

National Institute of



Background

- Indeterminate HIV test results are common¹⁻³, but little is known about frequency, subsequent outcomes and factors associated with indeterminate HIV rapid results.
- We assessed final HIV serological outcomes for individuals with rapid indeterminate test results and associated risk factors in Rakai, Uganda

Methods

Study Population

- 31,413 individuals with 54,469 person-visits.
 - aged 15-49 from 2014 to 2017.
- HIV rapid indeterminate results were defined as contradictory rapid test results or inconclusive concordant rapid test results.

Statistical Analysis

- Descriptive analysis estimated the proportions of HIV indeterminate results by RCCS visits.
- Time-lagged analysis was used to assess the prevalence of subsequent HIV serological outcomes for participants with prior indeterminate, negative or positive HIV serological results.
- Decision trees were used to determine the trajectory of people with initially HIV negative, positive or indeterminate results.
- Generalized estimating equations together with modified Poisson regression models with robust variance were used to assess prevalence ratios (PRs) of subsequent HIV serological outcomes and factors associated with rapid HIV inconclusive results.

Results

- The overall prevalence of rapid indeterminate results was 2.7%.
- Females were more likely to have indeterminate results.
- The prevalence of rapid indeterminate results increased with increased age.
- The frequency of having at least one indeterminate result increased with increased number of visits per participant.
- The proportions transitioning from having an indeterminate result to HIV rapid indeterminate in subsequent visits was 41%.
- For participants with indeterminate results at their first and second visit, 70% had another indeterminate result at the 3rd visit.
- Of the 1,490 indeterminate results, 26% were finally classified as HIV positive.

Risk Marita Mari Not Gend Male Fem Educa No e Prim Seco lert Age 15-1 20-2 25-29 30-3 35-3 40-4

INDETERMINATE HIV RAPID TEST RESULTS: OUTCOMES AND RISK FACTORS Authors: George Mwinnyaa^{1,2}, Mary K. Grabowski², Ronald H. Gray³, Maria Wawer³, Larry W. Chang², Joseph Ssekasanvu³, Joseph Kagaayi⁴, Godfrey Kigozi⁴, Ronald M. Galiwango⁴, Anthony Ndyanabo⁴,

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	 Of 1,490 rapid test indetermi
а.	eventually classified as HIV
	 <1% of the study population
	indeterminate results over a
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	visit, 70% had another indete

Table 2. Factors associated with having two or more HIV rapid serologically -Table 1. Factors associated with rapid HIV serologically indeterminate results among indeterminate results among 15715 (38777 person-visits) RCCS participants in 31413 (54469 person-visits) RCCS participants in Rakai, Uganda (1994-2011). Dakai Ilganda (2011 2017)

