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**FACTORS INFLUENCING OUTPATIENT SATISFACTION WITH THE
QUALITY OF HEALTH INSURANCE MEDICAL SERVICES AND THE
EFFECTIVENESS OF INTERVENTION AT THE DISTRICT HEALTH
CENTER, BINH DUONG PROVINCE**

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INTRODUCTION

Improving the quality of health insurance examination and treatment from grassroots to central healthcare facilities has always been a top priority for the healthcare sector. Patient satisfaction is considered a valuable indicator in assessing the quality of healthcare facilities. In Vietnam, several intervention studies aimed at improving the quality of outpatient examination and treatment have contributed to increasing patient satisfaction. Examples include the study by Truong Van Dat, et al. (2021) on the application of Lean Six Sigma to the outpatient examination and treatment process under health insurance at certain hospitals in Ho Chi Minh City, and the study by Nguyen Van Nguyen et al. (2023) on the implementation of 5S intervention at the Can Tho University of Medicine.

Based on Directive No. 847/CT-BYT issued by the Ministry of Health in 2018 on solutions to ensure and improve the quality of services when adjusting the prices of examination and treatment services, and Decision No. 2151/QD-BYT issued by the Ministry of Health in 2015 on the implementation plan for "Innovating the style and attitude of healthcare personnel towards patient satisfaction" the healthcare sector in Binh Duong province is consistently focused on enhancing healthcare quality. Healthcare facilities in the province have invested in equipment, applied advanced scientific and technological advancements, and prioritized workforce training to meet the increasing demands of the population for healthcare services. However, there are still some challenges. The outpatient departments in district-level healthcare centers have not thoroughly assessed the current situation and have not taken proactive measures to improve the quality of examination and treatment in the current competitive environment. This has led to underdevelopment and an inability to achieve the goal of developing a fair healthcare system. Therefore, we conducted this research with the following objectives:

1. Describe the current satisfaction of outpatient individuals regarding the quality of health insurance examination and treatment services, identify influencing factors at the outpatient department of the district healthcare center in Binh Duong province in 2017.

2. Evaluate the effectiveness of certain interventions aimed at improving the satisfaction of outpatient individuals with the quality of health insurance examination and treatment services at the outpatient department of the Healthcare Center in Di An city, Binh Duong province, from 2019 to 2022.

THE NEW FINDINGS OF THESIS

- Scientific validity: This is the first study evaluating the quality of 9 Outpatient Departments in 9 Healthcare Centers in Binh Duong province according to the Quality Assessment Criteria, analyzing influencing factors, and identifying interventions to improve the quality of examination and treatment in the current competitive environment. The goal is to achieve effectiveness in health insurance examination and treatment and implement the objective of developing a fair healthcare system at the district-level Healthcare Centers in Binh Duong province.

- Practical relevance: The research contributes to enhancing the satisfaction of outpatient individuals regarding the quality of health insurance examination and treatment. The evaluation of factors influencing outpatient satisfaction helps refine the development policies of Healthcare Centers to align with patient needs. An intervention model is constructed to be in line with the reality at the Healthcare Centers.

- Sustainability and application: The intervention model is accepted by healthcare staff, patients, heads of Outpatient Departments, and Healthcare Center leadership, demonstrating feasibility, scalability, and sustainability. The intervention results contribute scientific evidence supporting the expansion and organization of Outpatient Departments based on the Quality Assessment Criteria for Polyclinics of the Department of Health in Ho Chi Minh City, proving to be feasible and effective at the Outpatient Department of the Healthcare Center in Di An city.

CONTENT OF THESIS

The thesis consists of 118 pages excluding the references and supplementary, with introduction: 2 pages; Section 1: 33 pages; Section 2: 18 pages; Section 3: 39 pages; Section 4: 23 pages; Conclusion and recommendation are 2 pages and 1 pages respectively. There are 33 tables, 6 figure, chart and diagram, 101 references (50 references in Vietnamese and 51 references in English).

Section 1. OVERVIEW

1.1 Some concepts and methods for measuring patient satisfaction

Outpatient examination and treatment are conducted in clinics for cases that do not require hospitalization or only involve a one-day stay in healthcare facilities.

Aspects of quality management in healthcare services: professional, technical, infrastructure quality, quality management, and human resources at hospitals.

SERVQUAL scale: One of the most widely used tools for assessing service quality through measuring customer satisfaction is SERVQUAL. According to this scale, service quality equals the level of perception minus the expected value. It includes 5 dimensions: reliability, responsiveness, service assurance, empathy, and tangibles. However, this scale does not measure patient satisfaction with healthcare outcomes, which significantly influences how patients evaluate healthcare service quality.

SERVPERF scale: Similar to SERVQUAL, it assesses patient satisfaction by the gap between perception and expectation. While SERVQUAL is used to survey patient expectations when they begin hospitalization and assess perceptions before discharge, SERVPERF is used to survey patient expectations and perceptions when they have completed the entire healthcare experience.

The outpatient survey questionnaire by the Ministry of Health consists of 34 questions, including 3 about patient information, 5 about accessibility (system maps, signs, guidance, and the ability to reach and contact healthcare staff when needed), 10 about transparency of information and examination and treatment procedures, 8 about facilities and equipment serving patients, 4 about the attitude and professional competence of healthcare staff, and 4 about the results of service provision. In 2018, the Ministry of Health issued a comprehensive report on satisfaction index policies developed across various aspects, including outpatient examination and treatment at healthcare facilities based on the satisfaction index evaluation toolkit issued in 2013.

1.2 Current situation and factors influencing patient satisfaction with the quality of health insurance examination and treatment

Currently, the assessment of patient satisfaction is not only conducted regularly but also with increasing depth to identify the decisive factors in patient satisfaction. This is done to develop intervention programs, all aimed at one ultimate goal: improving patient satisfaction to achieve the best quality of healthcare. These are scientific evidence for

proposing measures to enhance the quality of examination and treatment under health insurance at healthcare facilities.

