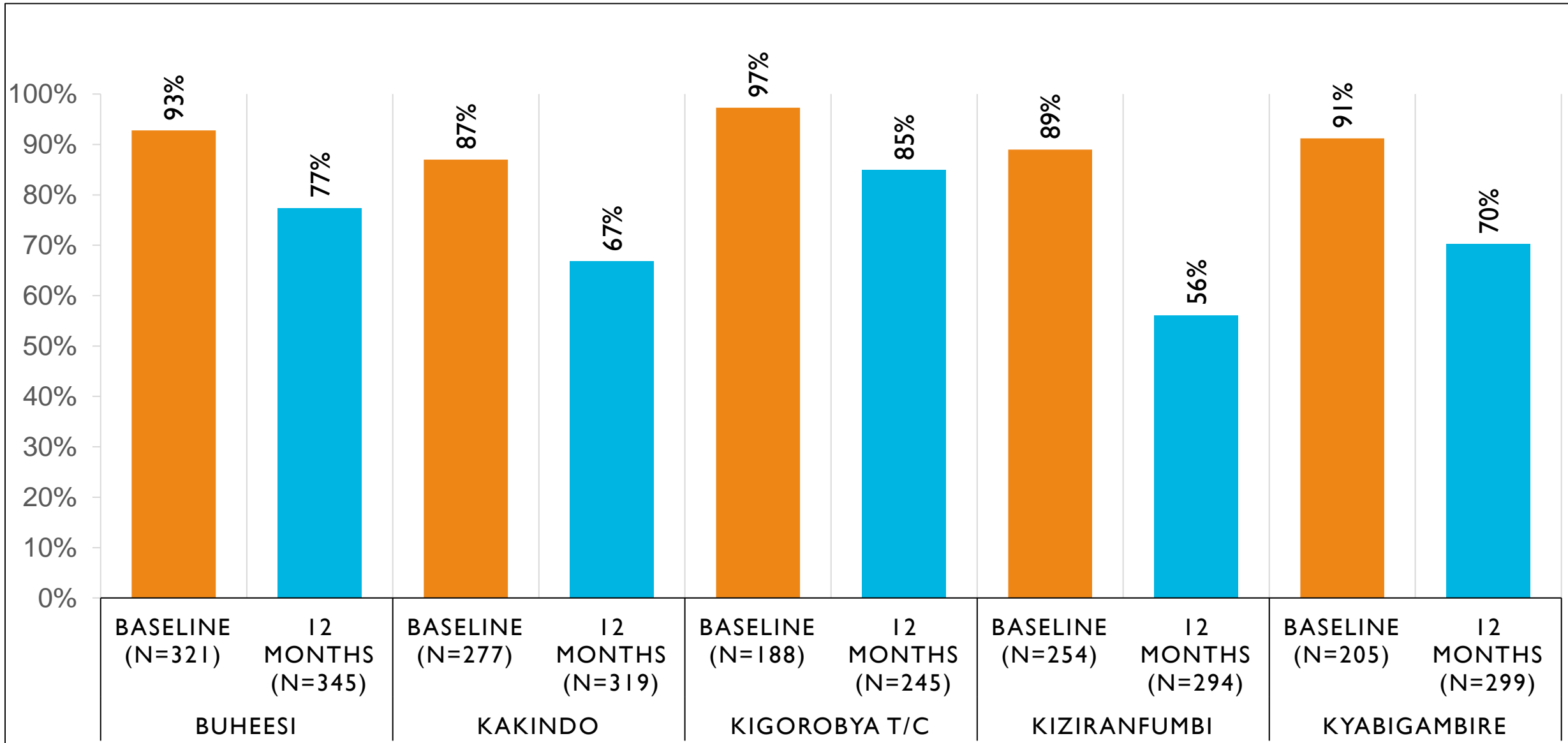
Good:	pHI < 64 (corresponding to a total hole surface area < 0.01 m <sup>2</sup> )
Serviceable:	pHI ≤ 642 (total hole surface area ≤ 0.1 m <sup>2</sup> )
Torn:	pHI > 642 (total hole surface area > 0.1 m <sup>2</sup> )



