

# Quality improvement at Eastern People Military Hospital

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## ABSTRACT

*Quality improvement is a permanent goal of all types of organizations. The change in hospital quality management towards patient satisfaction is an inevitable and objective trend. Objective: Compare the importance level with the implementation level of each criterion according to the IPA matrix to arrange the order of improvement at Eastern People Military Hospital based on the Vietnam Hospital Quality Criteria Set (Version 2.0). Methods: The research design is quantitative with a general analysis method to achieve the goals. Results: Determine the position of each criterion on the IPA matrix and identify improvement directions for the criteria applied at the Eastern People Military Hospital. Conclusion: The article emphasizes the importance of the IPA matrix when evaluating quality at hospitals and suggests directions for improving service quality according to world practices.*

**Keywords:** Eastern People Military Hospital, IPA Matrix, Improve hospital quality

## 1. PROBLEM STATEMENT

National strategy to protect, care for and improve people's health for the period 2011 - 2020 towards 2030 with the goal that all people can enjoy primary health care services, expand access and use quality medical services. People can live in a safe community and develop well physically and mentally. Reduce disease incidence, improve physical fitness, increase life expectancy, and improve population quality. The strategy sets a specific goal of improving the quality of medical examination and treatment services through evaluating and ensuring compliance with medical quality standards to ensure that medical facilities meet quality criteria and safety in providing medical services. This will increase safety and efficiency in medical care. Using health information systems and electronic records helps improve the ability to track and manage patient medical information. Building a culture of quality in healthcare. This includes creating a positive work environment, encouraging feedback from patients, and building a spirit of collaboration across departments. Therefore, improving management quality is a task that is always of concern towards sustainable development.

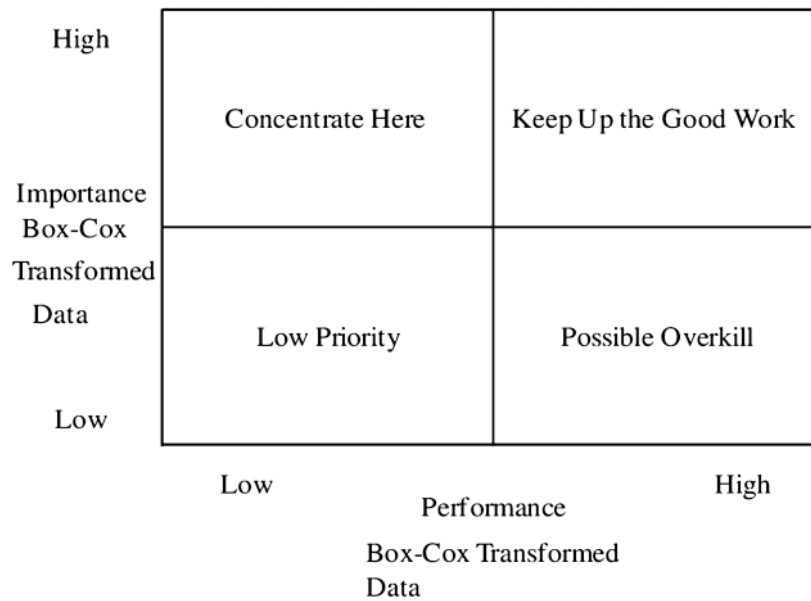
Eastern People Military Hospital (referred to as the

Hospital) is a model to implement the policy of socializing people's health care activities; Mobilize all forces to participate in caring for and protecting people's health. Besides that, the forces of civilian medicine and retired physicians, including military medical forces, are gathered. The hospital always improves the quality and efficiency of care with services for patients coming for medical examination and treatment. The hospital has continuously improved to attract more and more patients for medical examination and treatment. Every year, the Hospital regularly conducts patient satisfaction surveys according to the directives of the Ministry of Health to fulfill the soldiers' duties in all arising contexts.