1.3 Measures to improve outpatient satisfaction with the quality of health insurance examination and treatment

In Vietnam, the Ministry of Health issued Decision 2151/QD-BYT on June 4, 2015, regarding "Innovating the service style and attitude of healthcare professionals towards patient satisfaction" [7]. Directive 06/CT-BYT on March 29, 2016, emphasizes strengthening quality assurance when adjusting and unifying the prices of health insurance examination and treatment services among hospitals of the same class nationwide. The Quality Criteria for Clinics (version 2.0.2) have also been implemented. Some intervention studies aimed at improving the quality of outpatient examination and treatment have contributed to enhancing patient satisfaction. Examples include the study by Truong Van Dat and colleagues (2021) on the application of Lean Six Sigma to the outpatient health insurance examination and treatment process at some hospitals in Ho Chi Minh City and the study by Nguyen Van Nguyen et al. (2023) applying the 5S intervention at the Can Tho University of Medicine.

Section 2. SUBJECT AND STUDY METHODOLOGY

2.1 Subject, location, timeline of study

Patients come for examination and treatment with health insurance at the Outpatient Department of the District Health Center, Binh Duong Province.

Healthcare staff are currently working at the Outpatient Department of the District Health Center, Binh Duong Province.

Research materials include documents, medical examination papers, prescription forms, facilities, and equipment at the Outpatient Department of the District Health Center, Binh Duong Province.

Research period: Phase 1: Descriptive cross-sectional study from June 2017 to December 2018. Phase 2: Intervention study from April 2019 to September 2022.

The cross-sectional investigation takes place at 09 Outpatient Departments of Health Centers in district-level units, including: Thu Dau Mot City, Di An Town (now Di An City), Thuan An Town (now Thuan An City), Tan Uyen Town (now Tan Uyen City), Ben Cat Town, and the districts of Bau Bang, Bac Tan Uyen, Dau Tieng, Phu Giao.

The intervention research location is the Outpatient Department of the Health Center in Di An City, Binh Duong Province.

2.2 Methodology

2.2.1 The cross-sectional study

2.2.1.1 Sample size for outpatient satisfaction survey

The sample size is calculated using the formula, denoted as n.

$$n = Z_{1-\alpha/2}^2 \frac{p \times (1-p)}{d^2} \times DE$$

Where: $Z_{1-\alpha/2} = 1.96$ (for 95% confidence level); with a significance level $\alpha=0.05$; p: is the desired proportion. According to the study by Cao Lap Duc et al. at the Tay Ninh City Health Center, the outpatient satisfaction rate is 41.2% [5], choose $p = 0.412$; $d = 0.1$; and the design effect $DE = 2$. The sample size is $n = 187$ patients, but in practice, 225 patients are selected conveniently from outpatient health insurance-insured individuals at the Outpatient Department of the Health Center.

2.2.1.2 Sample size for healthcare staff satisfaction survey

All healthcare staff working at the 9 Outpatient Departments of the District Health Center, Binh Duong Province, are included.

2.2.1.3 Sample size on resources meeting the quality of health insurance examination and treatment

Evaluate facilities, techniques, and equipment: Conduct a survey covering all 09 district-level hospitals in Binh Duong Province.

2.2.1.4 Sample size for studying influencing factors

Purposefully select a sample to ensure the provision of necessary information.

In-depth interviews: 3 leaders of the Health Department; 3 Head of Personnel and Organization Departments; 3 Head of General Planning Departments; 3 Head of Equipment and Supplies Departments; 9 Heads of Outpatient Departments; 9 Chief Nurses of Outpatient Departments; 9 Doctors of Outpatient Departments.

Group discussions: Group discussion of nursing and technical staff of the Outpatient Departments (7 people); Group discussion of outpatient health insurance-insured patients (7 people).

2.2.1.5 Study variables

Evaluate the satisfaction of outpatient patients and healthcare staff using the assessment tools provided by the Ministry of Health, utilizing a Likert scale with 5 levels corresponding to: 1-Very dissatisfied, 2-Dissatisfied, 3-Neutral, 4-Satisfied, 5-Very

satisfied. Patient and healthcare staff satisfaction is categorized into two levels: Satisfied if choosing levels 4, 5; Dissatisfied if choosing levels 1, 2, 3.

Evaluate the level of outpatient patient satisfaction with the quality of health insurance examination and treatment in the following 5 aspects: Accessibility; Transparency of information and examination and treatment procedures; Facilities and resources serving patients; Attitude, professional competence of healthcare staff (HCW); Service delivery outcomes.

Evaluate the level of healthcare staff satisfaction with ensuring the quality of health insurance examination and treatment services in the following 4 aspects: Working environment; Direct leadership, colleagues; Internal regulations, salaries, benefits; Job responsibilities, learning opportunities, advancement.

Evaluate resources at the Outpatient Department of Health Centers in district-level units; Outcomes of outpatient health insurance examination and treatment activities.

Evaluate the quality of the 9 Outpatient Departments within 9 Health Centers, Binh Duong Province, based on the quality assessment criteria for Polyclinics established by the Ho Chi Minh City Department of Health, consisting of 20 criteria (Version 2.0.2) in 2018 .

2.2.2 Community intervention study with a control group

The sample size for the intervention study is calculated using the formula:

$$n = \frac{\left\{ Z_{1-\alpha/2} \sqrt{2\bar{p}(1-\bar{p})} + Z_{1-\beta} \sqrt{p_1(1-p_1) + p_2(1-p_2)} \right\}^2}{(p_1 - p_2)^2}$$

Where: n is the minimum sample size for each group (intervention and control); α : the significance level with a confidence level of 95% ($\alpha = 0.05$); β : the probability of committing a type II error. Choose $\beta = 0,1$. $Z_{(\alpha,\beta)} = 1,28$; p_1 : The satisfaction rate of outpatient health insurance-insured patients at the Outpatient Department of the Health Center before the intervention is 63.1%, rounded to $p_1 = 0.70$; p_2 : The desired satisfaction rate of outpatient health insurance-insured patients regarding the quality of examination and treatment at the Outpatient Department of the Health Center after the intervention, $p_2 = 0,8$. Substituting these values into the formula, the calculated $n = 392$ individuals, rounded to 400 individuals. The minimum sample size for each Outpatient Department before and after the intervention is $n = 400$ individuals. Surveying 400 individuals before and 400 individuals after the intervention in each Outpatient Department.

2.2.3 Intervention Content

The intervention measures at the Outpatient Department of the Health Center in Di An City, Binh Duong Province include the following activities: (1) Investing in and reorganizing resources; (2) Establishing, standardizing, and implementing specialized processes in each department; (3) Applying information technology to enhance operational management; (4) Developing and implementing training programs.

