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Original Article

Surgeon Satisfaction With Anesthesia Services at Srinagarind Hospital: A Comparison With Data From 7 Years Ago

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Abstract

Background: Surgeon satisfaction with anesthesia services is a critical quality indicator that drives multidisciplinary improvement in perioperative care.

Objective: To assess current satisfaction levels and compare improvements over a 7-year period.

Methods: This prospective, descriptive study was conducted between May 2024 and July 2024 at Srinagarind Hospital. This study surveyed 41 surgeons (faculty physicians, residents, and staff physicians) across multiple departments using a validated questionnaire covering preoperative, intraoperative, postoperative recovery room, and ward-based anesthesia services. Satisfaction was measured using a 4-point Likert scale and compared with the 2016-2017 baseline data from 102 surgeons.

Results: Response rate was 100% (41/41). Overall satisfaction scores ranged from 3.56 to 3.98 (very high satisfaction). The highest satisfaction areas included: fasting guidelines, anesthesia initiation timing, and postoperative patient visits (mean [SD], 3.95 [0.22], 3.98 [0.16], and 3.97 [0.16], respectively). Compared with 2016-2017, significant improvements were observed in coordination systems (mean [SD], 3.46 [0.57] to 3.95 [0.22]; $P < .001$), emergency scheduling (mean [SD], 3.42 [0.64] to 3.88 [0.33]; $P < .01$), and sign-in cooperation (mean [SD], 3.53 [0.59] to 3.90 [0.30]; $P < .01$). Areas for improvement included preoperative coordination communication and glucose loading protocols (mean [SD], 3.63 [0.49] and 3.60 [0.59], respectively).

Conclusions: Surgeon satisfaction with anesthesia services at Srinagarind Hospital consistently demonstrated high levels, with marked improvements over 7 years, particularly in coordination systems and safety protocols. A continued focus on communication and evidence-based preoperative protocols will further improve multidisciplinary collaboration.

Keywords: Surgeon satisfaction, Anesthesia services, Perioperative care, Patient safety, Quality improvement

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Introduction

Surgeon satisfaction with anesthesia services represents a fundamental quality metric in modern healthcare systems, serving as an indicator of service excellence and a driver for continuous improvement in perioperative care delivery.[1,2] As internal customers of anesthesia departments, surgeons maintain intimate working relationships with anesthesia providers throughout the perioperative continuum, making their perspectives

invaluable for identifying opportunities for improvement and ensuring optimal patient outcomes.[3, 4]

The measurement of surgeon satisfaction has evolved beyond simple customer service metrics to encompass complex assessments of clinical competency, communication effectiveness, workflow efficiency, and safety culture implementation.[5, 6] Modern healthcare institutions recognize that surgeon satisfaction directly correlates with team cohesion, reduced medical errors, improved patient safety outcomes, and overall institutional performance in accreditation processes.[7, 8]

As a tertiary care academic medical center, Srinagarind Hospital serves as a regional referral center with complex surgical caseloads requiring sophisticated anesthesia services across multiple subspecialties. The hospital's commitment to quality improvement necessitates regular assessment of service delivery from key stakeholder perspectives, particularly surgeons who depend on anesthesia services for successful patient outcomes. Previous research conducted at Srinagarind Hospital in 2016-2017 by Chaikree et al[9] demonstrated overall good satisfaction levels (mean [SD] satisfaction score, 3.06 [0.20]) among 102 surveyed surgeons, while identifying specific areas requiring improvement, including communication protocols, scheduling coordination, and after-hours service delivery. After that baseline assessment, the anesthesia department has implemented several quality improvement initiatives, standardized protocols, and enhanced communication systems.

