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## Pattern of referral system from healthcare centers to the hospitals and polyclinics in Baghdad Al-karkh health directorate 2024-2025 Rretrospective study

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### Abstract

**Background:** Referral is a process in which a healthcare worker at one level of the health system, who lacks the necessary resources to manage a clinical condition, seeks assistance from a more capable facility at the same or a higher level. There are two types of referral systems, the external, which refers the patients directly from the health care centers to the hospitals departments, and the 2nd type, internal of patients from health care centers to polyclinics (there is one polyclinic in each health district containing specialists of pediatric, surgery, gyn/obs and rheumatology).

**Objectives:** To clarify the pattern of the referral system in Baghdad Al-Karkh through comparing the role of the internal referral system to decrease the external referral system and also to identify the indications for referrals and which hospital departments. Lastly assess the quality of the referral letters to ensure the continuity of the health services and to decrease the referral cases to the hospital.

**Subject:** The study involved 98 health centres and 9 polyclinics over a nine-month period, from 1st October 2024, to 31 June 2025.

**Method:** A retrospective study reviewing all referral letters to estimate the total patients visiting and referrals to hospitals, data obtained from referral letters and registers by trained personnel in special forms. 5% of referral letters were selected randomly for quality assessment. Data analysis was done using Excel software format, and the results were presented in tables and figures. Exclusion data for the Al-Tajee, Al-Eelam, and Al-Tarmyia health districts is noted as they do not include polyclinics.

**Results:** The total number of patient attendances at health centres was 1,493,607 of them, 28,853 were referred directly to hospitals. Out of the referred patients, 8,245 were referred to the pediatric, surgical, gyn/obs, and rheumatological departments of the hospitals, while through internal referral from health care centres, to the pediatric, surgical, gyn/obs, and rheumatological of the polyclinics, there were 4,017, so the total number of referred patients was 12,375. Therefore, the internal referral sharing lowers the external referral rate to 67%, females more than males, and the most referral patents from age group 0-15 years, 28%. The main indication for referring hospitals is 49% for sharing or getting a second opinion from a specialist in the hospital for mor diagnosis, 25% of patients referred to internal medicine department.

**Conclusion:** There is an obvious effect of polyclinics on crowding in the outpatients of the hospital, and there is a need to continuously support polyclinics with diagnostic equipment and medication. open internal medicine clinics in polyclinics to decrease external referral to the hospitals, the referral rate remains the most important part of the monitoring process and the quality of referral letters significantly influenced the writing of replies by hospital staff.

**Keywords:** Internal and external referral, quality, healthcare centers, referral letters, polyclinic, hospitals

### 1. Introduction

Referral is a process in which a healthcare worker at one level of the health system, lacking the necessary resources (such as medications, equipment, or skills) to manage a clinical condition, seeks assistance from a more capable facility at the same or a higher level. This facility can help manage or take over the patient's care <sup>[1, 2]</sup>. The referral system in Iraq, established in 1958, initially focused on a limited range of preventive services, such as maternity health care centers and school health. Since the 1970s and 1980s, the implementation of the referral system among health institutions has experienced periods of both activation and inertia. In 1985, the activated referral system was activated through the patient's (healthy book) system <sup>[3, 4, 5]</sup>.

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In late 2008, the Iraqi Ministry of Health reactivated a referral system, and the situation of the referral system was 85%. Of primary health care centers that maintained a record of the referral system, 69% lacked an electronic archive or family inventory. Additionally, 64% of these centers reported not having any follow-up mechanisms for patients who require ongoing care <sup>[6]</sup>. In 2010, a new healthcare system was piloted in the governorates of Baghdad, Karkh, Najaf, and Kirkuk. By 2011, an initial assessment survey of primary healthcare centers revealed the following results: - 59% of health centers in Baghdad have implemented a hospital referral system. - 54% of hospitals provide feedback. And 25% of the feedback from hospitals reaches the health centers.

The main advantages of a qualified referral system include: For the Patient: Saves lives, For the Healthcare Center Physician: Provides educational opportunities, allows for self-evaluation. For the Hospital Specialist: facilitates the gathering of better direct and indirect information to enhance the quality of treatment revealed by studies of <sup>[7, 8]</sup>.