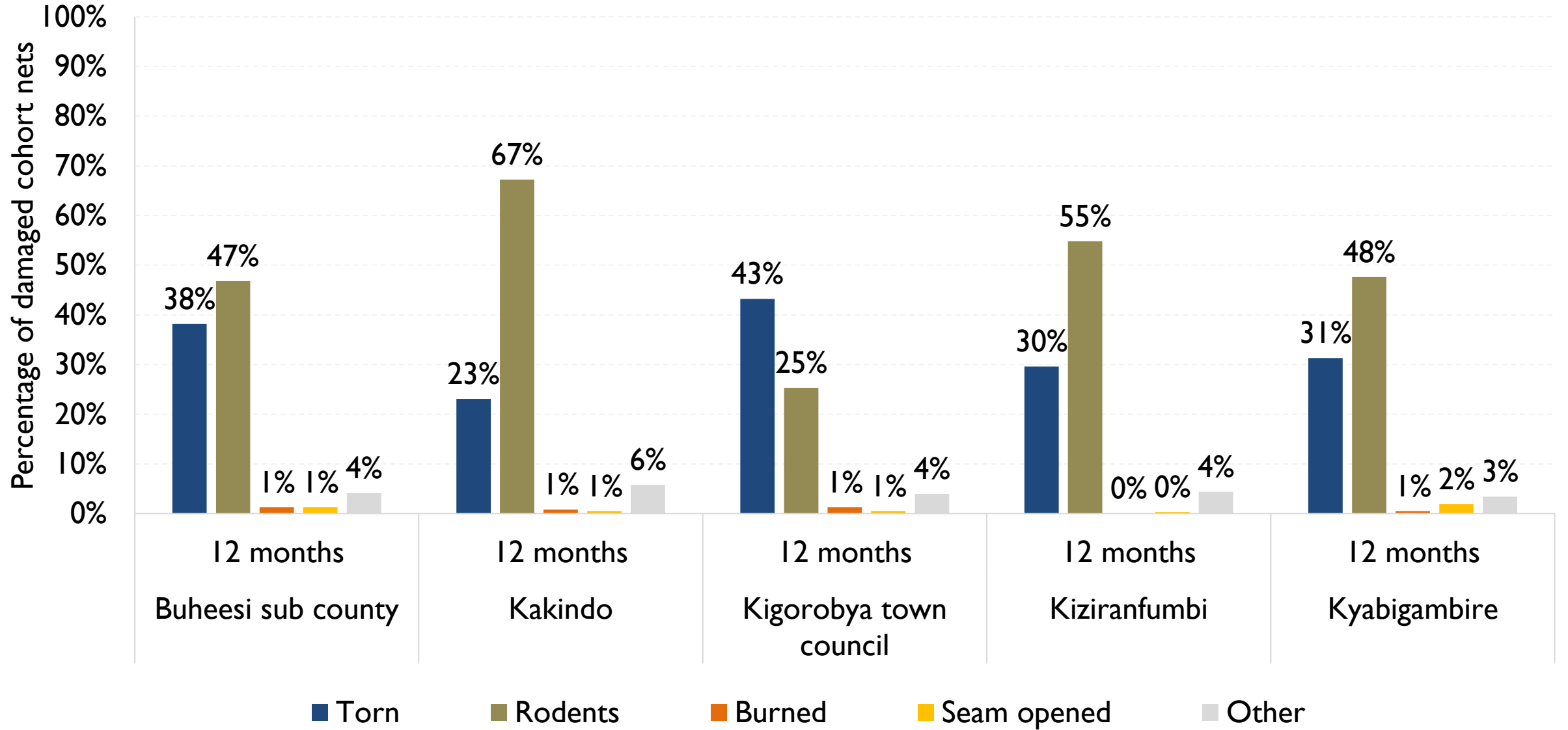
# Nets surviving in serviceable condition (All Cohort Nets)



