

Pioneering Smart Healthcare: Empirical Exploration of Digital Innovation in Telemedicine

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INTRODUCTION

Taiwan's National Health Insurance (NHI) Administration is actively pursuing digital inclusivity, revolutionizing the nation's healthcare landscape. Traditionally reliant on physical cards, medical visits have transitioned into a new era of accessibility through virtual NHI card apps on mobile phones (Hsieh et al., 2023). This digital evolution seamlessly integrates outpatient services, examinations, pricing, and other medical processes, significantly elevating healthcare convenience. Currently, only 2.8% of insured individuals in Taiwan have embraced virtual NHI cards. In adherence to health insurance policies, a case hospital has initiated a multifaceted enhancement program to amplify the effectiveness of outpatient virtual NHI card utilization.

AIM

This study aims to evaluate the impact of a multifaceted enhancement program on the effectiveness of outpatient virtual NHI card utilization. Specifically, it analyzes the actual outcomes of various promotional measures, including operational training courses, personal assistance and demonstrations, linking the virtual NHI card to the hospital's medical app, guidance for medical staff, promotion and incentive programs, and advertising activities. Additionally, it examines the characteristics and usage patterns of the users to provide recommendations for future optimization of virtual NHI card applications.

METHOD

In December 2022, this study conducted virtual NHI card operation training courses, provided personal assistance and demonstrations, linked the virtual NHI card to the hospital's medical app, offered guidance to medical staff, implemented promotion and incentive programs, and engaged in various promotional advertising activities. Actual effectiveness assessments were conducted from January to December 2023, with data analyzed using SPSS 20.0 statistical software.

CONCLUSIONS

In the backdrop of the COVID-19 pandemic, unconventional healthcare demands, particularly telemedicine, have become a post-pandemic norm. The study underscores the potential of promoting virtual NHI cards to enhance public healthcare access and facilitate crucial connections in hospital-patient and care information dynamics. Optimizing virtual NHI card utilization is essential, with future recommendations including integration with telehealth platforms, electronic prescriptions, digital signatures, medical identification codes, and electronic payments to foster a more digitized healthcare process.

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REFERENCES

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RESULTS

Following the implementation of the diverse enhancement program, the utilization of virtual NHI cards for outpatient visits skyrocketed from 153 instances in 2022 to an impressive 2,656 instances in 2023, indicating a remarkable growth rate of 1,735%. The top three specialties for virtual NHI card usage were gastroenterology, family medicine, and cardiology. A significant proportion of female patients (61.8%) and a majority within the 51-60 age group (24.9%) were observed, revealing statistically significant differences ($p < 0.001$).

Table 1. Characteristics of the study population (n =2,809)

Item	2022		2023		P-value
	N	%	N	%	
Sex					<0.001
Female	91	3.24	1,646	58.60	
Male	62	2.21	1,010	35.96	
Age (years) Mean: 56.1					<0.001
<30	15	0.53	174	6.19	
31-40	14	0.50	270	9.61	
41-50	26	0.93	603	21.47	
51-60	35	1.25	667	23.75	
61-70	26	0.93	325	11.57	
>70	37	1.32	617	11.57	
Specialty					<0.001
Gastroenterology	32	1.14	424	15.09	
Family Medicine	49	1.74	298	10.61	
Cardiology	16	0.57	285	10.15	
Metabolism	4	0.14	245	8.72	
Neurology	12	0.43	149	5.30	
Surgery	2	0.07	155	5.52	
Orthopedics		0.00	124	4.41	
Chest Medicine	4	0.14	117	4.17	
Physical Medicine and Rehabilitation		0.00	113	4.02	
Other	34	1.21	746	26.56	