The procedure of the referral system includes a health assessment by a physician to determine if a referral to the hospital is necessary. Preparing the referral letter, patient transfer to the hospital and follow-up—the patient's condition is monitored in the hospital, and then feedback on the referral form helps ensure continuity of care <sup>[9]</sup>. The polyclinic, which provides outpatient specialist services to the population in its catchment area, offers a range of medical services, such as consultations, diagnostics, preventive care, and treatment for common illnesses, and referral services to secondary and tertiary health care facilities. In our health directorate, the polyclinics establish one in each health district to reduce the referral patients to the hospitals and to deliver effective and efficient specialist services.

**Rationale:** the promotion of continuity of the health services and increase health quality

### Objectives

1. To identified the referral rate to the hospitals and polyclinics,
2. To identify the indications for referrals,
3. To identify the role of polyclinics in the external referral rate to the hospitals
4. To assess the quality of the referral letters

**Methodology:** Retrospective study covered all 98 primary health care centers and 9 polyclinics belonging to the 12

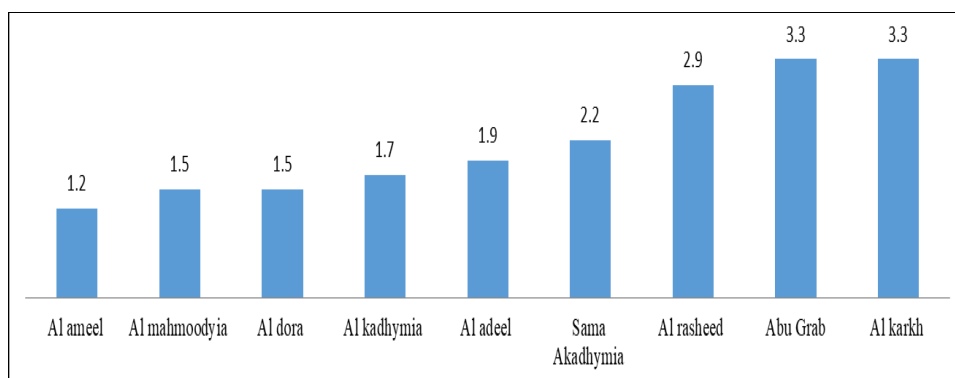
health districts affiliated with Baghdad al-Karkh, namely Al-Kadhimiya, Al-Karkh, Al-Tajy, Al-Tarmiya, Abu Ghraib, Al-Amel, Al-Eelam, Mahmoudiya, Al-Dora, Al-Rasheed, Al-Adel, and Al-Tarmiya and Sama Al-Kadhimiya. The study period is during 1<sup>st</sup> of October 2024 till June 2025. We selected this period during which the 9 polyclinics were established, one in each health district except Al-Tajee, Al-Eelam, and Al-Tarmiya. During this period, all the referral letters and registers were reviewed to identify the total number of patients attending these healthcare centers 1493607 and those referred to hospitals 28853 as in table 3. We determined the classification of referring cases according to the indication of referring and the hospital departments. A meeting was held with all personnel responsible for the referral systems in all health districts to discuss how to collect data. And decided to designed forms adapted from the referral forms and registers approved by the Iraqi Ministry of Health. For assessing the quality of referral letters, 5% of referral letters were selected randomly total referral letters were selected 5771 distributed according to health districts as in table 4, using the following scoring system: a score of 2 for present and complete information in the items, a score of 1 for present but incomplete information, and a score of 0 for absence of information.

The referral rate was calculated as the number of 'referral' patients from health centres divided by the total number of attendance patients in a specific period (nine months), multiplied by one hundred. The external referral (vertical) occurs when patients are referred from health centers to hospitals, while the internal referral (horizontal) is when patients are referred from health centers to the polyclinics. Descriptive analysis was carried out using Microsoft Excel, and the results were presented in tables and figures, Excluding data of Al-Tajee, Al-Eelam, and Al-Tarmiya health districts

### Results

#### First: external referral system

The study included a total of 1,493,607 patient attendants over a nine months; out of them, 28,853 patients were referred to hospitals, resulting in an overall referral rate of 1.9%, about 8245 of direct referral patients to hospitals departments of pediatric, surgical, gyn/obs, and rheumatological only. There was variation in the referral rates among the districts, ranging from the lowest in Al-Ameel at 1.5% to the highest in Al-Karkh at 3.3%, as shown in figure 1.



