

# Health System Factors Associated With Patient Driven Referral for Health Services among Outpatients at the County Referral Hospital in Nyeri, Kenya

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**Abstract**— Research notes that a functional referral process in chain of health service delivery influences access, quality, and health outcomes. Data in Nyeri County shows that clients bypass the primary level facilities and present themselves to referral facilities, thus placing huge demands on these facilities. This study sought to establish health system factors associated with patient driven referral for healthcare services at the County Referral Hospital (CRH) during Universal Health Coverage (UHC) implementation. We conducted a descriptive cross-sectional survey targeting patients and health care professionals at the CRH in Nyeri. Administration of structured questionnaires and key informant interviews were carried out to acquire qualitative and quantitative data. We calculated a sample size of 402 respondents. Data was analyzed using SPSS version 23 and MS excel. Chi-Square tests done at 95% confidence interval determined the association, while thematic analysis was applied for qualitative data. A total of 384 respondents participated in the study. The study found that majority of respondents were female (54%), young (32%), self-employed (45%), had low income (41%) and lived in rural areas (65%). 187(48.7%) of the respondents said they were not satisfied with health care services they received at a lower-level facility. Chi-square results showed that distance to health facility ( $p=0.000$ ), infrastructure ( $p=0.004$ ) and general satisfaction ( $p=0.000$ ) were significant. Descriptive results showed that respondents were dissatisfied with waiting time, patient-doctor relationship, lack of medicine, and lack of information. The study therefore concluded that patient driven

referral for health care services among outpatients was influenced by health system factors. The findings of this study call for strengthening of the health systems especially the buildings blocks of health service delivery, medical products vaccines and technology, and health care financing. The need is to improve service availability and quality at lower levels of care.

**Index Terms**— Health services, Kenya, Nyeri, patient referral,.

## I. INTRODUCTION

Patient driven referral means that patients present themselves to a referral health facility by their own. They initiate the process, without being advised to do so by any health worker or health facility not bearing in mind if the illness would have been managed at a lower level or not. Literature shows that, this incorrect use of services results in overcrowding at the receiving facility, increased patient waiting time, reduced utilization rates of services at the primary facilities, and increased costs for health care. Patient driven referral also places an increased burden on tertiary levels of health services, and planning and assigning of resources may not be done accurately, as the health center catchment population is usually surpassed (Pillay & Mahomed, 2019).

Globally, it is noted 20-40% of total expenditure on health was spent inefficiently. This was as a result of several factors, but overcrowding of higher-level facilities by patients who bypassed primary facilities and self-referred to tertiary facilities was a major factor. The correct vision was that higher number of clients with simple conditions be served by PHC, while more complicated cases be managed by the higher level facilities or consultant services through appropriate referrals (Wangmo, 2018).

Comprehensive Primary Health Care (PHC) and correct, timely referral to better hospital care was put forth by the Alma-Ata Declaration in 1978; It was re-emphasized in 2008 and 2018.

Existing studies have analyzed indicators related to health workforce, transport infrastructure, linkages in communication, and financial resources to expound on some of the bottlenecks encountered during the referral policy implementation in middle and low income countries (Amoah & Phillips, 2017). A costing study revealed that the mean financial implication of treating an outpatient case at a receiving referral facility in Bhutan per visit is US \$13, which was two times higher than at district hospital, and tens fold

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higher than at a basic health unit (Ministry of Health Bhutan, 2015).

A study conducted in Thailand revealed that the expenses incurred during outpatient attendance to the regional hospital was over thrice as expensive as a visit to a district hospital (International Health Policy Program, Thailand, 2017). In Nigeria, 84% of children admitted into tertiary health facilities with meningitis were patient driven referrals (Akpede, G.O, Omigbeberale et al 2005). In Kenya by passing of primary care facilities is noted to be a major challenge in referral systems ((Health, n.d.)(Ministry of Health Kenya, 2013)

In Kenya the mandate of the counties in devolved government includes providing of appropriate health care services and coordination of referrals across county health pharmacies and facilities. The Kenya Health Policy 2012–2030 and the Kenya Health Sector Strategic and Investment Plan, both recognized the need to strengthen the existing referral approaches in Kenya as means of improving order and effectiveness in the health service delivery thus better health outcomes ((Second, Term, & For, 2017)(Ministry of Health Kenya, KHSSP 2013-2017).

In Kenya about 32,987 deaths occur annually in cancer patients due to non-compliance to referral recommendations (Globs can report, 2018). There has been an influx of patients in referral health facilities in Nyeri spurred by the free services under UHC implementation and by-passing of primary facilities leading to overcrowding. The estimated Doctor to population ratio at the County Referral Hospital is 1:5000 (Kenya Open Data) compromising the quality of care offered.

