

What is the level of uptake of Partner Notification Services in HIV testing in Selected Health Facilities in Muranga County – Kenya; a retrospective Study

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Abstract

Background: Identification of people living with HIV is key in HIV prevention and control. Partner Notification service is a World Health Organization backed strategy of reaching out to sexual partners of people diagnosed with HIV for HIV testing. However, its adoption and success rate in Kenya remains unknown.

Methods: A cross sectional facility based study was undertaken in five purposively selected health facilities in Muranga County, Kenya. A retrospective review of patient medical records data for HIV positive index clients and their Sexual Partners conducted. Census approach applied to extract data for study subjects from Partner Notification Service registers for the period covering January 2017 to August 2018. Epi Info software was used for data analysis.

Results: A total of 183 index clients offered Partner notification services. The mean age of the indexed clients studied was 39(SD \pm 13.1). Females comprised 64 % of clients studied. Of the 183 indexed clients, 89% accepted the services and elicited 216 sexual partners for tracing. The ratio of elicited sexual partners to index client was 1.3:1. Out of the 216 sexual partners, 77% were reached and tested. A total of 46 [32%] of the sexual partners elicited and traced, tested HIV positive. The most preferred approaches were provider referral (51%) and contract referral (45%). Dual referral (4%) was the least preferred approach.

Conclusions: Partner notification services is acceptable and an effective strategy of increasing HIV case identification and raising awareness to exposed sexual partners in low resource countries.

Background

HIV/AIDs epidemic remains among the greatest public health concerns globally with approximately 37.9 million people living with Human Immunodeficiency Virus (HIV) in 2018. Of these 79 percent knew their HIV status.(1) Eastern and Southern Africa carries the highest burden of HIV with half of the world's people living with HIV. The region contributed 46% of the world's new HIV infections in 2015.(2)

Kenya is one of the four countries in Africa with high burden of HIV with a prevalence of 4.9 percent. This is a decline from 5.5 percent in 2014. HIV burden is variably distributed geographically across Kenya and thus requires intense efforts to reduce the burden. There were approximately 52,800 new infections across all ages in Kenya in 2017 where 44,800 were adults and 8000 were children aged <14yrs. There is a gradual decline in adult HIV incidence from 0.27% in 2016 to an estimated 0.19% in 2018 with young women aged 5-24yrs accounting for a third of all new HIV adult infections.(3) (4)

Murang'a County is one of the 47 counties in Kenya. It has seven sub counties and an estimated population of 1,004,833 projected from the 2009 Kenya population Census. The estimated number of people living with HIV in Murang'a County is 30,376. By the year 2017, only 13,857 people (45.6%) had been identified and were receiving care and treatment. This is far below the national coverage of 75% and

far off the UNAIDS 909090 targets. (3). To continue reducing the number of new HIV incidence, scaling up of prevention interventions is paramount with an aim at increasing awareness and change in behaviour. HIV Partner Notification Services(PNS) is a strategy in HIV prevention programs where a trained provider requests people diagnosed with HIV to voluntarily provide information about their sexual partners and/or drug injecting partners and efforts are made to reach them for HIV testing(5)

Partner services are underutilized in Kenya therefore more research on the coverage and implementation gaps for HIV Partner Notification services is required. In Murang'a County, Partner Notification Services strategy has been adopted as part of routine HIV testing services(HTS) and is being implemented in all health care facilities offering HTS. There is limited evidence on uptake and effectiveness of use of PNS in sexual partner elicitation, notification and testing in Kenya. The aim of this study findings was to support policy makers and health managers on improving implementation of PNS services aimed at achieving increasing HIV case identification and coverage of care and treatment.

Methods

The study was a retrospective; health facility based study-involving review of secondary data from PNS registers. The registers documented HIV positive index clients who were offered PNS and the sexual partners elicited. The review period covered January 2017 to August 2018. Five health facilities in Gatanga sub county, Murang'a County were purposively selected for review based on the high volume workload, adoption of PNS and availability of care and treatment services. The selected facilities included one sub-county hospital, two health centres and two dispensaries. Enrolment to the study was delimited to availability and completeness of data in the PNS registers for the sampled respondents; that is, indexed clients and sexual partners elicited. Census approach was used to list and enrol 183 index study subjects who met the study criteria.