**Fig 1:** % of external referral rate according to health districts to the hospitals



In the demographic terms of the sex of attending patients, females 46% more than males 44%, as illustrated in Figure 2

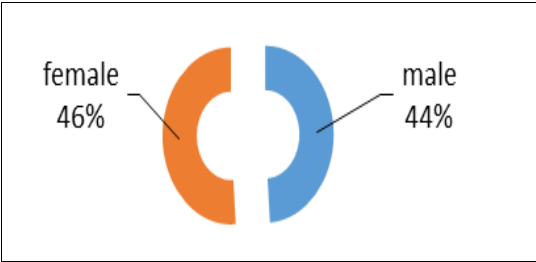


Fig 2: % sex

Regarding the age group of referral patients, the age group 0-15 years is 28% and 16-30 years is 22%, while the age group 31-45 is 17%, the age group 46-60 is 23%, and the

lowest result recorded in age group 60 and above is 10% in the figure. 3

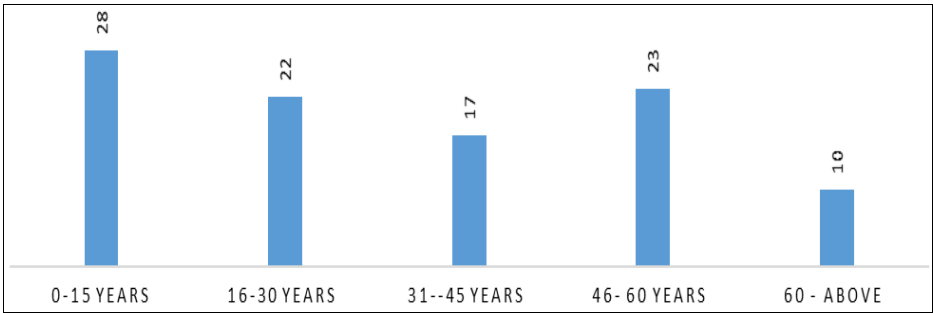


Fig 3: % age groups of external referral patients

On the other side, the indication for referral of patients to the hospital departments, as illustrated in the figure: 4. The highest number of referral patients to hospital 49% is to

share the second opinion of the specialist in hospital to get more diagnosis, 25% for just investigations, 23% for therapeutic intervention and 3% for other purposes

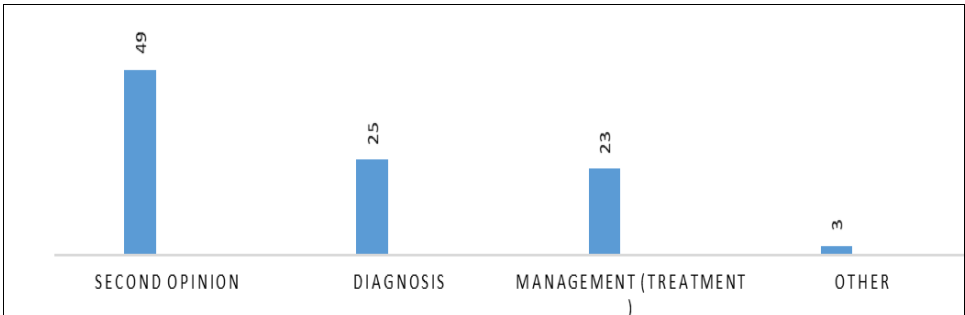


Fig 4: % indication of external referral patients

The referring patients to the hospital department mostly to internal medical department 25%, the gyn/obs department 15%, surgical department, the ophthalmic department, the

paediatric department, and other departments same result was 8%, the ENT department 5%, and urological department 4% in figure: 5.