A functional referral process in chain of service delivery has been noted to influence access to services, the quality of care and health outcomes. Patient compliance to referral processes for health care in Nyeri is currently sub-optimal. There was scanty data on the status and factors associated with patient driven referral for health care. UHC is a global goal, and since Nyeri is piloting it, there are global implications as surges at tertiary centers will make cost of UHC unsustainable. Thus, this cross-sectional study was conducted in Nyeri County, Kenya to establish factors associated with patient driven referral among outpatients at the County Referral Hospital with the aim of identifying hindrances to compliance of referral recommendation.

Translating policies on referral into practice is a continued

challenge in most developing countries (Al-Namash et al., 2011). It is hindered or enhanced by client -side elements such as transport, health-seeking behavior and trust with health systems and health system-side components such as medication availability, diagnostic ability, competent and motivated professionals and monetary allocations. A study conducted in Kiambu county by Kamau, Onyango-osuga and Njuguna (2017) on challenges facing implementation of referral systems found that most of the facilities in the county have challenges in infrastructure, health care workers capacity, information systems and finances. For referral to be a success, there should be access to referral care facilities, staff that are well trained to provide quality care, availability of equipment, supplies and medication. A study in Gombe state of Nigeria showed there was poor synergy among the various tiers of health care system leading to poor patient care (Agofure, 2018).

Patients will visit any facility that they feel will meet their needs, regardless of whether it's the most appropriate level or not therefore systems should be strengthened to ensure it happens at a facility nearest at least cost and good quality.

## II. MATERIALS AND METHODOLOGY

The study employed a cross-sectional survey design with a mixed methods approach of data collection. The research examined effect of health system factors i.e. (Facility infrastructure, linkages between facilities, ambulances for emergencies, distance to health facility, waiting time at the facility) on patient driven referral. The study was carried out in Nyeri County which is located in central Kenya. It has an area of 3,337 sq. km, population of 759,164 and a population density of 208 people per Sq. Km. Study population was outpatient clients, health care workers and identified managers at the County Referral hospital in Nyeri. Systematic random sampling without replacement was used to recruit patient respondents. Purposive sampling was used to pick key informant interviews (KII) who were hospital managers, based on their area of expertise.

The sample size was calculated by Fischer's et al 1998 formulae and 10% of subjects was added to cater for non-responses. Thus, 402 subjects fitting the inclusion criteria were interviewed.

**Table 1: Probability proportionate to size**

Outpatient department	Number of clients Jan-Mar 2019	Proportion	Sample Size
Clinical outpatient	2140	$2140/8076*402$	107
Dental	306	$306/8076*402$	15
Radiology	928	$928/8076*402$	46
IMCI	1531	$1531/8076*402$	76
ANC/FP	817	$817/8076*402$	41
Laboratory	1328	$1328/8076*402$	66
Special clinics	667	$667/8076*402$	33

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Occupational therapy	359	359/8076*402	18
<b>TOTAL</b>	<b>8076</b>		<b>402</b>

Structured questionnaires and KII guide were formulated to guide in collecting data from respondents. A pretest of the data collection tools was conducted by at Karatina level four hospital before the actual research. Reliability was estimated by internal consistency using Cronbach's alpha. For this study,  $\alpha$  was 0.821 which was good.

Data analysis was done using SPSS version 23 software and Microsoft office excel. Data was analyzed and presented in frequencies and percentages. Inferential statistics where Chi square tests were done at 95% confidence interval with p value <0.05 being significant. Logistic regression analysis

was used to determine the relationship between the dependent and independent variables. Qualitative data was analyzed by generation of themes. Results were presented in tables and figures

### III. RESULTS

A total of 384 respondents participated in the study. This represents a response rate of 95.5%, and table 2 shows response rate by department.

**Table 2: Response Rate**

Outpatient department	Sample Size	Number of respondents	Response rate (%)
Clinical outpatient	107	100	93.5
Dental	15	15	100.0
Radiology	46	45	97.8
IMCI (Integrated management of childhood illness)	76	75	98.7
ANC/FP	41	38	92.7
Laboratory	66	64	97.0
Special clinics	33	30	90.9
Occupational therapy	18	17	94.4
<b>Total</b>	<b>402</b>	<b>384</b>	<b>95.5</b>

Five key informants (100%) response rate were interviewed on health system aspects and guidelines the hospitals used in the referral process.