The organization of the intervention activities and evaluation is based on the quality assessment criteria for Polyclinics established by the Ho Chi Minh City Department of Health, consisting of 23 criteria (Version 3.0) in 2019. The Criteria Set comprises 23 criteria, numbered from 1 to 23. Each criterion is designed based on a quality scale with 5 levels, where Level 1 indicates violations of legal regulations, Level 2 includes minimal conditions and activities that must be present, Level 3 involves necessary conditions and activities that all clinics must strive to implement, Level 4 is an encouraging level to strive for good quality, and Level 5 is an encouraging level to continue striving for excellent quality.

2.3 Data processing and analysis

The data are entered using Epidata 3.0, cleaned, and analyzed using Stata/IC 14.0 software. Frequency descriptions and percentage ratios are used for categorical variables (demographic characteristics, patient satisfaction, healthcare staff satisfaction, status of resources meeting service quality for health insurance examination and treatment). Analysis of factors related to outpatient satisfaction with the quality of health insurance examination and treatment involved using the χ^2 test and odds ratios (OR). Comparison of results before and after the intervention is based on the method of comparing two proportions using the χ^2 test. The intervention's effectiveness is evaluated through the Difference in Differences (DiD or DD) index.

The DD index is calculated as follows:

$$DD = (CT2 - C2) - (CT1 - C1) \text{ hoặc } DD = (CT2 - CT1) - (C2 - C1)$$

$$\text{Effectiveness index (CSHQ): } CSHQ = |p_1 - p_2|$$

p_1 is the satisfaction rate of outpatient patients before the intervention

p_2 is the satisfaction rate of outpatient patients after the intervention

$$\text{Intervention effectiveness (HQCT)} = CSHQ \text{ intervention} - CSHQ \text{ control}$$

2.4 Ethics of study

The study has obtained approval from the Ethics Council of the National Institute of Hygiene and Epidemiology, Decision No. 17/2018/ECC dated October 2, 2018. It has

also received permission from the Binh Duong Provincial Department of Health and the Health Centers within the province. The research participants were provided with comprehensive information, sought their consent before participation, and ensured the confidentiality of personal information, as well as safeguarded their other rights.

Section 3. RESULTS

3.1 Current state of outpatient satisfaction with the quality of health insurance examination and treatment services and influencing factors at the outpatient department of the district health center, Binh Duong Province in 2017

3.1.1 Current state of outpatient satisfaction with the quality of health insurance examination and treatment services and related factors

Table 3.6 Overall satisfaction of outpatient with the health insurance examination and treatment (n=225)

Overall satisfaction of outpatient patients	Quantity	Percentage (%)
Satisfaction with accessibility	173	76.9
Satisfaction with transparency of information and administrative procedures	163	72.4
Satisfaction with facilities and resources serving	168	74.7
Satisfaction with attitude, professional competence	171	76.0
Satisfaction with service delivery outcomes	175	77.8
Satisfaction with the quality of examination and treatment services	142	63.1

The overall satisfaction rate of patients with the quality of health insurance examination and treatment was 63.1%. Among the 5 aspects listed, "transparency of information and administrative procedures" and "facilities and resources serving patients" were the two main aspects that many patients mention, leading to their dissatisfaction when visiting the Outpatient Departments of the District Health Center.

3.1.2 Current state of healthcare staff satisfaction with ensuring the quality of health insurance examination and treatment services

Table 3.9 Healthcare staff satisfaction with ensuring the quality of health insurance examination and treatment services (n = 309)

Catalogues	Quantity	Percentage (%)
Working environment	214	69.3
Leadership, colleagues	249	80.6
Internal regulations, salaries, benefits	219	70.9
Job responsibilities, learning opportunities, advancement	214	69.3

Overall satisfaction with the hospital	211	68.3
Overall satisfaction	208	67.3

The overall satisfaction rate of healthcare staff with the Outpatient Department was 67.3%. Among these, the satisfaction rates of healthcare staff with the working environment was 69.3%, satisfaction with direct leadership and colleagues was 80.6%, satisfaction with internal regulations, salaries, and benefits was 70.9%, and satisfaction with job responsibilities, learning opportunities, and advancement was 69.3%.

3.1.3 Current state of resources meeting the Quality of health insurance examination and Treatment Services at the Outpatient Department of the District Health Center

Regarding physical facilities, a survey conducted in 2018 on 9 Outpatient Departments in 9 District Health Centers in Binh Duong Province showed that 100% of the Outpatient Departments have the following facilities: Reception area for patients (with tables and staff for reception and guidance); Charts, diagrams, arrows, directional signs; Waiting area for examination; Separate examination rooms for health insurance-insured patients; Separate sanitary facilities for patients, with gender differentiation

Regarding the number of specialized examination rooms in the Outpatient Departments, 66.7% had 4 or fewer specialized examination rooms, and 33.3% had 5 to 8 specialized examination rooms. Regarding the patient numbering system, 44.4% of Outpatient Departments had an automatic number-broadcasting machine, 44.4% manually issued numbers, and 11.1% did not use a numbering system. In terms of appointment systems, 11.1% of Outpatient Departments had a numbered notification board, 22.2% had a speaker announcing names, 33.3% had both a numbered board and a speaker, and 33.3% used verbal calling.

Regarding the organization of examination and treatment activities, 44.4% of Outpatient Departments broadcast health information to patients and their relatives through television and informational materials. Additionally, 66.7% had a customer care department, 66.7% had a department monitoring and managing non-communicable diseases, 44.4% used connected software for information exchange, and 44.4% organize shifts.

In terms of human resources, the total number of healthcare staff working in the 9 Outpatient Departments of the 9 District Health Centers in Binh Duong Province was 309 people. There were 60 doctors on the payroll, 7 contract doctors, and 13 additional doctors. The ratio of working doctors in the 9 Outpatient Departments to the total

number of doctors in the 9 District Health Centers was 31.9%. The ratio of healthcare staff working at the Outpatient Department to the regulations of Joint Circular No. 08/2007/TTLT-BYT-BNV dated June 5, 2007, issued by the Ministry of Health and the Ministry of Home Affairs, was only 35.8%.