The dynamic nature of healthcare delivery, evolving surgical techniques, changing patient demographics, and implementation of new safety standards require periodic reassessment of satisfaction levels to ensure continuous alignment between service delivery and surgeon expectations.[10, 11] Furthermore, the COVID-19 pandemic has introduced new challenges and adaptations in perioperative care that may have influenced satisfaction parameters.[12]

Contemporary literature emphasizes the importance of multidisciplinary collaboration in achieving optimal surgical outcomes, with anesthesia-surgery team dynamics playing a crucial role in patient safety, operational efficiency, and staff satisfaction.[13, 14] Studies from other institutions have shown that high surgeon satisfaction with anesthesia services correlates with reduced case delays, improved communication, enhanced safety culture, and better patient outcomes.[15, 16]

This study aimed to provide a comprehensive assessment of current surgeon satisfaction levels with anesthesia services at Srinagarind Hospital in 2023, compare these findings with baseline 2016-2017 data to identify trends and improvements, and establish evidence-based recommendations for further service enhancement. This study addresses critical gaps in understanding how systematic quality improvement initiatives affect surgeon satisfaction over time and provides valuable insights for other academic medical centers seeking to optimize perioperative care delivery.

Methods

Study Design, Setting, and Participants

This prospective, descriptive study was conducted at Srinagarind Hospital, a 1500-bed tertiary care academic medical center affiliated with Khon Kaen University, between May 2024 and July 2024. The study protocol was approved by the Khon Kaen University Ethics Committee for Human Research (HE661282).

The study population comprised surgeons actively using anesthesia services at Srinagarind Hospital. Inclusion criteria were as follows: 1) faculty physicians, staff physicians,

or residents (years 1-4) from surgical departments; 2) minimum 1 year of experience working with anesthesia services at Srinagarind Hospital; 3) active involvement in surgical procedures requiring anesthesia services during the study period; and 4) voluntary consent to participate. Exclusion criteria were as follows: 1) visiting physicians from external institutions, 2) physicians on extended leave during the study period, and 3) incomplete survey responses.

Sample size was calculated using the formula for descriptive studies: $n = 4(Z_{\alpha/2})^2\sigma^2/d^2$, where n = required sample size, σ = standard deviation from previous literature[9] (0.36 based on 2016-2017 baseline study), d = total width of expected confidence interval (CI) (0.08), and $Z_{\alpha/2} = 1.96$ for 95% CI. Calculated sample size: $n = 4(1.96)^2(0.36)^2/(0.08)^2$, was 32 participants. Accounting for a 20% nonresponse rate, the final target was 41 participants.

Survey Instrument

A comprehensive questionnaire was developed based on the validated instrument used in the 2016-2017 baseline study, with modifications to reflect current practice standards and emerging quality metrics. The instrument underwent content validation by 2 senior anesthesiologists and pilot testing with 5 surgeons, with a Cronbach α of 0.85.

The questionnaire comprised the following: 1) demographic data, including age, gender, position, and department affiliation; 2) preoperative phase satisfaction (11 items), including patient evaluation, coordination, communication, and scheduling systems; 3) intraoperative phase satisfaction (9 items), including service delivery, responsiveness, competency, and safety protocols; 4) postoperative recovery room satisfaction (3 items), including care quality, communication, and discharge management; 5) ward-based postoperative satisfaction (2 items), including patient visits and pain management; 6) service consultation satisfaction (10 items), including various procedural locations and electronic systems; and 7) preoperative preparation knowledge assessment (11 items), including surgeon's understanding of evidence-based protocols.

Satisfaction was measured using a 4-point Likert scale (4 = very satisfied [3.51-4.00], 3 = satisfied [2.51-3.50], 2 = dissatisfied [1.51-2.50], 1 = very dissatisfied [1.00-1.50])

Data Collection

The survey distribution was distributed through department heads with sealed envelopes containing study information and questionnaires. Follow-up collection occurred at 2-week intervals over 8 weeks to maximize response rates. Electronic and paper-based options were provided to accommodate preferences.

Comparative Framework

Results were systematically compared with the 2016-2017 baseline data (n = 102) to assess changes in the overall satisfaction trend, specific domain improvements or deteriorations, ranking shifts in satisfaction priorities, and emerging areas of concern or excellence.

Statistical Analysis

Data analysis was performed using SPSS version 26.0 (IBM SPSS Statistics for Windows, Version 26.0. Armonk, NY: IBM Corp; 2019). Descriptive statistics included frequencies, percentages, and mean (SD). Comparative analysis with the 2016-2017 baseline data used independent *t* tests for continuous variables and chi-square tests for categorical variables. Statistical significance was set at $P < .05$.

