Examining the variation in Hospital referrals between the Primary Health Centers having Family Physicians and with only General practitioners in Jeddah

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Abstract

The importance of patient referral from primary health care centers (PHCCs) to tertiary care hospitals is reflected in patient care and their follow up. Objectives of this study were to compare the referral rates from PHCCs to other hospitals and to compare the quality of referrals in terms of completeness and accuracy of diagnosis having Family Physicians (FPs) and PHCCs without FPs. This cross-sectional survey was conducted at 15 PHCCs using stratified random sampling. Referral sheets were assessed on 15 items for their completeness and quality filled by FPs, General Practitioner (GPs) and those not clear. T test and Mann Whitney U test were performed in SPSS 22 to see the mean difference.

Of the 1112 referral sheets assessed, a significant difference (p= 0.001) in the mean scores for completeness of referral sheets in PHCCs with FPs (8.55±1.77) and without FPs (8.18±1.69) was observed. No significant difference in the per month referral rates (p=0.315) was observed however, there is difference in the median scores (PHCC with FP 5.0(IQ=3.8) and PHCC without FP 8.4(IQ=10)). Around 62% referral sheets filled by FPs were above acceptable level of completeness as compared to 35% of GPs. In conclusion, the quality of referral sheets is inadequate and needs improvement. This can be achieved by sensitizing the PHC physicians of this problem and realizing them of their role in the process.

Keywords: Family Physician, Primary care, Quality, Referral-consultation, Referral forms

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1   Introduction

Primary care serves as the keystone for building a strong health care system. However, it is long being overlooked in many countries; leading to an imbalance between specialty care and primary care. [1,2,3] Studies have proved that a better primary care is associated with enhanced health outcome and decreased load on tertiary care hospitals and their emergency departments. [1,3] An important daily activity from PHCCs to tertiary care hospitals is the referral of patients. [2] To safeguard good medical care for the patients there is a need to build and improve on existing referral system. [3]

Referral letters; a two-way correspondence between PHCC doctor and consultants in hospitals are the main, if not the only means of communication. In its progress, the referral system incorporates different parties with different perspectives. [4] Specialists expect that the referring GP provide adequate information about the patient; GPs expect a clear response especially regarding justification for the course of management, while the patients expect clear explanation of the diagnosis, treatment and follow-up procedures. When these expectations are not met, all end up dissatisfied with the referral process. [5,6]

On the other hand, false referrals by primary health care physicians place unnecessary demands on the hospital and contribute to the long waiting times between GP referral and outpatient department (OPD) appointments. This result in considerable financial costs, both for the health care system and to the patient (travel, lost time at work). [6,7] It not only effects the quality of care significantly but also exposes individuals for needless and harmful interventions resulting in psychological costs, due to unnecessary anxiety in the referred patient. [7,8] Several researchers have stressed that good referrals not only improve patient's management but also supports in utilizing appropriate resources. [2,5,7]

Worldwide approximately 5% of the total patients visiting PHCCs are referred. [9] These referrals rate show a high inter-physician variability. [10,11] Other than the reasons of clinical characteristics/symptoms and available facilities; the referral decision making is influenced by increased work load, insurance coverage, patient's own demand/request for specialist care, differing perceptions of disease severity and its potential impact on future health etc. [12] Literature shows that presence of family physicians in the PHCCs have proved to decrease the referral rates with improved quality of referral sheets. [9,10,12]

The referral system between primary health care centers and hospitals had been developed as an integral component of the health care services in the Kingdom of Saudi Arabia since 1984. [4] It aims at optimizing the utilization of the health system resources and reducing the unplanned and unnecessary visits to the outpatient clinics of the hospitals. [5] However, inadequate attention has been given in Saudi Arabia to see the differences in primary care practice patterns. If addressed properly, they can reduce the cost, improves outcome and optimize the referral rates. [5]

Saudi primary care referral process is based on clear standardized guidelines. This pre-designed referral form includes important relevant clinical and social information. However, studies conducted in Riyadh highlights how unsatisfactorily these referral forms were used. [13] Most of the available literature emphasizes on the referral forms from PHCC to the hospitals only, but didn't compare the forms filled by FPs and GPs. Similarly, it is assumed that the referral rates from the PHCCs with FP are much less than that without FP. Therefore, the current study aim at assessing and comparing the referral system in terms of completeness, accuracy and rates of the referral sheets by FPs and GPs shared between primary health care centers and general hospitals in Jeddah in 2016/17.

