

# The Study of Improving Referral Behavior from Primary Care Clinics to Community Medical Centers in Taiwan

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**Background and objective:** As the global population ages and chronic diseases continue to increase, building the capacity of healthcare systems has become an important issue. How to effectively improve the referral behavior of primary care clinics so that patients can obtain better medical services is an important healthcare policy issue.

**Methods:** This study aimed to explore the factors affecting referral behavior from primary care clinics to community medical centers and to propose strategies for improving the referral rate. It is a cross-sectional study that collected data from March 1, 2022, to April 20, 2022. A total of 254 questionnaires were collected from the primary care clinic physicians in New Taipei City, Taiwan. (See the Table 1) The data were utilized in the SPSS 26.0 (version 3.6.3) for statistical analysis.

**Results:** The results showed that the referral experience factors, including "the number of patients referred in the past month," "whether the physician joined the family doctor program," "referral cognition," "daily outpatient volume," and "years of practice," would affect the overall referral behavioral intention of physicians ( $p < 0.05$ ). As the Figure 1. Question 2; Question 10; and Question 4, the correct answer rates of these three questions are 47.2%, 51.6%, and 62.6% respectively, and the correct answer rates of the other seven questions are all higher than 70%. In addition, the referral behavior intention of the research subjects will have significant differences due to different physician characteristics. The results show that there is a statistically significant difference between Clinic Physician Seniority and The Department of Health provides an application for transfer-out ( $F = 3.074, p = 0.017$ ), (See the Tables 2).

**Table 2. Variance Analysis of Clinic Physician Seniority and Referral Behavior Intention**

Variable	Range of Clinic Physician Seniority	Mean	± SD	F test	P-Value	postm ortem
1. The Department of Health provides an application for transfer-out incentives.	1-10 years old	4.19	0.617	3.074	0.017*	1-10 y/o > over 40 y/o
	11-20 years old	3.99	0.642			
	21-30 years old	4.13	0.7			
	31-40 years old	4.05	0.488			
	Over 40 years old	3.29	1.704			
2. The Department of Health provides an application for transfer-in incentives.	1-10 years old	4.19	0.648	0.898	0.465	
	11-20 years old	3.99	0.642			
	21-30 years old	4.13	0.665			
	31-40 years old	4.1	0.539			
	Over 40 years old	4.14	0.9			
3. The Department of Health Insurance promotes the electronic referral platform for referral operations.	1-10 years old	4.2	0.528	2.981	0.020*	
	11-20 years old	3.85	0.695			
	21-30 years old	3.92	0.707			
	31-40 years old	3.76	0.7			
	Over 40 years old	3.71	1.113			
4. Cooperative hospitals actively provide referral service window registration service.	1-10 years old	4.33	0.514	2.087	0.063	
	11-20 years old	4.1	0.554			
	21-30 years old	4.16	0.506			
	31-40 years old	4.05	0.384			
	Over 40 years old	4.29	0.488			
5. Cooperative hospitals take the initiative to visit grassroots clinics to understand the difficulties and needs of grassroots hospital referrals.	1-10 years old	4.2	0.626	1.666	0.158	
	11-20 years old	3.93	0.665			
	21-30 years old	3.95	0.649			
	31-40 years old	4	0.632			
	Over 40 years old	4	0.616			
6. The cooperative hospital immediately provides the medical record report of the referred patient.	1-10 years old	4.28	0.564	1.263	0.285	
	11-20 years old	4.09	0.532			
	21-30 years old	4.22	0.495			
	31-40 years old	4.19	0.402			
	Over 40 years old	4.29	0.756			
7. Cooperative hospitals take the initiative to provide strategic alliance signing cooperation.	1-10 years old	4.13	0.616	1.734	0.143	
	11-20 years old	3.88	0.622			
	21-30 years old	3.99	0.563			
	31-40 years old	4.1	0.436			
	Over 40 years old	4.14	0.69			
8. Cooperative hospitals actively provide referral network report query system.	1-10 years old	4.11	0.664	1.28	0.258	
	11-20 years old	3.78	0.84			
	21-30 years old	3.85	0.695			
	31-40 years old	3.86	0.655			
	Over 40 years old	3.29	1.38			
9. The cooperative hospital encourages the doctors of the hospital to come to the clinic to support outpatient or surgical operations.	1-10 years old	3.7	0.924	0.351	0.843	
	11-20 years old	3.76	0.631			
	21-30 years old	3.8	0.717			
	31-40 years old	3.62	0.805			
	Over 40 years old	3.66	0.9			
10. The cooperative hospital provides the medical reservation number for the referred patients.	1-10 years old	7.37	0.623	1.099	0.358	
	11-20 years old	4.17	0.557			
	21-30 years old	4.22	0.562			
	31-40 years old	4.29	0.463			
	Over 40 years old	4.14	0.69			

Note: \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

**Relevance to HPH:** The study highlights how the community medical centers play the HPHs role and provides the related functions in promoting community health and improving the quality of healthcare services.

**Relation to conference main theme:** Community-based healthcare institutions, like HPH, can serve as a platform for communication and collaboration between primary care clinics and community medical centers. The study also highlights the referral experience and how to improve the referral cognition of primary care.

**Keywords:** primary care, referral experience, referral cognition, referral behavioral,

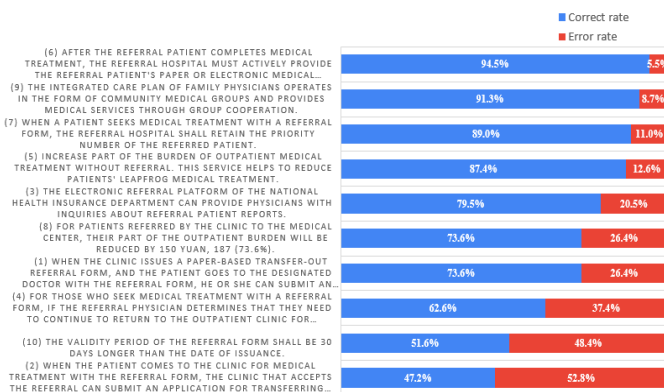
**Conclusions:** Improving referral behavior from primary care clinics to community medical centers or teaching hospitals is crucial for promoting in Taiwan. This study provides insights into the factors affecting referral behavior and proposes strategies for improving the referral process.

**Table 1. the proportion of referral patients from clinics in the medical center and the number of samples**

Administrative districts of New Taipei City	Number of Western medicine clinics (#)	Proportion of the patient come from (%)	Sample number
Banjiao District	269	41.5	122
Tucheng District	87	21.4	63
wooded area	53	11.3	33
Zhonghe District	162	6.6	19
Xinhuang District	181	5.7	17
<b>Total Rank</b>	<b>752</b>	<b>86.5</b>	<b>254</b>

Note: There are 752 households in the parent group, and 95% of the confidence interval is calculated, so 254 households should be selected.

**DISTRIBUTION OF REFERRAL COGNITION SCALE**



**Figure 1. The Distribution of Referral Cognition Scale in this study**



The future study of this project will be published in the "Journal of Healthcare Management" soon, and the research team included AEUST ; NTNU ; FEMH .

※ This article will be published on Journal paper in Taiwan.