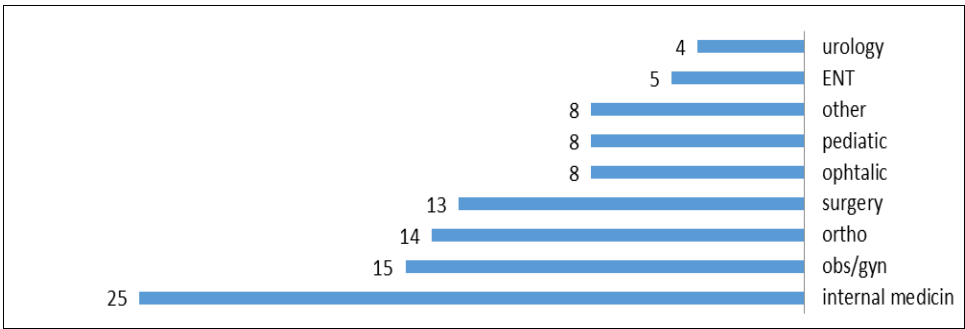


Fig 5: % referral patients to the hospital departments



**Second internal referral system:** There are nine polyclinics, one in each health district. Some of them contain four specialists, as in Aljamiea; three, as in Al Yarmouk, or two clinics, as in Alrasheed. In general, there are 6

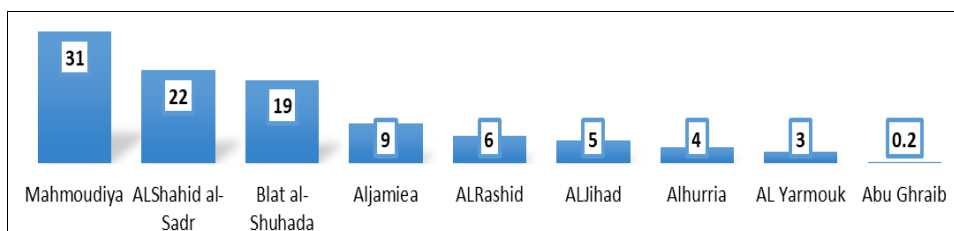
pediatrics clinics, 6 Gyn/Obs clinics, and 8 surgical clinics and one for rheumatological cases, the total of clinics are 21 as illustrated in table 1:

**Table 1:** Illustrated the types and number of polyclinics in health districts

Name of Polyclinic	Rheumatology	Surgery	Gyn/Obs	Paediatric
Aljamiea	1	1	1	1
Al Jihad		1		1
Mahmoudiya		1	1	
Al Yarmouk		1	1	1
Al Rashid		1	1	
Abu Ghraib			1	
Blat Al-Shuhada			1	
Alhurria		1	1	
Al Shahid al-Sadr			1	1
Total	1	8	6	6

Figure 6 revealed that the polyclinic graded with the highest rate of receiving or attendances is the Mahmoudiya

polyclinic with 31%, and the lowest is the Abu Grab polyclinic with 0.2%.



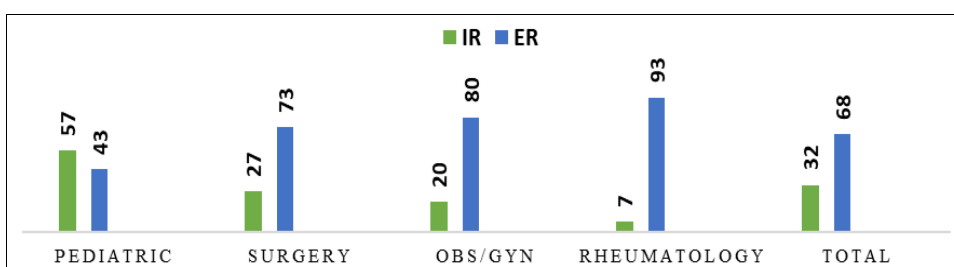
**Fig 6:** % of attendances of patients according to polyclinics

The total internal referral cases were 4017 patients of them 143 referred to the hospital with rate 3% these 4017 cases distributed according to type of clinic: pediatric 2511, surgery 623, obst/gyny 730, and rheumatology 153, while the external referrals from the same healthcare centers to the hospital directly are 8340 patients distributed according to type of departments of hospitals, pediatric 1927, surgery 1620, obst/gyny 2797, and rheumatology 1996. So the total external and internal referral patients are 12500 as

illustrated in table 2, and figure 7 which explained the important and effective role of polyclinics in external referral or directly referring the patients to the hospitals. For example, the rate of pediatric cases decreased to 56%, surgical cases decreased to 27%, gynecology cases decreased to 20%, and rheumatology cases decreased to 7%. Overall, referrals from healthcare centers to hospitals decreased by 32% during the nine months.