2   Methodology

2.1 Study design: Cross sectional study design comparing referrals of general practitioners and family physicians.

2.2 Study location/setups: Primary Health Care centers working under Ministry of Health divided in following two groups:
- PHCCs having FP
- PHCCs without FPs

2.3 Study Population: Referral sheets from the patient's record of last 3 months maintained in the selected PHCCs.

2.4 Study duration: A period of 6 months from October 1, 2016 to April 1, 2017.

2.5 Sampling of the PHCC: The sampling unit for the study were primary health care centers of Jeddah divided in five geographical areas. The PHCCs were first listed in a stratified sampling frame based on the presence of Family Medicine Physician and no Family Medicine Physician according to the data taken from Directorate of Health Affairs. Overall there are around 65% PHCCs having family physicians. We selected PHCCs randomly according to proportionate sampling from each stratum, using a lottery method. The total number of selected primary health centers was 15 (9 PHCCs (60%) with FP and 6 PHCCs (40%) without FP). From each PHCC the referral record for the last 3 months was selected with systematic random sampling. The referral records were evaluated according to the completeness and quality of information.

2.6 Sample size calculation: The calculated sample size was 73 patients using Epitools online sample size calculator. We put the patient's referral rate from PHCCs at 5% (taken from Forrest et al. studies [9,12]), confidence interval at 95%, desired precision 0.05 and population size 100,000. We took at least 75 referred cases from each selected PHCC through simple random sampling.

2.7 Study tool and data collection:
- Total number of cases referred from individual PHCC during last three month.
- Check list to see the referral paper completeness

2.8 Outcome variables: The main outcome variables were;

a) Referral rates in the two groups
b) Quality of referrals in terms of completeness and accuracy of diagnosis in the two groups (the researchers assessed the quality of the referral using scoring system).

Scoring of the referrals was done after identifying the important items in the referral forms by four experienced physicians (three public health consultants and one biostatistician) and giving them weight. A total of 15 items were identified and given weight from the referral sheets along with the legibility of writing. If the response was present (and if it is not applicable) it was given 2 score which was then multiplied by its respective weight. If the response was present but not clear, 1 score was given and for not present zero was given. On the basis of this scoring system, the quality of referral forms was assessed.

Similarly, acceptability of referral sheets was assessed if the scores were between 9 to 15, (cutoff of 9 was taken as it is 60% of the total score) Referral sheets scoring less than 9 were categorised as below acceptable level sheets.

2.9 Data Analysis: Data analysis was done using SPSS 22.

1: Categorical variables were used for descriptive epidemiology
2: Chi square was used to establish association between adequacy of referral sheet with presence of FP.
3: Total scores with mean and standard deviation were calculated to analyze numerical variables
4: T test and ANOVA with Post-Hoc and Mann Whitney U test was used for the establish the difference between the groups

2.10 Selection criteria

- **Inclusion criteria**: PHCCs having FPs and without FPs.
- Referral record of last 3 months.

2.11 Ethical Approval: Ethical approval was taken from ethical committee of Ministry of Health (H-02-J-002) and Directorate of Health affairs Jeddah and respective PHCC's administration.

3   Main Results

A total of 1112 referral sheets were assessed from 15 PHCCs, of them 9 PHCCs (60%) had FPs. Average monthly referrals are given in table 1. The number of referral sheets filled by FPs were 249 (22.3%), filled by GPs 558 (50.1%) and the one not clear were 305 (27.4%). Although there was difference in the median scores but no significant difference was noted in the referral rates from the PHCCs with FP and PHCCs without FP (table 1).