					Rakai, Uyahu	ia (2014-2017).									
Factors al Status	Observations (%)	Rapid _i prevalence	UnadjPR (95% CI)	AdjPR (95% CI)*	Risk Factors	Observations (%)	Rapid _i prevalence	UnadjPR (95% CI)	AdjPR (95% CI)	Table 3. The protocol	evalence o	of transitioning fro	m HIV negative, posit	ive or indetermination	
ried	30630(56)	913/30630= 3.0%	1.00	1.00	Marital Status					to my nogative				Indotorminato	
married	23839(44)	577/23839= 2.4 %	0.82(0.74,0.92)	1.04(0.91,1.18)	Married	23513(61)	392/23513 = 1.67%	1.51(1.15,1.99)	1.00	Lag result FIA			111V-	mucicininaic	
ler					Not married	15264(39)	168/15264 = 1.10%	1.00	1.17(0.95,1.45)	Negative 2	0023(86.8)	234/20023= 1.2%	19425/20023= 97.0%	364/20023= 1.8%	
Ĵ	25506(47)	455/25506= 1.8%	1.00	1.00	Gender					Indeterminate 5	591(2.6)	110/591= 18.6%	239/591= 40.4%	242/591= 41.0%	
nale	28963(53)	1035/28963= 3.6%	1.99(1.76,2.26)	2.07(1.77,2.41)	Male	20428(53)	115/18349 = 0.63%	1.00	1.00	Positive 2	2451(10.6)	2379/2451= 97.1%	2/2451= 0.08%	70/2451= 2.9%	
ation					Female	18349(47)	445/20428 = 2.18%	3.48(2.83,4.26)	3.39(2.62,4.38)		、 <i>、 、</i>				
education	2258(4)	78/2258= 3.5%	1.00	1.00	Education					Table 4. Number of rapid test indeterminate results by total number of visits per					
narv	33762(62)	990/33762= 2.9%	0.88(0.68,1.15)	1.07(0.82,1.39)	No education	1594(4)	39/1594= 2.5%	1.00	1.00						
ondarv	17280(32)	404/17280= 2.3%	0.70(0.53,0.93)	0.93(0.70,1.23)	Primary	24526(63)	362/24526= 1.5%	0.60(0.44,0.84)	0.77(0.56,1.08)	participant.					
iarv	1169(2)	18/1169= 1.5%	0.49(0.28,0.86)	0.67(0.38,1.19)	Secondary	11968(31)	159/11968= 1.3%	0.54(0.38,0.77)	0.75(0.52,1.08)	Total number of visits					
J					Tertiary	689(2)	0/689= 0.00%			# (D)a		1	2	3	
9	10233(19)	158/10233 = 1.5%	1.00	1.00	Age					0		15270(97.3%)	_ 7997(95.7%)	6910(94%)	
24	9911(18)	244/9911 = 2.5%	1.58(1.29,1.94)	1.31(1.04,1.65)	15-19	5533(14)	31/5533 = 0.56%	1.00	1.00	1		422(2.7%)	276(3.3%)	313(4.3%)	
29	9518(17)	309/9518 = 3.3%	2.09(1.71,2.55)	1.66(1.31,2.11)	20-24	6484(17)	67/6484 = 1.0%	1.84(1.03,3.30)	1.21(0.75,1.94)	2			88(1.1%)	81(1.1%) 47(0.64%)	
34	8650(16)	243/8650 = 2.8%	1.86(1.51,2.30)	1.44(1.12,1.84)	25-29	6990(18)	113/6990 = 1.6%	2.89(1.63.5.10)	1.80(1.13,2.85)	Total # of observat	tions ^b	15692	16722	22055	
9	7401(14)	249/7401 = 3.4%	2.19(1.78,2.70)	1.67(1.30,2.15)	30-34	6773(17)	100/6773 = 1.5%	2 64(1 49 4 67)	1 58(0 99 2 53)	Total # of individua	als ^c	15692	8361	7354	
9	5450(10)	176/5450 = 3.2%	2.12(1.69,2.66)	1.65(1.27.2.14)	35-39	6002(15)	122/6002 = 2.0%	3 63(2 06 6 40)	2 17(1 37 3 <u>4</u> 4)	^a Number of rapid indeterminat	es, ^b total number of	f observations, ^c total number of indivi	duals.		
Rapid test indeterminate: *model also adjusted for employment, number of sexual partners, residents(rural/urban), malaria infection, religion, visits and region				<u>10-10</u>	A A 7 A (12)	76/171 = 1.7%	3 03(1 67 5 51)	1 86(1 15 2 00)							
				TU-T/	····	1 - T - T - T - T - T - T - T - T - T -	3.03(1.07, 3.01)	1.00(1.10,0.00)							

David Serwadda⁵, Thomas C. Quinn¹, Steven J. Reynolds¹, Oliver Laeyendecker¹ on behalf of the Rakai Community Cohort Study

- eterminate results was 2.7%. inate results, 26% were positive. had consistent rapid 3- year period. indeterminate results had an follow-up visit. ate results at first and second
- erminate result at the 3rd visit.





Visit

Visit 2

Visit 3



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Summary & Conclusions

• Females were more likely to have indeterminate results. • Rapid test indeterminate results are likely to be HIV negative, but a significant proportion (~26%) are found to be HIV positive upon additional testing and considerations.

• HIV surveillance programs should develop a protocol for reporting individuals with mixed or persistently indeterminate HIV results on multiple follow-up visits.

References

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Figure 1. Future HIV Rapid results for individuals with HIV indeterminate(D), Positive (P) or Negative (N) results at first visit.

