Biomedical Review
JOURNAL OF BASIC & APPLIED MEDICAL SCIENCES
SINCE 2014

Research Article
Anesthesiology

Volume 10 Number 01 Title Jan-Dec 2023

E-ISSN:2349-3275 P-ISSN:2349-5502 www.biomedicalreview.in

The practice of documentation at a pre-admission anesthesia clinic among anesthesia professionals for outpatient surgical patients

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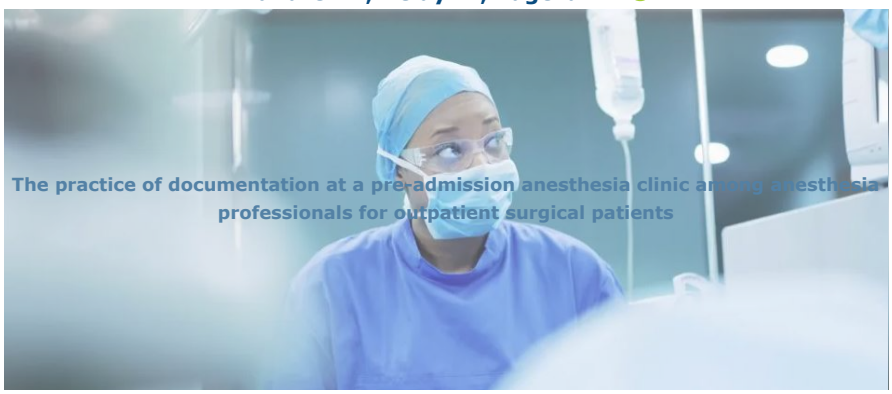

Abstract

Background: At pre-admission anesthesia clinics, the practice of patient assessment, documentation, and having a proper recording are indicating everyday tasks of an anesthesia providers. Proper record keeping is also related to improvement in the quality of care and client outcomes. The aim of current audit is to improve the practice of documentation among anesthesia professionals for outpatient surgical patients at the pre-admission anesthesia clinic at Hawassa University Comprehensive Specialized Hospital (HUCSH) in 2023.

Method: A clinical audit was employed at HUCSH pre-admission anesthesia clinic in 2023. Thirty-three predefined indicators were prepared according to the Association of Anaesthetists of Great Britain and Ireland, the Australian and New Zealand College of Anesthetists, and the Global Quality Index. Data was analyzed by using Statistical Program for Social Sciences version 24.

Results: Overall, 20 outpatient surgical patient charts in phase one and 18 charts in phase three were reviewed. In phase one, patient name, age, sex, medical history, preoperative diagnosis, vital signs, airway examination, cardiovascular examination, respiratory examination, American Society of Anesthesiologists (ASA) physical status, and final assessment were completed with higher completion rate (> 90%). Documentation of patient identification number, date of visit, allergy, weight, dental examination, risks explained, recommendations, and signature had a <50% completion rate. However, in phase three there was a significant improvement in almost all indicators, with documentation of the patient identification number, date of visit, allergy, weight, dental examination, risks explained, recommendations, and signature improved from <50% to >90%, with a maximum of 100% and weight of 83% from 0%.

Discussion: The indicator with the greatest improvement was dentition, which improved from 0% to 94%. This improvement was due to implementation of an evidence-based pre-admission pre-anesthetic evaluation form with proper training and guidance for anesthesia providers.

Conclusion: We developed a pre-admission anesthesia evaluation form for documentation at an anesthesia clinic and followed its use. This audit illustrated that the implementation of these standards has a crucial role on the improvement of documentation practices toward the standard level.

Keywords: *Clinical audit, Documentation, Pre-Admission, Pre-Anesthesia Clinic, Preoperative, Evaluation*

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Cite this Article

Bunare M, Belay F, Tageza T. The practice of documentation at a pre-admission anesthesia clinic among anesthesia professionals for outpatient surgical patients. Biomed Rev J Basic Appl Med Sci. 2023;10(01):4-12. Available From https://www.biomedicalreview.in/the-practice-of-documentation-at-pre-admission-anesthesi-clinic-among-anesthesi-professionals-for-outpatient-surgical-patients-research-article

Meta History

2023-12-24 Submission Recieved
2023-12-28 1st review
2024-01-03 2nd review
2024-01-09 3rd review
2024-01-13 Accepted and Published

Declaration

4% Plagiarism. Authors state no conflict of interest. Non Funded. The conducted research is not related to either human or animals use. All authors have accepted responsibility for the entire content of this manuscript and approved its submission.

Evidence in Context

What Know: At pre-admission anesthesia clinics, the practice of patient assessment, documentation, and having a proper recording are indicating everyday tasks of an anesthesia providers. Proper record keeping is also related to improvement in the quality of care and client outcomes.
What New: This audit illustrated that the implementation of these standards has a crucial role on the improvement of documentation practices toward the standard level.