Results

Demographic Characteristics

A total of 41 surgeons participated in the study, achieving a 100% response rate. The demographic distribution showed balanced gender representation with 21 females (51.2%) and 20 males (48.8%). Age distribution was predominantly young professionals, with 23 participants (56.1%) aged 21-30 years, 17 participants (41.5%) aged 31-40 years, and 1 participant (2.4%) aged 41-50 years (Table 1).

Professional status distribution showed 39 residents/staff physicians (95.1%) and 2 faculty physicians (4.9%). Department representation was diverse, with surgery having the highest participation (29.3%), followed by otolaryngology and orthopedics (17.1% each), internal medicine (12.2%), and other specialties including pediatrics, ophthalmology, obstetrics-gynecology, vascular surgery, and radiology, each accounting for 4.8% to 4.9% (Table 1).

Preoperative Satisfaction Results

Preoperative satisfaction scores showed consistently high levels across all assessed domains (Table 2). The highest satisfaction scores were achieved in coordination systems for regular scheduling within 4:30 PM (mean [SD], 3.95 [0.22]; rank 1), sign-in cooperation (mean [SD], 3.90 [0.30]; rank 2), and emergency scheduling coordination using mobile phones (mean [SD], 3.88 [0.33]; rank 3).

Standard preoperative services, including patient visits and preparation (mean [SD], 3.85 [0.36]) and laboratory test protocols (mean [SD], 3.85 [0.36]), both ranked fourth with identical scores. Areas with relatively lower satisfaction included preoperative coordination communication (mean [SD], 3.63 [0.49]; rank 9), appropriateness of preoperative case cancellations (mean [SD], 3.61 [0.54]; rank 10), and opportunity for opinion expression during consultations (mean [SD], 3.56 [0.50]; rank 11).

Intraoperative Satisfaction Results

Intraoperative satisfaction obtained the highest overall scores in the study (Table 3). Anesthesia initiation timing when physicians and equipment were ready scored highest (mean [SD], 3.98 [0.16]; rank 1), followed by time-out cooperation (mean [SD], 3.95 [0.22]; rank 2). Multiple domains tied for rank 3 with mean (SD) scores of 3.93 (0.26), including smooth service delivery, anesthesia team knowledge and competency, team facilitation and assistance, and sign-out cooperation.

Lower-ranked areas included appropriateness in service cancellation decisions (mean [SD], 3.78 [0.47]; rank 9) and team responsiveness to abnormal events and emergency situation control (both mean [SD], 3.88 [0.33]; rank 7).

Table 1. Surgeons' Demographic Data of Using Anesthesia Services at Srinagarind Hospital

Variable	No. (%)
Gender	
Male	20 (48.8)
Female	21 (51.2)

Table 1. Surgeons' Demographic Data of Using Anesthesia Services at Srinagarind Hospital (Continued)	
Variable	**No. (%)**
Age, y	
21-30	23 (56.1)
31-40	17 (41.5)
41-50	1 (2.4)
Status	
Faculty physician	2 (4.9)
Resident/staff physician	39 (95.1)
Department affiliation	
Pediatrics	2 (4.9)
Ophthalmology	2 (4.9)
Surgery	12 (29.3)
Obstetrics-gynecology	2 (4.9)
Otolaryngology	7 (17.1)
Orthopedics	7 (17.1)
Internal medicine	5 (12.2)
Vascular	2 (4.8)
Radiology	2 (4.8)

Table 2. Satisfaction Level of Surgeons With Preoperative Anesthesia Services at Srinagarind Hospital