Table 1: Average referrals from PHCCs

PHCC type	Number of PHCCs (N=15)	Mean referrals per month (SD)	Median referrals per month (IQ)	P value
PHCC with FP	9	6.8 (5.5)	5.0 (3.8)	0.315*
PHCC without FP	6	8.2 (4.7)	8.4 (10)	

*Mann Whitney U test

Important and relevant components of the referral sheet are given in table 2. The most frequently mentioned items were hospital and specialty to which patients were referred (97.3%), followed by reason and type of referral (95.3% and 93.3% respectively). Some important items of clinical part such as vital signs, clinical examination and duration of complaints were not reported properly (table 2).

Table 2: Frequency distribution of referral sheets from health centers according to relevant items (n=1112)

Components of Referral Sheet	Present and clear				
	Family Physician n=249(%)	GP in PHCC with FP n=258(%)	GP in PHCC without FP n=300(%)	Not clear n=305(%)	Overall n=1112(%)
Demographic profile	212(85.0)	221(85.8)	257(85.7)	257(84.2)	947(85.1)
Referred hospital and specialty	248(99.7)	253(98.0)	285(95.0)	295(96.8)	1081(97.3)
Type of referral	239(95.9)	233(90.3)	289(96.3)	277(90.8)	1038(93.3)
Transferred by	56(22.4)	59(22.8)	189(63.0)	51(16.7)	355(31.2)
Time of referral	115(46.1)	141(54.6)	146(48.6)	168(55.0)	570(51.0)
Patient condition on referral	206(82.7)	206(79.8)	248(82.6)	235(77.0)	895(80.5)
Complaints and their duration	180(72.2)	131(50.7)	182(60.5)	158(51.8)	651(58.8)
Vital signs	112(44.9)	99(38.5)	86(28.5)	111(36.4)	408(37.0)
Clinical examination and medical history	182(73.0)	136(52.7)	192(64.0)	169(55.4)	679(61.2)
Investigations & its summary	112(45.1)	68(26.3)	98(32.8)	90(29.6)	368(33.4)
Provisional diagnosis	222(89.1)	200(77.5)	221(73.6)	222(72.7)	865(78.2)
Given treatment & last dose	93(37.5)	60(23.4)	43(14.3)	47(15.5)	243(22.6)
Reason of referral	235(94.3)	251(97.2)	294(98.0)	280(91.8)	1060(95.3)
Name and stamp of doctor and PHCC	165(66.1)	170(65.7)	182(60.8)	117(38.4)	634(57.7)
Clear handwriting	170(68.2)	150(58.1)	210(70.0)	176(57.7)	706(63.5)

However, there was difference in the forms filled by FPs and GPs. Some important and relevant items of clinical part like physical examination, duration of complaints and medical history & investigations were mentioned and specified better in referral forms filled by FPs as compared to GPs (table 2).

Comparison of referral sheets in primary health care centers with family physicians and without family physicians in terms of completeness show a significant difference (p=0.001) in the mean scores. PHCCs with the presence of FPs had a better overall score (table 3).

Table 3: Comparing completeness of referral form from PHCCs with and without FP

| PHCC type	Number (N)	Mean Score (SD)	*P* value
PHCC with FP	693	8.55 (±1.77)	0.001
PHCC without FP	419	8.18 (±1.69)	

*T-Test

Individual scores with mean and SD of referral forms filled by FPs, GPs in PHCCs with FPs and GPs in PHCCs without FPs is given in table 4. High mean score was noted in the forms filled by FPs followed by GPs in the PHCCs without FPs. ANOVA with Post-Hoc analysis showed a significant difference across the groups (p < 0.001) (table 4). However, post hoc analysis showed no significant difference between forms filled by GPs of PHCCs with FP and those filled by GPs of PHCCs without FP (p= 0.768).