The IPA matrix of importance - performance level (IPA: Importance - Performance Analysis) was proposed by J.A. Martill and J. James (1977). The IPA matrix is made by comparing (1) The relative importance of quality attributes, (2) Level of implementation of quality attributes. This model classifies the attributes that measure service quality, providing suppliers with useful information about strengths and weaknesses [1]. From there, administrators can make the right strategic decisions to help improve service quality.

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**Figure 1.** IPA Matrix [1]

According to J.A. Martill and J. James (1977) [1] divide the matrix into 4 quadrants and express the meaning as follows:

- First quadrant - Development focus (with high level of importance, low level of implementation): Criteria that need attention for improvement and are major weaknesses. Thereby bringing the greatest potential benefit to the service providing organization.
- Second quadrant – Sustaining growth (with high importance, high performance): These criteria represent opportunities to maintain competitive advantage and are great strengths.
- Third quadrant – Investment constraints (with low importance, low implementation): These criteria are minor weaknesses and do not require additional effort.
- Quadrant Four – Disinvestment (low importance, high performance): These criteria indicate resources that should be deployed to other areas.

Further consideration of the relationship between the level of importance (I) and the level of performance (P) of each criterion is expressed through the difference  $P - I$ . If  $P - I \geq 0$ , it proves that the service quality is acceptable. received satisfactory and vice versa, service quality is not satisfactory when  $P - I < 0$ .

Domestic related works and abroad show that the use of IPA matrix analysis has become quite popular in the medical field as follows:

- According to A.A. Anwar et al (2023), the study

highlights the relevance of using IPA to assess patients' views on hospital services and suggest opportunities for improvement. Hospitals improve patient experience and overall service quality by focusing on the most important areas that are underperforming. Research results help hospital stakeholders identify methods to improve patient experience and satisfaction [2].

- According to S. P. Utami et al (2022), when analyzing IPA, it was discovered that the priorities for improvement were waiting times for polyclinic services, timely presence of doctors at polyclinics, the friendliness and courtesy of the pharmacy staff, the comfort of the waiting room, the cleanliness of the waiting room and the tidiness of the building facilities, the safety of the hospital environment, the availability of medical equipment and easy claims [3].
- According to I. Setyaningsih & M.B.F. Widagdo (2023); According to research results, the hospital's overall index is 4.24. Three indicators with low performance but high importance are examined using IPA. Fishbone diagrams are used to determine the origin of these indicators and the reasons for their recommendations. The study was limited to outpatient care in wards from a private hospital in Yogyakarta, Indonesia [4].
- According to A. Karimkhany et al (2022), notable changes have occurred in service delivery in the healthcare industry. Rising patient expectations, technological advances, greater access to health-related information through digital media and the development of a comprehensive approach

to health and well-being is one of the most important changes, leading to a competitive market in health services [5]. Domestic studies using the IPA matrix to improve hospital quality include Hoang Manh Dung and Le Ha Vu An (2022) [6]; Hoang Manh Dung and Bui Nhu Huynh (2020) [7]; Hoang Manh Dung and Nguyen Thi Van (2019) [8].

Through a review of the literature, the article has not detected any overlap in applying the IPA model of J. A. Martilla & J.C. James (1977) at the Eastern People Military Hospital to orientate and improve the quality of medical examination for the following years.

**2. RESEARCH METHODS**

The article uses quantitative research methods through a survey of 16 experts at the Eastern People

Military Hospital to evaluate the importance of 83 applied criteria. In addition, the article collects data on the 2022 quality assessment results of the Military Medical Department for the Hospital. The way to process data about the importance of each criterion is calculated according to the arithmetic average from the evaluation results of 16 experts. The article uses Excel software to process data and SPSS software to represent the IPA matrix for the hospital's service quality. Thereby orienting hospital quality improvement in accordance with the Vietnam Hospital Quality Criteria Set (Version 2.0) [9].