Table 3.18 Quality evaluation of Outpatient Departments based on 20 Quality Criteria (version 2.0.2) in 2018 (n = 9)

Criteria	Level Achieved	Quantity	Percentage (%)
Criteria 1, 4, 8, 18	Level 2	28	15.5
Criteria 1, 2, 6, 8, 9, 10, 11, 12, 15, 16, 17, 19, 20	Level 3	88	48.8
Criteria 3, 5, 7, 13, 14, 15	Level 4	52	29.0
Criteria 7, 13	Level 5	12	6.8
Average Score: 3.27		180	100.0

Through the assessment of the 20 quality criteria (Version 2.0.2) in the 9 Outpatient Departments, the percentage of criteria achieving Level 2 was 15.5%, Level 3 was 48.8%, Level 4 was 29.0%, and Level 5 was 6.8%.

3.1.4 Some factors influencing the resources in responding to the quality of health insurance Services at the Outpatient Department of the District Health Center

Some positive influencing factors: Well-equipped and clean facilities; providing complete information to patients; guidance, inspection, and supervision; application of information technology; communication attitude of healthcare staff; elderly patients, prolonged illness, and frequent hospitalizations.

Some negative influencing factors: Limited and cramped facilities; healthcare staff not regularly trained or updated on new specialized techniques; shortage of staff in specific specialties; insufficient medication; limited investment budget for purchasing, renovating facilities; incomplete information technology software; limited promotion of the capabilities of the Health Center.

3.2 Effectiveness of some interventions to improve outpatient satisfaction with the quality of health insurance services at the Outpatient Department of the Health Center in Di An City, Binh Duong Province

3.2.1 Results of interventions to improve resources for quality health insurance services according to 23 Quality Criteria at the Outpatient Department of the Health Center in Di An City

Table 3.21 Results of interventions to improve resources for quality health insurance services according to 23 Quality Criteria at the Outpatient Department

Criteria	Catalogues	Resluts	
		TCT	SCT
Criteria 1	Compliance with regulations regarding personnel engaged in medical examination and treatment	3	4
Criteria 2	Compliance with regulations on facilities and medical equipment	2	3
Criteria 3	Adherence to technical inventory regulations	4	4
Criteria 4	Development and compliance with guidelines for medical examination, treatment, and HEALTH INSURANCE procedures	4	5
Criteria 5	Ensuring timely emergency care conditions	2	4
Criteria 6	Application and adherence to diagnostic and treatment guidelines	4	5
Criteria 7	Compliance with medical record regulations	3	4
Criteria 8	Adherence to regulations for safe and rational medication use	5	5
Criteria 9	Implementation of incident reporting and medical error analysis systems	3	4
Criteria 10	Ensuring accurate patient identification during service provision	4	5
Criteria 11	Implementation of safety measures in surgery and procedures (*)	4	5
Criteria 12	Preventing the risk of patient falls	3	5
Criteria 13	Compliance with health examination regulations (*)	3	5
Criteria 14	Compliance with regulations on vaccination, ensuring vaccination safety (*)	3	4
Criteria 15	Compliance with laboratory testing activities regulations	3	4
Criteria 16	Compliance with regulations on signage, advertising, and communication	5	5
Criteria 17	Compliance with transparency and public disclosure in the application of medical examination and treatment service prices	4	4
Criteria 18	Compliance with infection prevention and control regulations	4	4
Criteria 19	Compliance with medical waste management regulations	3	4
Criteria 20	Compliance with radiation safety regulations for X-ray rooms	3	3
Criteria 21	Compliance with occupational safety and hygiene regulations	2	3
Criteria 22	Application of information technology	3	3
Criteria 23	Implementation of convenient services for patient care	3	4
	Overall results	3.35	4.17

Through the evaluation of 23 quality criteria (version 3.0) applied to the Outpatient Department at the Healthcare Center in Di An City, the score increased from 3.35 points before the intervention (TCT) to 4.17 points after the intervention (SCT).

Table 3.22 Synthesizing the results of the quality criteria for the Outpatient Departments before and after the intervention in 2018 compared to 2022

Criteria	Level Achieved	Quantity	Percentage (%)
Before the intervention			
Criteria 2, 3, 5	2	3	13.04
Criteria 1, 7, 9, 12, 13, 14, 15, 19, 20, 22, 23	3	11	47.83
Criteria 3, 4, 6, 10, 11, 17, 18	4	7	30.43
Criteria 8, 16	5	2	8.70
Total		23	100
After the intervention			
Criteria 2, 20, 21, 22	3	4	17.39
Criteria 1, 3, 5, 7, 9, 14, 15, 17, 18, 19, 23	4	11	47.83
Criteria 4, 6, 8, 10, 11, 12, 13, 16	5	8	34.78
Total		23	100

Before the intervention: 3 criteria at level 2 (13.04%); 11 criteria at level 3 (47.83%); 7 criteria at level 4 (30.43%); 2 criteria at level 5 (8.70%). After the intervention: 4 criteria at level 3 (17.39%); 11 criteria at level 4 (47.83%); 8 criteria at level 5 (34.78%). The results after the intervention showed no criteria at level 2; level 3 decreased from 47.83% to 17.39%; level 4 increased from 30.43% to 47.83%; level 5 increased from 8.7% to 34.78%. After the intervention, criterion 2 increased from level 2 to level 3, criteria 3 and 5 increased from level 2 to level 4, criteria 7, 9, 14, 15, 19, 23 increased from level 3 to level 4, criteria 4, 6, 10, 11 increased from level 4 to level 5, criteria 12, 13 increased from level 3 to level 5.

3.2.2 The results on healthcare staff satisfaction with ensuring the quality of health insurance examination and treatment before and after the intervention

Table 3.23 Ratio of healthcare staff satisfied with ensuring the quality of health insurance examination and treatment before and after the intervention.

Catalogues	Intervention group		Control group	
	TCT (%)	SCT (%)	TCT (%)	SCT (%)
Working environment	77.1	92.9	81.2	88.1
Leadership, colleagues	81.2	97.7	79.4	81.6
Internal regulations, salaries, benefits	65.4	95.6	68.1	72.2

Job responsibilities, learning opportunities, advancement	66.9	96.4	70.9	80.3
Overall satisfaction with the hospital	65.4	90.6	67.2	70.4

The satisfaction rate of healthcare staff regarding the four factors after the intervention in the intervention group significantly increased, compared to before the intervention and control group.

