

1 **The impact of a conditional financial incentive on linkage to HIV care: Findings from the HITS**
2 **cluster randomized clinical trial in rural South Africa**

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85 they did not have any special access or privileges that others would not have.

86

87 **Abstract**

88 **Introduction:** HIV elimination requires innovative approaches to ensure testing and immediate
89 treatment provision. We investigated the effectiveness of conditional financial incentives on increasing
90 linkage to HIV care in a 2x2 factorial cluster randomized controlled trial -Home-Based Intervention
91 to Test and Start (HITS) - in rural South Africa.

92 **Methods:** Of 45 communities in uMkhanyakude, KwaZulu-Natal, 16 communities were randomly
93 assigned to the arms to receive financial incentives for home-based HIV counseling and testing
94 (HBHCT) and linkage to care within 6 weeks (R50 [US\$3] food voucher each) and 29 communities
95 to the arms without financial incentives. We examined linkage to care (i.e., initiation or resumption of
96 antiretroviral therapy after >3 months of care interruption) at local clinics within 6 weeks of a home
97 visit, the eligibility period to receive the second financial incentive. Linkage to care was ascertained
98 from individual clinical records. Intention-to-treat analysis (ITT) was performed using modified
99 Poisson regression with adjustment for receiving another intervention (i.e., male-targeted HIV-specific
100 decision support app) and clustering of standard errors at the community level.

101 **Results:** Among 13,894 eligible men (i.e., ≥ 15 years and resident in the 45 communities), 20.7%
102 received HBHCT, which resulted in 122 HIV-positive tests. Of these, 27 linked to care within 6 weeks
103 of HBHCT. Additionally, of eligible men who did not receive HBHCT, 66 linked to care. In the ITT
104 analysis, the proportion of linkage to care among men did not differ in the arms which received
105 financial incentives and those without financial incentives (adjusted Risk Ratio [aRR]=0.78, 95% CI:
106 0.51-1.21). Among 19,884 eligible women, 29.1% received HBHCT, which resulted in 375 HIV-
107 positive tests. Of these, 75 linked to care. Among eligible women who did not receive HBHCT, 121
108 linked to care within 6 weeks. Women in the financial incentive arms had a significantly higher
109 probability of linkage to care, compared to those in the arms without financial incentives (aRR=1.50;
110 95% CI: 1.03-2.21).

111 **Conclusion:** While a small once-off financial incentive did not increase linkage to care among men
112 during the eligibility period of 6 weeks, it significantly improved linkage to care among women over
113 the same period.

114 Clinical Trial Number: ClinicalTrials.gov # NCT03757104

115

116

117 INTRODUCTION

118 Antiretroviral therapy (ART) has dramatically reduced HIV-related morbidity and mortality as well as
119 the risk of HIV transmission among people living with HIV (PLWH).¹⁻⁷ To maximize the benefits of
120 ART, it is critical to diagnose PLWH early, link and retain them in care. However, a substantial
121 proportion of PLWH remains undiagnosed or not linked to care. In South Africa, which is home to
122 over 7 million PLWH and 210,000 new infections in 2021, 94% of PLWH knew their HIV status, but
123 only 74% of them linked to care and received ART.⁸

124
125 Home-based HIV counseling and testing (HBHCT) is an effective way to reach the undiagnosed or
126 hard-to-reach population in rural⁹⁻¹³ and urban¹² settings in sub-Saharan Africa (SSA).¹⁴ HBHCT is
127 highly acceptable and has increased the uptake of HIV testing in SSA.¹⁴ However, several studies have
128 shown that linkage to care following HBHCT remains suboptimal,¹⁵ particularly among newly
129 diagnosed individuals.^{10,16} For example, in HPTN 071 (PopART), a community-randomized trial of a
130 combination HIV prevention package, only 36% and 66% of newly diagnosed individuals initiated
131 ART by 3 and 12 months, respectively.¹⁷ Especially, men are more likely to delay their linkage to care
132 after diagnosis,^{17,18} due to barriers such as perceptions about the treatment, social stigma or gender
133 norms.^{16,19}

134
135 Various interventions have been implemented to improve linkage to care in SSA, including the
136 provision of financial incentives.^{20,21} Conditional financial incentives had shown mixed results in
137 increasing linkage to care. Several studies conducted in SSA have reported that financial incentives,
138 when combined with intervention strategies such as point-of-care testing, did not significantly improve
139 linkage to care.²²⁻³⁰ However, to our knowledge, no study has examined the impact of multi-stage
140 financial incentives and their impact on linkage to care following HBHCT in SSA.

141
142 We conducted a 2x2 factorial cluster randomized controlled trial -Home-Based Intervention to Test
143 and Start (HITS) - in 45 rural communities in uMkhanyakude district of KwaZulu Natal, South Africa.

144 We previously reported findings on the impact of conditional financial incentives and the app-based
145 system for informed decision-making, EPIC-HIV, on the uptake of HBHCT.^{31,32} Here, we report the
146 impact of financial incentive on linkage to care among men and women.