**3. RESEARCH RESULTS**

Through data collection at the Eastern People Military Hospital; the article uses the IPA matrix analysis technique and determines the following results:

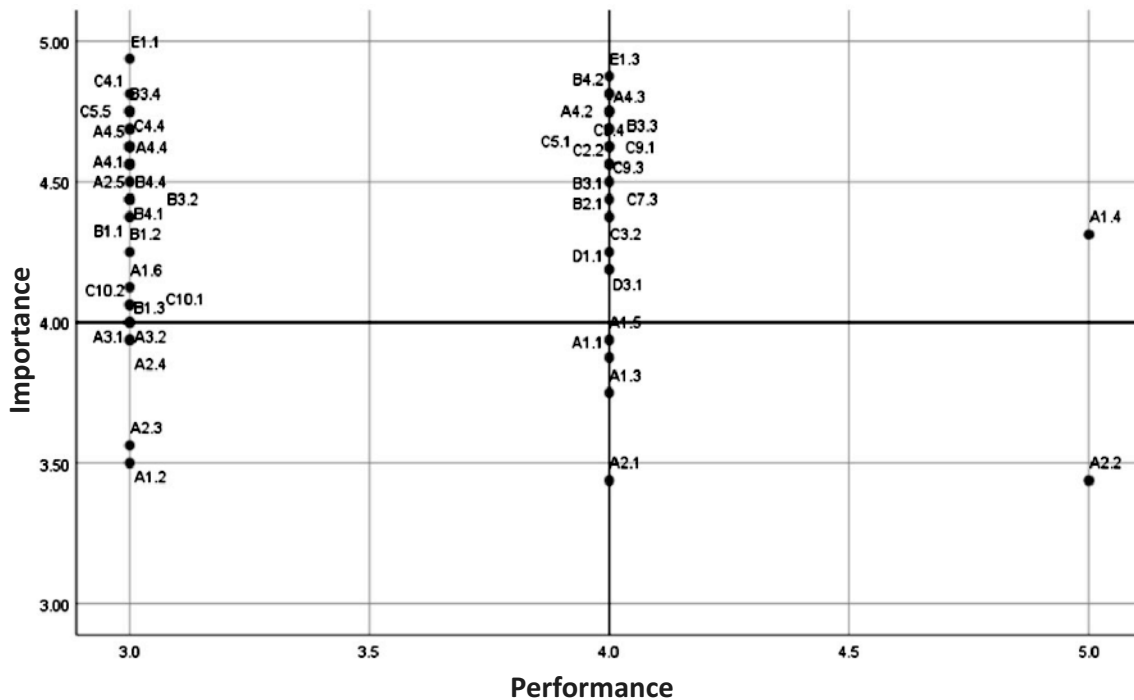


Figure 2. IPA matrix at the Eastern People Military Hospital

Table 1. IPA matrix results at the Eastern People Military Hospital

Order	Criteria	I	P	P-I	Position in the IPA matrix
1	A1.1	3.88	4	0.13	Quartile 4
2	A1.2	3.50	3	-0.50	Quartile 3
3	A1.3	3.75	4	0.25	Quartile 4
4	A1.4	4.31	5	0.69	Quartile 2
5	A1.5	3.94	4	0.06	Quartile 4
6	A1.6	4.13	3	-1.13	Quartile 1