#### A. Socio-demographic Characteristics of Respondents

Demographic characteristics assessed included sex, age, level of education and income of respondents. In addition, the residence and nearest health facility were inquired. Results in Table 4.2 show that 210 (54.7%) of the respondents were female, 126 (32.8%) were aged between 25 and 34 years while 86 (22.4%) were aged below 24 years. The mean age was 33 years. Majority 194 (50.5%) of the respondents had

acquired secondary education while 108 (28.1%) of the respondents had acquired primary education as their highest level of education. On occupation, 176 (45.8%) were self-employed. However, 96 (25%) were unemployed. Further 158 (41.1%) of the respondents had an income of between Ksh.5,000 - Ksh.25,000 while 99 (25.8%) had an income of between Ksh.25,000 - Ksh.45,000. The mean income was USD 140. Majority (65.1%) of the respondents resided in a rural area. For majority of the respondents 273 (71.1%), the study site (Nyeri County Referral Hospital) was not their nearest health facility.

**Table 3: Socio-demographic characteristics of respondents**

Demographic characteristic	Category	Frequency (n=384)	Percent (%)
Sex	Male	174	45.3
	Female	210	54.7
Age (years)	<24	86	22.4
	25 – 34	126	32.8
	35 – 44	54	14.1
	45 – 54	63	16.4
	55 – 64	43	11.2
	> 65	12	3.1
Level of education	Primary	108	28.1
	Secondary	194	50.5
	Tertiary	82	21.4

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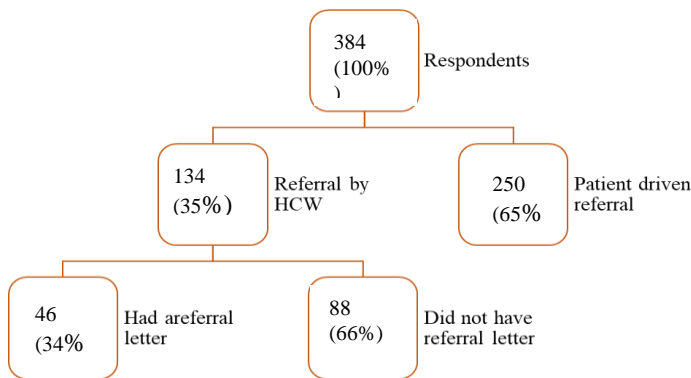
Occupation	Employed	56	14.6
	Self-employed	176	45.8
	Unemployed	96	25.0
	Student	56	14.6
Average monthly income	< Ksh.5000	57	14.8
	Ksh.5000 - 25,000	158	41.1
	Ksh.25,000 - 45,000	99	25.8
	Ksh.45,000 – 65,000	56	14.6
	> Ksh.65,000	14	3.6
Residence	Rural	250	65.1
	Urban	134	34.9
NCRH is nearest Health Facility	Yes	111	28.9
	No	273	71.1

### B. Respondents' Referral Practices

Figure 1 presents the respondents referral practices. Majority 250(65.1%) of the respondents in the study were not referred to Nyeri County Referral Hospital by a health worker. Among those referred by a health care worker, majority 88(66%) did not have a referral letter.

Table 4 shows 33.6%(n=45) were referred from a level 4 facility, 31(23.1%) from a level 3 facility and 26(19.4%) were referred from a private clinic to study site which is a level five facility. 44(32.8%) were referred for a child's illness, 29(21.6%) were referred for diabetes and 17.2% (n=23) were referred for hypertension.

**Figure 1: Respondents' referral practice**



**Table 4: Facility referred from and condition referred for**

Referral aspect	Response	Frequency	Percent (%)
Referred from (n=104)	Level 4	45	33.6
	Level 3	31	23.1
	Level 2	15	11.2
	Level 1	17	12.7
	Private clinic	26	19.4
Condition referred for	Child's illness	44	32.8
	Diabetes	29	21.6
	Hypertension	23	17.2
	Cancer	11	8.2
	Surgery	14	10.4
	Others	13	9.7

### C. Health System Factors Associated with Patient Driven Referral

Results show that 106 (27.6%) lived between 21-30

kilometers from Nyeri County Referral hospital while 99(25.8%) lived over 31 kilometers away. The mean distance was 27.6 kilometers. On waiting time, 146(38%) waited for over an hour to receive services while 132(34.4%) waited over two hours. Slightly above half 198(51.6%) rated the patient-doctor relationship as poor. On infrastructure,

majority 247(64.3%) rated the hospital's infrastructure as good. Slightly less than half 187(48.7%) were not satisfied with the health services received while 102(26.6%) were moderately satisfied. On reasons for their level of dissatisfaction, 188(49%) cited long waiting times and 156(40.6%) indicated lack of medicine. Tests were conducted

between health system factors and patient driven referral. Results in Table 5 show that distance (p=0.000), infrastructure (p=0.004) and general satisfaction (p=0.00) were significant.