147

148 **METHODS**

149 **Setting**

150 The trial was nested within AHRI's Health and Demographic Surveillance System (HDSS) and
151 facilitated linkage to care in uMkhanyakude district of Northern KwaZulu Natal.³³ The estimated HIV
152 prevalence in the study area was estimated as 19% in men and 40% in women in 2018.¹ Since 2003,
153 AHRI has conducted population-based HIV surveillance within AHRI's HDSS. The HIV surveillance
154 is annually conducted among all residents aged ≥ 15 years to collect data on sexual behavior and general
155 health as well as dried blood spots (DBS) samples for anonymized HIV testing after obtaining
156 informed consent.^{34,35} Since 2017, rapid HIV testing with immediate results has been offered as part of
157 the HIV surveillance during household visits.

158

159 **Trial Design**

160 Between February and December 2018, we implemented a 2x2 factorial cluster-randomized trial
161 among a population of 37,028 residents aged ≥ 15 years across 45 clusters within AHRI's ongoing
162 population-based annual HIV testing platform (Figure 1).³⁶ The trial offered two interventions:
163 financial incentives and a male-targeted app-based system for informed decision-making, called EPIC-
164 HIV (Empowering People through Informed Choices for HIV). Over the entire study duration, 8
165 communities received only financial incentives, 8 communities received only EPIC-HIV, 8
166 communities received both interventions, and 21 communities received standard of care. While both
167 males and females were eligible to receive financial incentives, only males were eligible to receive
168 EPIC-HIV. Randomization was conducted to ensure balance across the arms using stratified sampling
169 at the community level based on the HIV incidence among young females aged 15-30 years. The
170 implementation and acceptance of the HITS intervention were evaluated using a process evaluation,

171 utilizing post-intervention satisfaction surveys³⁷ as well as focus group discussion and in-depth
172 interviews among study participants, fieldworkers, and health professionals. Results of the process
173 evaluation have been published elsewhere.³⁸ The trial was registered at the National Institute of Health
174 (ClinicalTrials.gov # NCT03757104), and the complete trial protocol was published elsewhere.³⁶

175

176 **Standard of care for HBHCT and linkage to care**

177 As part of the AHRI population-based annual HIV surveillance, field workers who are trained in HIV
178 counselling and testing conduct rapid point-of-care HIV tests with immediate results in accordance
179 with the South African national guidelines. When individuals are not available during the initial contact
180 attempt to complete the HIV surveillance, they are revisited twice more during normal working hours
181 within the same week. Subsequently, a tracking team attempts to contact participants and make three
182 additional home visits during evenings or weekends before considering them as non-contact.
183 Participants found to be HIV-positive are encouraged to link to care within 7-10 days of the HIV test
184 date and are offered a referral slip for an appointment to receive HIV care at one of the 10 local clinics.
185 In these clinics, AHRI has set up a system to record clinic visits and reasons for attendance for all
186 consenting individuals presenting at the clinics. Individuals who consent for facilitated linkage and
187 have not linked to care within two weeks of the HIV test date receive a single Short Message Service
188 (SMS) message as a reminder. If these individuals do not link to care within an additional two weeks,
189 a trained nurse contacts them by telephone to discuss any concerns and encourages them to link to care.

190

191 **Interventions**

192 The interventions were delivered in a two-stage scheme for HIV testing and linkage to care. In the
193 arms receiving financial incentives, participants were offered a R50 (US ~\$3) food voucher for a local
194 supermarket conditional on their participation in rapid HIV testing. Second, participants who tested
195 HIV-positive were offered another R50 food voucher if they visited any of the 10 primary health clinics
196 in the AHRI HIV surveillance area to seek HIV treatment within 6 weeks of the positive HIV test date.

197 The male-targeted HIV-specific decision support application was implemented and offered via a tablet
198 and offered in two versions (EPIC-HIV 1 and EPIC-HIV 2). EPIC-HIV 1 was provided to men prior
199 to the offer of HIV testing. It aimed to support their decision-making regarding whether to take a rapid
200 HIV test or not and to facilitate linkage to care if tested HIV-positive. Participants who did not link to
201 HIV care within a month of a positive HIV test were revisited by a study tracker and offered the second
202 application (EPIC-HIV 2), which is designed to address barriers to seeking HIV treatment and
203 encourage them to link to HIV care. The application development is described in detail elsewhere.^{36,39}
204 Individuals who did not receive home-based HIV testing, including those who were not contacted or
205 declined annual HIV testing, were not eligible to receive the financial incentive upon linkage to care.