Order	Criteria	I	P	P-I	Position in the IPA matrix
7	A2.1	3.44	4	0.56	Quartile 4
8	A2.2	3.44	5	1.56	Quartile 4
9	A2.3	3.56	3	-0.56	Quartile 3
10	A2.4	3.94	3	-0.94	Quartile 3
11	A2.5	4.56	3	-1.56	Quartile 1
12	A3.1	4.00	3	-1.00	Quartile 1
13	A3.2	4.00	3	-1.00	Quartile 1
14	A4.1	4.63	3	-1.63	Quartile 1
15	A4.2	4.75	4	-0.75	Quartile 2
16	A4.3	4.75	4	-0.75	Quartile 2
17	A4.4	4.63	3	-1.63	Quartile 1
18	A4.5	4.63	3	-1.63	Quartile 1
19	A4.6	4.63	3	-1.63	Quartile 1
20	B1.1	4.38	3	-1.38	Quartile 1
21	B1.2	4.25	3	-1.25	Quartile 1
22	B1.3	4.00	3	-1.00	Quartile 1
23	B2.1	4.38	4	-0.38	Quartile 2
24	B2.2	4.56	3	-1.56	Quartile 1
25	B2.3	4.56	3	-1.56	Quartile 1
26	B3.1	4.44	4	-0.44	Quartile 2
27	B3.2	4.44	3	-1.44	Quartile 1
28	B3.3	4.75	4	-0.75	Quartile 2
29	B3.4	4.75	3	-1.75	Quartile 1
30	B4.1	4.44	3	-1.44	Quartile 1
31	B4.2	4.81	4	-0.81	Quartile 2
32	B4.3	4.63	3	-1.63	Quartile 1
33	B4.4	4.50	3	-1.50	Quartile 1
34	C1.1	4.44	3	-1.44	Quartile 1
35	C1.2	4.69	4	-0.69	Quartile 2
36	C2.1	4.56	3	-1.56	Quartile 1
37	C2.2	4.56	4	-0.56	Quartile 2
38	C3.1	4.44	3	-1.44	Quartile 1
39	C3.2	4.25	4	-0.25	Quartile 2

Order	Criteria	I	P	P-I	Position in the IPA matrix
40	C4.1	4.75	3	-1.75	Quartile 1
41	C4.2	4.75	4	-0.75	Quartile 2
42	C4.3	4.75	4	-0.75	Quartile 2
43	C4.4	4.75	3	-1.75	Quartile 1
44	C4.5	4.75	4	-0.75	Quartile 2
45	C4.6	4.75	4	-0.75	Quartile 2
46	C5.1	4.63	4	-0.63	Quartile 2
47	C5.2	3.94	3	-0.94	Quartile 3
48	C5.3	4.44	3	-1.44	Quartile 1
49	C5.4	4.69	4	-0.69	Quartile 2
50	C5.5	4.69	3	-1.69	Quartile 1
51	C6.1	4.38	3	-1.38	Quartile 1
52	C6.2	4.44	3	-1.44	Quartile 1
53	C6.3	4.44	3	-1.44	Quartile 1
54	C7.1	4.75	3	-1.75	Quartile 1
55	C7.2	4.69	3	-1.69	Quartile 1
56	C7.3	4.38	4	-0.38	Quartile 2
57	C7.4	4.69	4	-0.69	Quartile 2
58	C7.5	4.75	3	-1.75	Quartile 1
59	C8.1	4.81	4	-0.81	Quartile 2
60	C8.2	4.81	4	-0.81	Quartile 2
61	C9.1	4.56	4	-0.56	Quartile 2
62	C9.2	4.56	3	-1.56	Quartile 1
63	C9.3	4.50	4	-0.50	Quartile 2
64	C9.4	4.63	4	-0.63	Quartile 2
65	C9.5	4.63	3	-1.63	Quartile 1
66	C9.6	4.69	3	-1.69	Quartile 1
67	C10.1	4.06	3	-1.06	Quartile 1
68	C10.2	4.06	3	-1.06	Quartile 1
69	D1.1	4.19	4	-0.19	Quartile 2
70	D1.2	4.56	3	-1.56	Quartile 1
71	D1.3	4.56	3	-1.56	Quartile 1
72	D2.1	4.56	3	-1.56	Quartile 1

Order	Criteria	I	P	P-I	Position in the IPA matrix
73	D2.2	4.63	4	-0.63	Quartile 2
74	D2.3	4.63	3	-1.63	Quartile 3
75	D2.4	4.63	4	-0.63	Quartile 2
76	D2.5	4.56	4	-0.56	Quartile 2
77	D3.1	4.19	4	-0.19	Quartile 2
78	D3.2	4.44	3	-1.44	Quartile 1
79	D3.3	4.44	3	-1.44	Quartile 1
80	E1.1	4.94	3	-1.94	Quartile 1
81	E1.2	4.63	3	-1.63	Quartile 1
82	E1.3	4.88	4	-0.88	Quartile 2
83	E2.1	4.81	3	-1.81	Quartile 1

The article uses SPSS 25.0 software to obtain the position of each criterion on the IPA matrix. From here, proceed to discuss the results as well as meet the set goals.

