Factors Affecting Waiting Time of Patients Referred to Specialty Clinics from a Family Medicine Clinic in a Tertiary Government Hospital: A Retrospective Chart Review

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ABSTRACT

Background. Waiting time of patients from a consult with a primary care physician to a specialist is poorly understood. It is one indicator of health service delivery and patient satisfaction. Patients consider waiting for a specialist consult for more than three months too long and unacceptable.

Objectives. To describe the sociodemographic and clinical factors associated with length of referral waiting time.

Method. Cross-sectional retrospective chart review of patient records in a tertiary government hospital from 2015 to 2019.

Results. A total of 366 charts were reviewed. Many of the patients referred to other specialty clinics were middle-aged adults and females. Median wait times for medical and surgical specialties were 11 (IQR: 0-29) and 18 (IQR: 6-35) days, respectively (p=0.003). Nutrition, rehabilitative medicine, and family health unit received the most number of referrals among non-surgical fields. Ophthalmology, otorhinolaryngology, and general surgery received the highest number of referrals among the surgical fields. Referral waiting times were longest for cardiology (median: 125, IQR: 91-275 days) and shortest for nutrition (median: 0, IQR: 0-6 days).

Conclusion. Waiting times from a primary care clinic to a specialty clinic at a tertiary government hospital vary based on urgency, specialty clinic, purpose of referral, presence of comorbidities, and chronicity of condition. Clinical factors found to be significantly associated with referral waiting time include urgency, type of clinic, and purpose of referral.

Keywords: referral, wait time, specialist

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INTRODUCTION

Referral waiting time in the healthcare system is an indicator of service delivery and patient satisfaction. It is the time from referral by a primary care provider to the first actual consultation with a specialist. A maximum waiting time of three months is considered acceptable by most patients but varies per country, from two months in Sweden to six months in New Zealand and Canada.[1,2]

Long waiting times are associated with fear among patients of having a serious undiagnosed disease, symptoms affecting daily activities, and frequent absences from work. Medical consequences of long waiting times include worsening of potentially reversible illnesses into chronic conditions and permanent disabilities.[3,4]

Studies on referrals from primary to specialty services reported that the length of waiting time varied based on

referral urgency and receiving specialty. Urgent referrals had a median waiting time of 49 days while non-urgent referrals had 79 days in a study by Liddy et al. Based on specialization, referrals made to plastic surgery had the longest waiting time at 159 days while referrals made to infectious disease had the shortest at 14 days.[1,5] A trend analysis in Canada showed significant improvement in referral waiting time over the years. There was also a significant difference in waiting time between sexes, age groups, seasons, and specialties.[1]

Many of the studies on referral waiting time were conducted in developed countries like Canada and Australia.[2,5,6] In these studies, factors identified which contribute to longer wait times include limited specialty care resources, inconsistency in family medicine physician's abilities to order advanced diagnostic tests, and higher demands on the healthcare system. In the Philippines, most studies on referral waiting time were done from the specialist's perspective and in the inpatient setting.[7,8] Therefore, there is a need to understand the referral waiting time from a primary care provider's perspective particularly in the outpatient setting. Identifying factors that contribute to long waiting times is important in addressing bottlenecks in the referral process.

Determination of referral waiting time and the factors associated with it can provide essential data for comparison with the current electronic referral system. It also reflects the quality of health service delivery at a government hospital by showing how accessible specialty services are for patients needing management beyond primary care. Modifiable factors affecting referral waiting time based on the study can be addressed to improve overall patient satisfaction. Thus, the study aimed to describe the sociodemographic and clinical factors associated with length of referral waiting time among family medicine patients referred to other specialty clinics from 2015 to 2019. Sociodemographic factors investigated included age, sex, address, year and quarter referred whereas clinical factors were urgency, type of clinic, purpose of referral, comorbidities, and chronicity of condition.

METHODS

Study Design and Setting

This was a cross-sectional retrospective chart review of patient records in a tertiary government hospital. At that time, referral to other specialty services was done by writing a referral letter and advising the patient to go to the receiving clinic for scheduling. The nurse of the specialty clinic reviews the referral letter and the chart of the patient before scheduling an appointment. The nurse then writes an appointment date on the hospital card of the patient. Factors being investigated by the nurse when scheduling appointments are the patient's preference, address or proximity from the hospital, urgency of referral if stated, and purpose of referral. But this system varies per clinic and no standard procedures are in place once a referral is made.