206

207 **Outcomes**

208 In this study, we report the proportion of individuals diagnosed with HIV following HBHCT and the
209 probability of linkage to care within 6 weeks after HBHCT, the eligibility period to receive the second
210 financial incentive. The conditional financial incentive for linkage to care was only provided if a person
211 tested HIV-positive at HBHCT linked to care within 6 weeks after HBHCT. Linkage to care was
212 defined as ART initiation or resumption and captured using two sources of data collection, covering
213 all study participants including those who were never contacted or declined annual HIV testing during
214 the study visit. First, clinical research assistants stationed at 10 local clinics within the surveillance
215 area and recorded clinical information for all visiting patients, including clinic visit dates, reasons for
216 clinic attendance, and participation in the AHRI HDSS. This information was captured into an
217 electronic data collection system called AHRILink, where the database for each of the 10 clinics was
218 linked to a central database through an ongoing replication process. Second, through a memorandum
219 of agreement with the South African Department of Health, the AHRI population-based program is
220 linked with the clinical records of patients registered in the local public HIV Treatment and Care
221 Programme at the Hlabisa district hospital and 17 primary health care clinics within the Hlabisa health
222 sub-district using the TIER.Net. TIER.Net is a three-tiered electronic patient management system used
223 in public clinics in South Africa for monitoring and evaluating HIV care and treatment for all patients

224 receiving ART. The TIER.Net system was implemented in uMkhanyakude district in 2013. Patient
225 records from all visits prior to 2013 were back-captured into the system from AHRI's previous HIV
226 care clinical database between 2004 and 2012.⁴⁰ The TIER.Net database is linked with the AHRI
227 surveillance database based on personal identifiers using algorithms developed at AHRI. All patient
228 clinic visits for ART initiation and follow-up after the home-based study visits were confirmed through
229 Tier.Net and AHRILink. ART initiation was defined as being newly prescribed ART without any prior
230 record of ART initiation. ART resumption was defined as re-initiating ART after >90 days of care
231 interruption as ascertained through AHRILink and/or TIER.Net.

232

233 **Statistical methods**

234 The primary analysis was conducted using the intent-to-treat (ITT) analysis for all men and women
235 randomized at the community level. We examined the outcome as a binary variable using modified
236 Poisson regression, adjusting for clustering of standard errors at the community level. All outcomes
237 among males were also adjusted for the provision of the EPIC intervention. We estimated the time to
238 linkage to care within 6 weeks for each intervention arm using Kaplan-Meier survival curves. The log
239 rank test was used to compare the differences in linkage to care in the arms with and without financial
240 incentives. All analyses were conducted among men and women, separately, using STATA 15.1
241 (StataCorp) and R 4.0.3.

242

243 **Ethics statement**

244 The study protocols for the AHRI's population-based HIV testing platform and HITS intervention
245 were approved by the Biomedical Research Ethics Committee of the University of KwaZulu-Natal
246 (BE290/16 and BFC398/16).³⁶ Permission for the trial was obtained from the KwaZulu-Natal
247 Department of Health, South Africa. Participation in the HIV surveillance and HITS trial is completely
248 voluntary. Individuals may choose not to answer and/or participate in any component of the HIV
249 surveillance and to withdraw at any time. Written informed consent was sought from individuals aged

250 ≥ 18 years, and parental or guardian consent with child assent for individuals of 15-17 years old were
251 obtained.

252

253 **RESULTS**

254 **Participants and recruitment flow**

255 All 15,485 men living in the 45 clusters in the study area were initially considered eligible for the trial.
256 Study participants were enrolled between February 2018 and December 2018. Of these, 1,591 died or
257 out-migrated. Of the remaining 13,894 eligible men, 4,244 (30.6%) could not be contacted (mainly
258 due to absence at the time of HIV testing despite several attempts to follow up), 4,773 (34.4%) declined
259 to participate in the annual population-based HIV testing in 2018, and 453 (3.3%) self-reported being
260 on ART, thus resulting in 4,424 (31.8% of the resident population) who participated in the population-
261 based HIV testing (Figure 1). The flow diagram through each stage of the HITS trial by the 2x2
262 intervention arms among men is available in Figure S1. Randomization successfully achieved balance
263 regarding HIV prevalence and sociodemographic variables in the arms with vs. without financial
264 incentives, except for the area of residency (Table 1).

265

266 Of 21,545 women residing in the 45 clusters within the study area initially considered eligible for
267 inclusion, 1,661 died or out-migrated. Of the remaining 19,884 eligible women, 3,944 (19.8%) could
268 not be contacted, 5,136 (25.8%) declined to participate in the annual population-based HIV testing in
269 2018, and 2,129 (10.7%) self-reported being on ART, thus resulting in 8,675 (31.9% of the resident
270 population) who participated in the population-based HIV testing (Figure 1). Similar to men,
271 randomization achieved balance in respect of HIV prevalence and sociodemographic variables in the
272 arms with vs. without financial incentives, except for the area of residency (Table 1).

273

274 **HIV positive diagnosis by intervention arms among men and women**

275 Among all 13,894 men ≥ 15 years resident in the 45 communities in 2018, the overall uptake of home-
276 based HIV testing was 26.9% (1246/4624) in the financial incentive arms, and 17.5% (1621/9270) in

277 the arms without the financial incentives. Of 20.6% men (n=2,867) who received HBHCT, 122 tested
278 positive for HIV. In the ITT analysis, 1.4% (63/4624) in the financial incentive arms and 0.6%
279 (59/9270) in the arms without the financial incentives tested HIV-positive using rapid HIV tests. The
280 probability of a positive HIV diagnosis via HBHCT was about two times higher in the financial
281 incentive arms among men, adjusting for the provision of the EPIC-HIV [adjusted risk ratio
282 (aRR)=2.11, 95% CI: 1.36-3.28, p=0.001].