Data was abstracted using two data abstraction tools and entered into an excel sheet from the PNS registers; the first checklist contained details of all the index clients and the second checklist contained details on all the sexual partners elicited by the index client. The checklist comprised a number of study variables comprising of facility code, subject code, residence, occupation, age, relationship to client, currently living with index client, marital status of the index client and intimate partner violence. Other variables were index client modality, knowledge of HIV status, preferred PNS approach, PNS accepted [y/n], partner reached [y/n], number of attempts to reach, consent to testing [y/n], tested[y/n] and HIV test results [pos/neg/i/na].

Epi-Info, a data analytic software was used to clean the data and perform descriptive statistics for the study. Study authorization and permission sought from relevant institutions. Dummy codes [anonymised] assigned to facilities and study subjects. Password protected databases were also applied as part of confidentiality measures.

Results

Records of 183 index clients in the period between January 2017 to August 2018 reviewed. Mean age for the index clients was 39 [SD±13.1] and most were female 118 [65%]. Table 1 below shows socio-demographic characteristics for the 183 index clients and 216 sexual partners elicited. For both index clients and sexual partners, the highest number were aged between 25-34 years with 31% and 39% respectively. Most of the index clients 100 [55%] were in monogamous marriage while the least [2%] were in polygamous marriage. Youth and teenagers aged 24 years and below were 13% [23] among the index clients and 15% [31] among the sexual partners elicited.

Table 1 Socio-demographic characteristics of index clients and sexual partners

		Index Clients		Sexual Partners	
		Frequency	Percent	Frequency	Percent
Sex	Male	65	36%	119	55%
	Female	118	64%	97	45%
	Total	183	100%	216	100%
Age Category in Years	≤24	23	13%	31	15%
	25-34	56	31%	85	39%
	35-45	52	28%	55	25%
	46+	52	28%	45	21%
	Total	183	100%	216	100%
Occupation	Formal Employment	16	9%	5	2%
	Informal Employment	45	25%	64	30%
	Not employed	26	14%	25	12%
	Self employed	96	52%	122	56%
	Total	183	100%	216	100%
Marital Status	Divorced/Separated	28	15%	No data*	
	Married monogamous	100	55%	No data*	
	Married polygamous	4	2%		
	Single	41	22%		
	Windowed	10	6%		
	Total	183	100%		

* The PNS registers did not capture the marital status of the sexual partners

PNS Acceptance

Overall, 162 [89%] index clients accepted PNS as shown in figure 2 below. Acceptance rate was higher among male index clients [92%] than in female [86%]. The rate of acceptance per health facility slightly varied with Ngelelya dispensary having a 100% acceptance rate and the lowest was lthanga health centre, 81% as shown in figure 1 below. Of the 21 index clients who did not accept PNS, most were female 16 [76%]. Acceptance rate was highest among index clients aged 25-34yrs [56,93%] with the lowest being among index clients aged 35-45yrs [43,83%].

Among the index clients, 21 [27%] elicited two or more sexual partners and 27 of them were secondary index clients. {Secondary Index client is one who had been listed by another index client}.

PNS Approach and Relationship Status

The most preferred approach of contacting and tracing the sexual partners was Provider referral [92, 50%], and the least preferred was Dual referral [7, 4%] as shown in figure 3 below. Only 50% of SPs followed through dual referral approach were successfully reached and tested followed by provider referral approach where 84% were successfully reached and tested. Contract referral approach recorded the highest success rate in reaching SPs where 97% were successfully reached and tested.

Majority of index clients reported they were not currently living with their listed sexual partners [154, 57%]. While only 15% [34] of sexual partners had their HIV status known by their index clients, for most of the sexual partners [182, 85%] HIV status was unknown to the index clients.

