



**ORIGINAL RESEARCH PAPER**

**Anesthesiology**

**CLINICAL AUDIT ON THE PRACTICE OF DOCUMENTATION AT PRE-ANESTHETIC EVALUATION IN TEACHING INSTITUTE**

**KEY WORDS:** Preanesthetic Evaluation, Pre- Anesthetic Evaluation Tools, Peri Operative Management.

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**ABSTRACT**

**Introduction:** The preanesthetic evaluation, documenting it and maintaining the record is the responsibility of anesthetist. Better documentation practices can improve the patient's outcome. It has the pivotal role in medicolegal aspects. However, the documentation is one of the challenges when it comes to quality of care. The objective of the study was to assess the practice of documentation at preanesthetic evaluation and completeness of Preanesthetic evaluation tools. **Method:** The descriptive study was conducted in tertiary care hospital. Modified global quality index (GQI) is used to prepare the Predefined twenty-two indicators. The data analysis is done using SPSS version-20. **Result:** A total of 300 pre-anesthetic evaluation tools (PAETs) were reviewed. There was different trend in terms of completion rate for elective and emergency cases. However, there was no PAETs found complete. Indicators with high completion rate (>90%) were signed a consent, past medical history (PMH), history of medication, allergy, surgical procedure, cardiovascular examination, airway examination and respiratory examination. Anesthetic plan, premedication, vital signs, a name, per-oral status and age were found with below average (<50%) completion rate. **Conclusion and recommendations:** Documentation during the preanesthetic visit observed below the standard. Which need to be standardized for uniformity. Use of electronic system with prefilled formats and training of personnel involved in the process is the way forward.

**INTRODUCTION**

Preanesthetic evaluation is instrumental in the avoiding the perioperative adverse events and reducing the morbidity and mortality. It is a clinical base and framework for perioperative patient management. It is effective tool to obtain the patients current and past medical history, vital statistics to identify the multifactorial perioperative risks which requires plan of management before anesthesia and surgery [1]. Preanesthetic assessment reduces the cancellation of surgery, length of stay hence reduces the cost and enhances patient safety [2]. Inadequate preoperative evaluation and poor patient preparation significantly increases the odds of complications [3]. The prospective study conducted to assess the economic impact of the preanesthetic assessment suggested to reduce the cost by 63% per patients on perioperative management [4]. The systematic review and metanalysis in developed and developing countries depicted that the relative risk of mortality reduces by 48(CI 42-53) in preoperative and preanesthetic assessed patients [5]. Thus, we recommend that the preanesthetic evaluation with the standard protocol should be the mandatory practice. American Society of Anesthesiology (ASA) indicated that the preanesthetic assessment should include five components as follows i.e., interview for medical history, physical examination, review of diagnostic test, assignment of ASA physical status score and informed consent [6].

Documentation is an important part of medical practice. The documentation is helpful in informing the patient's condition and transfer of information between practitioners [7]. Documentation is also important for quality assurance and medicolegal purposes. The well documented preanesthetic evaluation and informed consent should be present with patient's case papers [8]. Inadequate documentation and subnormal record keeping hinders the quality of care and better patient's outcomes [9]. Incomplete documentation is not only unethical but also raise the questions of medical malpractice. Anesthesiology task force for the preanesthetic evaluation stated that "anesthesiologists have ethical responsibilities to their patients and should provide a

preoperative evaluation." [10]. The time of assessment of patient, tool used for the assessment and anesthesiologist involvement in rightly assessing the patients significantly impact the preanesthetic evaluation [7]. The real time documentation is desirable, however not possible due to patient load [11]. The standardized tool for the preanesthetic evaluation should be mandatory for maintaining uniformity of reporting. Use of standardized preanesthetic evaluation tool (PAET) help to elaborate and keep quality of information. The study conducted by Naik and et al showed that standardized tool tends to improve the quality of the preanesthetic evaluation [9]. The global quality index study demonstrated that the quality of information recorded from the pre-anesthetic visit is improved (GQI 62% to 88%) by using a standardized form [12]. This study aimed to improve the quality of preanesthetic service and practice of documentation in the specialized teaching institute. The primary objective of study was to assess the practice of documentation at preanesthetic evaluation and completeness of Preanesthetic evaluation tools (PAETs).

**METHODOLOGY**

The retrospective study was conducted in BKL Walawalkar Rural Medical College and Hospital, Chiplun, Ratnagiri. It is a tertiary care hospital in the Ratnagiri district of Maharashtra and affiliated under Maharashtra University of Health Sciences (MUHS), Maharashtra. The study was conducted during the December 2022 and January 2023. The audit was conducted for all the cases which were undergone the surgery during this period of time. The approval was obtained from the ethical committee of institute.