283

284 Among all 19,884 women ≥ 15 years living in the 45 communities, the overall testing coverage was
285 36.9% (2372/6433) in the financial incentive arms and 25.4% (3423/13451) in the arms without
286 financial incentives. In the ITT analysis, compared to women in the arms without the financial
287 incentives, the probability of uptake of HIV testing was 45% higher in the financial incentive arms
288 (RR=1.45, 95% CI: 1.26-1.67, p<0.001). Of 5,795 (29.1%) who received HBHCT, 375 tested positive
289 for HIV, including 60 (16.0%) women with previously unknown HIV status and 261 (69.6%) women
290 newly diagnosed through the trial. Overall, 3.4% (217/6433) in the financial incentive arms tested
291 HIV-positive, compared to 1.2% (158/13451) in the arms without financial incentives. The probability
292 of a positive HIV diagnosis using home-based rapid HIV testing was 2.87 times higher among women
293 in the financial incentive arms compared to the arms without the financial incentives (95% CI: 2.19-
294 3.76, p<0.001).

295

296 **Effect of financial incentives on linkage to care at 6 weeks among men and women**

297 Using individual clinical records ascertained from 17 clinics within the surveillance area, we
298 confirmed that a total of 95 men initiated ART or resumed care within 6 weeks after the home visit.
299 Among the 126 men who received positive (n=122) or discordant (n=4) HIV diagnosis via home-based
300 HIV testing, 29 initiated ART or resumed care within 6 weeks (13 in the financial incentive arms and
301 16 in the non-financial incentive arms). Of 10,575 men who did not receive HBHCT, 1,166 were
302 confirmed to be on ART, and 446 had interrupted care at the time of study visit. Among those who
303 had interrupted care, 66 resumed care within 6 weeks (14 in the financial incentives and 52 in the non-

304 financial incentive arms). In the ITT analysis, overall, 0.58% (27/4624) in the financial incentive arms
305 and 0.73% (68/9270) in the arms without the financial incentives linked to care within 6 weeks after
306 the home visit. The probability of linkage to care within 6 weeks did not differ significantly between
307 the arms among men (aRR=0.78, 95% CI: 0.51-1.21).

308

309 On the other hand, a total of 198 women initiated ART or resumed care within 6 weeks after the home
310 visit. Of the 395 women who received positive (n=375) or discordant (n=20) HIV diagnosis via home-
311 based HIV testing, 77 initiated ART or resumed care within 6 weeks (45 in the financial incentive
312 arms and 32 in the non-financial incentive arms). Among the 11,976 women who did not receive
313 HBHCT, 2,743 were confirmed to be on ART, and 856 had interrupted care at the time of study visit.
314 Among those with interrupted care, 121 resumed care within 6 weeks (38 in the financial incentives
315 and 83 in the non-financial incentive arms). In the ITT analysis, 1.29% (83/6433) in the financial
316 incentive arms and 0.85% (115/13451) in the arms without financial incentives linked to care within
317 6 weeks after the home visit. The probability of linkage to care within 6 weeks was significantly higher
318 in the financial incentive arms among women (aRR=1.50, 95% CI:1.03–2.21, p=0.04).

319

320 The probability of linkage to care up to 1 year among men still did not differ in the financial incentive
321 and non-financial incentive arms (Figure S2). As anticipated, among women, there was no additional
322 gain in linkage to care up to 1 year in the financial incentive arms beyond the eligibility period of 6
323 weeks to receive the second financial incentive.

324

325 **DISCUSSION**

326 In this study, we found that the small once-off financial incentive did not significantly improve linkage
327 to care within the voucher eligibility period of 6 weeks in men whilst it substantially increased linkage
328 to care by 47% among women. The provision of an immediate and tangible benefit via a financial
329 incentive effectively reached those at higher risk, yielding a three-fold increase in HIV-positive
330 diagnoses among both men and women. However, men encounter greater barriers in accessing care at

331 clinics due to masculine norms, stigma, concerns about confidentiality, or the necessity to prioritize
332 work over clinic visits, often resulting in delays in linking to care.^{41,16,19} Our study finding suggests
333 that the small once-off financial incentive is likely insufficient to overcome barriers that men face to
334 link to care at clinics.

335
336 Several studies examined the efficacy of financial incentives on linkage to care and reported mixed
337 results. In one study conducted in US metropolitan cities, financial incentives increased viral
338 suppression and regular clinic attendance among men and women living with HIV but had no effect
339 on linkage to care.²⁶ In Mozambique, when financial incentives were provided in addition to
340 comprehensive intervention strategy including health messages and appointment reminders via SMS
341 messaging, there was no additional benefit of financial incentives in linkage to care.²⁵

342
343 In our study, only 22% of men and 20% of women who tested HIV-positive via HBHCT across the
344 study arms linked to care within 6 weeks of HBHCT, similar to the findings from other trials in South
345 Africa. In the universal ART trial conducted in the north of the surveillance site (ANRS 12249 TasP
346 cluster-randomized trial), only 36.1% of those tested HIV-positive via HBCHT linked to care within
347 3 months.⁴² Similarly, in the HPTN 071 (PopART) trial, only 31% of men and 34% of women
348 diagnosed with HIV through HBHCT successfully linked to care within 3 months in South Africa.¹⁷
349 However, in Zimbabwe, when patients diagnosed with HIV at home were escorted to visit a clinic and
350 link to care, over 85% successfully linked to care within just 30 days of HIV diagnosis.⁴³ Similarly, in
351 Botswana, facilitated and active linkage to care for HIV-positive individuals who were not receiving
352 ART reduced the time to ART initiation by 81%, compared to the standard of care.⁴⁴ Addressing the
353 challenge of linkage to care, especially among men, would require a multitude of interventions
354 simultaneously.

