

Does a formal referral system work? Case study of a tertiary teaching and referral hospital in Kenya: Pre-posttest study

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Research Article

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Abstract

Inappropriate utilization of higher-level health facilities and ineffective management of the referral processes in resource-limited settings is increasingly becoming a concern in health care management in developing countries. This is characterized by self-referrals and frequent bypassing of nearest health facilities coupled with low use of formal referral mechanisms. This scenario lends itself to a situation where uncomplicated medical conditions are unnecessarily managed in a high-cost health facility. This compromises the ability and capacity of Kenyatta National Hospital to function as a referral facility as envisioned by Kenya Health Sector Referral Implementation Guidelines of 2014, Kenya 2010 constitution and Kenyatta National Hospital legal statute of 1987. On 1st July 2021, Kenyatta National Hospital (KNH) did enforce the national referral guidelines that required patients have a formal referral letter to reduce the number of self-referrals, decongest KNH and allow KNH to function as a referral facility as envisioned by Kenya Health Sector Referral Implementation Guidelines of 2014, Kenya 2010 constitution and KNH legal statute of 1987. The purpose of this study was to analyse the effect of enforcement of national referral guidelines on use of official facility referral letters to KNH. This was a pre-posttest study design. The study was conducted amongst the orthopedic and trauma facility referrals in 2021 with 222 and 246 before and after enforcement of referral guidelines respectively. Data collection was done through data abstraction. Data was analyzed using frequency distribution, Pearson chi-square test and logistic regression. The enforcement of the national referral guidelines had no effect on the use of the official written referral letters as per the requirement of the national referral guidelines amongst the orthopedic and trauma admissions at KNH ($p = 0.524$). Over 80% of facility referrals were young and middle-aged patients before and after enforcement of the referral guidelines with children and elderly representing the minority. Most of the facility referrals had had primary and secondary level of education with admissions. Women, elective patients and those with higher education were more likely to have a written referral letter ($p < 0.05$). In conclusion, enforcement of the referral guidelines had no effect on use of the official written referral letters to KNH. There is need for capacity building of health care workers on effective referral process by designing and disseminating referral SOPs and standardized documentation for referrals and regular referral review forums to review coordination, encourage accountability and continuous improvement and referral performance monitoring.

Background

Referral is a mechanism to comprehensively manage clients' health needs by using resources beyond those available where they access care. It is the process by which a given level of health services that has inadequate capacity to manage a given health condition or event seeks the assistance of a higher level of healthcare delivery to guide or take over the management of the condition. With this approach, the Kenya health sector has developed a referral strategy, standard guidelines, and forms to guide the sector in building an effective system that responds to the needs of both rural and poor populations and in the process improve equitable access to quality health services to all Kenyans in an effort to reverse the

declining health indicators. In this way, the health sector can contribute towards Kenya's realization of Vision 2030, the Millennium Development Goals, and other health-related targets (1).

The Kenya Health Policy 2012–2030 has identified the need to strengthen the referral system in Kenya as a way of improving efficiency in the health system and improving patient outcomes. In the 2012–2018 Kenya Health Sector Strategic and Investment Plan (KHSSP 2012–2018), referral systems strengthening is one of the seven priority areas under investment area one of service delivery systems. Some of the critical investment priorities for the referral system outlined in the KHSSP 2012–2018 include (1) updated referral tools and guidelines at all levels (2) orientation of the management teams on their referral roles and functions (1). According to Kenya Medium Term plan 2013–2017, increasing the utilization of services at lower levels of the health services and reduce self-referral to the higher levels of care is one of the key priorities to improve access to health care (2).

Kenya devolved system of government provides for one (1) national government and forty-seven (47) county governments. The Fourth Schedule of the Constitution, has assigned different functions to the two levels of government. In the devolved system, the mandate of the national-level MOH consists of provision of care and management of the national referral health facilities, formulation of health policy, development of norms, standards and guidelines, and provision of capacity building and technical assistance for the counties. The mandate of the counties includes, among others, the provision of health services and management of referrals in county health facilities and pharmacies (1, 3).