Study Population

Patient charts included had referrals to specialty clinics from 2015 to 2019. The charts of patients referred to the emergency room, social service, and records department were excluded. Essential data identified from charts reviewed were the entry of the receiving clinic and the date the patient was seen. Charts without any of those data were also not included in the study because it would be impossible to compute referral waiting time.

Sampling and Sample Size

Sample size was derived based on the main study objectives: to describe the sociodemographic and clinical characteristics of FMC patients referred to other specialty clinics and to describe sociodemographic and clinical factors associated with length of referral waiting time. To meet the first objective, sample size was calculated using Epi Info for population surveys (expected frequency: 30% of FMC patients are referred per month; margin of error: 5%; confidence level: 95%). Computed sample size (n_1) was 120.

For the second objective, sample size was computed using GPower3.1 for two means based on a single factor of interest, surgical vs nonsurgical (Hypothesis: Patients referred to specialty surgical fields have longer waiting times compared to those referred to specialty medical fields: plastic surgery - 159 days, IQR 59-365; infectious disease - 14 days, IQR 7-271).[5] Means and SD were estimated from the median and IQR (alpha: 0.05, power: 95%; two-tail test). Sample size computed (n_2) was 323 which was used for this study. Sample population was derived from the referral logbook using simple random sampling via an online random number generator.

Data Collection

Chart abstraction was done and pertinent data were entered into Google Forms by a trained research assistant. The standardized data collection Google form was prepared by the authors. Charts from both the family medicine clinic and the receiving clinic were reviewed to identify the date patient was seen by the specialty clinic. Specific information collected from the patient chart were patient's age at the time of referral, sex, address, date of referral, date seen by specialty clinic, and receiving specialty. Comorbidities, chronicity of condition, and purpose of referral were gathered from the chart entries of the Family Medicine Clinic before the patient was seen by the receiving clinic. Charts with incomplete essential information (date patient was seen and chart entry of the receiving clinic) were automatically excluded from data collection and were not included in the encoded data. No pilot testing was done for the data collection tool.

Data Analysis

Demographic and clinical characteristics were described using median with interquartile range for non-normal continuous data and frequencies with proportions for categorical data. Length of referral waiting times across factors

was estimated in median times with 25th and 75th percentiles. The association of factors to waiting times was determined through Mann Whitney-U test for factors with two categories and Kruskal-Wallis test for factors with more than two categories. P-values were generated and values less than 0.05 were considered statistically significant using EpiInfo. Referral waiting time was computed using Microsoft Excel.

Ethics Approval

This study was approved by the UP Manila Ethics Board (UPMREB).

RESULTS

A total of 366 (96%) out of 383 charts reviewed met the inclusion criteria and were included in the analysis.

Sociodemographic Factors

Medical records showed that patients referred from family medicine to other services were mostly middle-aged female adults in the age range of 41-55 years old (mean 51.64, SD ±15.20). Comparing referrals made from 2015 to 2019, there were more patients referred in 2016 and 2017 compared to the other years. More referrals were made during the first and third quarters of the year. None of the sociodemographic factors showed any significant difference in terms of median referral waiting time (Table 1).

Clinical Factors

Out of the 366 charts reviewed, 322 (88%) were referrals made to regular clinics and 44 (12%) were made to polyclinics. The top three polyclinics referred to were cardiology (27%), gastroenterology (27%), and nephrology (20%). Non-surgical clinics had more referrals compared to surgical clinics, with the highest number of referrals made to nutrition (12%), rehabilitative medicine (11%), and family health unit (7%). Surgical clinics with the most number of referrals were ophthalmology (10%), otorhinolaryngology (7%), and surgery (6%). A number of records (63%) did not state the purpose of the referral to the specialty. New referrals or patients not known to the receiving service comprised majority (84%) of the referrals made (Table 2).