355
356 This study was conducted as a community-randomized clinical trial encompassing over 30,000
357 individuals nested within the ongoing population-based HIV surveillance. However, the overall

358 population coverage of a once-off round of home-based HIV testing during the trial was relatively low
359 at 21%, and as would be expected the HIV prevalence among those consenting to rapid-test for HIV
360 was lower than the observed population prevalence in the communities. These led to a comparatively
361 lower number of individuals who were eligible for linkage to care for ART initiation or re-engagement.
362 Lastly, the intervention was delivered in a single round and might not be sustainable for routine
363 implementation on a large scale. Policymakers might consider tailoring it for specific populations or
364 settings in light of other competing interventions to optimize HIV response and treatment.

365

366 **CONCLUSION**

367 In this cluster-randomized clinical trial, we found that during a single round of interventions to improve
368 linkage to care, a small once-off financial incentive did not increase linkage to care among men during
369 the eligibility period of 6 weeks. However, the provision of a small financial incentive significantly
370 improved linkage to care among women during the same time period.

371

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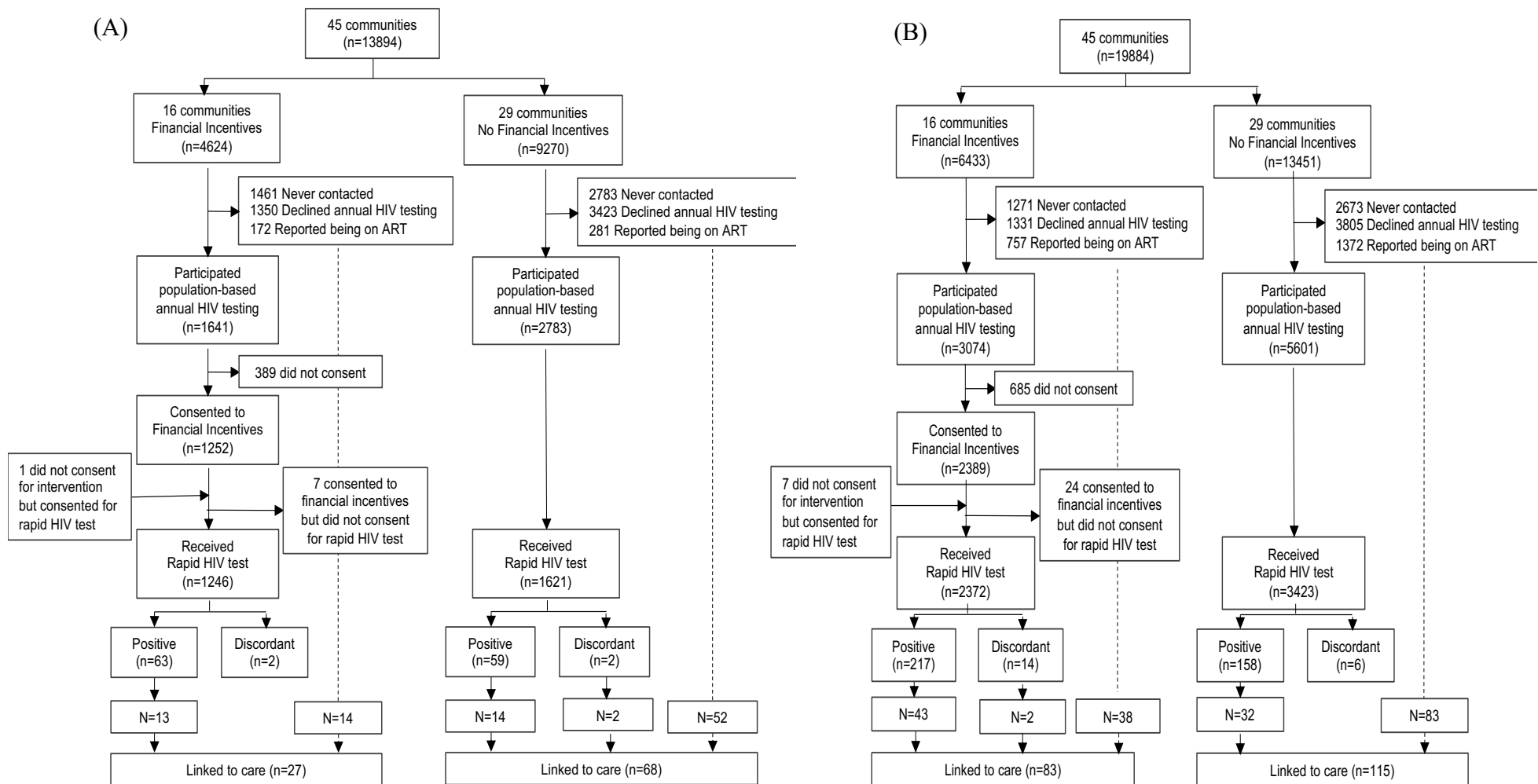


