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Review Article

The Importance of Pre-anesthetic Evaluation in Patient Safety: A Systematic Review

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ABSTRACT

Background: Pre-anesthetic evaluation is the initial stage of anesthesia procedures for patients. This evaluation involves elucidating the patient's medical history, determining patient readiness, screening for undisclosed disorders, and identifying risk factors. Safety measures help mitigate patient-related risks within medical environments. The aim of this study is to investigate the role of Pre-anesthetic evaluation in patient safety.

Methods: The present study was a review conducted in the year 2024. Databases including PubMed, Direct Science, MEDLINE, Proquest, SID, Scopus, Google Scholar, Magiran, and library resources were searched using keywords such as Pre-anesthetic evaluation, pre-anesthetic visit, anesthesia clinic, patient safety, and their English equivalents. A logical combination of these keywords was performed using "OR," "AND," and "NOT" operators. The search was conducted in relevant articles from the year 2000 to January 2024.

Results: Initially, 22,000 articles were screened, and ultimately, 16 relevant articles were used for preparing this paper. In all the reviewed articles, pre-anesthetic evaluation played a key role in patient safety.

Conclusions: Studies indicate that pre-anesthetic evaluation is a key improver of surgical outcomes. These measures not only mitigate potential risks but also enhance surgical outcomes. Overall, pre-anesthetic evaluation has a direct correlation with patient safety, playing a significant role in postoperative improvement and elevating the quality of medical care.

Introduction

Pre-anesthetic evaluation is defined as a clinical assessment process that occurs before anesthesia and surgery [1]. Pre-anesthetic evaluation is the first step in a series of anesthetic procedures performed on a patient [2]. Pre-anesthetic evaluation provides the opportunity to clarify the patient's medical history, determine readiness, screen for potential unrevealed disorders, and provide a clear picture of common risk factors of patients regarding post-operative complications. Compared with unevaluated subjects, patients who received a comprehensive preoperative evaluation in the Pre-anesthetic clinic demonstrated improved patient safety and reduced delays and cancellations, length of hospital stay and hospital mortality rate. According to the American Society of Anesthesiologists' (ASA) practice recommendations for Pre-anesthetic evaluation, the minimum elements of pre-anesthetic evaluation include taking a medical history, reviewing relevant medical records, requesting order and review specific tests, interview patients, and perform focused physical examinations [3-6] It is well recognized

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that safe and effective surgery and anesthesia require patient preparation and optimisation. Several large-scale epidemiological studies have demonstrated that inadequate patient preparation before surgery may be an important factor contributing to early postoperative mortality [7]. Pre-anesthetic evaluation may be performed before admission to the hospital or before surgery. According to Permenkes No. 18 of 2016 Concerning the Licensing of Anesthetists, Chapter 3, Article 10, anesthesiologists are authorized to provide anesthesia management services during Pre-anesthetic evaluation within the scope their professional activities. To accomplish this task, anesthesiologists must have the knowledge, attitudes, and skills in Pre-anesthetic evaluation to enhance the safety of patients undergoing surgery in the hospital [8].

Patient safety involves preventing harm to patients. Harm prevention is defined as preventing injuries that may occur accidentally or that could be avoided through medical treatment. Patient safety measures reduce the risk of adverse events associated with exposure to diagnostic environments or medical treatment conditions [9]. Patient safety and its effective governance have been a constant concern for policymakers, healthcare providers, and the public. Despite various interventions, challenges and concerns persist. The World Health Organization has reported approximately 134 million adverse events/medical errors worldwide, contributing to around 2.6 million deaths per year. The Institute of Medicine (IOM) reports that annually, between 44,000 to 98,000 individuals in the United States lose their lives due to medical errors. The number of deaths resulting from adverse events (KTD) in hospitalized patients in the United States is 33.6 million people. Patient Safety Incident Reports (IKP) in the UK, based on the National Reporting and Learning System (NRLS) in 2015, recorded 825,416 incidents. This report has seen a 6% increase compared to the previous year. Of these reports, 0.22% resulted in fatalities [10]. In Canada, Baker, Norton, and colleagues found nearly 185,000 adverse events in 2.5 million hospital visits annually. The Canadian Patient Safety Institute reported that patient harm is the third leading cause of death: out of every 18 hospital visits, one results in preventable harm, and patient harm-related deaths occur approximately every 13 minutes. In 2011, about 2.33% of hospitalized patients experienced at least one significant injury related to hospital care [11]. In 2006, a previous study in a Brazilian center reported high rates of postoperative mortality and anesthesia-related mortality at 97.21 and 12.1 per 10,000 anesthesia procedures, respectively [12]. Patient safety is a comprehensive system responsible for ensuring safer patient care. This includes patient risk assessment and management, incident reporting and analysis, learning opportunities and event monitoring, and implementing strategies to minimize risk and prevent errors. Every healthcare intervention should have a positive impact on patients and should never harm them. Each health care facility must also comply with specific standards in providing services to patients. The goal of patient safety standards is to improve the quality of medical services in health care facilities. There are multiple objectives of patient safety standards aimed at improving the quality of healthcare services in healthcare facilities. These objectives include fostering a culture of patient safety, enhancing hospital responsiveness to patients and the community, reducing adverse events, and implementing preventive programs to prevent the recurrence of unexpected incidents in hospitals [13].