3.2.3 The results on patient satisfaction with the quality of health insurance health care services before and after intervention

Table 3.24 Effectiveness of the intervention in improving satisfaction with the infrastructure and reputation of the Outpatient Departments

Satisfaction aspect	Intervention group (Outpatient Department, Di An Medical Center)			Control group (Outpatient Department, Ben Cat Medical Center)			HQ CT	DD
	TCT (n=400)	SCT (n=400)	P	TCT (n=400)	SCT (n=400)	P		
Physical facilities								
Waiting area for examination	85.7	98.1	< 0.01	79.8	82.3	0.37	11.3	9.9
Public area	81.2	95.5	< 0.01	82.0	83.6	0.57	15.7	12.7
Examination, diagnosis, and testing hours	82.7	96.2	< 0.01	79.8	82.7	0.28	12.7	8.1
Location of the outpatient department	88.2	93.7	< 0.01	78.0	79.8	0.54	3.9	3.7
Diagnostic equipment	81.7	97.3	< 0.01	79.8	80.0	0.93	18.8	15.4
Uniforms	83.4	93.6	< 0.01	83.5	84.0	0.85	11.6	9.7
Restrooms	80.8	92.7	< 0.01	78.7	79.8	0.73	13.3	10.8
General satisfaction	74.2	91.3	< 0.01	77.5	79.4	0.49	20.6	15.2
Reputation and prestige of the Outpatient Department								
Charity examination organization. clubs	54.9	90.1	< 0.01	53.8	55.8	0.57	60.4	33.2
Club activities	53.4	92.4	< 0.01	51.2	57.8	0.06	60.1	32.4
Long-term appointment registration	64.3	91.6	< 0.01	59.8	63.3	0.31	36.6	23.8
Introduction of services	58.7	94.3	< 0.01	57.3	63.3	0.08	50.2	29.6
Hotline, feedback mailbox	55.2	97.1	< 0.01	55.8	62.3	0.06	64.3	35.4
General satisfaction	47.2	88.7	< 0.01	46.5	51.8	0.14	76.5	36.2

Satisfaction aspect	Intervention group (Outpatient Department, Di An Medical Center)			Control group (Outpatient Department, Ben Cat Medical Center)			HQ CT	DD
	TCT (n=400)	SCT (n=400)	P	TCT (n=400)	SCT (n=400)	P		
Service capacity of healthcare staff								
Consultation for patients	73.2	94.8	< 0.01	70.4	71.5	0.76	27.9	20.5
Identifying issues at an early stage	70.7	96.0	< 0.01	68.2	70.2	0.54	32.9	23.3
Medical record storage	61.8	91.8	< 0.01	62.7	63.9	0.71	46.6	28.8
Attitude of healthcare staff	54.8	90.5	< 0.01	55.4	58.4	0.39	59.7	32.7
Referral to specialized doctors	58.7	92.5	< 0.01	58.0	60.8	0.43	52.8	31
General satisfaction	45.7	89.3	< 0.01	46.5	47.4	0.78	93.5	42.7
Reliability for the Outpatient Department								
Regular monitoring and check-ups	63.6	93.1	< 0.01	65.1	70.3	0.11	38.4	24.3
Positive attitude	65.1	89.9	< 0.01	64.4	69.5	0.13	30.2	19.7
Conflict resolution	63.6	94.5	< 0.01	62.3	67.9	0.09	39.6	25.3
Doctor inquiries, follow-up record keeping	70.5	93.6	< 0.01	68.9	73.5	0.16	26.1	18.5
Clear communication	47.8	89.5	< 0.01	47.2	52.0	0.18	77.1	36.9
Empathy of healthcare staff								
Private medical record system	68.7	90.8	< 0.01	63.8	65.1	0.71	30.1	20.8
Listening to opinions, perspectives	63.9	90.8	< 0.01	68.8	74.3	0.08	34.1	21.4
Patient club activities	67.5	95.5	< 0.01	69.8	71.5	0.59	39.0	26.3
Regular home visits by doctors	75.4	96.0	< 0.01	75.6	76.3	0.80	26.4	19.9
Thorough examination, providing appropriate advice	80.1	95.3	< 0.01	81.3	85.1	0.16	14.3	11.4
General satisfaction	49.2	88.3	< 0.01	48.7	54.4	0.10	67.8	33.4
Responsiveness of the Outpatient Department								
Immediate examination upon arrival	76.7	93.4	< 0.01	73.7	74.9	0.69	20.1	15.5

Satisfaction aspect	Intervention group (Outpatient Department, Di An Medical Center)			Control group (Outpatient Department, Ben Cat Medical Center)			HQ CT	DD
	TCT (n=400)	SCT (n=400)	P	TCT (n=400)	SCT (n=400)	P		
Time for answering questions. guiding patients	75.8	94.2	< 0.01	74.9	76.7	0.56	21.9	16.6
Assistance, creating conditions for patients	69.8	98.1	< 0.01	74.0	75.6	0.63	38.4	26.7
Telephone response reception	73.8	97.2	< 0.01	72.6	74.3	0.58	29.4	21.7
General satisfaction	66.5	91.7	< 0.01	64.1	65.7	0.60	35.4	23.6

The satisfaction rates of patients regarding the tangible facilities increased from 74.2% to 91.3%, satisfaction with the reputation and prestige of the Outpatient Department rose from 47.2% to 88.7%, service capacity of healthcare staff improved from 45.7% to 89.3%, the level of trust in the Outpatient Department increased from 47.8% to 89.5%, satisfaction with the empathy of healthcare staff went up from 49.2% to 88.3%, and satisfaction with the responsiveness of the Outpatient Department rose from 66.5% to 91.7% in the intervention group after the intervention, all higher than before the intervention ($p < 0.05$). The intervention activities have enhanced the satisfaction of outpatient insured patients at the Outpatient Department. The research results provided healthcare managers with additional scientific evidence to propose expanding the organization of the Outpatient Department based on the feasible and effective criteria set by the Quality Evaluation Department of Polyclinics under the Department of Health of Ho Chi Minh City.