The audit of 300 preanesthetic evaluation forms which include both elective and emergency cases was conducted. The modified Global Quality Index is used to developed checklist for review. Twenty-two important items from GQI (depicted in the table) were incorporated in the checklist. The preanesthetic evaluation forms were labeled as "Yes" for complete documentation or checked negative, "Illegible" for partial documentation and "No" if left blank. After corresponding anesthetists completed each preoperative

assessment Preanesthetic evaluation tools (PAETs) used by the anesthetists at hospital were reviewed. Expected completion rate was 100% for all indicators, however the indicators with >80% completion rate was deemed as acceptable. But the completion rate of <50% was considered for the need of improvement. The data was gathered and then coded, cleaned, and analyzed in SPSS version 20 software. The descriptive analysis was conducted, and the result were extracted in terms for frequency and proportions. The cross-tabulation method is also used to analyze the data where it seems appropriate.

**RESULT**

A total of 300 PAETs used to assess patients who has undergone either elective or emergency surgical procedures were reviewed during the study period. Out total audited patients 200 (66.66%) were for elective surgery and 100 (33.33%) were for the emergency surgery. 169 (56.33%) were male and 131 (43.66%) were female.

**Table 1: Completion rate of indicators of identification and history (Frequency and percentage (n (%)), N = 300.**

Indicators	Total (n=300)			Elective (n=200)			Emergency(n=100)		
	Yes	Illegible	No	Yes	Illegible	No	Yes	Illegible	No
Name of patient	12(4%)	286(95.33%)	2(0.67%)	4(2%)	196(98%)	0	8(8%)	90(90%)	2(2%)
Age	125(41.67%)	172(57.33%)	3(1%)	98(49%)	102(51%)	0	27(27%)	70(70%)	3(3%)
Sex	241(80.33%)	0	59(19.67%)	156(78%)	0	44(22%)	85(85%)	0	15(15%)
Date of visit	244(81.33%)	0	56(18.67%)	162(81%)	0	38(19%)	82(82%)	0	18(18%)
Name of Anesthetist	220(73.33%)	0	80(26.67%)	150(75%)	0	50(25%)	70(70%)	0	30(30%)
Past medical history	297(99%)	0	3(1%)	200(100%)	0	0	97(97%)	0	3(3%)
Preop diagnosis	278(92.67%)	0	22(7.33%)	186(93%)	0	14(7%)	92(92%)	0	8(8%)
Surgical procedures	279(93%)	0	21(7%)	186(93%)	0	14(7%)	93(93%)	0	7(7%)
Anesthetic history	292(97.33%)	7(2.33%)	4(1.33%)	196(98%)	4(2%)	0	96(96%)	3(3%)	4(4%)
Medications	270(90%)	8(2.67%)	22(7.33%)	180(90%)	4(2%)	16(8%)	90(90%)	4(4%)	6(6%)
Allergy	295(98.33%)	0	5(1.67%)	200(100%)	0	0	95(95%)	0	5(5%)
Pre oral status	23(7.67%)	116(38.67%)	161(53.67%)	15(7.5%)	58(29%)	127(63.5%)	8(8%)	58(58%)	34(34%)

The study analysis shows that the no PAET was completed as per the indicators. Identification and history indicators with high completion rate (>90%) were history of allergy, past medical history, anesthetic history, history of surgical procedure, preoperative diagnosis and history of medication. While the physical examination and miscellaneous indicators like signed consent, respiratory examination, airway examination and cardiovascular examination show high completion rate. Name of patient, age, per oral status, vital signs, premedication, and anesthetic plan found with below average (50%) completion rate. However, the findings differ

between elective and emergency operations.

**Table 2: Completion rate of indicators of physical examination and miscellaneous (Frequency and percentage (n (%), N = 300.**