Based on the information provided and the role of Pre-anesthetic evaluation in patient outcomes, the current study has been conducted with the aim of emphasizing the importance of Pre-anesthetic evaluation in patient safety.

Methods

The current study was a systematic review conducted in the years 2024. Searches were performed in databases including PubMed, Direct Science, MEDLINE, Proquest, SID, Scopus, Google Scholar, and library resources using keywords such as "Pre-anesthetic evaluation," "Pre-anesthetic visit," "anesthesia clinic," "patient safety," and their English equivalents, along with logical operators "OR," "AND," and "NOT". The search was conducted for relevant articles from 2000 to January 2024. In the initial search, 22,000 articles were retrieved, and articles relevant to pre-anesthetic evaluation and its importance in patient safety were examined and studied.

The studies included in this research, which met the specified criteria and were incorporated into the study process, comprised the following:

1.All original research articles published in the field of study.

2.Studies conducted within the timeframe of 2000 to January 2024 due to the relevance and currency of research.

3.Articles available in Persian or English within the scope of the study.

The main reasons for exclusion from the studies were as follows:

1.Studies that lacked full-text accessibility.

2.Studies with ambiguous results that did not clearly address the study questions.

3.Studies conducted in the form of letters to the editor, posters, or articles published in non-reputable journals.