Section 4. DISCUSSION

4.1 Current state of outpatient satisfaction with the quality of health insurance services and influencing factors at the of Outpatient Department, District Health Center of Binh Duong Province, 2017

4.1.1 Outpatient satisfaction with the quality of health insurance services and relevant factors

The overall satisfaction rate of outpatient patients with the quality of medical services is 63.1%. Among the 5 aspects listed, "transparency of information, administrative procedures" and "facilities and equipment serving patients" are the two main aspects that many patients refer to, making them less satisfied when coming to the

district health centers for examination and treatment. The satisfaction rate of outpatient patients with the quality of medical services is 63.1%, higher than the study in Tay Ninh (41.2%), but lower than some studies worldwide, such as in a health center in India (86.6%), and Madhya Pradesh Hospital, India (73%) This difference may be due to variations in the time, location, and measurement methods of different studies.

Table 4.2 Some studies on outpatient satisfaction using health insurance services

Study location	Year	Accessibility	Transparency of information	Facilities and service resources	Attitude and Service provision	
					professional competence of healthcare staff	outcomes
3 First-class General Hospitals	2013	-	77.1%	87.8%	-	-
District-level Hospitals [2017	71.6%	63.4%	70.0%	64.2%	69.4%
District health center in Go Dau	2017	-	45.3%	65.3%	57.3%	-
District health center in Binh Duong	2018	76.9%	72.4%	74.7%	76.0%	77.8%
City health center in Tay Ninh	2018	51.8%	47.1%	49.1%	68.8%	74.7%
Hoc Mon Hospital	2019	94.0%	-	91.0%	89.0%	89.0%

Our study, similar with other studies, indicates that the patient satisfaction rate is lowest in the aspect of transparency of information among the 5 dimensions assessing satisfaction with the quality of healthcare services. Despite various measures taken by the healthcare sector to streamline administrative procedures in healthcare, the group of indices related to transparency of information and administrative procedures remains the one with the lowest rate of patients feeling clear and specific among the 5 index groups. This underscores the need for the healthcare sector to further intensify efforts to reform administrative procedures and enhance transparency of information in healthcare facilities.

4.1.2 Current satisfaction of healthcare staff regarding the assurance of quality in health insurance services

The overall satisfaction rate of healthcare staff regarding the Outpatient Department in providing health insurance services is 67.3%. Our research results are lower compared to other studies. The study by Tran Thi Ly and colleagues in 2019 showed an overall satisfaction rate of healthcare staff at 81.02%. This ratio in Nguyen Minh Tri et al. (2023) was 92.6%, in Ngo Tran Duc Huu (2020) was 76.9%, and in Pham Thi Le Quyen et al. (2022) was 84.6%. The results by Nguyen Quoc Thang (2018) indicated an average

overall satisfaction score for the hospital at 4.25, which is considered good, with all 7 sub-criteria achieving a satisfaction level above 4.1. It can be observed that satisfaction levels vary at each healthcare facility, and there is a need for policies that encourage, motivate, and timely reward healthcare staff so that they feel their contributions are recognized. This approach aims to foster long-term commitment and contribute to the development of the hospital as a reputable healthcare institution for the public.

4.1.3 Current status of resources meeting the quality of health insurance services at the Outpatient Department in the District Health Center

Through the evaluation of 20 quality criteria (version 2.0.2) at 9 Outpatient Departments, the rate of criteria achieving Level 2 is 15.5%, Level 3 is 48.8%, Level 4 is 29.0%, and Level 5 is 6.8%. Most of the Outpatient Departments have met essential quality standards, and there is a need to leverage and continuously improve quality. This result is higher than the study by Nguyen Vinh Khang et al. (2023), which assessed the quality of 131 Private Clinics in Ho Chi Minh City (version 2.0.2). The results showed that the rate of criteria achieving Level 1 was 22.3%, Level 2 was 25.4%, Level 3 was 22.7%, Level 4 was 12.4%, and Level 5 was 6.3%. The reason is that private clinics have not proactively approached, grasped, and understood legal regulations in the field of medical examination and treatment. They have not focused on improving the quality of patient care, especially in suburban areas, and have been penalized for violations. The majority of private polyclinics do not have staff dedicated to quality management or staff who have not been trained in quality management, thus not fully understanding or caring deeply about improving hospital quality.

4.1.4 Some factors affecting the resources for responding to the quality of health insurance services at the Outpatient Department of the District Health Center

Leadership is a factor that directly influences the quality of health insurance examination and treatment. The leadership's direction and policies contribute to guiding and improving the quality of the Outpatient Examination and Treatment Department. Leaders must have a clear understanding of quality management in medical examination and treatment to guide and direct healthcare staff in improving the quality of examination and treatment at the Health Center in general and the department in particular. Departmental leaders take the lead in implementing quality commitments for examination and treatment, serving as a bright example for healthcare staff in the department to follow. This helps healthcare staff recognize the importance of improving the quality of examination and treatment. Over time, the physical facilities of the Health

Center have deteriorated, and equipment is an essential part negatively affecting the quality of examination and treatment and the satisfaction of outpatient patients. Many medical devices and equipment in the Outpatient Examination and Treatment Department are lacking and do not meet the needs of a large number of patients. Some vital sign monitoring devices for patients are insufficient, requiring healthcare staff to manually monitor vital signs, which is time-consuming and labor-intensive.

In addition, patients often have high demands for healthcare staff regarding communication attitudes. However, when interviewing healthcare staff responsible for handling patient feedback and suggestions, it was revealed that there are still cases where healthcare staff exhibit inappropriate attitudes and communication language, causing misunderstandings for patients. The reason identified is that the explanations provided by healthcare staff are often concise, and patients do not have enough time to absorb the information.

4.2 Effectiveness of some interventions to improve outpatient satisfaction with the quality of health insurance services at the Outpatient Department, health center of Di An city, Binh Duong province

4.2.1 Results of interventions to improve resources for responding to the quality of health insurance services, according to 23 Quality Criterias at the Outpatient Department

Through the evaluation of 23 quality criteria (Version 3.0) applies to the Outpatient Department at Health Center of Di An City, the average score increases from 3.35 points before the intervention to 4.17 points after the intervention. After the intervention, 8 criteria achieved level 5, including: Criterion 4 (construction and adherence to guidelines for technical procedures in medical examination, treatment, and health insurance), Criterion 6 (application and adherence to guidelines for diagnosis and treatment), Criterion 8 (adherence to regulations on the safe and rational use of drugs), Criterion 10 (ensuring correct patient identification during service provision), Criterion 11 (implementing safety measures in surgery and procedures), Criterion 12 (preventing the risk of patient falls), Criterion 13 (adherence to regulations on health examination), Criterion 16 (adherence to regulations on signage, advertising, and communication). This result is higher than the study by Tran Minh Thai (2019) at the Satellite General Clinic of Thu Duc District Hospital, with an average score of 3.38 points, and 5 criteria achieved level 5 (criteria 6, 7, 12, 17, 18). Compared to outpatient departments at other health centers, the Satellite General Clinic of Thu Duc District Hospital, newly

established, still faces some difficulties such as insufficient manpower, being far from the hospital, making it challenging to transfer patients, not having enough ambulances, lacking comprehensive health examinations, and lacking advanced clinical techniques.