To view

Introduction

Background

The pre-admission pre-anesthesia evaluation clinic is a site where patients are assessed prior to ward admission for a scheduled surgical procedure [1]. This helps to create a record of documentation from patient history and physical examination, and to deliver quality patient care through risk assessment, optimization, perioperative management, and final decisions[2]. Pre-anesthesia evaluation is an activity or practical approach that opens the way for the provision of anesthetic care for surgical procedures[3].

PAAE involves an interview and general physical examination; reviewing of prior of medicine history, surgery, and anesthesia related concerns; present or previous drug usage; and a review of prerequisites to obtain and review important finding before surgery[4]. An anesthetist or Anesthesiologist conduct pre-admission anesthesia assessment at anesthesia clinic[5]. In terms of reducing anxiety, pre-admission anesthesia clinical assessment is more successful than pre-anesthetic assessment ward[6].

PAE clinics permit increased communication between anesthesia providers and initial patient encounters with anesthetists, allowing better preoperative counseling, involving anesthetist in developing practical guidelines, and coordination of patient care following surgery to decrease pain, postoperative complications, hospital stay, and death [7].

Anesthetist or Anesthesiologist-directed pre-admission anesthesia evaluation at the pre-admission clinic for preoperative evaluation have shown that the clinical practice approach reduce patient cancellations on the day of surgery because of poor preparation prior to surgery [7].

A pre-admission anesthesia evaluation is conducted to assess the overall medical conditions and risks of patients, and to recommend and develop a plan for management and anesthesia [8]. Hence, pre-admission anesthesia evaluation is part of anesthesia practice [9].

To obtain a detailed medical and anesthetic history and appropriate physical examination, all outpatient surgical patients must undergo pre-admission anesthesia evaluation and consultation [10]. Pre-admission evaluation assesses patient's general status and other related medical conditions [5].

Proper documentation of a pre-admission anesthesia chart was necessary as to the standard clinical practice guideline described by the South African Society of Anesthesiologists in 2012 [1]. A significant shortcoming in improving postoperative patient outcomes is inadequate or partial reporting of the patient's preoperative state [11].

The pre-admission anesthesia evaluation record, electronic or handwritten, compiles conditions of every patient's pre-admission status, including pre-anesthetic care recommendations [12]. This enables essential pre-anesthetic planning [13]. Accurate data collection for anesthetic record of assessed patient is crucial for improving quality of clinical care based on information generated from necessary documents [7].

Proper recording of patient data is a crucial part of clinical practice [14]. This might related to improvement of overall quality of clinical care and permit an easy way of handling and handover of patient data among health professionals [2]. Recording the patient data at the pre-admission anesthetic evaluation should be kept or attached in the patient's medical card; Which is essential for medico legal purposes and quality assurance [15][16]. However, poor chart recording and documentation at the pre-admission anesthesia clinics are considered as an avoidable obstacles affecting the quality of clinical care and patient outcomes [17][18].

Moreover, the American Society of Anesthesiologists (ASA) ethics guideline recommend that the anesthetists or anesthesiologists play a great role in the provision of pre-anesthetic evaluation and assessment for their clients on the ethical basis of anesthesia practice [19].

Significance of the audit

The purpose of this audit was to increase the practice of record keeping at a pre-admission anesthesia clinic among anesthesia professionals at HUCSH. This audit aimed to provide excellent practice, an area that hinders the practice of good documentation in anesthesia clinics and needs to be improved. Filling this gap can improve the quality and safety of patient care and reduce mortality and morbidity. In addition, this audit guards patients from an economic burden by reducing cancellations on the day of surgery. Hence, we were aimed to assess the utilization of proper recording at pre-anesthesia clinics based on these guidelines.

Aim of the study

This study aimed to promote best available current evidence-based practice of documentation at pre-admission anesthesia clinics among anesthesia professionals for outpatient surgical patients at Hawassa University Comprehensive Specialized Hospital in 2023.

Objectives of the audit

General Objective:

- To assess the practice of documentation at the pre-admission anesthesia clinic and provide best available evidence-based practice among anesthesia professionals for outpatient surgical patients at HUCSH in 2023.

Specific Objectives:

- To determine the practice of documentation at the pre-admission anesthesia clinic among anesthesia professionals for outpatient surgical patients at HUCSH in 2023.
- To provide best available evidence-based practice among anesthesia professionals for outpatient surgical patients at HUCSH in 2023.
- To identify areas of practice of documentation at a pre-admission anesthesia clinic that need improvement among anesthesia professionals for outpatient surgical patients at HUCSH in 2023.
- To reflect on baseline reporting of practice of documentation at a pre-admission anesthesia clinic among anesthesia for outpatient surgical patients at HUCSH in 2023.