The delivery of the Kenya Essential Package for Health (KEPH) health services in Kenya is organized across six levels of care, beginning at the community level and continuing through primary care services, which include dispensaries (level 2) and health centers (level 3) and county referral health services (level 4 & 5) all the way to the national referral health services (level 6) (Fig. 1). The strengthening of referral linkages across service delivery units is one of the elements in the health policy strategy to achieve an efficient health service delivery system that maximizes health outcomes (6, 7). Level 4 are primary referral health facilities; level 5 are secondary referral health facilities and level 6 are tertiary referral health facilities. These six levels of care fits into 4 tiers of care. The first tier consists of the community health units. The second tier consists of the primary health care facilities that have dispensaries, health centers and private maternity and nursing homes. The third tier consists of the county referral facilities, which include the former primary and secondary hospitals. The fourth tier, the national referral facilities that offer highly specialized care, is used for training and support research (Fig. 1). Health facilities in the various tiers of care include government-owned facilities, faith-based organizations, and private health institutions. (3, 6, 8).

Some of the challenges in health referral systems in most developing countries include noncompliance with referrals (9, 10) delays in referral completion (11–13) high numbers of self-referrals to higher-level referral facilities (11, 14). This is because of lack of awareness on where to get cost-effective health services for different conditions, perception that lower levels of care provide lower quality of care for uncomplicated health conditions, the system delays referrals to the next level of care in cases when

complications require an emergency intervention and lack of primary care facilities within geographical reach of the clients and the fact that the tertiary health facilities are the closest facilities (7, 15). Many people have the perception that lower levels in the health care system provide lower quality care; therefore, they seek care at higher levels in the system, where specialists are concentrated (16, 17). This preference for higher levels of care, even for simpler ailments, is not cost effective. In addition, a shortage of health workers across the health care system, especially at lower levels, lends credence to the client preference for higher, rather than lower, levels of care (1). Some of the policy challenges are lack of bypass policy. Incentives exist to use lower-level facilities, such as provision of services free of charge in levels 2 and 3 facilities, but Kenya does not have a referral bypass policy. It has no policy to require clients to report at levels appropriate for the management of their health needs, which often results in inappropriate self-referral to higher levels of care (8). Patients often refer themselves to higher levels of care bypassing lower-level facilities. The need to have efficient delivery of health care services at the different levels in terms of rational use of health care services and equitable services to the rural and the poor populations cannot be over-emphasized. Due to inadequate knowledge on the organization of services and the perceived low quality of services offered at lower levels, clients often by-pass available services at those lower levels where services could be provided more cost effectively. In order to provide health services equitably and cost-effectively, there is need to strengthen the referral system. For all the health care service delivery levels to provide the much-needed health services equitably and cost-effectively, the referral system needs to be strengthened.

Kenyatta National Hospital (KNH) was established as a National Referral and Teaching Hospital, to provide training and medical research. KNH was established in 1901 and became a State Corporation in 1987 and sits at the peak of the health referral system in Kenya (18). According to the KNH Board order of 1987 contained in the Legal Notice No. 109, the functions of KNH were spelled out as a) to receive patients on referral for specialized health care; b) to provide facilities for medical education for the University of Nairobi and other health allied courses; c) to contribute to national health planning (18). This understanding has been reinforced by the Kenya Health Sector Referral Implementation Guidelines, 2014, and the Constitution of Kenya 2010 which tasks KNH with the responsibility for health policy formulation (3, 19).

For a referral system to be considered well-functioning, it needs to have active collaboration between referral levels and standardized referral protocols for the referring and receiving facilities and government support of the referral system through referral health policy (1, 20–22). A standardized referral form should be used for all referral cases, as provided in the national referral guidelines. Every patient referred out should be accompanied by a written record of the clinical findings, the treatment given before referral, and a specific reason for making the referral. A carefully completed referral form can help a client receive timely attention at the receiving facility and improve health outcomes (3, 6–8). Roles and responsibility of the referring health facility is to complete the standard referral form with all the necessary information and attach relevant documentation that are complete and legible (6). However, low utilization of the referral forms is common (1, 23, 24). Therefore, the objective of this study was to determine if the enforcement of the national referral guidelines at KNH influences the use of formal referral letters.

Methods and Materials

Study design

This was a pre-post-test study design. The national referral implementation guideline was enforced on 1st July, 2021. The pretest covered 5 months before enforcement of referral guidelines (February 1, to June 30, 2021) while post-test covered 5 months after enforcement of the referral guidelines (August 1, to December 31, 2021). The variables compared were socio-demographic factors namely age, sex, marital status, religion, occupation, education level, type of health facility, health facility tier, and nature of admission before and after enforcement of the referral guidelines. Enforcement of referral guidelines required that the referring health facility consults with KNH referral Office for concurrence before patients are referred to KNH and that patients should come with written official referral letters. This was to ensure only patients who require specialized orthopaedic and trauma care not available at the peripheral health facilities get referred to KNH.

