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## 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.

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

	Range of Clinic					
Variable	Physician Seniority	Mean	± SD	F test	P-Vaue	postm ortem
	1 -10 years old	4.19	0.617	3.074	0.017*	1-10 y/o >
1. The Department of Health	11-20 years old	3.99	0.642			over 40 y/o
provides an application for	21-30 years old	4.13	0.7			
transfer-out incentives.	31-40 years old	4.05	0.498			
	Over 40 years old	3.29	1.704			
	1 -10 years old	4.19	0.646	0.898	0.465	
<ol><li>The Department of Health</li></ol>	11-20 years old	3.99	0.642			
provides an application for	21-30 years old	4.13	0.665			
transfer-in incentives.	31-40 years old	4.1	0.539			
	Over 40 years old	4.14	0.9			
3. The Department of Health	1 -10 years old	4.2	0.528	2.981	0.020*	
Insurance promotes the	11-20 years old	3.85	0.695			
electronic referral platform for	21-30 years old	3.92	0.707			
referral operations.	31-40 years old	3.76	0.7			
-	Over 40 years old	3.71	1.113			
	1 -10 years old	4.33	0.514	2.087	0.083	
4. Cooperative hospitals actively	11-20 years old	4.1	0.554			
provide referral service window	21-30 years old	4.16	0.506			
registration service.	31-40 years old	4.05	0.384			
	Over 40 years old	4.29	0.488			
<ol><li>Cooperative hospitals take the</li></ol>	1 -10 years old	4.2	0.626	1.666	0.158	
ini lia live to visit grassroots	11-20 years old	3.93	0.665			
clinics to understand the difficulties and needs of	21-30 years old	3.95	0.649			
grassroots hospital referrals.	31-40 years old	4	0.632			
grassroois nospital referrals.	Over 40 years old	4	0.816			
6. The cooperative hospital	1 -10 years old	4.28	0.564	1.263	0.285	
immediately provides the	11-20 years old	4.09	0.532			
medical record report of the	21-30 years old	4.22	0.495			
referred patient.	31-40 years old	4.19	0.402			
	Over 40 years old	4.29	0.756	1.734	0.143	
7. On a second sec	1 -10 years old	4.13 3.88	0.616	1.734	0.143	
<ol><li>Cooperative hospitals take the initial for the provide a state of a</li></ol>	11-20 years old		0.622			
initiative to provide strategic alliance signing cooperation.	21-30 years old	3.99 4.1	0.663			
amance signing cooperation.	31-40 years old Over 40 years old	4.14	0.436			
	1 -10 years old	4.14	0.664	1.28	0.258	
8. Cooperative hospitals actively	11-20 years old	3.78	0.64	1.20	0.200	
provide referral network report	21-30 years old	3.85	0.695			
query system.	31-40 years old	3.86	0.655			
de ci y e y e tant	Over 40 years old	3.29	1.38			
0 The second for beauty	1 -10 years old	3.29	0.924	0.351	0.843	
<ol> <li>The cooperative hospital encourages the doctors of the</li> </ol>	11-20 years old	3.76	0.631	0.301	0.043	
hospital to come to the dinic to	21-30 years old	3.8	0.717			
support ou batient or surgical	31-40 years old	3.62	0.805			
operations.	Over 40 years old	3.86	0.000			
	1 -10 years old	7.37	0.623	1.099	0.358	
10. The cooperative hospital	11-20 years old	4.17	0.557	1.935	0.000	
provides the medical reservation	21-30 years old	4.22	0.562			
number for the referred patients.	31-40 years old	4.29	0.463			
	Over 40 years old	4.14	0.69			
	orar to julia did		9.00			

**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,



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

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

**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).

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

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

(6) AFTER THE REFERRAL PATIENT COMPLETES MEDICAL	
TREATMENT, THE REFERRAL HOSPITAL MUST ACTIVELY PROVIDE	
THE REFERRAL PATIENT'S PAPER OR ELECTRONIC MEDICAL	
(9) THE INTEGRATED CARE PLAN OF FAMILY PHYSICIANS OPERATES	_
IN THE FORM OF COMMUNITY MEDICAL GROUPS AND PROVIDES	
MEDICAL SERVICES THROUGH GROUP COOPERATION.	
(7) WHEN A PATIENT SEEKS MEDICAL TREATMENT WITH A REFERRAL	
FORM, THE REFERRAL HOSPITAL SHALL RETAIN THE PRIORITY	
NUMBER OF THE REFERRED PATIENT.	
(5) INCREASE PART OF THE BURDEN OF OUTPATIENT MEDICAL	
TREATMENT WITHOUT REFERRAL. THIS SERVICE HELPS TO REDUCE	
PATIENTS' LEAPFROG MEDICAL TREATMENT.	
(3) THE ELECTRONIC REFERRAL PLATFORM OF THE NATIONAL	
HEALTH INSURANCE DEPARTMENT CAN PROVIDE PHYSICIANS WITH	
INQUIRIES ABOUT REFERRAL PATIENT REPORTS.	
(8) FOR PATIENTS REFERRED BY THE CLINIC TO THE MEDICAL	
CENTER, THEIR PART OF THE OUTPATIENT BURDEN WILL BE	
REDUCED BY 150 YUAN, 187 (73.6%).	
(1) WHEN THE CLINIC ISSUES A PAPER-BASED TRANSFER-OUT	
REFERRAL FORM, AND THE PATIENT GOES TO THE DESIGNATED	
DOCTOR WITH THE REFERRAL FORM, HE OR SHE CAN SUBMIT AN	
(4) FOR THOSE WHO SEEK MEDICAL TREATMENT WITH A REFERRAL	
FORM, IF THE REFERRAL PHYSICIAN DETERMINES THAT THEY NEED	
TO CONTINUE TO RETURN TO THE OUTPATIENT CLINIC FOR	
(10) THE VALIDITY PERIOD OF THE REFERRAL FORM SHALL BE 30	
DAYS LONGER THAN THE DATE OF ISSUANCE.	
(2) WHEN THE PATIENT COMES TO THE CLINIC FOR MEDICAL	
TREATMENT WITH THE REFERRAL FORM, THE CLINIC THAT ACCEPTS	
THE REFERRAL CAN SUBMIT AN APPLICATION FOR TRANSFERRING	

	Error rate	
94.5%	5.5%	
91.3%	8.7%	
89.0%	11.0%	
87.4%	12.6%	
79.5%	20.5%	
73.6%	26.4%	
73.6%	26.4%	
62.6%	37.4%	
51.6%	48.4%	
47.2%	52.8%	

Correct rate

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