Indicators	Total (n=300)			Elective (n=200)			Emergency(n=100)		
	Yes	Illegible	No	Yes	Illegible	No	Yes	Illegible	No
Vital signs	3(1%)	192(64%)	105(35%)	0	140(70%)	60(30%)	3(3%)	52(52%)	45(45%)
Weight	187(62.33%)	0	113(37.67%)	142(71%)	0	58(29%)	45(45%)	0	55(55%)
Airway	282(94%)	8(2.67%)	10(3.33%)	196(98%)	4(2%)	0	86(86%)	4(4%)	10(10%)
Dentition	258(86%)	6(2%)	36(12%)	182(91%)	6(3%)	12(6%)	76(76%)	0	24(24%)
Cardiovascular examination	271(90.33%)	3(1%)	26(8.67%)	178(89%)	0	22(11%)	93(93%)	3(3%)	4(4%)
Respiratory examination	292(97.33%)	4(1.33%)	4(1.33%)	200(100%)	0	0	92(92%)	4(4%)	4(4%)
ASA physical status	222(74%)	20(6.67%)	58(19.33%)	160(80%)	0	40(20%)	62(62%)	20(20%)	18(18%)
Signed Consent	300(100%)	0	0	200(100%)	0	0	100(100%)	0	0
Premedication	34(11.33%)	16(5.33%)	250(83.33%)	22(11%)	12(6%)	166(83%)	12(12%)	4(4%)	84(84%)
Anesthetic plan	0(0%)	0	300(100%)	0	0	200(100%)	0	0	100(100%)

Around 286(95.33%) PAETs had illegible name of patients. They only had the first names with/ without last name. Only 12 (4%) PAETs has the complete name mentioned while 2 (0.67%) PAETs not recorded patient name.

In terms of per oral status, only 23(7.67%) PAETs can be categorized as the legible category with complete record. However, in the 161 (53.67%) patients record the per oral record was missing while 116 (38.67%) of patients it was incomplete. Only 3 (1%) PAETs had included all the predefined vital signs while in 192 (64%) PAETs it was "Illegible" and in 105(35%) of patients it was in "No" category.

**Table 3: Percentage of adverse anesthetic events**

Adverse anesthetic events	No of patients (%)
Cough/hiccough/chomping on induction	20(6.67%)
Low blood pressure	55(18.3%)
Inappropriate patient movement during surgery	0
Low SpO2 on pulse oximeter	0
Residual neuromuscular block in recovery	22(7.33%)
Slow-to-regain consciousness in recovery	70(23.3%)
Anesthetic turned off too early at the end of operation	0

Regarding the adverse events maximum 70(23.3%) of patients were reported with slow to regain consciousness after recovery while 22(7.33%) of patient's records depicted the residual neuromuscular block in recovery. The low blood pressure is seen in 55 (18.3%) PAETs and cough or hiccoughs are recorded in 20(6.67%) PAETs.

**DISCUSSION**

Preanesthetic evaluation is crucial to understand the patient's condition and manage the perioperative events [12]. Which in turns improve the patient's satisfaction towards the perioperative care [13]. Inadequate perioperative evaluation is associate with the increased mortality and morbidity which requires intensive care postoperatively suggests the Australian based study. It also recommends the complete documentation and accurate information exchange is to tool to avoid the miscommunication which is identified as the contributing factor in suboptimal care to patients [14]. Also, inability or failure to document the patient data is considered as the breach of ethical code and liable for the legal action [15].

The study conducted in the South Africa suggested that the none of PAETs are incomplete based on the indicators used [16]. The findings are in line with the study conducted by Marco AP et al. which shows the completion rate was higher in the group with structured form when non structured and structured forms for preanesthetic evaluation were compared [7]. The study by Woldegerima and et al. indicated that the elective procedure with most of the indicators is higher in the elective surgery compared with emergency surgery [17]. In our study, the complete rate was more in the elective surgery compared to emergency surgery. This finding might be associated with the time constraints during the emergency operation.

A name of patient is one of the identifier and identification of patient is the function component of medical records. In the taxonomy of the medical records errors are considered as the process error [18]. In the Woldegerima et al study most of the PAETs are audited as illegible categories [17]. Same as in the current study where the 95.33% PAETs the names not completely recorded and considered as the illegible category. The study findings are contrary to the Swart et al. This is due to the difference in the legibility criteria difference in the study [19]. The inadequate identification contributes to the error of preoperative diagnosis and management of perioperative events [20].

Medication history is an integral part of any medical assessment [21]. Medication errors are associated with potentially dangerous harms to patients. Medication documentation errors were estimated between 3.5% and 13.3% [22]. One study found perioperative medication errors 5.3%. Out of this, 64.7% were serious, 33.3% were significant and 2.0% were life-threatening [23]. In study conducted by Woldegerima and et al., medication history records were complete in 113 (92.6%) PAETs. Whereas premedication orders were completely documented only in 12 (9.8%) PAETs. Trends in [17]. In our study we have identified that the medical history is complete in 270 (90%) PAETs, while the complete documentation of the predication is seen in 34 (11.33%) of PAETs.