Table 4: Comparing overall scores of forms filled by FPs and GPs

Scores	Minimum score	Maximum score	Mean Scores (±SD)	Standard error	F	P value
Forms Filled by FP	3.56	13.43	9.48 (±1.79)	.113	51.93	< 0.001
Forms Filled by GP in PHCCs with FP	3.62	11.27	8.21 (±1.50)	.093		
Forms Filled by GP in PHCCs without FP	4.48	12.65	8.36 (±1.68)	.097		
Not Clear	2.67	11.44	7.77 (±1.57)	.090		

*ANOVA with Post-Hoc Analysis

The referral sheets were also compared for quality with a cutoff score at 60% (i.e. 9); dividing them as acceptable and below acceptable level. Chi square results show significant difference (p <0.001) in the forms filled by FPs and GPs as shown in the figure 1. The percentage of acceptable forms filled by FPs was 62%.
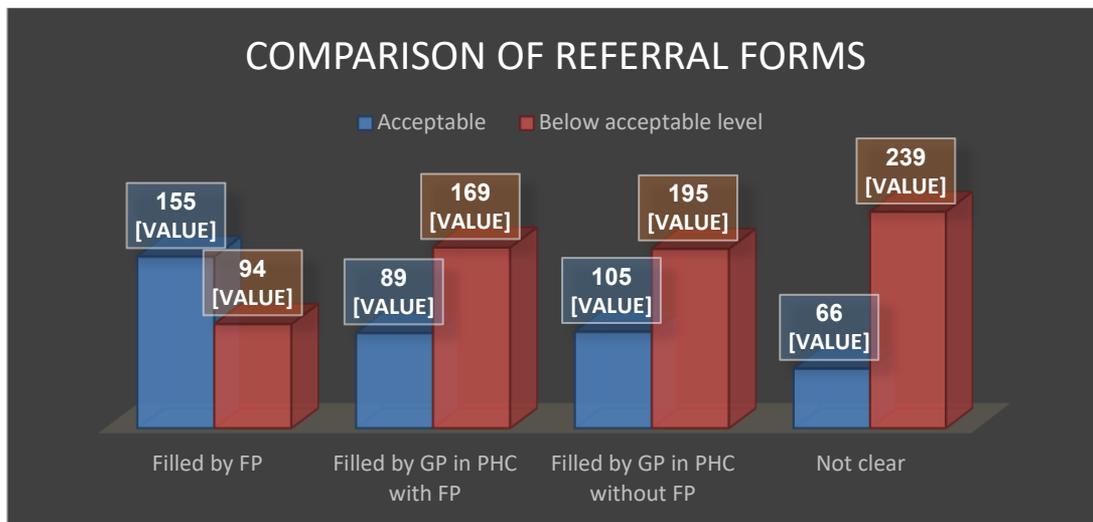
*Cutoff score 9 (60%)   ** Chi square <0.001
Figure 1: Comparing the referrals sheets filled by physicians according to the presence of FP in the PHCC

4   Discussion

An important support system for any health care service is to have a proper referral system, which makes these services more effective, efficient and equitable. The current study attempts to point out deficiencies in the current referral system (especially in terms of quality and completeness of referral sheets) of the PHCCs working under Ministry of Health. Possible reasons for low quality of referral sheets were; less number of FPs, GPs ignoring some important clinical part of referral sheets, not reporting investigations and provisional diagnosis and unclear handwriting. These findings also corroborate those made in the studies cited earlier. [14]

Literature has identified a variety of reasons for the incompleteness and inferior quality of referral forms. [14] Lack of essential clinical information like duration of complaints, findings on physical examination and medical history etc. in the referral sheets; especially by the GPs is worrying. Many local [13,14,15] and international studies [16,17,18] have identified this information as a major determinant of quality of referral.

The mean number of patients referred from each PHCC during the previous three months was 7.57±5.16 comparable from studies conducted in other Saudi Arabian [15] regions and Pakistan. [19] However, studies from developed countries like Australia [6], Spain [18] and England [20] have demonstrated referral rates varying between 1 and 28%. There is no universally acceptable number considered as 'right reference rate'. Instead additional emphasis needs to be placed on the appropriateness of the referral rather than frequency. [19,21]

Less referral rates in PHCCs with FPs highlights the importance of specialist care

at the primary care level. The 'gate keeper' role/concept of PHCC should be emphasized and utilized to its maximum with the inclusion of more FPs. [16,17] Reduction in patients of outpatient clinics of hospitals means less load on the specialist services; hoping a more devoted time for the patients requiring specialist care. [4]