#### 4. RESULTS DISCUSSING AND SOLUTIONS

Based on the theory of the IPA matrix, the article

forms 4 groups of criteria with orientations solutions including development focus; keep doing; Reduce investment and limit investment along with determining priorities for improvement in each established group of criteria.

**Table 2.** The order of criteria that need to be focused on development at the Eastern People Military Hospital

Order	Criteria	Critical level (I)	Level of implementation (P)	Difference P-I
1	E1.1	4.94	3.00	-1.94
2	E2.1	4.81	3.00	-1.81
3	B3.4	4.75	3.00	-1.75
4	C4.1	4.75	3.00	-1.75
5	C4.4	4.75	3.00	-1.75
6	C7.1	4.75	3.00	-1.75
7	C7.5	4.75	3.00	-1.75
8	C5.5	4.69	3.00	-1.69
9	C7.2	4.69	3.00	-1.69
10	C9.6	4.69	3.00	-1.69
11	A4.1	4.63	3.00	-1.63
12	A4.4	4.63	3.00	-1.63
13	A4.5	4.63	3.00	-1.63
14	A4.6	4.63	3.00	-1.63

Order	Criteria	Critical level (I)	Level of implementation (P)	Difference P-I
15	B4.3	4.63	3.00	-1.63
16	C9.5	4.63	3.00	-1.63
17	D2.3	4.63	3.00	-1.63
18	E1.2	4.63	3.00	-1.63
19	A2.5	4.56	3.00	-1.56
20	B2.2	4.56	3.00	-1.56
21	B2.3	4.56	3.00	-1.56
22	C2.1	4.56	3.00	-1.56
23	C9.2	4.56	3.00	-1.56
24	D1.2	4.56	3.00	-1.56
25	D1.3	4.56	3.00	-1.56
26	D2.1	4.56	3.00	-1.56
27	B4.4	4.50	3.00	-1.50
28	B3.2	4.44	3.00	-1.44
29	B4.1	4.44	3.00	-1.44
30	C1.1	4.44	3.00	-1.44
31	C3.1	4.44	3.00	-1.44
32	C5.3	4.44	3.00	-1.44
33	C6.2	4.44	3.00	-1.44
34	C6.3	4.44	3.00	-1.44
35	D3.2	4.44	3.00	-1.44
36	D3.3	4.44	3.00	-1.44
37	B1.1	4.38	3.00	-1.38
38	C6.1	4.38	3.00	-1.38
39	B1.2	4.25	3.00	-1.25
40	A1.6	4.13	3.00	-1.13
41	C10.1	4.06	3.00	-1.06
42	C10.2	4.06	3.00	-1.06
43	A3.1	4.00	3.00	-1.00
44	A3.2	4.00	3.00	-1.00
45	B1.3	4.00	3.00	-1.00

Comment: The criteria located in Quadrant 1 are the criteria that need to be improved to create a competitive advantage for the Hospital in the future.