Study area

KNH is the largest teaching and referral hospital in East and Central Africa. KNH Orthopaedic Wards were the study area. KNH is based in Upperhill, Nairobi, the capital city of Kenya. It is located along Hospital Road, about 5km from the city centre. KNH has a bed capacity of 1,800, 6,000 + staff members, 50 wards, 22 out-patient clinics, 24 theaters (16 specialized) and Accident & Emergency Department (18). Of the 1800 bed capacity, 96 beds are allocated to orthopaedic wards. KNH is a 10-floor storied building complex and the Orthopaedic wards are located on the 6th floor but we also have orthopaedic admissions in private wings on 9th and 10th floor. Orthopaedic patients with other co-morbidities also get admitted to other wards in KNH.

Study duration

The study duration was from 1st February 2021 to 31st December 2021. The referral guidelines were enforced from 1st July 2021.

Study population

Orthopaedic inpatient caseload before and after enforcement of referral guidelines.

Eligibility criteria

Inclusion criteria

All orthopaedic and trauma facility referrals to KNH during the study period.

Sample size calculation

Sample size was calculated using an adjusted Casagrande formula for calculating sample sizes that compare two binomial distributions (25).

A sample size of 468 facility referrals were enrolled during the study period with 220 and 248 facility referrals before and after the enforcement of national referral guidelines.

Recruitment and sampling procedures

Three (3) research assistants (RAs) were recruited to collect and abstract patient data from patient files. The RAs were health care workers with a diploma in Orthopedic Trauma and with some experience in research data collection. The Principal Investigator (PI) was the research coordinator for the data collection. The orthopedic and trauma admissions with facility referrals were identified from the a) admission desk of Health Information System at KNH Accident and Emergency Unit (A&E) b) KNH Orthopedic Outpatient clinic records (OC) c) KNH Corporate Outpatient Care (COC). They were then recorded in a logbook. This logbook served as a master register for all facility referred patients admitted and therefore the sampling frame for the study. All facility admissions were logged into the logbook from the admission books stationed in these three (3) services points. Proportional Population to Size (PPS) was then used to decide on the numbers to be sampled per month from each of these three services points so that the sample size would be a representative of the admissions by month from each of these three orthopedic admissions entry points (Table 3).

Table 3
Orthopaedic and trauma facility referrals admissions to KNH stratified
by point of admission, 2021

Month of the year, 2021`		Point of admission			
		A&E	Clinic	COC	Total
Before	February	52	3	3	58
	March	40	1	3	44
	April	37	0	3	40
	May	33	2	2	37
	June	39	1	1	41
	Total	201	7	12	220
After	August	42	2	2	46
	September	52	3	4	59
	October	55	2	4	61
	November	22	0	12	32
	December	43	2	3	48
	Total	214	9	25	248

The three (3) RAs were reporting to and working under the direction of the PI. The RAs were trained for two (2) days by the PI on the research protocol, data collection tools, data collection procedures and that included pilot testing of the data collection tools as well before the actual data abstraction.

A written Informed consent was obtained from KNH Medical Research Department to have access to the patient's health records in the Health Information Office (Room 19).

Variables

The variables abstracted were admission date (dd/mm/yyyy), age of the patient, sex, marital status, religion, occupation, education level, type of health facility, health facility tier, and nature of admission.

Data collection procedures

Data collection was done through a data abstraction form from the patient files.

Data Abstraction form – The three (3) RAs were trained on the data abstraction using a data abstraction form as per the research protocol. The PI reviewed all the filled-in abstraction forms for completeness and accuracy daily during the entire data collection period and providing regular feedback to the RAs on a timely manner to ensure data quality and compliance to the study protocol. All the completed and verified data abstraction forms were then collected and filed by the PI at the end of every week under a lockable cabinet.

Data management, analysis, and presentation plan

Data abstraction tool was designed to collect quantitative and qualitative data. For anonymity and confidentiality purposes the data abstraction tool were marked only with the participant study numbers and no names were used. The data were entered into a password-protected Redcap database kept by the KNH Medical Research Department. The data were analyzed using SPSS version 21.0. Descriptive statistics such as frequencies while inferential statistics using Pearson's chi-squared tests, logistic regression were used. The calculations were done at a 95% level of confidence.