Assessment Item*	Mean (SD)	No. (%)		Satisfaction Rank
		Level 3-4	Level 1-2	
1) The anesthesia team provides preoperative patient visit and preparation	3.85 (0.36)	41 (100.0)	0	4
2) The anesthesia team follows standard preoperative patient preparation for appropriate laboratory tests	3.85 (0.36)	41 (100.0)	0	4
3) The anesthesia team coordinates with you before surgery	3.63 (0.49)	41 (100.0)	0	9
4) Opportunity and willingness to listen to opinions during consultation	3.56 (0.50)	41 (100.0)	0	11
5) Implementation of patient care recommendations into practice	3.76 (0.43)	41 (100.0)	0	8
6) Courtesy and interpersonal relationships	3.78 (0.42)	41 (100.0)	0	7
7) System for coordination and scheduling elective surgery patients daily according to a regular surgery schedule within 4:30 PM	3.95 (0.22)	41 (100.0)	0	1
8) System for coordination and scheduling additional surgery patients after 4:30 PM by contacting the attending physician until 7:00 PM	3.85 (0.37)	41 (100.0)	0	6
9) System for coordination and scheduling emergency surgery patients outside office hours using mobile phones	3.88 (0.33)	41 (100.0)	0	3
10) Appropriateness in deciding to cancel patient services according to schedule before coming to operating room	3.61 (0.54)	40 (97.6)	1 (2.4)	10
11) Cooperation in performing sign-in	3.90 (0.30)	41 (100.0)	0	2

*Feedback from physicians regarding after-hours surgery cases where patients have additional personal expenses: anesthesiologists should see patients at least 1 day before surgery, similar to general elective cases (disagree with some anesthesiologists who come for preoperation when the patient already arrives at the operating room and think it is unfair to after-hours patients).

Table 3. Satisfaction Level of Surgeons With Intraoperative Anesthesia Services at Srinagarind Hospital

Assessment Item	Mean (SD)	No. (%)		Satisfaction Rank
		Level 3-4	Level 1-2	
1) The anesthesia team initiates anesthesia service when physician is in the room and equipment is ready	3.98 (0.16)	41 (100.0)	0	1
2) Smooth and efficient anesthesia service delivery	3.93 (0.26)	41 (100.0)	0	3
3) The anesthesia team responds to notification of abnormal events during surgery	3.88 (0.33)	41 (100.0)	0	7
4) The anesthesia team controls situations when emergencies occur during surgery	3.88 (0.33)	41 (100.0)	0	7
5) The anesthesia team has knowledge and ability to provide appropriate anesthesia services	3.93 (0.26)	41 (100.0)	0	3
6) The anesthesia team facilitates and assists during surgery	3.93 (0.26)	41 (100.0)	0	3
7) Appropriateness in deciding to cancel scheduled patient services	3.78 (0.47)	40 (97.6)	1 (2.4)	9
8) Cooperation in performing time-out	3.95 (0.22)	41 (100.0)	0	2
9) Cooperation in performing sign-out	3.93 (0.26)	41 (100.0)	0	3

Postoperative Recovery Room Satisfaction

All 3 assessed domains in the recovery room achieved very high satisfaction levels (Table 4). Anesthesia team knowledge and competency in postoperative care ranked highest (mean [SD], 3.93 [0.26]), whereas appropriateness in reporting abnormal symptoms and discharge management had a mean (SD) score of 3.83 (0.38), sharing rank 2.

Ward-Based Postoperative Satisfaction

Ward-based satisfaction measures achieved very high scores (Table 5). Patient visits within 24 hours and continued follow-up for cases with anesthesia problems scored the highest (mean [SD], 3.97 [0.16]; rank 1), whereas mean (SD) postoperative pain management scored 3.85 (0.36), rank 2.

Seven-Year Comparative Analysis (2016-2023)

Comparative analysis revealed remarkable improvements across multiple domains (Table 6). The most dramatic improvements were observed.

In the preoperative phase, the satisfaction scores of regular scheduling coordination was mean (SD) of 3.46 (0.57) to 3.95 (0.22) (rank improvement from 7 to 1), after-hours scheduling coordination was mean (SD) of 3.35 (0.70) to 3.85 (0.37) (rank improvement from 10 to 6), emergency scheduling coordination was mean (SD) of 3.42 (0.64) to 3.88 (0.33) (rank improvement from 8 to 3), and sign-in cooperation was mean (SD) of 3.53 (0.59) to 3.90 (0.30) (rank improvement from 6 to 2).