**Table 3.** The order of criteria needs to continue to be maintained at the Eastern People Military Hospital

Order	Criteria	Critical level (I)	Level of implementation (P)	Difference P-I
1	E1.3	4.88	4	-0.88
2	B4.2	4.81	4	-0.81
3	C8.1	4.81	4	-0.81
4	C8.2	4.81	4	-0.81
5	A4.2	4.75	4	-0.75
6	A4.3	4.75	4	-0.75
7	B3.3	4.75	4	-0.75
8	C4.2	4.75	4	-0.75
9	C4.3	4.75	4	-0.75
10	C4.5	4.75	4	-0.75
11	C4.6	4.75	4	-0.75
12	C1.2	4.69	4	-0.69
13	C5.4	4.69	4	-0.69
14	C7.4	4.69	4	-0.69
15	C5.1	4.63	4	-0.63
16	C9.4	4.63	4	-0.63
17	D2.2	4.63	4	-0.63
18	D2.4	4.63	4	-0.63
19	C2.2	4.56	4	-0.56
20	C9.1	4.56	4	-0.56
21	D2.5	4.56	4	-0.56
22	C9.3	4.50	4	-0.50
23	B3.1	4.44	4	-0.44
24	B2.1	4.38	4	-0.38
25	C7.3	4.38	4	-0.38
26	C3.2	4.25	4	-0.25
27	D1.1	4.19	4	-0.19
28	D3.1	4.19	4	-0.19
29	A1.4	4.31	5	0.69

Comment: The positioning criteria in Quadrant 2 are the hospital's existing advantages and need to be maintained.



**Table 4.** Order of criteria that need to limit development at the Eastern People Military Hospital

Order	Criteria	Critical level (I)	Level of implementation (P)	Difference P-I
1	A2.4	3.94	3.00	-0.94
2	C5.2	3.94	3.00	-0.94
3	A2.3	3.56	3.00	-0.56
4	A1.2	3.50	3.00	-0.50

Comment: The positioning criteria in the 3rd Quadrant box are areas that do not need priority improvement because of the unnecessary need at the Hospital.

**Table 5.** Order of criteria for reducing investment at the Eastern People Military Hospital

Order	Criteria	Critical level (I)	Level of implementation (P)	Difference P-I
1	A2.2	3.44	5	1.56
2	A2.1	3.44	4	0.56
3	A1.3	3.75	4	0.25
4	A1.1	3.88	4	0.13
5	A1.5	3.94	4	0.06

Comment: The criteria are located in the 4th Quadrant box. This is an area at the hospital that needs to reduce investment because the level of implementation is high while the level of importance is low.

help improve after each quality assessment at the hospital. Research results help make decisions on each important criterion where the level of implementation is still low compared to the general level at the Military Medical Department. When skillfully applying this evaluation model, it helps all members to agree when discuss directions for improving service quality at the Eastern People Military Hospital through each period.

**5. CONCLUSION**

The article is based on secondary and primary data to conduct IPA matrix analysis at the Eastern People Military Hospital. Thereby adding a tool to

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## Cải tiến chất lượng tại Bệnh viện Quân Dân Y Miền Đông

Hoàng Mạnh Dũng, Trương Hoàng Việt và Trần Thụy Vũ

### TÓM TẮT

*Cải tiến chất lượng là mục tiêu thường trực của mọi hình tổ chức. Sự thay đổi trong quản lý chất lượng bệnh viện hướng đến sự hài lòng của người bệnh là xu thế tất yếu và khách quan. Mục tiêu: So sánh giữa mức độ quan trọng với mức độ thực hiện của từng tiêu chí theo ma trận IPA nhằm sắp xếp thứ tự cải tiến tại Bệnh viện Quân dân Y Miền Đông dựa trên Bộ tiêu chí chất lượng Bệnh viện Việt Nam (Phiên bản 2.0). Phương pháp: Thiết kế nghiên cứu là định lượng với phương pháp phân tích tổng hợp nhằm đạt được mục tiêu đã đề ra. Kết quả: Xác định được vị trí của từng tiêu chí trên ma trận IPA và định hướng cải tiến đối với các tiêu chí áp dụng tại Bệnh viện Quân Dân Y Miền Đông. Kết luận: Bài viết nhấn mạnh tầm quan trọng của ma trận IPA khi đánh giá chất lượng tại Bệnh viện và đề xuất hướng cải tiến chất lượng dịch vụ theo thông lệ thế giới.*

**Từ khóa:** Bệnh viện Quân Dân Y Miền Đông, Ma trận IPA, Cải tiến chất lượng Bệnh viện

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