Results

The socio-demographic profile of the sample population

The total number of charts abstracted was 468 charts with 220 charts before and 248 charts after the enforcement of the referral guidelines.

Based on age groups, children represented 34 (12.5%) and 26 (10.5%) of the orthopedic and trauma admissions before and after enforcement of the referral guidelines respectively while majority of the admissions, 141 (64.1%) and 161 (64.9%) were observed among age group 25–64 years old before and after respectively. Orthopedic and trauma admissions above 65 years of age represented 8 (3.6%) and 10 (4.0%) before and after enforcement of the referral guidelines respectively (Table 1).

Orthopedic and trauma admissions who were male before and after enforcement of referral regulations were 185 (84.5%) and 189 (76.8%) respectively (Table 1).

Over 70% of the facility referrals had primary and secondary level of education before and after enforcement of the referral guidelines. Patients with preschool level of education or less represented 11.5% and 7.0% of facility referrals before and after enforcement of referral guidelines. Facility referrals with those with tertiary level of education represented 14.7% and 21.3% of orthopedic and trauma admissions (Table 1).

Table 1

Profile of socio-demographic characteristic of orthopaedic and trauma admissions to KNH before and after enforcement of referral guidelines, 2021.

Characteristics		Before (n = 220)	After (n = 248)
Age	0–14 years	34 (15.5%)	26 (10.5%)
	15–24 years	37 (16.8%)	51 (20.6%)
	25–64 years	141 (64.1%)	161 (64.9%)
	Above 65 years	8 (3.6%)	10 (4.0%)
	Total	220 (100.0%)	248 (100.0%)
Sex	Female	34 (15.5%)	57 (23.2%)
	Male	185 (84.5%)	189 (76.8%)
	Total	219 (100.0%)	246 (100.0%)
	Missing*		
Marital status	Married	103 (46.8%)	118 (47.8%)
	Minor	36 (16.4%)	32 (13.0%)
	Separated & Divorced	9 (4.1%)	14 (5.7%)
	Single	66 (30.0%)	79 (32.0%)
	Widow	6 (2.7%)	4 (1.6%)
	Total	220 (100.0%)	247 (100.0%)
	Missing*		
Religion	Atheist	0 (0.0%)	1 (0.4%)
	Christian	214 (98.2%)	240 (97.2%)
	Hindu	1 (0.5%)	2 (0.8%)
	Muslim	3 (1.4%)	4 (1.6%)
	Total	218 (100.0%)	247 (100.0%)
	Missing*		
Occupation	Businessman/woman	31 (14.2%)	25 (10.2%)
	Casual	94 (43.1%)	119 (48.4%)
	Employed	27 (12.4%)	38 (15.4%)
	Other	20 (9.2%)	12 (4.9%)

Characteristics		Before (n = 220)	After (n = 248)
	Unemployed	46 (21.1%)	52 (21.1%)
	Total	218 (100.0%)	246 (100.0%)
	Missing*		
Education level	None & Pre-school	25 (11.5%)	17 (7.0%)
	Primary	74 (33.9%)	96 (39.3%)
	Secondary	87 (39.9%)	79 (32.4%)
	Tertiary	32 (14.7%)	52 (21.3%)
	Total	218 (100.0%)	244 (100.0%)
	Missing*		

Effect of the enforcement of referral guidelines on use of official written referral letters

Amongst the health facility referrals about 48.6% and 48.8% before and after enforcement of referral guidelines had referral letters (Table 2). There was a slight increase in number of facility referrals after the enforcement of the referral guidelines for patients with and without the referral letters ($p = 0.524$) (Table 2). In addition, the odds ratio of the use of official written referral letters before and after the enforcement of referral guidelines was comparable (Table 2).

Table 2
Facility referrals with referral letters before and after enforcement of referral guidelines, 2021

	Have referral letters?	Before (n = 220)	After (n = 248)	χ^2 ; p -value	OR (95%CI)
Facility referrals	No	113 (51.4%)	127 (51.2%)	0.001; $p = 0.524$	1.0
	Yes	107 (48.6%)	121 (48.8%)		0.994 (0.691–1.429)

Amongst those with no written referral letters, patients with primary and tertiary level of education were 77.3% ($p = 0.006$) and 60.1% ($p = 0.025$) less likely to have no written referral letters as compared with patients with no education or preschool level of education after enforcement of the referral guidelines (Table 3).