Figure 1. Flow diagram for the HITS cluster-randomized controlled trial and linkage to care within the voucher eligibility period of 6 weeks of a home visit among (A) men and (B) women. Flow diagram shows individual flow through each stage of the HITS trial in the arms with and without financial incentives. The dashed line indicates linkage to care within 6 weeks among those who were never contacted, declined annual HIV testing, or did not consent for interventions.

Figure 2. Kaplan Meir curves for linkage to HIV care by the voucher eligibility period of 6 weeks after the home-based study visit among (A) men and (B) women. The solid black lines represent the arms without financial incentives, and the dashed blue lines the financial incentive arms.

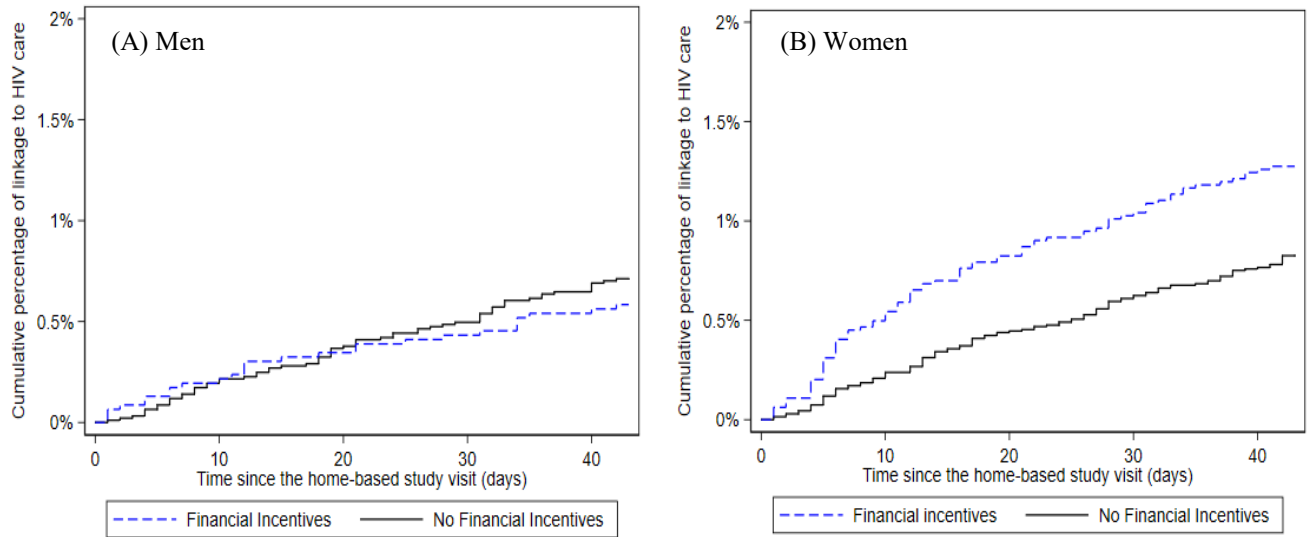


Table 1. Baseline characteristics of communities and individuals among men and women in the arms with and without financial incentives

Characteristic	(a) Men		(b) Women	
	Financial Incentives	No Financial Incentives	Financial Incentives	No Financial Incentives
Community-level factor	n=16	n=29	n=16	n=29
HIV prevalence in 2018, % (95% CI)*	18.5 (15.9-21.3)	15.0 (12.4-17.9)	33.8 (31.4-36.2)	32.5 (31.1-34.0)
Individual-level factors	n=4624	n=9270	n=6433	n=13451
Time since last HIV test in the surveillance (years), median (IQR)**	2.5 (0.6, 6.0)	2.3 (1.0, 5.3)	0.97 (0.94, 1.02)	0.97 (0.95, 1.04)
Age (years), n (%)				
15-25	1712 (37.1)	3397 (36.7)	1608 (25.0)	3333 (24.8)
25-35	1063 (23.0)	2140 (23.1)	1362 (21.2)	2862 (21.3)
35-45	707 (15.3)	1461 (15.8)	1050 (16.4)	2124 (15.8)
45-55	472 (10.2)	898 (9.7)	862 (13.4)	1780 (13.2)
≥55	663 (14.4)	1356 (14.7)	1538 (24.0)	3336 (24.8)
Marital Status, n (%)				
Never married	1223 (26.4)	2449 (26.4)	1313 (20.4)	2637 (19.6)
Married	665 (14.4)	1355 (14.6)	930 (14.5)	1890 (14.1)
Informal Union	1818 (39.3)	3566 (38.5)	2524 (39.2)	5289 (39.3)
Separated/Divorced/Widowed	76 (1.6)	176 (1.9)	875 (13.6)	1947 (14.5)
Don't know/Missing	842 (18.2)	1724 (18.6)	791 (12.3)	1688 (12.5)
Education, n (%)				
No formal education	999 (21.6)	2024 (21.8)	1317 (20.5)	2789 (20.7)
Primary (grade 1-7)	249 (5.4)	504 (5.4)	550 (8.5)	1215 (9.0)
Secondary+ (≥ grade 8)	2739 (59.2)	5362 (57.8)	3765 (58.5)	7675 (57.1)
Don't know/Missing	637 (13.8)	1380 (14.9)	801 (12.5)	1772 (13.2)
Area of residency, n (%)				
Rural	2607 (56.4)	5434 (58.6)	3751 (58.3)	8029 (59.7)
Peri-urban	1831 (39.6)	2975 (32.1)	2426 (37.7)	4053 (30.1)
Urban	186 (4.0)	861 (9.3)	256 (4.0)	1369 (10.2)