There was a statistically significant difference between medical and surgical specialties in terms of median referral waiting time, with medical clinics seeing patients earlier compared to surgical fields (Table 2). Among the non-surgical clinics, referral waiting time was longest for patients referred to cardiology (median: 125, IQR: 91-275 days) followed by gastroenterology (median: 99, IQR: 60-118 days), and endocrinology (median: 26.5, IQR: 14.5-52 days). Waiting time was shortest for nutrition and dermatology clinics (median: 0, IQR: 0-6 days). Whereas for surgical clinics, referral waiting time was longest for patients referred to urology (median: 26.5, IQR:18-42.5 days) followed by neurosurgery (median: 23 days), and shortest for obstetrics-

Table 1. Sociodemographic Factors Affecting Referral Waiting Time among Family Medicine Patients Referred to Specialty Clinics from 2015 to 2019 (N=366)

Factor	n (%)	Median	IQR	*p*-value
Age **				0.2058#
Early adult (20-40)	76 (20.77)	16.50	40.50	
Middle adult (41-55)	123 (33.61)	10.00	26.00	
Late adult (56-65)	95 (25.96)	10.00	29.00	
Elderly (≥66)	68 (18.58)	9.50	19.50	
Sex				0.1033*
Female	238 (65.03)	12.50	29.00	
Male	128 (34.97)	8.50	26.50	
Address				0.1457*
NCR	224 (61.20)	29.19	28.00	
Outside NCR	142 (38.80)	21.32	28.00	
Year referred				
2015	17 (4.64)	6.00	20.00	
2016	103 (28.14)	4.00	16.00	
2017	134 (36.61)	17.00	31.00	
2018	89 (24.32)	13.00	26.00	
2019	23 (6.28)	13.00	42.00	
Quarter of the year				0.4422#
First	106 (28.96)	9.50	26.00	
Second	70 (19.13)	8.00	27.00	
Third	105 (28.69)	10.00	27.00	
Fourth	85 (23.22)	15.00	33.00	

IQR – interquartile range; p-value <0.05 – significant
**Mann-Whitney test; **Age – pediatric population (4) were excluded from the table and data analysis (N=362)*
#Kruskall-Wallis test

gynecology (median: 6, IQR: 2-40 days) followed by both orthopedics and general surgery (median: 7; IQR 0-49 and 1-21 days).

In contrast, there were no statistical difference in referral waiting time among the different polyclinics (median: 0-0.5 days), whether the purpose for referral was stated or not (median: 11 days), and regardless of patient comorbidities (median: 7-13 days). Waiting time of patients referred for counselling purposes (e.g., diet, lifestyle, mental health) was shorter (median: 2, IQR: 0-9 days) compared to those made for certain procedures (e.g., biopsy, endoscopy, surgery) (median: 16, IQR: 2-39.5 days) and co-management (median: 11, IQR: 1-35 days), with the differences being statistically significant (Table 2). The length of referral waiting time was shorter among new patients (median: 11, IQR 1-28 days) compared to old patients already known to the receiving service (median: 23, IQR: 6.5-53 days). Waiting time was also significantly longer in regular clinics (median: 14, IQR 2-32 days) which cater to non-urgent cases compared to polyclinics (median: 0, IQR 0-2 days) which manage urgent cases.

Waiting time of referred patients with acute conditions was shorter (median: 7, IQR: 0-25 days) compared to patients with chronic conditions (median: 14.5, IQR: 1.5-35 days). Six percent of patients seen by the receiving service did not receive any new management or intervention. There was also a statistically significant difference in median referral waiting time comparing the disposition of the receiving services, with patients planned for physical therapy waiting longer compared to patients referred for counselling (Table 2).

DISCUSSION

The study showed that patients referred from the family medicine clinic to other services were adults 41-55 years old, females, and residing in the National Capital Region. Non-surgical clinics had more referrals compared to surgical clinics, with the highest number of referrals made to nutrition, rehabilitative medicine, and family health unit. There were differences in referral waiting time among specialty clinics, whether surgical or non-surgical. Referral waiting time was longest for patients referred to cardiology, gastroenterology, and endocrinology among non-surgical clinics; while for surgical clinics, referral waiting time was longest for patients referred to urology and neurosurgery. Shortest waiting time was observed for referrals made to nutrition, dermatology, and obstetrics-gynecology. Overall, referral waiting time ranged from 0 to 125 days regardless of the type of clinic.

