

## Referral for Outpatients Urological Services: Poor Conformity and Pre-referral Evaluation in Western Kenya.

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**Background:** This study was aimed at establishing the degree of conformity with the referral system, level of pre-referral investigative evaluations and degree of diagnosis concordance between the referring centres and the referral hospital in Western region of Kenya.

**Methods:** This was a hospital based descriptive, prospective, cohort study. The Urology Outpatient clinic of Moi Teaching and Referral Hospital (MTRH), a 750 bed tertiary centre in the Western region of Kenya catering for approximately half of the Kenyan population. Ninety-four first time attendees to the urology clinic seen in the year 2011. The primary outcome measures were conformity with the referral system and the level of investigative evaluation prior to referral. The secondary outcome measure was comparison between peripheral centre diagnosis and the diagnosis made at the referral hospital.

**Results:** There was a predominance of males attending the urology clinic with the male to female ratio of 14.7: 1. Over a third (36.2%) of the patients were referred with the top three referring facilities being District Hospitals (47%), Private Clinics (26.5%) and Mission Hospitals (11.8%). The factors that correlated with likelihood of being referred were the administrative origin of patient ( $p < 0.001$ ), the centre attended ( $p < 0.001$ ), the diagnosis made ( $p < 0.001$ ) and the age group ( $p = 0.010$ ). On multivariate analysis, the greatest determinants of the need for referral were the centre attended and the diagnosis made (both  $p < 0.001$ ). The diagnosis made was found to be the most powerful predictor of likelihood for referral. The majority (88.2%) of the patients had clearly defined diagnoses from the referring centres but only 7.4% had preliminary investigations prior to referral. There was a 76.7% concordance and 11.5% discrepancy in diagnosis between the referring centre and the referral hospital.

**Conclusion:** The diagnoses made by the referring centres are correct in about three quarters of the referrals but conformity with the referral system and the level of preliminary investigations prior to referral are appallingly low.

### Introduction

Quality enhancement is a prerequisite for meaningful healthcare and forms the basis for a referral system<sup>1</sup>. In the developed countries, up to 40% of the urological cases seen by general practitioners require referral to higher centres of healthcare<sup>2</sup>. The figures in our local set up are unknown but we know that referrals are a critical factor in the patients' benefits in seeking healthcare<sup>3</sup>. The health providers and involved systems are crucial in the hierarchy of medical care since an underutilized referral system is just as inefficient as one in which inappropriate referrals add workload to the system<sup>4</sup>. Pre-referral workup enriches the quality of the referral process and subsequent coordination of care<sup>5</sup> but in some cases, even where guidelines exist, subjects are rarely adequately evaluated<sup>6</sup>. This paper looks into the level of adherence to a referral system and brings into focus the referral status of our patients as well as the appalling level of preliminary investigations at the primary centres prior to referral.

### Patients and Methods

First time attendees of the urology outpatient clinic in the Moi Teaching and Referral Hospital (MTRH), Eldoret-Kenya, involved in this study had the key data on demography, presenting problems and duration of ailment, administrative locality of origin, whether or not referred to the hospital and if referred, the

originating referring facility. This data was collected during the consultation process and verbal consent was granted for the information to be used for purposes of the study. The primary outcome measures were conformity with the referral system and the level of investigative evaluation prior to referral. The secondary outcome measure was comparison between peripheral centre diagnosis and the diagnosis made at the referral hospital. Data thus extracted was transferred to a spreadsheet, confirmed for completeness and subsequently entered into a computer using the Scientific Programme for Social Studies (SPSS) software version 17.0. Data analysis was in line with the main outcome measures and was done using descriptive as well as inferential statistics. A 95% confidence interval was assumed and statistical significance was at  $p \leq 0.05$ .

**Results**

Ninety-four patients attended the urology clinic for the first time in the year of study. The male to female ratio was 14.7: 1. Their ages ranged from one year to 97 years with a mean  $\pm$  standard deviation of 48.0  $\pm$  25.3 years. The peak incidence (35.1%) was in the 51-75 years age group even though the patients were evenly distributed with half below and the other half above 50 years of age. Table 1 show the gender and age distribution of the patients. The duration of symptoms varied from under one month to five years with close to three-quarters of the patients (73.4%) presenting within the first year. Four point three percent of the patients had no urological problem and had symptoms of up to 2 years at presentation.

Males had longer durations of symptoms compared to females as seen in Table 2 but the difference was not statistically significant ( $p = 0.131$ ). A total of 36.2% of the patients were referred to the hospital. The top three referring facilities were District Hospitals (47%), Private Clinics (26.5%) and Mission Hospitals (11.8%).