Amongst those with the written referral letters, females were twice more likely to have a written referral letter as compared to males after enforcement of the referral guidelines ($p = 0.033$) (Table 3).

Table 3

Table showing use of referral letters by key socio-demographic characteristics stratified before and after enforcement of referral guidelines, 2021.

Variable	Have a referral letter?	Categories	Before	After	p-value	OR (p-value)
County	No	Others	7 (31.8%)	15 (68.2%)	p = 0.368	-
		Kajiado	7 (35.0%)	13 (65.0%)		
		Kiambu	10 (45.5%)	12 (54.5%)		
		Nairobi	78 (50.0%)	78 (50.0%)		
		Others - Eastern	11 (55.0%)	9 (45.0%)		
		Total	113 (47.1%)	127 (52.9%)		
	Yes	Others	11 (39.3%)	17 (60.7%)	p = 0.860	-
		Kajiado	10 (43.5%)	13 (56.5%)		
		Kiambu	21 (52.5%)	19 (47.5%)		
		Nairobi	54 (47.8%)	59 (52.2%)		
		Others - Eastern	11 (45.8%)	13 (54.2%)		
		Total	107 (46.9%)	121 (53.1%)		
Education	No	None & Preschool	17 (64.0%)	9 (36.0%)	p = 0.038	1.0
		Primary	41 (45.1%)	50 (54.9%)		0.227 (p = 0.006)
		Secondary	43 (51.8%)	40 (48.2%)		0.523 (p = 0.109)
		Tertiary	12 (30.0%)	28 (79.0%)		0.399 (p = 0.025)
		Total	113 (46.9%)	127 (53.1%)		

Variable	Have a referral letter?	Categories	Before	After	p-value	OR (p-value)	
	Yes	None & Preschool	9 (52.9%)	8 (47.1%)	p = 0.508	-	
		Primary	33 (41.8%)	46 (58.2%)			
		Secondary	44 (53.0%)	39 (47.0%)			
		Tertiary	20 (45.5%)	24 (54.5%)			
		Total	106 (47.5%)	117 (52.5%)			
Sex	No	Female	20 (41.7%)	28 (58.3%)	p = 0.420	-	
		Male	92 (48.2%)	99 (51.8%)			
		Total	112 (46.9%)	127 (53.1%)			
	Yes	Female	14 (32.6%)	29 (67.4%)	p = 0.031	1.0	
		Male	93 (50.8%)	90 (49.2%)			2.140 (p = 0.033)
		Total	107 (47.3%)	119 (52.7%)			

Amongst those with written referral letters, patients from health facilities tiers 3 were 98.9% more likely to have written referral letter after enforcement of referral guidelines as compared to those from health facilities tier 1 (p = 0.011) (Table 4). However, the use of written referral letters for other health facility tiers were comparable with health facility tiers 1 (Table 4).

Amongst patients with referral letters, elective patients were at least 3 times more likely to have referral letters as compared to emergency referrals after enforcement of the referral letters (p = 0.003) (Table 4).

Table 4

Table showing use of referral letters for type of health facility, health tiers and nature of admissions stratified before and after enforcement of referral guidelines, 2021.

Variable	Have a referral letter?	Categories	Before	After	p-value	OR (95%CI)
Type of health facility	No	Government	76 (48.7%)	80 (51.3%)	p = 0.489	-
		Private	37 (44.0%)	47 (56.0%)		
		Total	113 (47.1%)	127 (52.9%)		
	Yes	Government	64 (48.1%)	69 (51.9%)	p = 0.670	-
		Private	43 (45.3%)	52 (54.7%)		
		Total	107 (46.9%)	121 (53.1%)		
Health facility tiers	No	Tier 2	2 (28.6%)	5 (71.4%)	p = 0.635	-
		Tier 3	6 (60.0%)	4 (40.0%)		
		Tier 4	46 (46.0%)	54 (54.0%)		
		Tier 5	56 (49.1%)	58 (50.9%)		
		Tier 6	3 (33.3%)	6 (66.7%)		
		Total	113 (47.1%)	127 (52.9%)		
	Yes	Tier 2	11 (91.7%)	1 (8.3%)	p = 0.002	1.0
		Tier 3	9 (45.0%)	11 (55.0%)		0.011 (p = 0.003)
		Tier 4	33 (39.8%)	50 (60.2%)		0.153 (p = 0.103)
		Tier 5	53 (51.0%)	51 (49.0%)		0.189 (p = 0.125)
		Tier 6	1 (11.1%)	8 (88.9%)		0.120 (p = 0.050)