**Table 2:** Illustrated the total number of referral cases (internal & external) and their rate in pediatric, gyn/obs, surgery, and rheumatology clinics in polyclinics and hospitals.

Types of clinics or departments	No. of referral cases			total referral case (IR+ER)	rate of I. R.	Rate of E. R.	
	internal referral from health centers	external referral				from polyclinic	from health centers
		from polyclinic	from health centers				
Pediatric	2511	19	1927	4457	56	0.4	43
Surgery	623	39	1620	2282	27	1.7	72
obs/gyn	730	80	2797	3607	20	2.2	77.8
Rheumato	153	5	1996	2154	7	0.2	93
Total	4017	143	8340	12500	32	1	67



**Fig 7:** % role of polyclinics on external referral cases



Figure 8 illustrates the referral cases from polyclinics to the hospital for further management. In Blat Al Shuhda 25% were referred to the hospital, while Alrasheed had no referral cases, the overall internal referral rate was 3%

during the study period. Total referral cases 143 distributed as (pediatric 19 patients, surgery 39 patients, gyn/obs 80 patients and rheumatologic 5 patients)

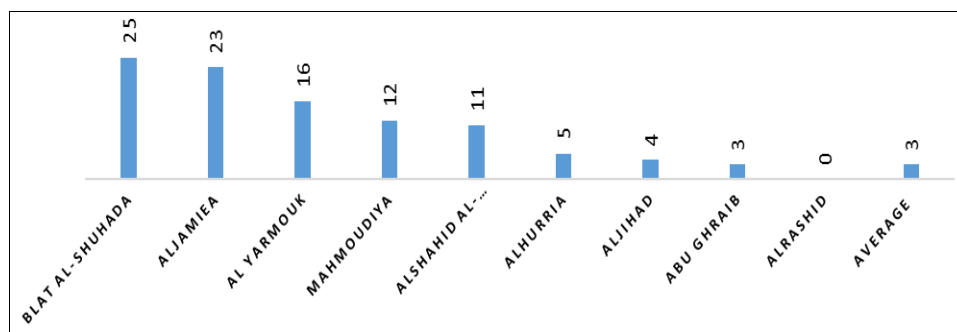
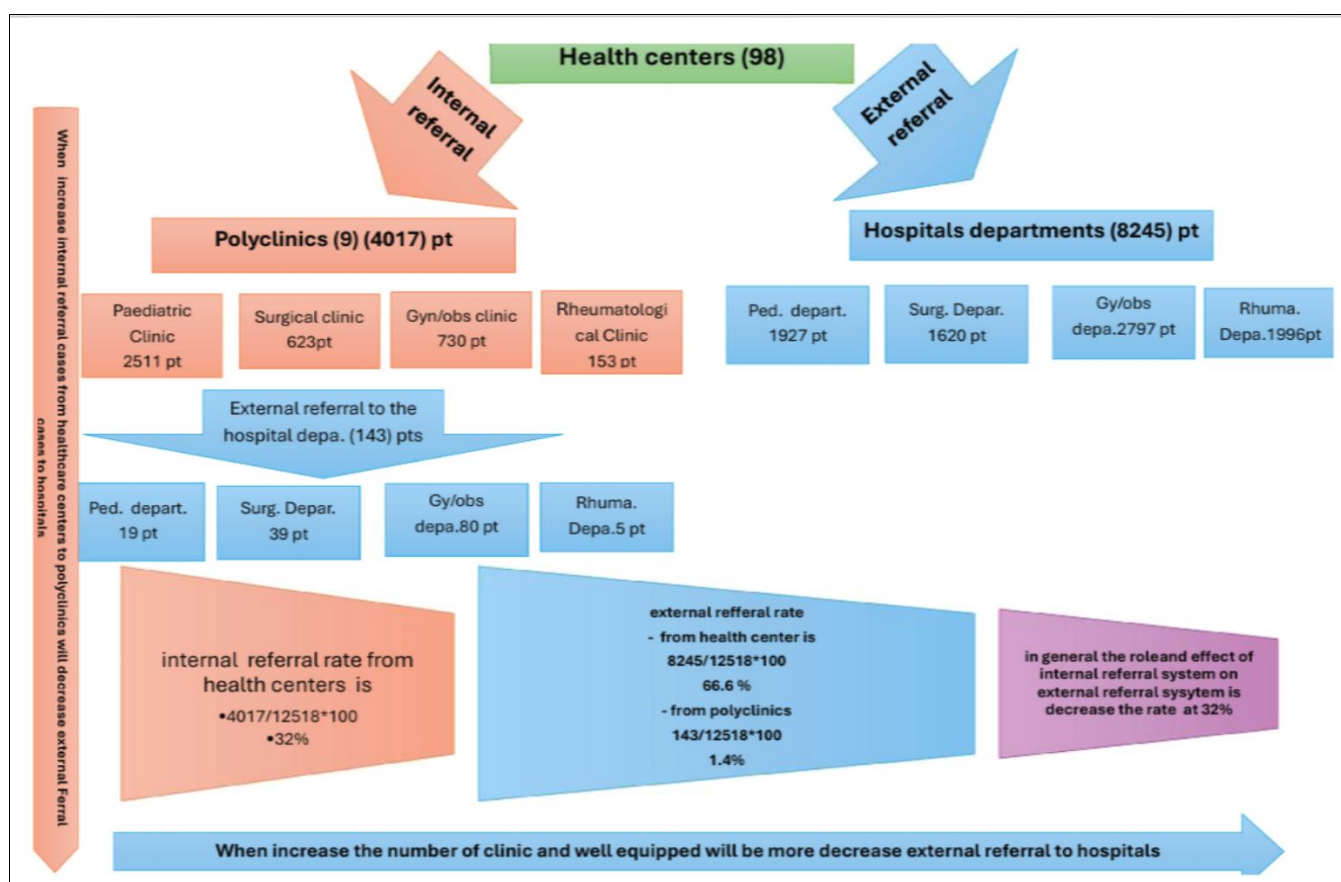