Elicitation of sexual partners

Among male index client 25[42%] listed two or more sexual partners which is higher than that of female index clients where only 25[25%] listed two or more sexual partners as shown in Table 2 below. For index clients aged below 25years 9[43%] elicited 2 or more sexual partners while among index clients with formal employment 56% elicited 2 or more sexual partners.

Table 2 Table showing demographics of index clients by number of partners elicited

		Index clients who elicited one or Zero Sexual partner		Index clients who elicited 2 or more Sexual partners		
		No.	Percent	No.	Percent	Total
Age Category	<25	12	57%	9	43%	21
	25-35	38	66%	20	34%	58
	36-46	22	59%	15	41%	37
	>47	40	87%	6	13%	46
Sex	Female	77	75%	25	25%	102
	Male	35	58%	25	42%	60
Marital Status	Divorced/Separated	17	71%	7	29%	24
	Married monogamous	68	72%	27	28%	95
	Married polygamous	2	50%	2	50%	4
	Single	21	64%	12	36%	33
	Windowed	4	67%	2	33%	6
	Employment Type	Formal Employment	7	44%	9	56%
Informal Employment		27	64%	15	36%	42
Not Employed		15	83%	3	17%	18
Self employed		63	73%	23	27%	86

Outcome for sexual partner tracing

For the 172 SPs who attempts to reach them was made by health care providers, 157 [91%] were successfully reached. Of the sexual partners who only one attempt had been done, 99% were reached and the rate reduces with more attempts to reach the sexual partners where only 70% of the sexual partners with three attempts made to reach them were successfully reached. [Table 3 below]

Table 3 Table showing number of sexual partners reached and number of attempts made [n=172]

Attempts to reach sexual partners	Sexual partners reached[%]	Sexual partners not reached[%]
First attempt	91(53%)	1(1%)
Second attempt	51(30%)	8(3%)
Third attempt	14(8%)	6(9%)
Total	157(91%)	15(9%)

Ngelelya dispensary had the highest positivity rate of 59% followed by Ithanga Hc with 49% and the lowest positivity rate was reported in Gatura Hc [10%]. [Table 4 below].

The ratio of sexual partners to index clients varied across the health facilities where Gatura had the highest ratio of 2.10:1. Overall ratio of sexual partners to index clients was 1.33:1 as shown in table 4 below. Out of 182 sexual partners eligible for HIV testing, 141[77%] were successfully tested with 46 [32.6%] identified as HIV positive.

Table 4 Table showing outcomes of sexual partners tracing and HIV testing per health facility

Health facility	Index clients accepted PNS	Sexual partners elicited	Ratio of partners to index clients	Sexual partners eligible for testing	HIV tested	Positivity rate
Kirwara	63 (91%)	89	1.41	65	44 (68%)	11 (25%)
Ithanga	38 (81%)	37	0.97	37	37 (100%)	18 (49%)
Gatunyu	31 (86%)	29	0.94	21	13 (62%)	4 (31%)
Gatura	21 (95%)	44	2.10	42	30 (71%)	3 (10%)
Ngelelya	9 (100%)	17	1.89	17	17(100%)	10(59%)
Total	162(89%)	216	1.33	182	141(77%)	46(32.6%)

Discussion

These study findings demonstrate that PNS is generally acceptable and effective in increasing HIV case identification. The findings of this study on PNS acceptance shows a higher rate of PNS uptake than that of another RCT done in Kenya where acceptance rate was 67%(6). Routine implementation of the PNS as part of HTS in health facilities would contribute to increased HIV case finding. The ratio of sexual

partners to index clients varied significantly across gender and health facilities. The strategy was most effective in eliciting male SPs. This is similar to a study done in Tanzania where male index clients were found to be 6.2 times more likely to list more than one sexual partner(7). There were more female index clients than male hence the high rate of male sexual partners' elicitation. Further, uptake of voluntary HTS is higher among females compared to males.

PNS shows potential benefits for increasing HIV case identification as well as increasing awareness of possible exposure to HIV among SPs (6). Undertaking more than one follow up to reach the sexual partners increases the potential for successful elicitation.