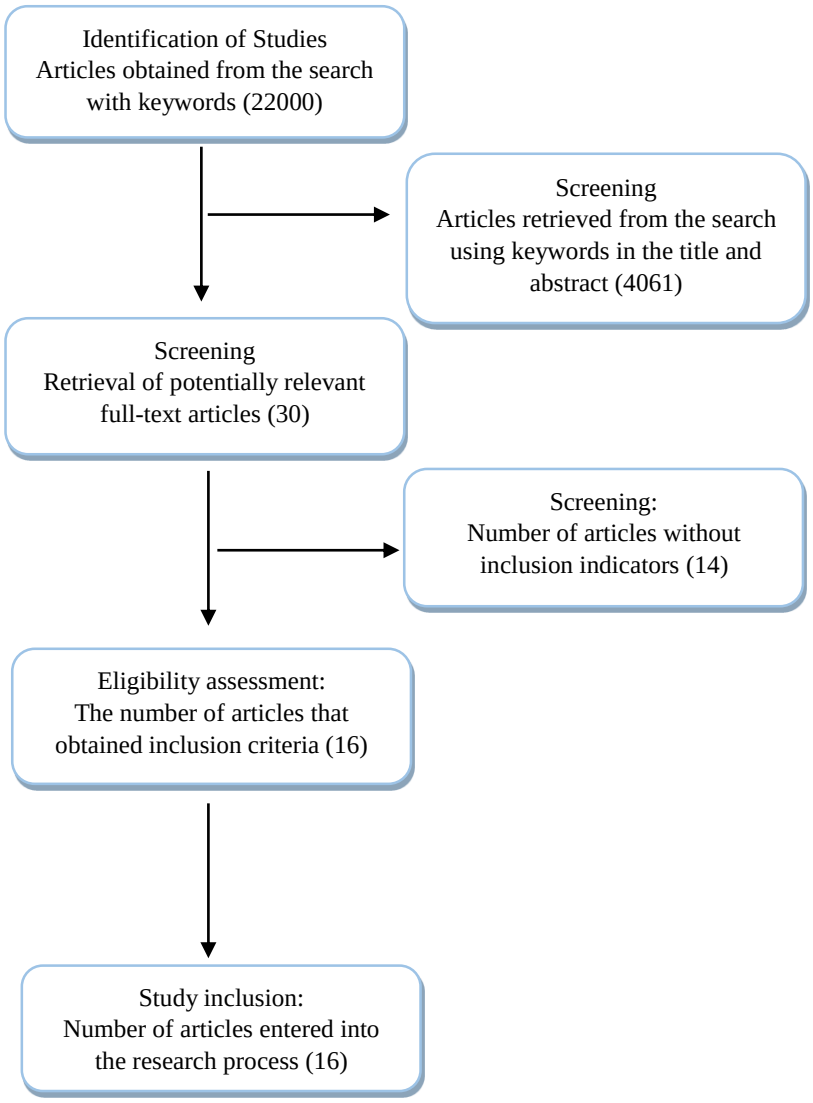

Figure 1- PRISMA flow diagram of study identification, screening, eligibility assessment, and inclusion.

Results

In the first step, using appropriate keywords and searching the mentioned databases, a total of 22,000 studies were retrieved. These studies were examined based on their keywords and abstracts, irrespective of their field or discipline, to identify relevant research for further investigation. Following that, based on the article titles, 4610 relevant titles were identified from the initial pool of 22,000 articles. These titles met the inclusion criteria and proceeded to the first stage of the research process. The abstracts of these articles were evaluated further, and their full texts were downloaded for comprehensive examination. In this manner, based on the abstracts of the articles, 30 articles proceeded to the second stage for further examination. In this stage, regardless of whether the full text was available, the articles were assessed based on their relevance to the importance of pre-anesthetic evaluation in patient safety. Then, considering the inclusion and exclusion criteria by the primary researcher and two colleagues with more experience in conducting review studies, taking into account whether the full text is publicly available, the research process continued. As a result, the number of articles in the third stage was reduced to 16 (Figure 1). Then, the articles were analyzed to extract data based on the PICO criteria (P: patient, population, I: intervention, C: comparison, O: outcome). In this criterion, parameters such as patient or population, intervention, comparison, and clinical outcomes under evaluation were selected to identify the influential factors on pre-anesthesia assessment in patient safety within a clinical and educational domain. The details of the reviewed articles are presented in (Table 1).

Table 1- Related articles

Author Name	Year	Place of study	Collection tool and type of study	Title	Results
1- Alireza Mahoori et al. [14]	2008	Iran	Retrospective cohort study	The Role of Preoperative Evaluation in Anesthesia Clinics in Reducing the Rate of Cancellation of Elective Surgeries on the Day of Operation in 2008	Visiting the anesthesia clinic for pre-anesthesia evaluation can significantly reduce cancellations or delays of surgical procedures on the day of surgery and improve the quality of patient follow-up and care.
2- Kawasaki et al. [15]	2009	Japan	A case report	The Importance of the Pre-Anesthetic Interview: A Case Report of an Asthmatic-Attack on the Induction of General Anesthesia	Pre-anesthesia evaluation can prevent potential complications during and after anesthesia, and we strongly encourage it.
3- Kluger et al. [16]	2000	Australia	Retrospective studies	Inadequate pre-operative evaluation and preparation: a review of 197 reports from the Australian Incident Monitoring Study	This study has highlighted several deficiencies in preoperative patient management. By focusing on key areas such as improvement in airway assessment, patient medical evaluation, and communication, it is hoped that the number of incidents related to this stage of anesthesia management can be reduced.
4- Amr Abdullah et al. [17]	20019	Bahrain	A case report	Pre-anesthesia clinic: skip it or not? A case report	Comprehensive preoperative anesthetic evaluation is essential for every patient undergoing elective procedures as it can identify undiagnosed conditions that may pose proven risks during perioperative care.
5- Saputra et al. [10]	2024	Indonesia	Retrospective studies	The Effect of Pre-Anesthesia Assessment on Patient Safety in the Operating Room	To improve the performance of pre-anesthesia assessments, hospitals should review the adequacy of pre-anesthesia assessments performed by anesthesiologists before surgery to avoid patient safety errors. Preparation of facilities and infrastructure must comply with patient safety procedures based on accreditation standards.
6- Ahmed Alanzi et al. [18]	2023	Barain	A case report	Importance of Pre-anesthetic Evaluation in Diagnosing Coexisting Asymptomatic Medical Conditions: A Report of Two Cases	The importance of preoperative clinical evaluation of anesthesia in the simultaneous diagnosis of asymptomatic pathological conditions cannot be denied. In addition to surgical considerations, this evaluation also provides an opportunity to detect underlying medical conditions early and thus contribute to the patient's overall health. Through a comprehensive medical history, physical examination, and medication review, anesthesiologists can tailor their approach to meet each patient's needs, minimizing potential risks,