Fig 8: % of external referral cases to the hospital according to polyclinics

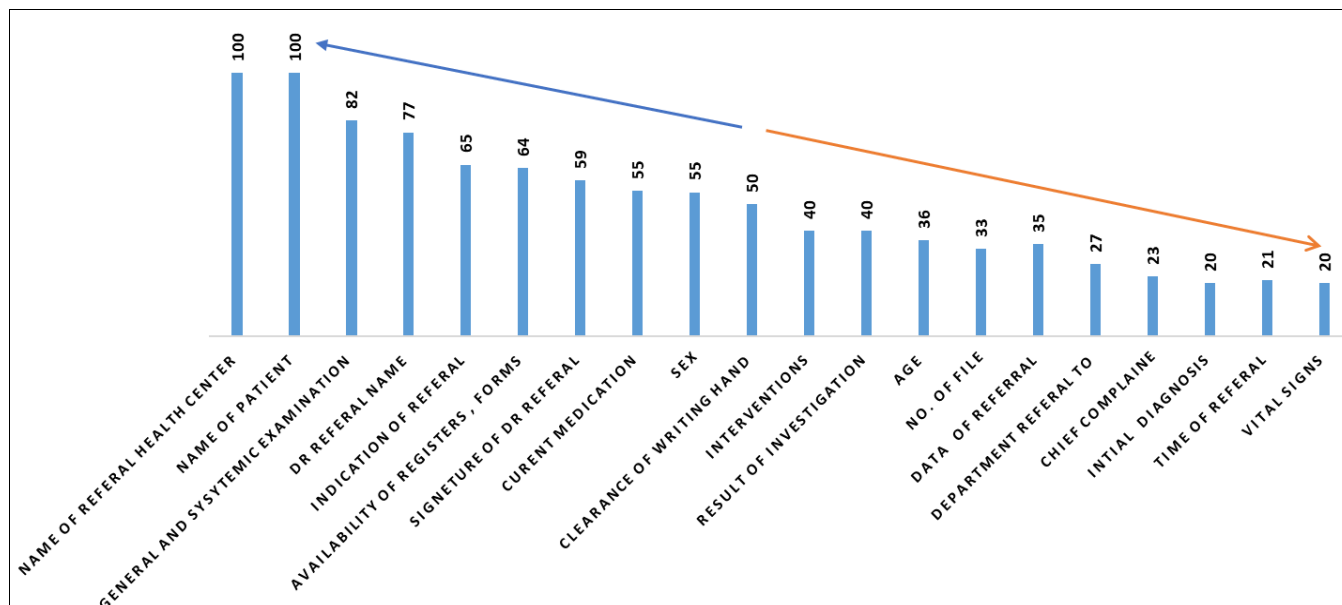
**Diagram:** designed by researchers summarized methodology, results, role of polyclinics of our study