Variable	Have a referral letter?	Categories	Before	After	p-value	OR (95%CI)	
		Total	107 (46.9%)	121 (53.1%)			
Nature of admissions	No	Elective	12 (41.4%)	17 (58.6%)	p = 0.483	-	
		Emergency	101 (48.3%)	108 (51.7%)			
		Total	113 (47.5%)	125 (52.5%)			
	Yes	Elective	5 (23.8%)	16 (76.2%)	p = 0.026	1.0	
		Emergency	101 (49.3%)	104 (50.7%)			3.108 (p = 0.033)
		Total	106 (46.9%)	120 (53.1%)			

Discussion

Children and elderly represented the minority admissions while youth and middle-aged patients were the majority of orthopedic and trauma admissions. This compares with studies done in Uganda, Rwanda, Botswana, South Africa, Nigeria, India, Taiwan, Brazil, England and USA that showed vast majority of orthopedic and trauma patients are young and middle-aged (26–38). Studies in Nigeria, Taiwan also showed children and the elderly form a small proportion of orthopedic and trauma injuries (30, 35). However, this contrasts with a study done in PCEA Kikuyu Mission Hospital, Kenya that showed 18.84% orthopaedic admissions were of paediatric age group (39). This could be due to the fact that PCEA Kikuyu Mission Hospital is a private mission hospital and is a specialized and highly regarded orthopaedic and trauma centre in Kenya. The fact that majority of the admissions in this study were youth and middle-aged is likely due to the fact that these are the most productive age group involved in a wide-range of economic activities that require frequent use of road transport.

Majority of the orthopedic and trauma admissions were male. This compares favorably with studies done in Rwanda, Uganda, Tanzania, Botswana, South Africa, India, Taiwan, England that showed male sex are the majority of orthopedic and trauma admissions (29, 30, 32, 34, 36–38, 40–42). Men are bread winners in most families and therefore more likely to engage in risky and violent activities as they fend for their families.

Majority of the facility referrals had primary and secondary level of education with those with tertiary and pre-school education and less representing the minority. This is in tandem with study done on injury characteristics in Moshi, Tanzania that revealed majority have primary and secondary level of education

(43). This maybe because the facility is a tertiary health facility in an Urban setting in Tanzania, similar to KNH in Kenya. However, it contradicts a study done in rural Tanzania that showed majority of the referrals had no schooling or had primary levels of education (14). This could be due to the fact that the study was done amongst antenatal mothers in rural Tanzania where women, who tend to have lower or no education and form the bulk of rural population in Tanzania just like other sub-Saharan African countries.

About half of facility referrals had written referral letters. This contradicts an assessment done on state of health referral system in Kenya in 2013 and in Afghanistan amongst sick children that showed about one-third of referrals had a referral slip (1, 44). However, this study also included the community health units. The study findings also contradict studies done in Kenya, Uganda, Burkina Faso and Nigeria that showed high adherence to the referral guidelines with over two-thirds of facility referrals use formal referral letters (9, 45–47). The comparatively low use of referral letters in the current study could be because most of the referrals were verbal over the telephone and once a verbal consensus had been reached, the referring health facilities did not see the need of writing a formal written referral letter. The study findings also contrast with studies on adherence to referral guidelines and use of referral letters in Cape Town, South Africa, Kenya, Malawi and United States of America that revealed majority adhered to referral guidelines with use of formal referral letters (41, 48–51). This is likely due to the fact these health facilities were highly specialized treatment centres for Burn patients. This study revealed that the enforcement of the referral guidelines had no impact on the use of official written referral letters as per national referral guidelines requirements despite increase in the facility referrals resulting from enforcement of national referral guidelines. Its therefore critical that further studies be done to understand the challenges, barriers and obstacles to the use of standard referral forms in patient referrals.

Patients with higher education level were more likely to have written referral letter after enforcement of the referral guidelines. This is in tandem with a study done in Western Kenya on referrals for hypertension that revealed patients with higher education level were likely to receive a referral letter (52). This may be because they are more informed and would need to know the details and why they are referred and appreciate the significance of formal communication to ease access to services at the next level of care.