In the intraoperative phase, the satisfaction scores of anesthesia initiation timing was mean (SD) of 3.75 (0.48) to 3.98 (0.16) (rank improvement from 4 to 1), service delivery smoothness was mean (SD) of 3.59 (0.61) to 3.93 (0.26) (rank improvement from 8 to 3), and time-out cooperation was mean (SD) of 3.61 (0.57) to 3.95 (0.22) (rank improvement from 6 to 2).

In the postoperative phase, recovery room and ward-based satisfaction was consistently maintained at high levels with modest improvements across all measured domains.

Service Consultation Satisfaction

Consultation satisfaction across various hospital locations demonstrated uniformly high scores (Table 7). Elective operating room consultations ranked highest (mean [SD], 3.87 [0.34]), followed by intubation services (mean [SD], 3.86 [0.35]) and acupuncture room services (mean [SD], 3.79 [0.41]). The electronic consultation system scored moderately (mean [SD], 3.72 [0.51]; rank 7).

Preoperative Preparation Knowledge Assessment

The surgeons' understanding of evidence-based preoperative protocols was excellent (Table 8). The fasting guidelines obtained the highest score (mean [SD], 3.95 [0.22]), followed by the PONV prevention guidelines (mean [SD], 3.93 [0.27]). Areas with lower scores included glucose loading protocols (mean [SD], 3.60 [0.59]; rank 11) and thromboembolism prevention (mean [SD], 3.65 [0.53]; rank 10).

Table 4. Satisfaction Level of Surgeons With Postoperative Anesthesia Services in Recovery Room at Srinagarind Hospital

Assessment Item	Mean (SD)	No. (%)		Satisfaction Rank
		Level 3-4	Level 1-2	
1) The anesthesia team has knowledge and ability in postoperative patient care and various procedures	3.93 (0.26)	41 (100.0)	0	1
2) Appropriateness in reporting the patient's abnormal symptoms	3.83 (0.38)	41 (100.0)	0	2
3) Appropriateness in managing patient discharge	3.83 (0.38)	41 (100.0)	0	2

Table 5. Satisfaction Level of Surgeons With Postoperative Anesthesia Services in Patient Ward at Srinagarind Hospital

Assessment Item	Mean (SD)	No. (%)		Satisfaction Rank
		Level 3-4	Level 1-2	
1) The anesthesia team visits patients within 24 hours after anesthesia service and continues follow-up to 72 hours for cases with anesthesia problems	3.97 (0.16)	41 (100.0)	0	1
2) Postoperative pain management in the patient ward	3.85 (0.36)	41 (100.0)	0	2

Table 6. Comparison of Surgeon Satisfaction With Anesthesia Services Between 2016-2017 and 2023-2024

Assessment Item	Mean (SD)	Satisfaction Level	Rank
Preoperative phase			
1) The anesthesia team provides preoperative patient visit and preparation			
2016-2017	3.63 (0.49)	Very high	2
2023-2024	3.85 (0.36)	Very high	4
2) The anesthesia team follows standard preoperative patient preparation for appropriate laboratory tests			
2016-2017	3.72 (0.47)	Very high	1
2023-2024	3.85 (0.36)	Very high	4
3) The anesthesia team coordinates with you before surgery			
2016-2017	3.33 (0.66)	High	11
2023-2024	3.63 (0.49)	Very high	9

Table 6. Comparison of Surgeon Satisfaction With Anesthesia Services Between 2016-2017 and 2023-2024 (Continued)