**Third the quality of referral letters,** the referral letters, which contain twenty items and two parts, one is related to the referral healthcare center, and the second is related to the hospital (feedback). In our study, we are concerned about the above part containing information about referral doctors and other information related to the patients. The result is illustrated in the figure: 9. About 10% of items with full

scoring (the names of the patients, name of referral health center), other items with incomplete scoring and graded from item of systemic examination (82%), last two items are the time of referral, and vital signs with 21% and 20%, respectively. the mean of all twenty items of referral letter is 51%





**Fig 9:** % scoring of referral letters quality

**Table 3 and 4:** Illustrated total cases attending the healthcare centers and the selected referral letters for quality assessment according to health districts

health districts	4th Q 2024	1st Q 2025	2nd Q 2025	100%
Al kadhymia	51004	44814	51495	147313
Al karkh	40270	27540	38446	106256
Al mahmoodiya	41625	19865	34128	95618
Abu Grab	60652	40886	48192	149730
Sama Akadhymia	48035	36093	53137	137265
Al adeel	55075	39736	46147	140958
Al dora	79956	54585	72473	207014
Al ameel	46269	35688	349661	431618
Al rasheed	25529	24119	28187	77835
total	448415	323326	721866	1493607

health districts	4th Q 2024	1st Q 2025	2nd Q 2025	total	5%
Al Kadhimiya	993	770	764	2527	505
Al karkh	920	1109	1490	3519	704
Al Mahmoudiya	925	225	289	1439	288
Abu Grab	1925	1783	1208	4916	983
Sama Kadhimiya	1099	1537	363	2999	600
Al Adeel	1315	672	660	2647	529
Al Dora	1100	1083	965	3148	630
Al Ameer	2713	1327	1329	5369	1074
Al Rasheed	706	805	778	2289	458
total	11696	9311	7846	28853	5771

## Discussion

A referral system is essential for primary healthcare, as it serves as a means to coordinate healthcare between different facilities, streamline the continuity of patient care, and improve the quality of care [10]. A total of 1,493,607 patient visits to healthcare center over a period of study (nine months); out of them, 28,853 patients were referred to the hospitals to the secondary care settings, resulting in an overall referral rate of 1.9%. There is variation across the health districts grading, from the highest in Al-Karkh HD at 3.3% to the lowest in Al-Ameer HD at 1.2%. This variation might be due to the perception of the quality of health services at healthcare centres, availability of medicine and investigation equipment [11].

The demographic analysis of patients in our study showed that there were females more than males, 46% and 44%, respectively. A study of [18] found a male: female ratio of

0.9:1, and the study of [18] found that the majority of patients from healthcare centers were female (71%), more than male (29%). The study of [12] revealed that the patient visits to health centers in Nineveh were 54% female and 46% in Baghdad. The results of these studies mimic the result of our study, but in different percentages, except for the study of [19], where males are more than females, 51% and 49%, respectively

Regarding the age group of referral patients in our study, the age groups 0-15 years (28%) and 16-30 years (22%) both represent 50% of referral age groups, while the age group 31-45 is 17%, the age group 46-60 is 23%, and the lowest result recorded in age group 60 and up is 10%. The study of [20] has shown that the age group below 20 years is (17%) less than in our study, while the age group 60 and up is 18% more than in our study of the same age group. The study of [26] revealed that the most of referral patients in age group



above 60 years 60%, and lower at age group below 30 years is 6%, this can be explained by the fact that the old age bypass directly to the hospitals; most of them have chronic diseases with their complications or sequels, in addition to a lack of well-trained medical staff or ambulance so preferring to go directly to the hospital.