Referral waiting time estimates in this study were shorter compared to the waiting times in several studies done in Canada which showed referral waiting times in the range of 33-86 days.[1,9] This could be attributed to the differences in the settings of the studies and the referral process. Whereas

Table 2. Clinical Factors Affecting Referral Waiting Time among Family Medicine Patients Referred to Specialty Clinics from 2015 to 2019

Factor	n (%)	Median	IQR	*p*-value
Regular clinic*				0.003*
Medical	195 (60.50)	11.00	29.00	
Surgical	127 (39.44)	18.00	29.00	
Purpose if stated**				0.0067#
Co-management	74 (54.01)	11.00	34.00	
Counseling	23 (16.79)	2.00	9.00	
Procedure	40 (29.20)	16.00	14.00	
Comorbidities				0.1079*
0-1	131 (35.79)	7.00	25.00	
>1	235 (64.21)	13.00	30.00	
Chronicity of condition**##				
0-3 months	79 (27.92)	7.00	25.00	
>3 months	204 (72.08)	14.50	33.50	
Disposition**###				0.0002#
Counseling	54 (14.88)	0.50	13.00	
Further diagnostic tests	43 (11.85)	8.00	34.00	
Medical management	68 (18.73)	16.00	38.00	
Observation	22 (6.06)	19.00	17.00	
Physical therapy	18 (4.96)	33.00	105.00	
Procedure	57 (15.70)	8.00	22.00	
Referral to other service	19 (5.23)	19.00	22.00	
Workup and medical management	82 (22.59)	11.00	10.00	

p-value <0.05 – significant

**Mann-Whitney test; **Regular clinic (N=322); ***Purpose if stated (N=137)*

#Kruskall-Wallis test; ##Chronicity if stated (N=283); ###Disposition – minus 3 admitted patients (N=363)

in Canada and other developed countries patients are referred through their family physicians via a primary care network, in this study specialty clinics are within the same institution so there were instances when patients were seen earlier or even on the same day depending on the specific clinic's capacity. As was seen in this study, most of the patients referred in another study by Carriere and Sanmartin were also females aged 45 and older.[10] However, association of sociodemographic factors to referral waiting time were inconsistent even in other studies. Findings from Thanh et al. showed significant difference among sexes, ages, and through the years while those from Jaakkimainen et al. did not show any significant difference, consistent with what was reported in this study.[1,11] Results from the study showed that there was a nonsignificant but decreasing number of referred patients through the years but increasing median referral waiting time. Possible reason for this is that the patients through time are triaged immediately to the specialty service depending on the chief complaint. This in turn increases the number of patients for follow-up in the clinic thus affecting the schedule of referred patients from the family medicine clinic.

Reports on referral waiting time in terms of clinical factors were congruent with studies by Liddy et al. which showed difference between surgical and non-surgical specialties, urgency, and purpose of referral.[5] Waiting time for urgent referrals were shorter which is an expected finding among polyclinics or clinics that accepted patients needing immediate evaluation. Referral waiting time among non-surgical clinics such as nutrition and dermatology were considerably shorter compared to surgical clinics, with patients mostly seen on the same day of the referral. These findings coincide with the length of waiting time when considering other clinical factors like presence of comorbidities, chronicity of condition, and the purpose of referral. Patients who were referred to cardiology and endocrinology often have multiple comorbidities and have chronic conditions which may be contributing to the length of referral waiting time. On the other hand, those referred to the nutrition clinic often need counseling which can also explain why waiting time for counselling was shorter compared to other referral purposes. Referrals made to nutrition clinic were mostly seen on the same day or a few days after a referral is made because the clinic can accommodate walk-in patients depending on the number of patients they have for the day.

An analysis on referral waiting time in Canada by Thind et al. showed that neurosurgery had one of the longest waiting time at 103 days,[9] similar to what was seen in this study. However, patients in this study had relatively shorter waiting time for surgical services compared to the study by Thind et al. and other studies in Canada. For instance, orthopedic patients in another study by Liddy et al. had a waiting time of 98 days[6] while in this study, the waiting time was only 7 days. The difference could be attributed to other clinical factors such as chronicity of condition because many patients referred to neurosurgery and orthopedics have acute conditions and therefore wait shorter compared to those with chronic disease. Another factor that may have led to longer referral waiting time in first world countries like Canada is the difference in health insurance system. In the Canadian Medicare, all patients eligible for referral to specialty services are referred through a centralized referral system and are seen by the specialist depending on the waiting list of patients or the number of specialists within the area.[11] Despite the difference in healthcare system and referral process, findings in this study still coincided with results in most literature that referral waiting time among surgical clinics is longer compared to non-surgical clinics.[5]