					including Postoperative mortality and optimization of outcomes. The issues addressed in this series highlight the vital importance of preoperative clinical assessment of anesthesia in the diagnosis of asymptomatic comorbidities and emphasize the fact that preoperative assessment Comprehensive is not simply a routine step before surgery. This is an essential part of patient care and can have a significant impact on post-operative outcomes.
7- Jeanna D. Blitz et al. [19]	2016	USA	Retrospective studies	Preoperative Evaluation Clinic Visit Is Associated with Decreased Risk of In-hospital Postoperative Mortality	Preoperative in-person assessment in the anesthesia clinic was associated with reduced mortality in the hospital.
8- Eirunn Wallevik et al. [20]	2022	Norway	A systematic review	Effectiveness of pre-anaesthetic assessment clinic: a systematic review of randomised and non-randomised prospective controlled studies	Use of the pre-anesthesia clinic has resulted in reduced hospital stays and surgical cancellation rates. However, the effectiveness of the preanesthetic clinic, the main question under investigation, remains uncertain and requires further study. High-quality studies are needed to collect robust data to describe the quality of care and clinical outcomes for patients requiring anesthesia. This requires increased attention and funding for this particular area of health services research and could therefore lead to the implementation of pre-anesthesia clinics within health services and improve Patient safety and post-operative care.
9- Marwan et al. [21]	2020	Libya	Cross-sectional descriptive study	Evaluate Patient's Awareness Regarding Significance of Pre-Anesthetic Checkup for Elective Surgery in Western Libya	A significant proportion of patients are not fully aware of pre-anesthetic evaluation and its role in improving surgical outcomes. Additionally, it is assumed that as patients in urban areas increase in age, education level, and previous experience, their awareness and understanding of the value and importance of pre-anesthesia evaluation will also increase. Therefore, it is the responsibility not only of the anesthesiologist but also of the surgeon and the media involved in patient care to emphasize the importance of the preanesthetic examination in reducing the complications and death before surgery. Clearly, there is a need for potential measures to increase patient awareness and understanding of pre-anesthesia examinations and pre-anesthesia studies to

					comprehensively address this issue and improve patient care, as stated in the study.
10- Brigid C. Flynn et al. [22]	2009	USA	Original Article	The Need for Specialized Preanesthesia Clinics for Day Admission Cardiac and Major Vascular Surgery Patients	Specialized pre-anesthesia clinics for evaluation of major cardiovascular (CMV) may provide safety benefits and reduce costs by identifying patients who require specific evaluation. In patients with complex pathology, "too much" or "not enough" preoperative research and counseling may be detrimental. We believe that a preanesthetic clinic designed specifically for CMV surgery patients can streamline our cardiac surgery program while providing safe and effective care. A successful preanesthetic clinic can provide a level of "hospital-wide coordination" that benefits all of our patients, especially those undergoing CMV surgery.
11- Betül Kocamer Şimşek et al. [23]	2022	Türkiye	Retrospective studies	Pre-anesthetic evaluation: Is it only for risk assessment?	This study demonstrates that preoperative examinations can reveal unknown health problems and risks to patients. These diagnoses not only benefit the anesthesiologist and surgeon but also constitute a legal obligation; therefore, a simple medical history and physical examination are not enough. Appropriate medical tests should be included in the preoperative evaluation protocol according to the anesthesia society depending on the type of surgical procedure and the age of the patient.
12- Katherine Chuy et al. [24]	2016	USA	Original Article	An ICU Preanesthesia Evaluation Form Reduces Missing Preoperative Key Information	A preoperative evaluation form specifically designed for critical care patients has been adopted by anesthesiologists and helps minimize the loss of important preoperative information. Such an approach is important for patient safety before surgery.
13- Katherine Ann Jones et al. [25]	2022	USA	Original Article	Implementation of a Pre-Anesthesia Questionnaire in the Preoperative Phase of Care	This project demonstrated inconsistencies and deficiencies in preoperative nursing assessment that were not easily identified without patient-completed questionnaires. Implementing a tool that uses patient-provided information may be beneficial in identifying missed or poorly recorded items.
14- Amanda B. Munnich et al. [26]	2019	USA	Original Article	Pre-Anesthetic Evaluation: A Needs Assessment of Student Registered Nurse Anesthetists	This could lead to a more compatible, comprehensive, and efficient pre-anesthetic evaluation that optimizes patient safety and outcomes