*95% confidence intervals were calculated using the cumulative probabilities of the binomial distribution.

**Data indicates the time since last HIV test among those who ever participated in the annual HIV surveillance, including 2,051 (44.4%) in the financial incentive arms and 4,052 (43.7%) in the non-financial incentive arms among men, and 5,908 (91.8%) in the financial incentive arms and 12,427 (92.4%) in the non-financial incentive arms among women. Abbreviation: IQR, Interquartile Range

Table 2. Linkage to HIV care within the voucher eligibility period of 6 weeks among men and women in the arms with and without the financial incentives

	N	Linked to HIV care within 6 weeks, n(%)	Risk Ratio* (95% CI)	p-value
Men				
Financial incentives	4624	27 (0.58)	0.78 (0.50-1.21)	0.27
No financial incentives	6746	68 (0.73)	Ref	
Women				
Financial incentives	6433	83 (1.29)	1.50 (1.03-2.21)	0.04
No financial incentives	13451	115 (0.85)	Ref	

*Risk ratio accounts for clustering within communities using a random-intercept log-Poisson regression with empirical standard error estimates. It was also adjusted for the provision of EPIC-HIV provided as part of the 2x2 cluster randomized trial design.

Appendix

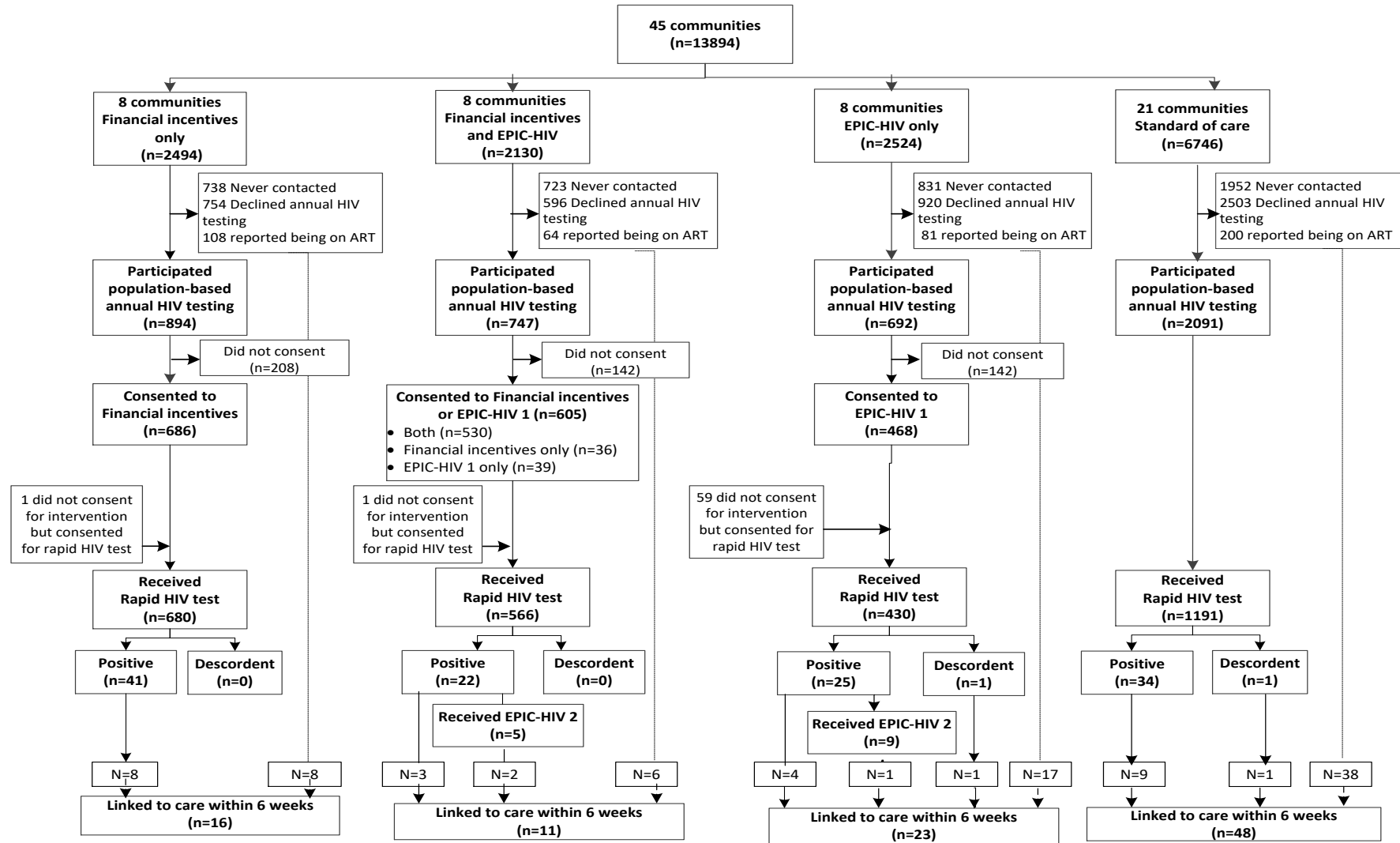
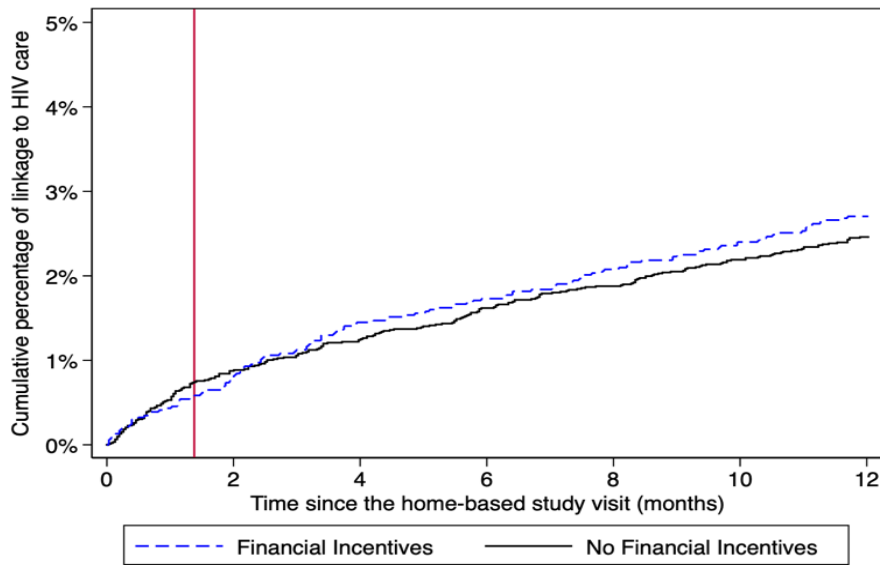