After the intervention, some criteria increase their achievement level, including: Criterion 2 (adherence to regulations on facilities and medical equipment) increased from level 2 to level 3; Criterion 3 (adherence to regulations on technical inventory), Criterion 5 (ensuring timely emergency conditions for patients) increased from level 2 to level 4; Criterion 7 (adherence to regulations on medical records), Criterion 9 (implementing a system for reporting and analyzing medical incidents), Criterion 14 (adherence to regulations on immunization, ensuring safety in immunization), Criterion 15 (adherence to regulations on laboratory activities), Criterion 19 (adherence to regulations on medical waste management), Criterion 23 (implementing utility services for patients) increased from level 3 to level 4; Criterion 4 (construction and adherence to guidelines for technical procedures in medical examination, treatment, and health insurance), Criterion 6 (application and adherence to guidelines for diagnosis and treatment), Criterion 10 (ensuring correct patient identification during service provision), Criterion 11 (implementing safety measures in surgery and procedures) increased from level 4 to level 5; Criterion 12 (preventing the risk of patient falls), Criterion 13 (adherence to regulations on health examination) increase from level 3 to level 5. The intervention study by Pham Chi Linh et al. (2023) at Ca Mau General Hospital found that improving physical facilities and medical equipment, providing more advanced technical services, increased satisfaction rates from 85.16% to 92%.

4.2.2 The results on patient satisfaction with the quality of health insurance before and after the intervention

Physical Facilities: The rate of patient satisfaction with physical facilities is higher after the intervention compared to before. After the intervention, patient satisfaction increased from 74.2% to 91.3% at the Outpatient Department, Health Center of Di An City. Regarding responsiveness, the satisfaction rate is high in the aspect of waiting area, with the satisfaction rate for seating increasing from 85.7% to 98.1%. In the Outpatient Department, seating areas have been arranged with sufficient chairs, clean restrooms, and reading materials to create a comfortable atmosphere for patients and their families while waiting to access health services. The patient satisfaction rate with physical facilities in our study is higher than the results of Vo Tu Cuong et al. (2021) at Tieu Can General Hospital, Tra Vinh, which is 58.1%, Nguyen Thi Hong Hoa et al. (2022) at

Postal Hospital Base 1, which is 75.6%, Vu Duy Tung et al. (2023) at Ba Ria Hospital, where the satisfaction rate with facilities and services is 76.8%.

Reputation and prestige of the Outpatient Department: The rate of patient satisfaction with the reputation and prestige of the Outpatient Department is higher after the intervention compared to before. After the intervention, patient satisfaction increased from 47.2% to 88.7% at the Outpatient Department, Health Center of Di An City. In terms of responsiveness, the satisfaction rate is high in the aspect of hotlines and suggestion boxes, increasing from 55.2% to 97.1%. The quality of services not only influences the image of the health center in the public eye but also determines patient satisfaction. Service quality becomes a competitive advantage, helping the Health Center create differentiation, establish a brand of quality, and build trust.

Service capacity of healthcare staff: The rate of patient satisfaction with the service capacity of healthcare staff is higher after the intervention compared to before. After the intervention, patient satisfaction increased from 45.7% to 89.3% at the Outpatient Department, Health Center of Di An City. In terms of responsiveness, the satisfaction rate is high in the aspect of identifying problems in the early stage, increasing from 70.7% to 96.0%. The patient satisfaction rate with the service capacity of healthcare staff in our study is higher than the results of Vu Duy Tung et al. (2023) at the Outpatient Department, Ba Ria Hospital, which is 83.5%. Most patients visiting Health Center of Di An City are satisfied with the service quality, as the staff exhibit a very friendly and caring attitude, provide thorough advice on all service processes, and have reasonable and clear service procedures in the department. This result demonstrates the efforts and determination of the leadership and staff of the Outpatient Department, Health Center of Di An City, who have made serious and decisive decisions. Each year, the healthcare staff is actively supported by the leadership to participate in training programs to enhance their professional qualifications and to study ethics, communication rules, and behavior while working.

Reliability for the Outpatient Department: The rate of patient satisfaction with the trustworthiness of the Outpatient Department is higher after the intervention compared to before. After the intervention, patient satisfaction increased from 47.8% to 89.5% at the Outpatient Department, Health Center of Di An City. In terms of responsiveness, the satisfaction rate is high in the aspect of doctor visits and the establishment of patient follow-up records, increasing from 63.6% to 94.5%.

Empathy of Healthcare Staff: Patients are satisfied with listening to their opinions, thorough examinations, and receiving appropriate advice. After the intervention, patient satisfaction increased from 49.2% to 88.3% at the Outpatient Department, Health Center of Di An City. The results of the study are consistent with some research conducted in Vietnam, where the satisfaction rate of patients with healthcare staff remains very high. Patients truly feel the empathy, care, and assistance from healthcare staff. The City Health Center still needs to further enhance the empathy of healthcare staff towards patients to improve patient satisfaction.

Responsiveness of the Outpatient Department: Conducting examinations in the correct order ensures fairness, equality, and the rights of everyone coming for medical check-ups. In today's busy and hectic society, ensuring the correct order in medical examinations and treatments is a significant factor contributing to patient and patient family satisfaction when visiting the Health Center of City. After the intervention, patient satisfaction increased from 66.5% to 91.7% at the Outpatient Department, Health Center of Di An City. In terms of responsiveness, the high patient satisfaction rate is related to assistance and creating conditions for patients, increasing from 69.8% to 98.1%. This result demonstrates the determined reform efforts from the leadership and healthcare staff to meet and provide satisfactory services with the quality of medical examinations and treatments for patients.