# Nets surviving in serviceable condition (Cohort nets ever-used and present)

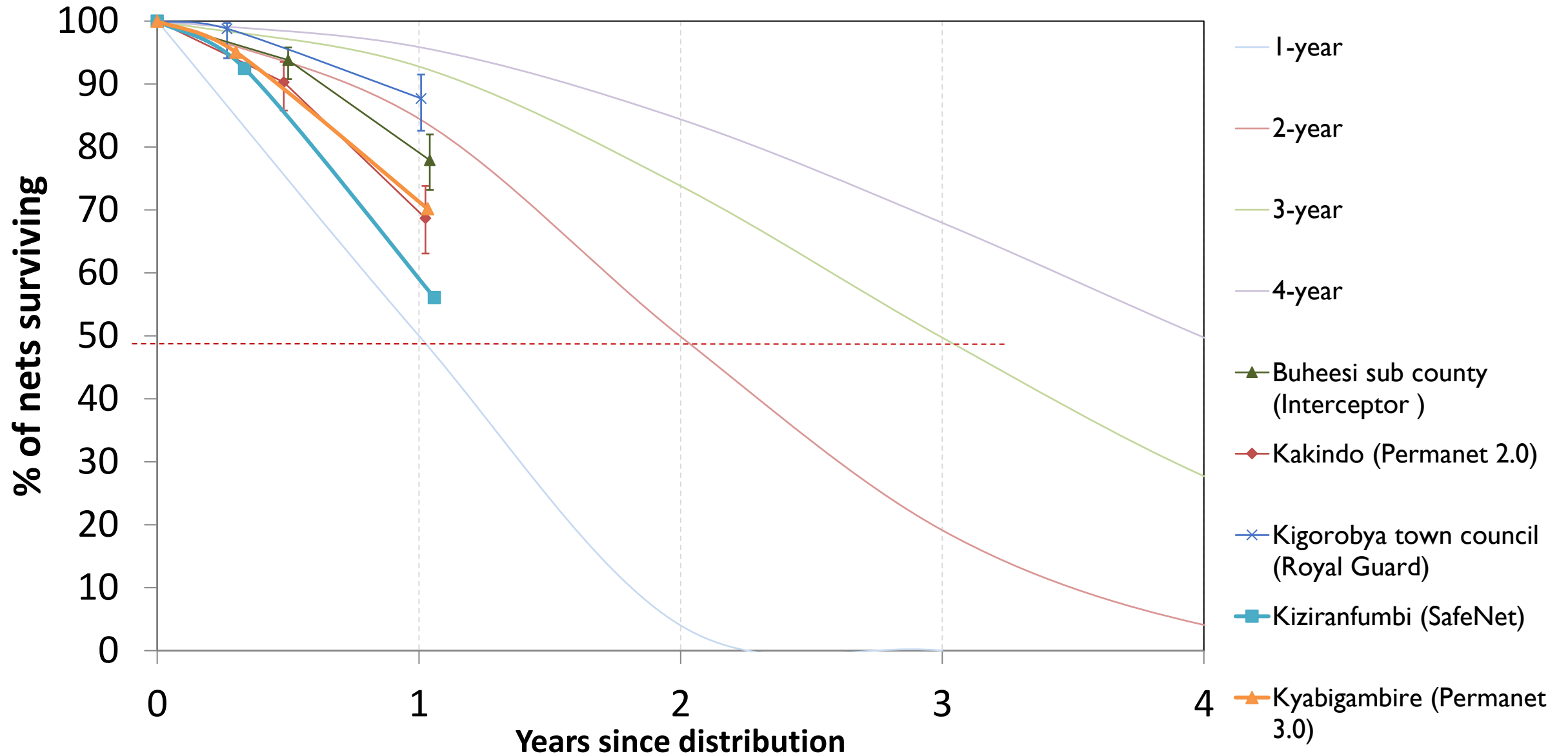


# Net Damage causes





# Median Survival Estimation



# Way Forward and Next Steps

- Continue and conclude the 12 Months Bioassay and Chemical Residue (HPLC) tests
- Conduct 24 Months survey Data collection and Net sample withdraw between August – December 2022
- Report writing for the 12 Months survey
- Dissemination of results for the 12 Months survey



# Acknowledgement

- Study Participants
- Global Fund
- District Local Governments of Hoima, Kikuube, Kakumiro and Bunyangabu

- Ministry of Health
- National Malaria Control Division
- IDRC
- CRA-W lab, Belgium