The incidence of allergic reaction during the anesthesia is occurred to be 1:10000 patients and the neuromuscular blockers, antibiotics and latex are the causative agents [24]. In the Woldegerima and et al study the allergic history is documented on 97.5% of PAETs [17]. In our study too the allergic history is significantly documented i.e., 295 (98.33%) PAETs. To avoid the trigger of the allergy the careful evaluation and documentation is utmost important.

Pulmonary aspiration is one of the serious adverse events perioperatively and oral intake is the one of the determinants of pulmonary aspiration. Per oral documentation can help in the identifying the risk and plan for management of same [16]. In the study by the Woldegerima and et al, only 9% of the PAETs have legible per oral status documented [17]. The current study also confirms the same trend with 7.67% of the PAETs have the legible per oral status documented.

Vital sign documentation is the minimal requirement of the preanesthetic evaluation [6]. Only 3 (1%) of patients have well documented PAETs with all the vital statistics. The findings are similar to the Woldegerima and et al study where only 1 patient's vital signs were completely documented [17]. Studies have identified that the respiratory rate of the patient is the most neglected vital parameter which is not documented while doing the preanesthetic assessment. However, the altered respiratory rate is a crucial predictor of the complication and could help to effectively manage it [25].

The weight of the patients determines the dose of drugs, airway size, ventilation parameters and assessment of risk associated with obesity perioperatively [26]. The Woldegerima and et al study 53.3% of the PAETs had the weight mentioned [17]. However, in our study the weight recorded in the 62.33% of PAETs.

Airway assessment is one of the crucial challenges as there is no single comprehensive test that can predict the difficult airway [19]. Anesthetist commonly uses the Mallampati class, range of neck motions, thyromental distance and jaw slide to assess the airway [19]. Along with the airway the dental examination is also critical as the dental injury is one of the common perioperative events and may become liable [27]. The airway documentation was identified in the 93.4% of PAETs while the dental examination is completely documented in 84.4% of PAETs [17]. In our study too, the airway documentation was completed in 94% of records while that of denture documentation was completely documented in 86% of records.

Cardio-pulmonary events are still leading cause of morbidity and mortality for patients during the perioperative period [28]. More than 95% of PAETs had cardiopulmonary assessment notes [17] In our study too the cardiovascular examination is completed in around 90% of PAETs. Stratification of perioperative outcomes can be better assess by ASA classification of the patients. The study found that 71.3% PAETs had appropriate ASA physical status record [17]. While in our study the ASA records were completed in the 74% of the PAETs.

GQI recommend that an anesthetic plan should be included in PAETs [20]. In the study conducted by Woldegerima and et al none of PAETs had notes regarding the anesthetic plan [17]. In our study too the anesthetic plan was not depicted in the single PAETs. In contrary to this, there was a study in which anesthetic plan was checked in 96% forms [29].

The casual analysis suggested that most of the documentation are carried out by the junior doctors or by students. This increases the scope for the more mistakes and improper or incomplete documentation of the preanesthetic evaluation forms. In case of emergency care the time takes the central position and the effective preanesthetic assessment can be the guiding tool. The coordination of surgeon and anesthetist in sharing the valuable information preoperatively can help in the better documentation and in turn can avoid the mismanagement perioperatively. However, there is no alternative to the training of medical staff and doctors regarding the documentation. The training of the medical professionals not only change the attitude towards documentation but also instill the standard practices for the same. Lastly the quality of the documentation can better be achieved by using the electronic documentation system which can enumerate the multiple indicators of paranessthesia evaluation as the traditional paper-based documentation is identified as one of the reason of poor documentation practices [11].

**CONCLUSION AND RECOMMENDATIONS**

There were almost all records which were incomplete, and the maximum of these records were not attaining the legible



categories. Even if the informed consent was taken in all of the preanesthetic evaluation, the standardization of the consent was not there. Anesthesia plan also need to be depicted in the preanesthetic evaluation which was also missing among the top indicators. The training of the healthcare staff can address the difficulties in the evaluation process and improve the documentation. The evaluators should have the tool for documentation, creation of checklist and making it available could benefit. The electronic system for the documentation can also be helpful as it will have the prefilled indicator pointers which evaluator has to evaluate.

**Limitation**

As the study is conducted in the single tertiary care hospital the findings of the study may not be generalized for broader spectrum. Also, the convenient sampling is used to audit the PAETs also limits the scope of study.

**Ethical Approval**

Ethical approval letter was obtained from ethical committee of institution.

**Author Contribution**

Authors were actively participating in all conducting this study. They thoroughly performed literature searching, writing a proposal and supervise of data collection. All were equally engaged in data management, analysis, and write-up phases.

**Conflict Of Interest Statement**

The authors declare no conflict of interest.

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