There is a need for frequent auditing of the referral system to ensure its efficiency and get an idea about its patterns. Referral sheets are one of the main source of communication between the doctors of PHCC and specialists. Much is required to be done to improve this means of communication. [13] Recognizing referral as a bi-directional process, PHC physicians and specialist in the hospitals should not imply permanent transfer of responsibility to either party. Any unclear and inadequate information will affect the decision which ultimately can influence patient care. Similarly, any additional useful information provided to the specialist helps him to draw up an effective management plan for the referred patient. [15]

Some of the inadequacies hindering the effectiveness of our referral system are highlighted in this study. Recording essential patient information in their referrals along with a thorough feedback report by the hospitals will support the continuity of care of patients. [21] Marked variability in the appropriateness of the referral sheets were identified in this current study. Although an improvement is recorded in overall referral form's quality, yet deficiencies in recording past medical history and drug allergies were obvious. [4,5] The differential/provisional diagnosis was not specified in 22% referral sheets. Similarly, complete physical examination findings were lacking in 31% of the referrals. Results of investigations was not present in 67% of sheets. Almost similar findings were observed in studies conducted by Jarallah et al. [15] in Riyadh and Abdelwahid et al. [22] in Southeastern region of Saudi Arabia. However, documentation of vital signs was much more (69%) in a study conducted by Al-Alfi et al. [14] as compared to 37% of our study. In our study, more than 97% physicians specified the hospital and specialty to which the patient was referred as compared to 92% of study conducted in southeastern region of Saudi Arabia. [22]

Around 62% referral sheets filled by FPs were above acceptable level as compared to 35% of GPs. No significant difference was noted in overall quality between the forms filled by GPs in PHCCs with FP and without FP. However, another study comparing referral sheets of four different regions of Saudi Arabia; highlighted noteworthy variation in the overall quality of referral forms especially filled by physicians of Hail and Gazan region. [15]

Physician working in PHCC may deem this information of little importance, but the consultants in hospitals needs proper/detailed communication for better management and outcome. [22] Poor referral sheets from PHCCs yield poor consultation feedback report. [23] Published studies support the evidence that serious consideration is given to recommendations by PHCC physician especially if refereeing doctor is Family physician. [22] Referral process is however impeded if the referral sheets are not clear, concise and do not focus on the issues central to current patient care. [23,24] Although a significant proportion (64%) of referral

sheets were legible as compared to 38% forms for Riyadh doctors; still it needs improvement. [15] Such forms can result in unnecessary waste of resources and time of specialist in the hospitals as they might have to do all workup for the patient from the start. [18,24]

Investigators have confirmed the problem in structure of referral forms. Although the referral sheets used in Ministry of health are standardized, this does not guarantee good quality of referrals. [15,24] This may reflect the attitude of the referring physician rather than their knowledge about this standardized form. In this context need for training and guiding health professionals and PHCC managers is recommended for an effective and efficient handling of referral tasks. These trainings should incorporate and recognize referral as a two-way process of communication. [25] The PHC physician initiate the communication which is completed with appropriate feedback from the consultant physician at the hospital. Both should follow uniform guidelines with proper documentation. [25,26]

Referral being a two-way communication; a major limitation of our study was no feedback reports from the hospitals were assessed. Secondly some of the PHCCs were not keeping/maintaining copy of referral sheets from their centers.

5   Conclusion

In conclusion, the quality of referral sheets is inadequate and needs improvement. Presence of FPs improves the quality of referral sheets and decreases the referral rates. The improvement in the quality can be achieved by sensitizing the PHC physicians of this problem and realizing them of their role in the process. Implementation of quality assurance programs with frequent audits and trainings of the physicians are highly recommended for improvement in the referral process. Similarly, for the better understanding of their respective roles, other means of communication between the PHCC physician and specialist in hospital should be encouraged. This may include regular meetings, telephonic consultations and refresher workshops etc.

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