**Table 1.** The Age/Sex Distribution

Gender	Age Groups in Years				Total
	0-25	26-50	51-75	>75	
Male	20	25	31	12	88
Female	02	02	02	0	06
Total	22	27	33	12	94

**Table 2.** Gender and Duration of Symptoms Prior to Presentation to the Clinic

Gender	Duration of symptoms in months					Total
	$\leq 12$	13-24	25-36	37-48	49-60	
Male	63	8	3	1	13	88
Female	6	0	0	0	0	6
Total	69	8	3	1	13	94

**Table 3.** Determinants of referral to hospital

Referred	Gender		Age Group in Years				Place of Origin	
	Male	Female	0-25	26-50	51-75	75+	R/Valley	Others
YES	31	3	13	10	8	3	18	16
NO	57	3	9	17	25	9	56	4
TOTAL	88	6	22	27	33	12	74	20

**Table 4.** Univariate and multivariate analysis of variables

Variable	Univariate	Multivariate
Age group	0.010	0.738
Origin	<0.001	0.041
Diagnosis	<0.001	<0.001
Referring centre	<0.001	<0.001
Gender	0.472	0.984
Duration of symptoms	0.768	0.780

The majority of the patients (78.7%) came from the administrative region in which the hospital is based and a paltry 24.3% were referred compared to 80% for those coming from outlying administrative regions. The factors that correlated with likelihood of being referred were the origin of patient ( $p < 0.001$ ), the centre attended ( $p < 0.001$ ), the diagnosis made ( $p < 0.001$ ) and the patient's age group ( $p = 0.010$ ). The number of referrals was in the ratio 3:10 local to outlying administrative regions, referrals were predominantly from hospitals (District and Mission), nearly all those referred had surgical needs and those aged up to 25 years were the most referred as compared to those over 25 years of age. Males were less likely to have been referred compared to females but this was not statistically significant ( $p = 0.472$ ).

The duration of symptoms was not statistically significant in determining likelihood of referral ( $p = 0.768$ ) even though those with an ailment for up to one year were almost twice as likely to have been referred as compared to those whose illness had been for a period longer than a year (60.5% Vs 32%). Table 3 is a composite representation of some of the determinants of referral to the hospital. On multivariate analysis, the greatest determinants of the need for referral were the centre attended and the diagnosis made (both  $p < 0.001$ ). The diagnosis made was found to be the most powerful predictor of likelihood for referral. The univariate and multivariate analysis findings for the various variables are as shown in Table 4.

The overwhelming majority (88.2%) of the referred patients had clearly defined diagnosis from the referring centre but only 7.4% had preliminary investigations prior to referral. There was a 76.7% concordance and an 11.5% discrepancy in diagnosis between the referring centres and the referral hospital.

### Discussion

The Kenyan referral system incorporates a hierarchical progression from level one to the level six that is made up of the two teaching and referral hospitals in the country. Like in any other part of the world, this referral system faces challenges in its utilization key of which are inappropriate referrals and self-referrals in which patients decide to enter at the apex of the system.

Jones and colleagues<sup>7</sup> found a number of reasons for referral, among which was a deficient support health care system. In this study, the administrative region in which the referral hospital is based showed a paltry 24% adherence to the referral system and this can be largely explained by the absence of functional support health facilities. The District Hospital, for example, is yet to be fully operationalized. Mathew and Desai<sup>8</sup> noted that patients with longstanding conditions were less likely to follow the laid-down protocol on referrals and this was evident in this study's finding that the referral rate was almost twice as much in the first year as compared to duration of symptoms in excess of one year. This could be that within the long period, the patient has had varied interactions with the health care system and considers the problem big enough for it to be sorted at the very top of the system. As found by O'Halloran et al<sup>9</sup>, complex and chronic conditions require specialized care and may determine the entry point in the referral chain. This could explain why the diagnosis made was the most powerful predictor of likelihood of referral in this study.

Thirty-six point two percent was the overall referral rate, a poor compliance with the referral system despite a high compliance rate of 80% for those originating from the nearby administrative regions. This is a pointer to Clarke and company's finding that the general knowledge of and the existence of a referral protocol does not improve on adherence to referral systems<sup>10</sup> especially if there are other exigencies peculiar to a region or nature of the disease<sup>11</sup>.

The high level of concordance in diagnosis suggests that there are good personnel manning peripheral health facilities and as Jones and colleagues realized, patients could be effectively managed in the periphery was it not for lack of resources to achieve the optimal treatment of a disease<sup>7</sup>. Otters et al noted that the rates and reasons for referral changes with time<sup>12</sup> and presumably the time factor addresses such peculiarities as noted in this and other studies.

Studies<sup>10,11</sup> done elsewhere have shown the usual lack of or low levels of pre-referral investigative evaluation but this study's all time low of 7.4% seems to suggest that the peripheral facilities either do not have the requisite investigative requirements or lack guidelines on the essentials of effective referral. Clarke and others<sup>10</sup> found that a guideline can improve on pre-referral investigations and increase the benefits of a referral system. This, hopefully, can be instituted in our setup to improve on the appalling level of pre-referral investigative evaluation.

### Conclusion

The diagnoses made by the referring centres are correct in about three quarters of the referrals but conformity with the referral system and the level of preliminary investigations prior to referral are appallingly low.

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