The intervention activities have improved and enhanced patient satisfaction with outpatient medical check-ups and treatments covered by health insurance at the Outpatient Department. The research results provide scientific evidence for healthcare managers to propose the expansion of the organization of the Outpatient Department based on the feasible and effective Quality Assessment Criteria for clinics of Department of Health in Ho Chi Minh City.

CONCLUSION

1. Current state of outpatient satisfaction with the quality of health insurance services and influencing factors at the of Outpatient Department, District Health Center of Binh Duong Province, 2017

Outpatient medical resources for health insurance: Regarding infrastructure, a survey of 9 Outpatient Departments at 9 District Health Centers in Binh Duong Province found that 100% of the departments have: Reception areas for patients (with reception desks and staff guidance); Charts, diagrams, arrows, and directional lights for guidance;

Waiting areas for medical examinations; Private examination rooms for patients with health insurance; Separate sanitary facilities for male and female patients. In terms of human resources, the percentage of doctors working in the 9 Outpatient Departments relative to the total number of doctors in the 9 District Health Centers is 31.9%. The percentage of healthcare staff working in the Outpatient Departments of the 9 District Health Centers, in comparison to the regulations of Circular No. 08/2007, only reaches 35.8%.

Job satisfaction of healthcare staff regarding the working environment: The overall satisfaction rate of healthcare staff with the quality of health insurance at the Outpatient Department is 67.3%. Specifically, the satisfaction rate of healthcare staff with the working environment is 69.3%, satisfaction with direct leadership and colleagues is 80.6%, satisfaction with internal regulations, salary, and benefits is 70.9%, and satisfaction with the job, learning opportunities, and promotion is 69.3%.

Current satisfaction with the quality of health insurance examination and treatment: The overall satisfaction rate of outpatients with the quality of health insurance examinations and treatments is 63.1%. Specifically, satisfaction with accessibility is 76.9%, satisfaction with transparent information and administrative procedures is 72.4%, satisfaction with facilities and service amenities is 74.7%, satisfaction with attitudes, and professional competence is 76.0%, and satisfaction with service outcomes is 77.8%.

Factors influencing satisfaction with the quality of health insurance examination and treatment: Some positive influencing factors include well-maintained and clean facilities, providing comprehensive information to patients, guidance, supervision, and the application of information technology. Positive factors also include the communication attitudes and behaviors of healthcare staff, elderly patients, and those with prolonged illness or frequent hospitalizations. Some negative influencing factors include cramped facilities, irregular training and updating of specialized techniques for healthcare staff, insufficient specialized personnel, shortages of medications, limited investment funds for purchasing and upgrading facilities, incomplete information technology software, and insufficient promotion of the center's capabilities by the health center.

2. Effectiveness of some interventions to improve outpatient satisfaction with the quality of health insurance services at the Outpatient Department of the Health Center in Di An City, Binh Duong Province, 2019 - 2022

Results of the intervention according to the quality criteria of the Outpatient Department at the Healthcare Center in Di An City: Investigating the 23 quality criteria of the Outpatient Department, the results increased from 3.35 points before the intervention to 4.17 points after the intervention. Before the intervention: 3 criteria achieved level 2 (13.04%); 11 criteria achieved level 3 (47.83%); 7 criteria achieved level 4 with a rate of 30.43%; 2 criteria achieved level 5 with a rate of 8.70%. After the intervention: 4 criteria achieved level 3 with a rate of 17.39%; 11 criteria achieved level 4 with a rate of 47.83%; 8 criteria achieved level 5 with a rate of 34.78%. The results after the intervention did not have criteria at level 2; level 3 decreased from 47.83% to 17.39%; level 4 increased from 30.43% to 47.83%; level 5 increased from 8.7% to 34.78%.

Results of the intervention to improve the healthcare staff satisfaction with the quality of health insurance examination and treatment: In the intervention group, the overall satisfaction rate of healthcare staff with the quality of health insurance examination and treatment increased from 65.4% to 90.6%. Specifically, the satisfaction rate of healthcare staff with the working environment increased from 77.1% to 92.9%, satisfaction with direct leadership and colleagues increased from 81.2% to 97.7%, satisfaction with internal regulations, salary, and benefits increased from 65.4% to 95.6%, and satisfaction with job, learning opportunities, and advancement increased from 66.9% to 96.4%.

Results of the intervention to improve outpatient satisfaction with the quality of health insurance examination and treatment: The satisfaction rate of patients with the availability of visual aids increased from 74.2% to 91.3%, satisfaction with the reputation and prestige of the Outpatient Department increased from 47.2% to 88.7%, the service capacity of healthcare staff increased from 45.7% to 89.3%, the level of trust of patients in the Outpatient Department increased from 47.8% to 89.5%, satisfaction with the empathy of healthcare staff increased from 49.2% to 88.3%, and satisfaction with the responsiveness of the Outpatient Department increased from 66.5% to 91.7% in the intervention group at the post-intervention time, all higher than before the intervention ($p < 0.05$).

RECOMMENDATION

Through our research, we would like to propose the following recommendations:

1. Recommendations for healthcare staff in the Outpatient Department

Actively seek learning opportunities to enhance professional qualifications, consistently practice and improve communication skills, and strive to complete assigned tasks.

Proactively report to the leadership of the Outpatient Department and the healthcare center regarding any shortcomings, difficulties, and propose solutions to improve work efficiency.

2. Recommendations for the leadership of the district Healthcare Center, Binh Duong province

Allocate and arrange additional or supplementary human resources for the clinics in the Outpatient Department to ensure a professional working environment.

Develop and improve codes of conduct, establish and implement specialized examination and treatment procedures, reinforce the handover process between departments and units to enhance coordination and collaboration, especially in addressing issues when errors occur.

Provide training for healthcare staff and workers at the Healthcare Center to enhance communication and interpersonal skills, as well as to improve professional capabilities in medical examination and treatment for patients.

The quality management department should monitor compliance at the Outpatient Department, Pharmacy Department, Administrative Department, Fee and Health Insurance Payment Department, and other functional units.

3. Recommendations for management authorities and specialized agencies

The Department of Health of Binh Duong province should issue guidelines and instructions to disseminate the outcomes of quality improvement activities in the Outpatient Department.

Conduct regular evaluations of the quality of the Outpatient Department based on the quality criteria established by the Department of Health of Ho Chi Minh City. Continue research, review, summarize, and adjust the criteria to be in line with the activities of the Health sector in Binh Duong.