The referral rate in our study overall at 1.9% was very low in comparison with other studies, as the study in Saudi Arabia <sup>[21]</sup> showed that the referral rate was 3.6%, which is a higher rate than our study, and the study by <sup>[22]</sup> showed that the rate is 2.27% and the emergency referral rate is 23%, while the study <sup>[23]</sup> had the referral rate at 6.3%, and the study <sup>[28]</sup> revealed that the average referral rate was 15.8% (from 4.4 to 26.8%). This can be expected from the study of <sup>[10]</sup>, which showed that the SWOT analysis of Iraqi PHCs illustrated that under point of weakness include the following: inequitable distribution of health facilities and human resources, Lack of national regulatory health policies, Lack of adequate funding, lack of adequate referral system, and the study of <sup>[13]</sup> found most of healthcare centers in Kurdistan have a referral system without method of receiving the information back from referral hospitals and the study of <sup>[14]</sup> Revealed that eighty-five percent of PHCs in Iraq have a referral system, yet 64% of these healthcare centers reported a lack of a feedback mechanism about these referrals, from the hospital. It's very important to increase the effectiveness of a referral system. This was illustrated by the study of <sup>[15]</sup>, which serves as a means to coordinate healthcare between different facilities, streamline the continuity of patient care, and improve the quality of care. The study of <sup>[24]</sup> that calculating the referral rate remains the most important part of the monitoring process.

Regarding to whom department referred these patients mostly went to the internal medical department (25%), the obstetrics/gynaecology department (15%) to the surgical department (14%), orthopaedics (13%), urology and ophthalmic (7%), paediatrics (6%) and last ENT (4%). A study by <sup>[32]</sup> revealed that healthcare facilities referred most emergencies to several departments, including the cardiac care unit (65.5%) and obstetrics and gynaecology (18.4%), more than the results of our study.

The main indication for referring to the hospitals is 49% for sharing or getting a second opinion from a specialist in the hospital, A study <sup>[32]</sup> that The patient can be benefit from a second opinion from a specialist care, access to more specialized care and enhanced outcomes through the referral system

There are nine polyclinics; some of them contain four specialists, and others contain three or two. When making a comparison between external and internal referrals to explain the role of polyclinics in direct referral to hospitals, the results show that the rate of paediatric cases decreased to 56%, surgical cases decreased to 27%, OB/GYN cases decreased to 20%, and rheumatology cases decreased to 7%. Overall, referrals from healthcare centers to hospitals decreased by 33% during the nine months of this result, with the polyclinics referring 143 cases to hospitals for different purposes. A study by <sup>[16]</sup>. That explored the effect of implementing a referral system in the governorate of Wasit showed that after three months of applying the referral system, the number of visits to the local hospital was reduced by one-third compared to the period prior, with increase the patients visit to the health centers.

Lastly the quality of referral letters items, the results of

items are the name of the patient, name of referral health center, all with (100%), systemic examination was (82%), doctors referral was (77%) the indication of referral 65%, signature of doctor 59%, current medication 55% sex 55% and the clearance of writing hand with 50% the other about half of items below (50%), initial diagnosis, vital signs and time of referral cases with 20% Finally the overall quality scoring is 51%, The study by <sup>[27]</sup> revealed that The most frequently mentioned items in the referrals were demographic data (100%), the study by <sup>[28]</sup> that the most basic information, such as name, age, sex of patient, diagnosis, clinical course, name of referral institution and person who referred, were well noted at all institutions in this study. A study <sup>[29]</sup> found that the quality of letters significantly influenced the writing of replies by hospital staff. The lack of a policy or work guide for the referral system and awareness of the community, the study by <sup>[27]</sup> explained that the referral system has several issues, such as the lack of information in referral letters. Did not adequately address the factors that contribute to an effective referral system. The problems identified in this study include unnecessary requests for referrals from patients, unstructured referral letters, and unclear guidelines for disseminating referral information, A Study <sup>[30]</sup> found the system which includes- lack of the skilled and motivated manpower, inadequate infrastructure, non-compliance on the guidelines meant for effective referral system, insufficient accountability to control unnecessary referrals at each level, inadequate back referral system of minor cases that comes directly to the higher level and absence of a universal healthcare and the study of <sup>[31]</sup> that The study revealed the absence of adequate, efficient hospital feedback and the connection between the family physicians in family practice centers and specialists in hospitals is nearly lost

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