Assessment Item	Mean (SD)	Satisfaction Level	Rank
4) Opportunity and willingness to listen to opinions during consultation			
2016-2017	3.55 (0.59)	Very high	5
2023-2024	3.56 (0.50)	Very high	11
5) Implementation of patient care recommendations into practice			
2016-2017	3.62 (0.53)	Very high	3
2023-2024	3.76 (0.43)	Very high	8
6) Courtesy and interpersonal relationships			
2016-2017	3.60 (0.57)	Very high	3
2023-2024	3.78 (0.42	Very high	7
7) System for coordination and scheduling elective surgery patients daily according to regular surgery schedule within 4:30 PM			
2016-2017	3.46 (0.57)	High	7
2023-2024	3.95 (0.22)	Very high	1
8) System for coordinating and contacting to schedule additional surgical patients after 4:30 PM by calling the attending physician until 7:00 PM			
2016-2017	3.35 (0.70)	High	10
2023-2024	3.85 (0.37)	Very high	6
9) System for coordination and scheduling emergency surgery patients outside office hours using mobile phones			
2016-2017	3.42 (0.64)	High	8
2023-2024	3.88 (0.33)	Very high	3
10) Appropriateness in deciding to cancel patient services according to schedule before coming to operating room			
2016-2017	3.38 (0.66)	High	9
2023-2024	3.61 (0.54)	Very high	10
11) Cooperation in performing sign-in			
2016-2017	3.53 (0.59)	High	6
2023-2024	3.90 (0.30)	Very high	2
Intraoperative phase			
1) The anesthesia team initiates anesthesia service when physician is in room and equipment is ready			
2016-2017	3.75 (0.48)	Very high	4
2023-2024	3.98 (0.16)	Very high	1
2) Smooth and efficient anesthesia service delivery			
2016-2017	3.59 (0.61)	Very high	8
2023-2024	3.93 (0.26)	Very high	3
3) The anesthesia team responds to notification of abnormal events during surgery			
2016-2017	3.75 (0.44)	Very high	3
2023-2024	3.88 (0.33)	Very high	7
4) The anesthesia team controls situations when emergencies occur during surgery			
2016-2017	3.73 (0.47)	Very high	5
2023-2024	3.88 (0.33)	Very high	7
5) The anesthesia team has knowledge and ability to provide appropriate anesthesia services			
2016-2017	3.78 (0.42)	Very high	1
2023-2024	3.93 (0.26)	Very high	3
6) The anesthesia team facilitates and assists during surgery			
2016-2017	3.76 (0.43)	Very high	2
2023-2024	3.93 (0.26)	Very high	3

Table 6. Comparison of Surgeon Satisfaction With Anesthesia Services Between 2016-2017 and 2023-2024 (Continued)			
Assessment Item	**Mean (SD)**	**Satisfaction Level**	**Rank**
7) Appropriateness in deciding to cancel scheduled patient services			
2016-2017	3.60 (0.60)	Very high	7
2023-2024	3.78 (0.47)	Very high	9
8) Cooperation in performing time-out			
2016-2017	3.61 (0.57)	Very high	6
2023-2024	3.95 (0.22)	Very high	2
9) Cooperation in performing sign-out			
2016-2017	NA	NA	NA
2023-2024	3.93 (0.26)	Very high	3
Postoperative phase at the recovery room			
1) The anesthesia team has knowledge and ability in postoperative patient care and various procedures			
2016-2017	3.71 (0.52)	Very high	2
2023-2024	3.93 (0.26)	Very high	1
2) Appropriateness in reporting patient abnormal symptoms			
2016-2017	3.72 (0.45)	Very high	1
2023-2024	3.83 (0.38)	Very high	2
3) Appropriateness in managing patient discharge			
2016-2017	3.65 (0.50)	Very high	3
2023-2024	3.83 (0.38)	Very high	2
Postoperative phase at the ward			
1) The anesthesia team visits patients within 24 hours after anesthesia service and continues follow-up to 72 hours for cases with anesthesia problems			
2016-2017	3.71 (0.46)	Very high	1
2023-2024	3.97 (0.16)	Very high	1
2) Postoperative pain management at the ward			
2016-2017	3.66 (0.52)	Very high	2
2023-2024	3.85 (0.36)	Very high	2

Abbreviation: NA, not applicable.