				Transitioning to Clinical Practice	
15- Eirunn Wallevik et al. [27]	2022	Norway	A descriptive qualitative approach	Knowledge, safety, and teamwork: a qualitative study on the experiences of anaesthesiologists and nurse anaesthetists working in the preanaesthesia assessment clinic	Participants emphasized that pre-anesthesia clinics provide better opportunities for patients to participate in decision making. Additionally, they improve patient safety and outcomes through structured assessment. Overall, participants expressed that the pre-anesthesia clinic provided various benefits to the anesthesia staff, patients, and the anesthesia department.
16- Adam S. Weinstein et al. [28]	2016	USA	Original article	Preanesthetic evaluation of a patient with a deep brain stimulator: a practical guide and checklist for patient safety	Because patients undergoing deep brain stimulation require extensive precautions, pre-anesthesia evaluation is important to ensure patient safety and comfort during the surgery or procedure

Discussion

The findings derived from the systematic review of 16 articles demonstrate that Pre-anesthetic evaluation plays a fundamental role in ensuring patient safety throughout the postoperative process. This assessment operates as a comprehensive evaluation of the medical history, current health status, and potential risk factors that may impact a patient's response to anesthesia. By thoroughly assessing the patient before administering anesthesia, healthcare providers can identify and mitigate any medical conditions, allergies, or existing medications that could potentially lead to adverse reactions during surgery. Furthermore, this assessment empowers anesthesiologists to devise an anesthesia plan tailored specifically to the individual needs of each patient, ensuring both safety and efficacy throughout the procedure. Additionally, pre-anesthesia evaluation significantly aids in the prevention of complications and side effects associated with anesthesia. Healthcare providers, by identifying and addressing any underlying health issues or risk factors beforehand, can employ appropriate strategies to minimize the occurrence of complications. Furthermore, this evaluation facilitates the optimization of postoperative care, including the selection of the most suitable anesthesia techniques and medications based on the patient's unique physiological characteristics and medical history. Ultimately, prioritizing comprehensive Pre-anesthetic evaluation enables healthcare teams to enhance patient safety, improve surgical outcomes, and elevate overall care quality in the postoperative environment.

In a study conducted by Saputra et al. in Indonesia in 2024 titled "The Impact of Preoperative Assessment on Patient Safety in the Operating Room," it was demonstrated that hospitals should review the completeness of preoperative assessments by anesthesia specialists before patient surgery to prevent errors in patient safety. Preparation of facilities and infrastructure according to accreditation standards is necessary for patient safety programs [10].

In a study conducted in Iran by Mahoori et al. in 1387 with the title "The Role of Preoperative Assessment in Anesthesia Clinics in Reducing the Rate of Cancelled Elective Surgeries on the Day of Surgery," it was demonstrated that preoperative visits in anesthesia clinics can significantly reduce the cancellation or postponement of surgeries on the day of operation and improve the quality of patient control and management [29]. This study indicates that the purpose of canceling surgeries is to avoid inadequate conditions for anesthesia and consequently prevent potential complications that may occur around anesthesia, thereby improving patient outcomes and safety.

In a study conducted in Bahrain by Amr Abdullah et al. in 2019 titled "Preoperative Clinic: To Pass or Not? A Case Report," the results of the research indicated that performing a comprehensive Pre-anesthetic evaluation for every patient scheduled for surgery is essential. This is because it may identify undiagnosed conditions that could pose risks to patient care during the operation [17]. In another study conducted in Bahrain by Ahmed Al-Anzi et al. in 2023 titled "The Importance of Pre-anesthesia Evaluation in Diagnosing Asymptomatic Medical Conditions: A Report of Two Cases," the results showed that the significance of pre-anesthesia clinic evaluation in diagnosing asymptomatic medical conditions simultaneously is not overstated. Beyond surgical considerations, this evaluation serves as an

opportunity for early detection of medical conditions and consequently contributes to overall patient well-being. Through comprehensive medical history, physical examinations, and medication review, anesthesia providers can tailor their approach to the individual needs of the patient, mitigate potential risks, including postoperative mortality, and optimize outcomes. The discussed cases in this series highlight the vital importance of pre-anesthesia clinic evaluations in diagnosing asymptomatic medical conditions simultaneously, emphasizing the fact that pre-anesthesia evaluation is not merely a routine step before surgery. It is a crucial component of patient care that can significantly impact postoperative outcomes [18]. In another study conducted in Japan by Kawasaki et al. titled "The Importance of Pre-Anesthesia Interview: A Case Report of Asthma Attack during General Anesthesia Induction," it was demonstrated that the lack of seriousness in pre-anesthesia evaluation resulted in complications during anesthesia induction in the patient and should be taken seriously [15].