Figure S1. Flow diagram for the HITS cluster-randomized controlled trial and linkage to care within the voucher eligibility period of 6 weeks of a home visit among men. Flow diagram shows individual flow through each stage of the HITS trial by intervention arms. The dashed line indicates linkage to care within 6 weeks among those who were never contacted, declined annual HIV testing, or did not consent for interventions. Abbreviation: EPIC, Empowering People through Informed Choices for HIV.

(A) Men



(B) Women

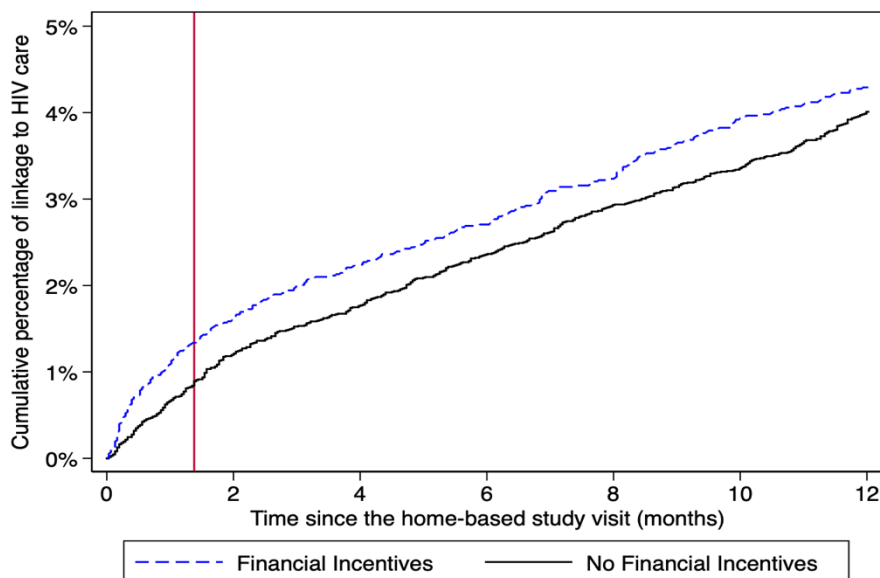


Figure S2. Kaplan Meier curves for linkage to HIV care by 1 year after the home-based study visit among (A) men and (B) women. The solid black lines represent the arms without financial incentives, and the dashed blue lines the financial incentive arms. The red line indicates the voucher eligibility period of 6 weeks to receive the second financial incentive when linked to care.