Females were more likely than men to have a written referral letter after enforcement of the referral guidelines. This maybe because women are known to have better health seeking behavior than men. However, this contradicts a study done in Western Kenya on referrals for hypertension that revealed male patients were likely to receive a referral letter (52). This may be because more older women were admitted after enforcement of the referral guidelines and these women were more-educated, had insurance cover and were therefore more likely to require a formal written referral letter to facilitate smooth referral process to the next level of care.

The use of written referral letters across most of the health facility tiers remained unchanged after enforcement of referral guidelines, patients with from health facilities tier 2 were less likely to have written referral letter after enforcement of the referral letter than tier 3 health facilities referrals. This could be

explained by the fact that once the referring health facility have called and informed KNH of the need for referral, they saw no need to follow it up with a written referral letter. This ties in with an evaluation on the state of health referral system in Kenya that revealed that the use of oral referrals comprised about a third of the referrals with the use of the referral form comprising another one-third of the referrals (1). In addition, tier 2 health facilities were mostly small private clinics and these health facilities in most cases are non-compliant to the government standards and guidelines and are mostly located within the poor settlements in Nairobi and “less accessible” during the supervisory visits by the county health management staff. Level three health facilities are government and private nursing and maternity homes that are relatively high volume and frequently supervised by the county health management staff and are more likely to be compliant to the government’s standards and guidelines.

Elective patients were more likely than emergency patients to have a written referral letter. This could be due to the fact that emergency traumatic injuries were done through telephone conversations between the referring health facility and KNH and once an agreement had been reached, the referring health facility found no need to have an official referral letter. This is in tandem with the Kenya referral guidelines stipulates for emergency referrals, the referring health worker communicates directly by phone or any other means of communication available to the receiving health worker to ensure that advance notice of the referral is given to allow adequate preparation (6). However, this contradicts a study done in Afghanistan amongst sick children that showed use of referral slips by health care providers was higher for urgent referrals (44).

This study had some limitations. First, the effect of COVID 19 pandemic on facility referrals of cases from peripheral health facilities to KNH. This was mitigated by ensuring the data collection period covered the covid period where intercounty movement restrictions were lifted by the Kenyan government. Secondly, this was a retrospective quasi-experimental study design and hence weaker in determining causality. Despite these limitations, given the paucity of published literature in this study topic, this study offers key information on the effects of enforcement of referral guidelines on use of written referral letters in health facility referrals to KNH with important lessons for Kenya and possible sub-Saharan Africa.

Conclusion

The enforcement of the national referral guidelines had no effect on the use of the official written referral letters as per the requirement of the national referral guidelines amongst the orthopedic and trauma admissions at KNH.

Majority of the facility referrals were young and middle-aged men with children and elderly representing the minority. Most of the facility referrals had had primary and secondary level of education with admissions. Women, elective patients and those with higher education were more likely to have a written referral letter.

Recommendations

1. Further studies are needed to understand the obstacles, challenges and barriers towards use of official referral letter;
2. Need for an effective referral system monitoring;
3. Need for capacity building of health care workers on effective referral process by designing and disseminating referral SOPs and standardized documentation for referrals;
4. Need for referral coordinating and review forums – to review coordination, encourage accountability and continuous improvement and referral performance monitoring;
5. Improving the capacity and attitude of service providers at all levels of the health system on use of written referral letters;
6. Introduce new technology of e-health, such as telemedicine, e-referrals, and e-mail, to improve the referral documentation system.

List Of Abbreviations

COVID Corona Virus Disease

ERC Ethics Review Committee

KNH Kenyatta National Hospital

UoN/KNH University of Nairobi/Kenyatta National Hospital

RA Research Assistant

SPSS Statistical Package for the Social Sciences

SOPs Standard Operating Procedures

USA United States of America

PCEA Presbyterian Church of East Africa

PI Principal Investigator

Declarations

Ethics approval and consent to participate

The study protocol was presented to University of Nairobi/Kenyatta National Hospital (UoN/KNH) Ethics and Research Committee and was granted ethical approval (ERC No: P852/10/2021). Administrative approval was also granted by KNH Medical Research Department and KNH Orthopaedics Department.

Consent for publication

Not Applicable.