HIV testing uptake among partners elicited varied as well across the various facilities with lowest uptake being 62% and highest being 100%. This is attributed to the effectiveness of the different methods of reaching out to the partners as preferred by index clients as well as the level of elicitation skills of the HTS provider. Contract referral approach is the most effective approach in reaching sexual partners. However, provider referral approach was the most preferred approach by the index clients. These findings are contrary to a study on outcomes of PNS done in Tanzania where almost all index clients chose passive referral approach(7).

The study established first time contact acceptance rate of PNS among clients to be higher compared to that of index clients previously identified. This is similar to findings in a study in Tanzania on outcomes and experiences of men and women with partner notification for HIV testing (7). An RCT done in Kenya also showed similar findings where immediate PNS significantly increased partner HIV testing compared to delayed group (10).

Conclusions

Partner notification services is an effective strategy of increasing HIV case identification in high prevalence areas such as Sub Saharan Africa. With many people engaging in sex with HIV positive individuals, increasing vulnerability to HIV infection, PNS has demonstrated to be a better way of reaching those exposed for testing and thus increase potential for protection against infection with HIV.

To achieve the ambitious 909090 targets as stipulated by WHO in the fight against HIV/AIDs, adoption of PNS in routine HTS is worth and will accelerate achievement of first 90, which is the entry point to care and treatment for HIV positive people. PNS is acceptable and implementable in all levels of health facilities.

Key messages

- Partner notification services is an effective strategy for HIV case identification in developing countries where HIV uptake is low
- Provider referral is the most preferred approach of contacting sexual partners for HIV testing; however, contract referral approach had the highest success rate of reaching and testing the sexual partners.

- PNS is most effective when reach out messages are provided in more than one attempt; Only half of sexual partners are successfully reached in subsequent attempts after initial contact is made

Limitations of the study

This study results have some shortcomings. Considering the study used secondary data, there were some incomplete data such as on marital status for sexual partners, which was not documented.

Abbreviations

AIDS	Acquired Immune Deficiency Syndrome
FELTP	Field Epidemiology & Laboratory Training Program
HIV	Human Immunodeficiency Virus
HTS	HIV Testing Services
MoH	Ministry of Health
PNS	Partner Notification Services
RCT	Randomized Control Trials
SPs	Sexual Partners (SPs)
UNAIDS	United Nations Programme on HIV and AIDS
WHO	World Health Organization

Declarations

Ethics approval and consent to participate

Researchers received permission from Murang'a County Government, Department of Health to conduct the study. The study used secondary data extracted from registers used in health facilities with anonymous identification details of the clients.

Conflict of interest

Authors have no conflict of interest in this study.

Consent to Publish

Not applicable

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Authors Contributions

Rewel Kariuki conceptualized this study. All the other authors provided technical review in developing, designing and implementation of the study. All the authors participated in the drafting and review of the paper.

Acknowledgement

We acknowledge the valuable contributions of FELTP- Kenya faculty, Murang'a County Health Management Team and HTS providers in the participating facilities.

Availability of data and materials

The dataset used for this study is available from the corresponding author on reasonable request