Reports from the study support previous research which found that chart audits can be effectively used to determine areas for improvement in the healthcare system. Providing feedback to the different receiving services regarding the days the patients must wait to be seen by the specialty service can help address issues that the clinic may be unaware of. These issues may involve limitations in the number of physicians in the particular service, number of clinic days, and availability of a certain procedure or diagnostic test.[6]

For the family medicine clinic, the results provide essential data as to the status of the referrals made to other services for the years 2015 to 2019. Some patients seen by the receiving service did not receive any new management or intervention. This may somehow translate to the fact that some of the patients did not need specialty referrals thereby decreasing the time and resources spent going to the hospital for the scheduled consultation.

The length of referral waiting time is shortened if the purpose of referral is stated outright as was seen in this study. When the purpose is clearly stated, patients can be readily screened and directed to a particular subspecialty. As an example, a patient being referred for breast mass evaluation can be directly decked to the breast care clinic instead of general surgery since the reason for referral has been stated clearly. This can also decrease chances of misreferrals and patients being referred again to other services thereby further prolonging the wait. Several charts reviewed in the study had no specific statements on the purpose of referral which may be because of high patient load in the family medicine clinic, time constraints on the part of the referring physician, or the reason could be obvious from the diagnosis or chief complaint of the patient. But this factor significantly contributed to the prolonged referral waiting time and therefore should be made a required field in future referrals.

This study has several limitations. First is that Electronic Medical Records (EMR) has been implemented since 2021 and may influence referral waiting time. Compared to the referral system implemented in the years studied, the current electronic referral system ensures that patients referred to other services are scheduled by the nurses of the receiving clinic without the need for the patient to go there. They are instead informed of their schedules via SMS. But same with the old referral system, the purpose of referral is still not a

required field in this current system. Second, the study did not account for possible patient-level factors that may have extended wait times such as rescheduling of appointments and lack of availability. Another limitation is that only four patients from the sample population belonged to the pediatric age group. This could be attributed to the family medicine clinic primarily managing adult patients and mostly seeing only pediatric patients following up from the ambulatory clinic of the hospital. The very small sample size of the pediatric age group could skew data interpretation so was excluded in the analysis of sociodemographic factors. Simple random sampling used in the study may have also missed accounting for waiting times in clinics which received fewer referrals. Lastly, determination of referral waiting time does not necessarily translate to the time the patient's condition is ultimately addressed because there are still additional wait times to measure after being seen by a specialist like waiting for elective surgery or procedures like endoscopy as were explored in a narrative report by McIntyre and Chow.[12] There is also a need to compare the results of this study to tertiary hospitals with similar referral setup but there are none so far so it may be difficult to generalize results from this study.

Findings from this study may have utility for the implementation of universal health care where access to specialists depends on the health care provider network. Study results can have policy implications, serving as a basis for a patient wait registry in the Philippines as is being done in developed countries like Canada and the UK. Having a wait time standard specific to the country is important considering the difference in resources and referral process in the current system. Future studies can also compare data from this study to referrals made with current improvements in the EMR technology. This could also be considered an initial step towards understanding trends in referral waiting time in a publicly funded health system where service delivery is dependent on need rather than the ability of the patient to pay.[12]

CONCLUSION

Waiting times from a primary care clinic to a specialty clinic at a tertiary government hospital vary based on urgency, specialty clinic, purpose of referral, presence of comorbidities, and chronicity of condition. Referral waiting time among non-surgical clinics were shorter compared to surgical clinics. Waiting time was also shorter for new referrals, referrals made for counselling purposes, and referrals involving acute conditions. Clinical factors found to be significantly associated with referral waiting time include urgency, type of clinic, and purpose of referral. Overall, waiting times to see a specialist in the government tertiary hospital were within acceptable limits (less than three months), with only two clinics, cardiology and gastroenterology, with a longer median waiting time of 125 and 99 days, respectively.

Statement of Authorship

Both authors certified fulfillment of ICMJE authorship criteria.

Author Disclosure

Both authors declared no conflicts of interest.

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