Availability of data and materials

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Competing interests

The author declares no competing interest exists

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Authors' contributions

The author conceptualized, designed, collected data, analyzed and drafted the manuscript.

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Figures

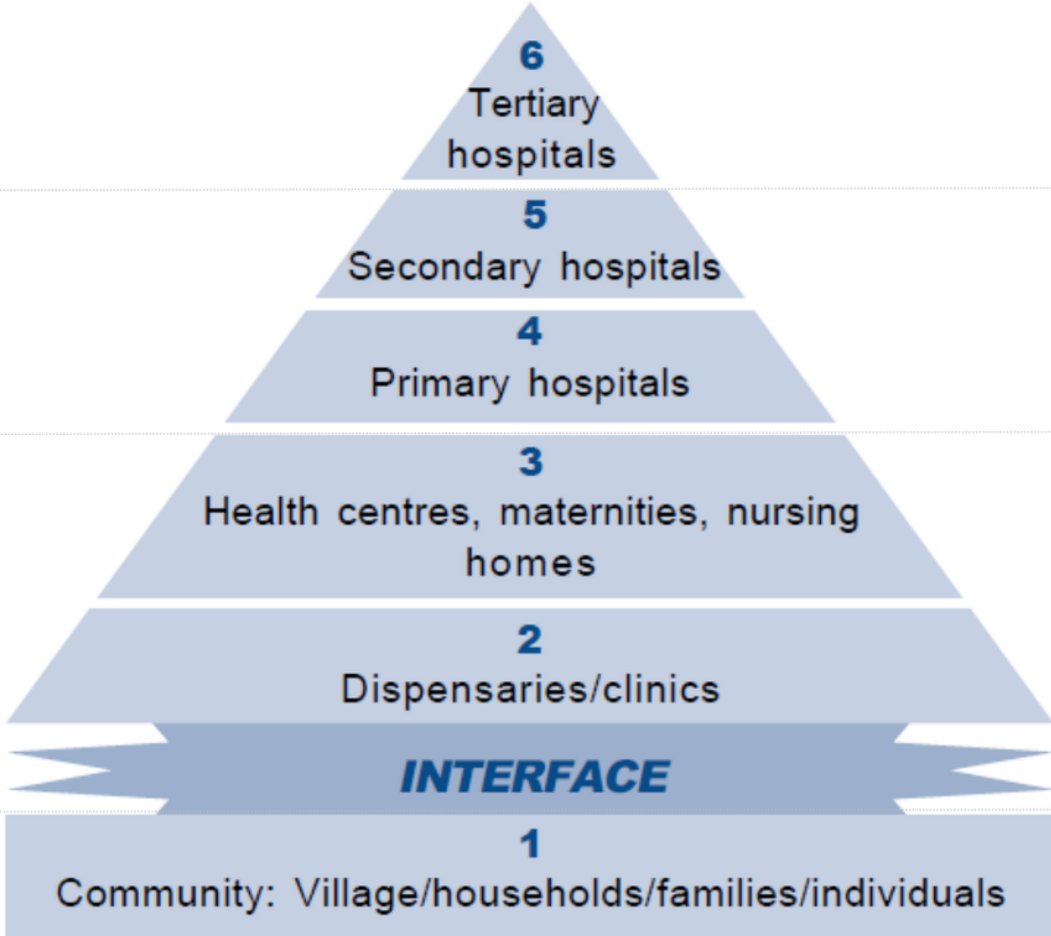
Health system organization by levels of care (levels 1-6)	Health system tiers
 <p style="text-align: center;">6 Tertiary hospitals</p>	<p style="text-align: center;">Tier 4: National referral facilities</p>
<p style="text-align: center;">5 Secondary hospitals</p> <p style="text-align: center;">4 Primary hospitals</p>	<p style="text-align: center;">Tier 3: County referral facilities</p>
<p style="text-align: center;">3 Health centres, maternities, nursing homes</p> <p style="text-align: center;">2 Dispensaries/clinics</p> <p style="text-align: center;">INTERFACE</p>	<p style="text-align: center;">Tier 2: Primary care facilities</p>
<p style="text-align: center;">1 Community: Village/households/families/individuals</p>	<p style="text-align: center;">Tier 1: Community services</p>

Figure 1

Kenya health care system with four tiers of care compared to the previous six levels of care(4, 5).

Supplementary Files

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- [SPSSDataset31.12.2023.sav](#)