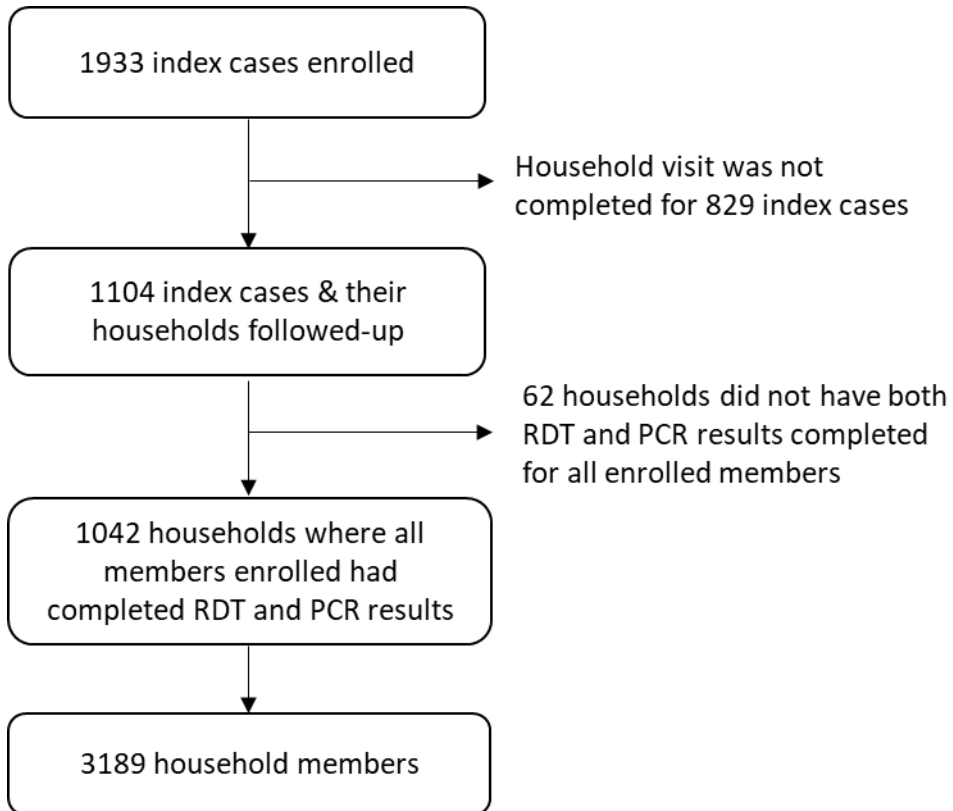


Supplemental Figure S1: Study flow of index cases, households and household members analyzed.



Supplemental Table S1: Individual-level regression analysis with household and facility random effects (Odds Ratios (95% confidence interval))

Variable	Any Positive Test		RDT +		PCR+	
	OR (95% CI)	aOR (95% CI)	OR (95% CI)	aOR (95% CI)	OR (95% CI)	aOR (95% CI)
Age						
≤15y	-	-	-	-	-	-
16-40y	0.82 (0.68-0.98)*	0.91 (0.75-1.1)	0.37 (0.27-0.50)*	0.43 (0.3-0.63)*	0.91 (0.76-1.10)	0.97 (0.8-1.17)
40y+	0.78 (0.58-1.05)	0.84 (0.62-1.14)	0.28 (0.17-0.48)*	0.24 (0.13-0.48)*	0.86 (0.64-1.15)	0.89 (0.66-1.21)
Male gender	1.04 (0.88-1.23)	1.03 (0.86-1.23)	1.45 (1.15-1.84)*	1.26 (0.91-1.76)	0.98 (0.83-1.15)	0.98 (0.83-1.17)
Sleeping location						
Outdoors (ref.)	-	-	-	-	-	-
Indoors	0.78 (0.61-0.99)*	0.73 (0.56-0.94)*	0.87 (0.62-1.22)	0.78 (0.5-1.22)	0.76 (0.60-0.97)	0.72 (0.56-0.93)*
Net Use	1.14 (0.89-1.45)	1.29 (0.99-1.68)	1.17 (0.84-1.62)	1.11 (0.7-1.75)	1.15 (0.90-1.47)	1.32 (1.02-1.71)*
Any travel in HH	0.62 (0.39-0.98)*	0.64 (0.4-1.02)	0.45 (0.22-0.93)*	0.56 (0.21-1.48)	0.67 (0.42-1.06)*	0.7 (0.44-1.11)
Any symptoms	13.17 (13.14-13.20)*	15.99 (9.7-26.37)*	184.49 (91.72-371.08)*	183.18 (89.31-375.75)*	3.98 (2.80-5.65)*	4.06 (2.82-5.86)*
Water source						
Closed water	-	-	-	-	-	-
Open water	1.33 (1.04-1.70)	1.12 (0.87-1.44)	1.80 (1.28-2.53)*	1.4 (0.88-2.22)	1.38 (1.09-1.75)*	1.19 (0.93-1.52)
Any livestock	1.30 (1.02-1.66)*	1.13 (0.88-1.44)	1.48 (1.02 - 2.13)*	0.95 (0.59-1.54)	1.26 (0.99-1.60)	1.11 (0.87-1.41)
Any latrine	0.77 (0.58-1.03)	0.77 (0.57-1.02)	0.94 (0.62-1.44)	0.86 (0.5-1.47)	0.69 (0.52-0.91)*	0.71 (0.53-0.94)*

Supplemental Table S2: Characteristics of all case patients enrolled from facilities (% (count/total))