In another study conducted in the United States by Adam et al. in 2016 titled "Pre-Anesthesia Evaluation of a Patient with a Deep Brain Stimulator: Practical Guide and Checklist for Patient Safety," it was demonstrated that given the necessity of taking multiple precautionary measures when caring for a patient with a deep brain stimulator, performing a Pre-anesthetic evaluation is crucial to ensure patient safety and comfort during the intervention or surgical procedure [28]. Consequently, these studies suggest that pre-anesthesia evaluation can prevent potential complications and enhance patient safety.

In other articles listed in Table 1, Pre-anesthetic evaluation plays an important role in patient safety.

Conclusions

Pre-anesthetic evaluation for patients represents a critical milestone in their care. Studies have shown that this assessment, by identifying previously unrecognized medical conditions, enhances patient safety during surgical procedures. Through comprehensive medical history, thorough physical examinations, and meticulous review of medications, this evaluation empowers anesthesia providers to determine appropriate approaches for each patient, mitigate potential risks, and improve postoperative outcomes. Overall, Pre-anesthetic evaluation directly correlates with patient safety, playing a crucial role in enhancing postoperative results and elevating the quality of medical care.

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Ethical Considerations

This research was approved by the Ethics Committee of Iran University of Medical Sciences with the ethics code IR.IUMS.REC.1402.818. All ethical principles, including respect for individual rights, honesty in the research process, and adherence to research standards, were observed in this study.

Role of Authors:

Behnam Shiri zilan: Data collection and interpretation, writing the Article.

Dr. Shahnam Sadegh Maroufi: Idea conception and study design.

Dr. Parisa Moradi Majd: Data collection and interpretation.

Dr. Jamileh Abolghasemi: Statistical data analysis.

The present Article has been approved by all authors, and all authors take responsibility for the accuracy and integrity of the content.

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References

[1] Gómez-Henao PA, Carreño-Dueñas JA. Cardiovascular pre-anesthesia evaluation in oncological surgery☆. Colombian Journal of Anesthesiology. 2016; 44(1):17-22.

[2] Indra I, Kulsum K. Pre-Anesthesia Assessment and Preparation. Budapest International Research in Exact Sciences (BirEx) Journal. 2020;2(2):228-35.

[3] Selzer A, Sarkiss M. Preoperative pulmonary evaluation. Medical Clinics. 2019; 103(3):585-99.

[4] Woldegerima Y, Kemal S. Clinical audit on the practice of documentation at preanesthetic evaluation in a specialized university hospital. International Journal of Surgery Open. 2019; 16:1-5.

[5] Lozada MJ, Nguyen JT, Abouleish A, Prough D, Przkora R. Patient preference for the pre-anesthesia evaluation: telephone versus in-office assessment. J Clin Anesth. 2016; 31:145-8.

[6] Rao GS. Good Preanesthetic Evaluation Is a Prelude to Good Surgical Outcome—But Where Are the Guidelines? Journal of Neuroanaesthesiology and Critical Care. 2022; 9(02):073-4.

[7] Zambouri A. Preoperative evaluation and preparation for anesthesia and surgery. Hippokratia. 2007; 11(1):13.

[8] Dobson M, editor Penuntun praktis anestesi2012: EGC.

[9] Darliana D. Hubungan pengetahuan perawat dengan

upaya penerapan patient safety di ruang rawat inap Rumah Sakit Umum Daerah DR. Zainoel Abidin Banda Aceh. Idea Nursing Journal. 2016;7(1):61-9.

[10] Saputra N, Sari YK, Febristi A. The Effect of Pre-Anesthesia Assessment on Patient Safety in the Operating Room. Health and Medical Journal. 2024;6(1):31-40.