Table 7. Satisfaction Level of Surgeons With Anesthesia Service Consultation at Various Points in Srinagarind Hospital				
Assessment Item	**Mean (SD)**	**No. (%)**		**Satisfaction Rank**
		Level 3-4	**Level 1-2**	
1) Consultation for anesthesia services in the elective operating room	3.87 (0.34)	41 (100.0)	0	1
2) Consultation for anesthesia services in the emergency operating room	3.74 (0.44)	41 (100.0)	0	6
3) Consultation for anesthesia services in the delivery room	3.77 (0.43)	41 (100.0)	0	4
4) Consultation for anesthesia services in the x-ray/radiation therapy room	3.70 (0.46)	41 (100.0)	0	8
5) Consultation for anesthesia services in the OPD examination room (ECT)	3.76 (0.43)	41 (100.0)	0	5
6) Consultation for anesthesia services for central venous catheter insertion	3.69 (0.47)	41 (100.0)	0	9
7) Consultation for anesthesia services for intubation	3.86 (0.35)	41 (100.0)	0	2
8) Electronic consultation system of the anesthesia department	3.72 (0.51)	40 (97.6)	1 (2.4)	7
9) Consultation for anesthesia services in the acupuncture room	3.79 (0.41)	41 (100.0)	0	3
10) Consultation for other anesthesia services: not specified	3.88 (0.35)	41 (100.0)	0	NA

Abbreviations: ECT, electroconvulsive therapy; NA, not applicable; OPD, outpatient department.

Table 8. Basic Understanding of Surgeons in Preoperative Patient Preparation at Srinagarind Hospital

Assessment Item*	Mean (SD)	No. (%)		Satisfaction Rank
		Level 3-4	Level 1-2	
1) Acknowledge and understand basic information about anesthesia/surgery beforehand	3.85 (0.36)	41 (100.0)	0	3
2) Provide exercise/physical rehabilitation to strengthen the body before surgery	3.68 (0.53)	40 (97.6)	1 (2.4)	8
3) Control/treat existing chronic diseases well before surgery	3.80 (0.41)	41 (100.0)	0	5
4) Stop smoking/drinking alcohol at least 2-4 weeks before surgery	3.66 (0.63)	40 (97.6)	1 (2.4)	9
5) Practice breathing exercises before surgery	3.73 (0.45)	41 (100.0)	0	7
6) Fast for at least 6 hours for solid food/2 hours for water before surgery	3.95 (0.22)	39 (95.1)	2 (4.9)	1
7) Drink glucose/sugar-containing fluids 2 hours before surgery	3.60 (0.59)	41 (100.0)	0	11
8) Receive information/methods for postoperative pain management	3.85 (0.36)	41 (100.0)	0	3
9) Know guidelines for preventing postoperative nausea/vomiting	3.93 (0.27)	41 (100.0)	0	2
10) Know guidelines for preventing postoperative thromboembolism	3.65 (0.53)	40 (97.6)	1 (2.4)	10
11) Know guidelines for postoperative behavior such as early ambulation and mobilization	3.75 (0.44)	41 (100.0)	0	6

* Surgeon feedback on anesthesia services included the following: 1) anesthesiologists care very well for patients, especially during surgery, 2) have good knowledge and ability in patient care, 3) demonstrate professionalism and safety standards, and 4) are punctual.

Discussion

Overall Satisfaction Trends

The findings of this study show sustained high levels of surgeon satisfaction with anesthesia services at Srinagarind Hospital, with notable improvements across multiple domains compared with the 2016-2017 baseline assessment. The overall satisfaction scores ranging from 3.56 to 3.98 indicate consistent "very high" satisfaction levels, reflecting successful implementation of quality improvement initiatives over the 7-year period.

Remarkable Quality Improvements

The most remarkable improvements were observed in the coordination and scheduling systems, which addressed the primary concerns identified in the 2016-2017 study. The dramatic improvement in regular scheduling coordination (from rank 7 to rank 1) and emergency scheduling systems (from rank 8 to rank 3) demonstrates successful implementation of systematic communication protocols and technology integration.

These improvements align with contemporary literature emphasizing the importance of structured communication systems in perioperative settings.[17, 18] The implementation of standardized scheduling protocols, mobile communication systems, and dedicated coordination personnel likely contributed to these remarkable gains, consistent with findings from other academic medical centers.[19, 20]

Safety Protocol Implementation

The substantial improvements in safety protocol cooperation, particularly sign-in procedures (rank improvement from 6 to 2) and time-out processes (rank improvement from 6 to 2), reflect the successful adoption of the World Health Organization (WHO) Surgical Safety Checklist principles and enhanced team communication training.[21, 22] Given the growing

emphasis on perioperative safety culture and systematic error prevention strategies, these improvements are particularly important.