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Figures

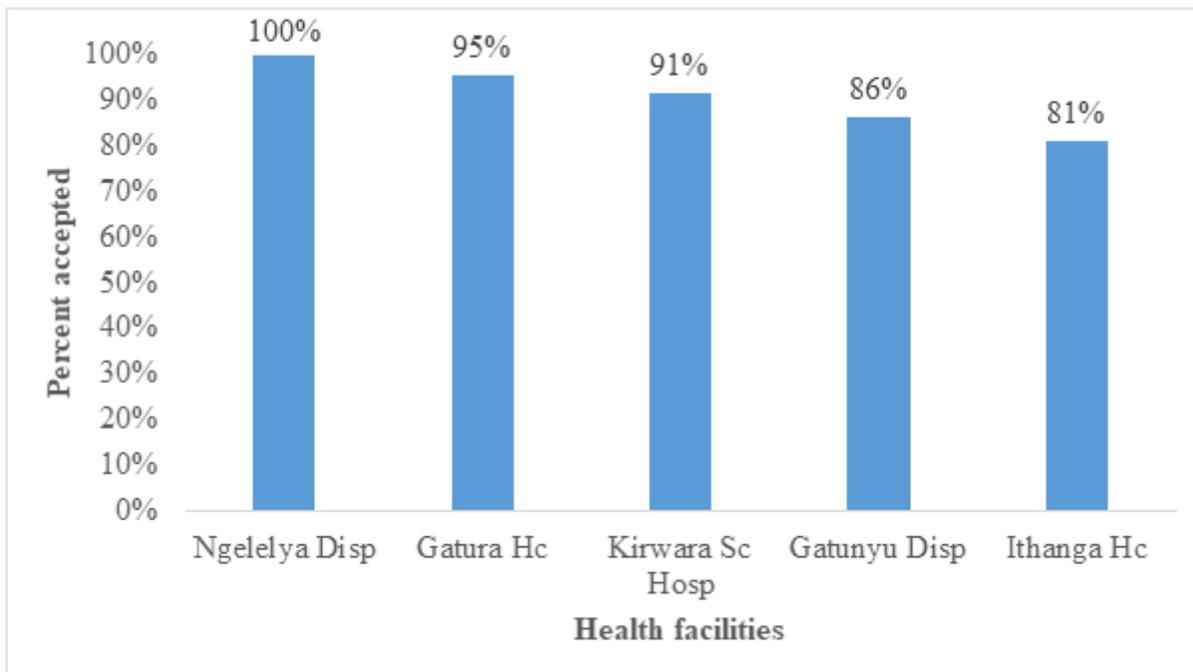


Figure 1

PNS acceptance by health facility



Figure 2

Indexed Clients by sex, number of sexual partners elicited and PNS acceptance

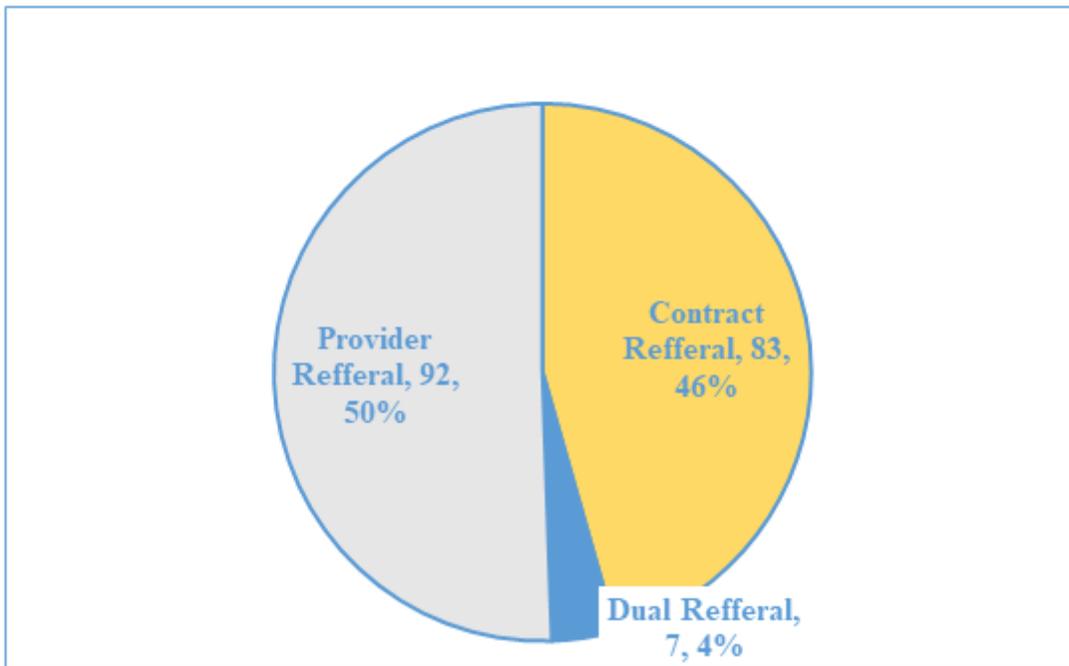


Figure 3

PNS approach as preferred by index clients [n=182]