	Facility case patients (n = 1933)
Female	51.8 (977/1885)
Traveled	5.4 (103/1923)
Age (years)	
≤ 15	59.3 (1138/1919)
16-40	33.6 (644/1919)
> 40	7.1 (137/1919)
Symptoms	
Any symptoms	98.9 (1912/1933)
Fever	81.7 (1580/1933)
Headache	79.6 (1539/1933)
Chills	15.7 (304/1933)
Body ache	33.3 (644/1933)
Runny nose	4.5 (87/1933)
Cough	28.2 (545/1933)
None	1.1 (21/1933)
Health facility	
Kerio	21.0 (406/1933)
Nadoto	27.3 (527/1933)
Nakechichok	12.0 (231/1933)
Ngiitakito	14.9 (287/1933)
St. Monica	14.1 (272/1933)
St. Patricks	10.9 (210/1933)

Supplemental Table S2. Breakdown of travel destinations or visitor origins by malaria endemicity for index patients and household members (from households that had complete PCR results). Some members reported multiple trips. All locations were within Kenya (except for a single international destination in Sudan). Endemicity of each county was assigned based on 2016 report from National Malaria Control Programme. (% (count/total))

Destination/Origin endemicity	Index patient		Household member		
	Traveler n = 47	Visitor n = 24	All n = 59	RDT+ n = 7	PCR+ n = 14
Within Turkana	63.8 (30/47)	62.5 (15/24)	69.5 (41/59)	71.4 (5/7)	71.4 (10/14)
To other counties					
Endemic	25.5 (12/47)	16.7 (4/24)	13.6 (8/59)	28.6 (2/7)	14.3 (2/14)
Epidemic	17.0 (8/47)	8.3 (2/24)	15.3 (9/59)	0 (0/7)	7.1 (1/14)
Low risk	2.1 (1/47)	12.5 (3/24)	6.8 (4/59)	0 (0/7)	7.1 (1/14)
Seasonal risk	2.1 (1/47)	4.2 (1/24)	0	0	0
International	0 (0)	0 (0)	1.7 (1/59)	0 (0/7)	0 (0/14)

Supplemental Table S4. Household-level regression analysis. Risk factors were analyzed for households in which all cases were detectable by RDT or all cases were detectable by PCR alone. Odds ratios for univariable and multivariable models are shown with 95% confidence intervals shown in parentheses. Significance levels at or below 0.05 is indicated with a *.

Variable	All cases in household detected by RDT		All cases in household detected by PCR alone	
	OR (95% CI)	aOR (95% CI)	OR (95% CI)	aOR (95% CI)
Season enrolled (rainy)	1.49 (1.29-1.72)*	1.19 (0.96-1.47)	1.09 (1.01-1.19)*	0.98 (0.89-1.09)
Index patient's gender (male)	0.84 (0.54-1.31)	0.56 (0.28-1.12)	1.08 (0.81-1.44)	1.1 (0.8-1.51)
Index patient's age				
≤15 years (ref.)	-	-	-	-
16-40 years	0.47 (0.28-0.80)*	0.47 (0.2-1.08)	1.06 (0.78-1.44)	1.07 (0.76-1.49)
≥40 years	0.37 (0.12- 1.11)	0.36 (0.08-1.59)	1.04 (0.62-1.74)	1.09 (0.62-1.92)
HH members (n)	1.31 (1.16-1.48)*	0.99 (0.82-1.21)	1.24 (1.13-1.35)*	1.15 (1.04-1.27)*
Children (n)				
0 (ref.)	-	-	-	-
1-2	5.09 (2.50-10.36)*	2.5 (1.01-6.19)*	1.42 (1.00-2.01)*	1.18 (0.81-1.72)
3+	30.39 (12.65-72.99)*	9.95 (2.79-35.47)*	4.14 (2.49-6.88)*	2.89 (1.59-5.24)*
Nets in HH				
0 (ref.)	-	-	-	-
1-2 ppl/net	0.26 (0.07-0.92)*	0.25 (0.05-1.19)	0.81 (0.45-1.45)	1.1 (0.57-2.1)
2-4 ppl/net	3.24 (1.65-6.33)*	4.71 (1.89-11.74)*	1.44 (0.83-2.51)	1.48 (0.81-2.68)
4+ ppl/net	5.36 (2.36-12.17)*	5.88 (1.94-17.84)*	2.34 (1.25-4.38)*	1.86 (0.9-3.85)
Any outside sleeping	1.24 (0.73-2.10)	1.74 (0.79-3.84)	2.22 (1.51-3.27)*	2.25 (1.43-3.52)*
Any symptoms in HH	44.54 (19.63-101.09)*	54.67 (17.96-166.46)*	1.05 (0.41-2.67)	1.12 (0.87-1.43)
Any travel in HH	0.89 (0.37-2.10)	1.11 (0.62-2.01)	1.0 (0.56-1.77)	1.1 (0.57-2.1)
Water source				
Closed water (ref.): well, piped, tank	-	-	-	-
Open water: river, stream, dam, hole	1.51 (0.91-2.51)	1.23 (0.55-2.76)	0.90 (0.61-1.32)	0.85 (0.56-1.29)
Any livestock	1.94 (1.13-3.34)*	1.90 (0.83-4.33)	1.42 (1.01-1.99)*	1.16 (0.79-1.7)
Any latrine	0.71 (0.38-1.33)	0.66 (0.27-1.6)	0.69 (0.45-1.04)	0.81 (0.5-1.31)