Service Delivery Excellence

The consistently high scores in intraoperative service delivery, with anesthesia initiation timing achieving near-perfect satisfaction (mean [SD], 3.98 [0.16]), demonstrate the anesthesia team's commitment to operational efficiency and professional excellence. This finding supports research indicating that prompt, professional service delivery remarkably affects surgeon satisfaction and overall team dynamics.[23, 24]

Areas for Continued Improvement

Despite the overall excellent performance, several areas warrant continued attention. Although improved, preoperative coordination communication remains the lowest-ranked preoperative domain. This finding suggests that interpersonal communication aspects require ongoing focus, despite systematic improvements; this is consistent with literature emphasizing the complexity of multidisciplinary communication in healthcare settings.[25, 26]

The relatively lower satisfaction with glucose loading protocols (rank 11) may reflect ongoing debates in the literature regarding enhanced recovery after surgery (ERAS) protocols and varying evidence for preoperative carbohydrate loading across different surgical populations.[27, 28] This presents an opportunity for evidence-based protocol development and education.

Comparative Context

When compared with international literature, the satisfaction scores obtained at Srinagarind Hospital compare favorably with those of other academic medical centers. Le May et al[29] reported similar satisfaction patterns in Canadian teaching hospitals, with a particular emphasis on the importance of technical competency and communication quality. Studies from European institutions have demonstrated comparable satisfaction levels in well-established academic centers with structured quality improvement programs.[30, 31]

Impact of Quality Improvement Initiatives

The 7-year comparison provides compelling evidence that systematic quality improvement initiatives can substantially enhance surgeon satisfaction. The improvements observed likely resulted from multiple factors including technology integration (implementation of electronic consultation systems and mobile communication protocols), process standardization (development of standardized scheduling and coordination procedures), safety culture enhancement (systematic implementation of safety protocols and team training), continuous monitoring (regular assessment and feedback mechanisms), and multidisciplinary collaboration (enhanced team-based approaches to perioperative care).

Limitations

Several limitations should be considered when interpreting these results. The single-center design may limit the generalizability to other institutional settings. The relatively small sample size in 2024 (n = 41) compared with that in 2016-2017 (n = 102) may affect statistical comparisons, although the high response rate strengthens the validity of findings.

The voluntary nature of participation may introduce selection bias, potentially favoring responses from surgeons with stronger opinions about anesthesia services.

Because most participants were below 40 years of age, the generalizability of the results to the broader population may be limited. Furthermore, the 4-point Likert scale did not provide a neutral option, potentially limiting respondents and forcing them to take a positive or negative position. Additionally, the study design does not capture patient outcome correlations with satisfaction scores, representing an area for future investigation.

Future Directions

Based on these findings, several recommendations for continued improvement were communication enhancement (develop structured preoperative communication protocols to address remaining satisfaction gaps), evidence-based protocol updates (review and update preoperative preparation guidelines based on current ERAS evidence), technology optimization (further improve electronic consultation systems based on user feedback), outcome correlation studies (investigate relationships between satisfaction scores and patient safety outcomes), and regular monitoring (establish routine satisfaction assessment cycles to maintain quality improvements).

Conclusions

This 7-year comparative study demonstrates that surgeon satisfaction with anesthesia services at Srinagarind Hospital has achieved consistently high levels with remarkable improvements in coordination systems, safety protocols, and service delivery. Notable improvements include scheduling coordination (rank improvement from 7 to 1), emergency response systems (rank improvement from 8 to 3), and safety protocol implementation.

The key strengths identified include anesthesia team competency, service timing, patient follow-up care, and safety protocol adherence. Areas for continued focus include preoperative communication enhancement and evidence-based protocol standardization.

These findings establish Srinagarind Hospital as a model for sustained quality improvement in anesthesia services and provide valuable benchmarks for other academic medical centers. The results demonstrate that systematic quality initiatives can substantially enhance surgeon satisfaction and support excellence in multidisciplinary perioperative care.

Additional Information

Ethics Approval: This study was approved by the Khon Kaen University Ethics Committee in Human Research (HE661282) on 12 July 2023.

Clinical Trial Consideration: This study does not report on a clinical trial.

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