[11] Facey M, Baxter N, Hammond Mobilio M, Moulton Ca, Paradis E. The ritualisation of the surgical safety checklist and its decoupling from patient safety goals. Sociol Health Illn. 2024; 46(6):1100-1118.

[12] Pignaton W, Braz JRC, Kusano PS, Módolo MP, De Carvalho LR, Braz MG, et al. Perioperative and anesthesia-related mortality: an 8-year observational survey from a tertiary teaching hospital. Medicine. 2016; 95(2): e2208.

[13] Heri Prajoko E. Evaluasi Implementasi Surgical Safety Checklist (Ssc) Di Ibs Rsud Panembahan Senopati: Universitas Alma Ata Yogyakarta. 2018.

[14] Mahouri A, Heshmati F, Nourouzinia H, Sina S. The effect of anesthesia preoperative evaluation clinic on cancellation of elective surgery at operating day. 2009.

[15] Kawasaki M, Shimo T, Hatashima A. A case of asthma attack that reminded us of the importance of preoperative examination. Journal of the Japanese Society of Clinical Anesthesiology. 2009;29(4):489-92.

[16] Kluger M, Tham E, Coleman N, Runciman W, Bullock M. Inadequate pre- operative evaluation and preparation: a review of 197 reports from the Australian Incident Monitoring Study. Anaesthesia. 2000;55(12):1173-8.

[17] Abdullah A, Fouad A, Esmat AM, Elhefnawy A. Pre-anesthesia clinic: skip it or not? A case report. Anaesthesia, Pain & Intensive Care. 2019; 221-4.

[18] Alanzi A, Ghazzal S, Abduljawad S, Ghuloom A, Fouad A, Adeel S. Importance of Pre-anesthetic Evaluation in Diagnosing Coexisting Asymptomatic Medical Conditions: A Report of Two Cases. Cureus. 2023; 15(9).

[19] Blitz JD, Kendale SM, Jain SK, Cuff GE, Kim JT, Rosenberg AD. Preoperative evaluation clinic visit is associated with decreased risk of in-hospital postoperative mortality. Anesthesiology. 2016;125(2):280-94.

[20] Kristoffersen EW, Opsal A, Tveit TO, Berg RC, Fossum M. Effectiveness of pre-anaesthetic assessment clinic: a systematic review of randomised and non-randomised prospective controlled studies. BMJ open. 2022; 12(5): e054206.

[21] Abofila MT, Azab AE, Mouni AA, Ramadan A, Hassan AMH, Skeha AMA, et al. Evaluate Patient's Awareness Regarding Significance of Pre-Anesthetic Checkup for Elective Surgery in Western Libya.

[22] Flynn BC, de Perio M, Hughes E, Silvay G, editors. The need for specialized preanesthesia clinics for day admission cardiac and major vascular surgery patients. Seminars in Cardiothoracic and Vascular Anesthesia; 2009: SAGE Publications Sage CA: Los Angeles, CA.

[23] Şimşek BK, Ganidağlı S. Pre-anesthetic evaluation: Is it only for risk assessment? 2022.

[24] Chuy K, Yan Z, Fleisher L, Liu R. An ICU preanesthesia evaluation form reduces missing preoperative key information. J Anesth Clin Res. 2012; 3(9).

[25] Jones KA. Implementation of a Pre-Anesthesia Questionnaire in the Preoperative Phase of Care: University of Missouri-Saint Louis; 2022.

[26] Munnich AB, Murphy CA. Pre-Anesthetic Evaluation: A Needs Assessment of Student Registered Nurse Anesthetists Transitioning to Clinical Practice. 2019.

[27] Kristoffersen EW, Opsal A, Tveit TO, Fossum M. Knowledge, safety, and teamwork: a qualitative study on the experiences of anaesthesiologists and nurse anaesthetists working in the preanaesthesia assessment clinic. BMC anesthesiology. 2022; 22(1):309.

[28] Weinstein AS, Aglio LS. Preanesthetic evaluation of a patient with a deep brain stimulator: a practical guide and checklist for patient safety. J Clin Anesth. 2016; 31:278-81.

[29] Norouzinia H, Heshmati F, Mahoori A, Ghanadi N. THE STUDY OF THE CAUESES OF DAY SURGERY CANCELLATION IN PATIENTS CANDIDATED TO ELECTIVE SURGERIES AT URMIA IMAM KHOMEINI HOSPITAL, 1382-84. Journal of Medical Science Studies. 2008;19(1):36-