**Table 5: Association of Health System Factors and Patient driven referral**

Variable	Patient driven referral Freq. %	Not patient driven referral Freq. %	Chi square	df	P value
Distance Kms <20 >20	148 (38.5) 102(26.5)	21(5.5) 113(29.4)	67.08	1	.000**
Waiting time < 1 hour >1 hour	42(10.9) 208(54.1)	14(3.6) 20(31.5)	2.826	1	.093
Pt/ Dr. Relation Good Poor	109(28.4) 141(36.7)	56(14.6) 78(20.3)	2.575	1	.108
Infrastructure Good Poor	144(37.5) 106(27.6)	57(14.8) 77(20.1)	7.934	1	.004**
General satisfaction Satisfied Not satisfied	91(23.7) 159(41.4)	106(27.6) 28(7.3)	63.68	1	.000**

*D. Measure of association of variables with patient driven referral*

Further logistic regression analysis was conducted. Significant variables in the chi-square tests were used. The results are presented in Table 6 showing that distance to health facility (OR= 7.81;95% CI 04.59-13.26) hospital infrastructure (OR=1.84;95% CI 1.20-2.81) and general satisfaction with services (OR=0.15;95% CI 0.09-0.25) were significant.

**Table 6: Measure of association of variables and Patient driven referral**

Variable	category	Patient driven referral N %	Not patient driven referral N %	OR 95% CI	P value
Distance in kms	<20	148(38.5)	21(5.5)	7.81 (4.59-13.26)	<0.0001
	>20	102(26.5)	113(29.4)		
Infrastructure	Good	144(37.5)	57(14.8)	1.84 (1.20-2.81)	0.0051
	Poor	106(27.6)	77(20.1)		
Satisfaction with services	Satisfied	91(23.7)	15(41.4)	0.15 (0.09-0.25)	<0.0001
	Not satisfied	106(27.6)	28(7.3)		

*Discussion*

The study sought to determine health system factors associated with patient driven referral for health care services among outpatients at the Nyeri County Referral hospital. The study found that on average, distance to Nyeri County Referral hospital was 27.6 kilometers. Slightly less than half (48%) said they were not satisfied with the health services they received at lower-level health facilities. Descriptive

results from KII (100%) showed that respondents were dissatisfied with waiting time and patient-doctor relationship. Four out of five KII said lack of medicine and lack of information were other factors cited for dissatisfaction. Also identified was shortage of staff (3/5), inadequate infrastructure (5/5) and lack of medication (4/5). Cross tabulation showed that respondents living less than 20 kilometers away, those who waited for over an hour and those who said they were not satisfied with services were more

likely to practice patient driven referral. Patients who are dissatisfied with facility's services are likely to practice patient driven referral in search of better services. This is in agreement with Kamau et al. (2017) who indicated that for referral to be a success, there should be access to referral care facilities, staff that are well trained to provide quality care, availability of equipment, supplies and medication. The finding is also in agreement with Al-Namash et al. (2011) findings that system-side factors such as availability of medication, diagnostic ability, competent and motivated health staff and financial allocations hinder referral process. Agofure (2018) also showed that there was poor synergy among the various tiers of health care system leading to poor patient care. The study concludes that patient driven was practiced by majority of patients seeking health services at the Nyeri County Referral hospital. Health system factors associated with patient driven referral for health care services among outpatients at the Nyeri County Referral hospital included distance to facility, infrastructure and general satisfaction. Respondents living less than 20 kilometers away from the referral hospital, who felt the infrastructure at primary facilities was not adequate as compared to the referral hospital and those not satisfied with health services in these facilities were more likely to practice patient driven referral. This necessitates a study into the referral process from the perspective of health care workers in primary and secondary level health facilities. The current study only focused on Nyeri County Referral hospital. A similar research ought to be conducted out in other county referral hospitals for comparison. Governments need to ensure that primary health facilities are adequately staffed and well equipped especially with medicines and diagnostic equipment. Also developing messages on how to identify facilities nearest to clients and services available there. Referral centers to consider reverse referral for ailments that can be treated in lower-level facilities by linking and coordinating cooperation between upper level and lower-level hospitals as suggested by D. Teng and N. Li (2018).

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