- To develop an action plan based on best evidence-based practice of documentation for best improvement among anesthesia professionals for outpatient surgical patients at HUCSH in 2023.
- Team establishment of best evidence-based practice of documentation at the pre-admission anesthesia clinic among anesthesia professionals for outpatient surgical patients at HUCSH in 2023.
- Implementation of best available evidence-based documentation practice at the pre-admission anesthesia clinic among anesthesia professionals for outpatient surgical patients at HUCSH in 2023.
- To determine the result of a post-implementation evidence-based re-audit on the practice of documentation among anesthesia professionals for outpatient surgical patients at HUCSH in 2023.

Methodology

The audit was carried out at the pre-admission anesthesia clinic (PAAC) of HUCSH. It is the famous referral and teaching hospital in the Southern Ethiopia. Geographically, it is located in Hawassa, 278 km south of Addis Ababa [20].

Hawassa University Comprehensive and Specialized Hospital serves more than 20 million people in the Sidama region and the neighboring Southern Nations, Nationalities, and Peoples Region and communities from the Oromia region. It has contributed to numerous academic programs in Medicine & Health Sciences at the undergraduate, graduate, specialty, and doctoral levels. The health campus provides various services in neurosurgery, neurology, oncology, general surgery, pediatric surgery, ENT, obstetrics and gynecology, trauma, and plastic and reconstructive surgery.

Hawassa University Comprehensive and Specialized Hospital has 10 major operating theaters, one intensive care unit (ICU), three post-anesthesia care units, and one pre-admission anesthesia clinic. The pre-anesthesia clinic provides services from Monday to Friday, with one senior anesthetist and anesthesiologist, and one master's anesthesia student and anesthesiology resident, and gives service starting at 08:30 am to 05:00 pm from Monday to Friday.

First audit was performed on clients who were referred to the pre-admission anesthetic clinic, and a pre-admission anesthesia evaluation was performed. Checklists developed from these standards were used to develop the audits.

The evidence-based clinical practice consists of 3-phases of activities:

1. Establishing audit team and performing first audit based on an evidence-based checklist.
2. Reporting the results of first audit, and planning and employing action planned to improve areas of decreased compliance or no compliance.
3. Employing a progressive monitor and evaluation to look for the response to implementation to improve and evaluate any practical issues that may still be a problem for future audits.

The audit was performed for all adult patients referred to the pre-admission anesthetic clinic before admission to the ward for elective surgery.

This best available evidence-informed quality improvement study uses the standards of pre-anesthetic clinic evaluation developed by the Great Britain Association of Anesthetist and Ireland (GBAAI) [21] and the Australian and New Zealand College of Anesthetists (ANZCA) (GQI), as shown in Table 1.

Table-1: Audit standards for the practice of documentation at the pre-admission anesthesia clinic among anesthesia professionals for outpatient surgical patients at Hawassa University Comprehensive Specialized Hospital, 2023.

Indicators	Target	Evidence	Data source
Date of visit	100%	AAGBI, GQI	Chart review
Evaluated by	100%	AAGBI, GQI	Chart review
Date planned	100%	AAGBI, ANZCA	Chart review
Patient identification number	100%	AAGBI, GQI	Chart review
Patient's name	100%	AAGBI, GQI	Chart review
Age	100%	AAGBI, GQI	Chart review
Sex	100%	AAGBI, GQI	Chart review
Weight	100%	AAGBI, GQI	Chart review
Height	100%	AAGBI, ANZCA	Chart review
BMI	100%	AAGBI, ANZCA	Chart review
Past medical history	100%	AAGBI, GQI	Chart review
Preoperative diagnosis	100%	AAGBI, GQI	Chart review
Surgical procedure	100%	AAGBI, GQI	Chart review
Anesthetic history	100%	AAGBI, GQI	Chart review
Medications	100%	AAGBI, GQI	Chart review
Allergies	100%	AAGBI, GQI	Chart review
Vital signs	100%	AAGBI, GQI	Chart review
Airway examination	100%	AAGBI, GQI	Chart review
Dentitions	100%	AAGBI, GQI	Chart review
Cardiovascular examination	100%	AAGBI, GQI	Chart review
Respiratory examination	100%	AAGBI, GQI	Chart review
Neurological exam	100%	AAGBI, ANZCA	Chart review
ASA class	100%	AAGBI, GQI	Chart review
Result of indicated investigations	100%	AAGBI, GQI	Chart review
Smoking	100%	AAGBI, ANZCA	Chart review
Perioperative management plan	100%	AAGBI, ANZCA	Chart review
Continue medications	100%	AAGBI, ANZCA	Chart review
Perioperative options discussed	100%	AAGBI, ANZCA	Chart review
Perioperative risks explained	100%	AAGBI, ANZCA	Chart review
Final assessment and decision	100%	AAGBI	Chart review
Admission and appointment plan	100%	AAGBI, ANZCA,	Chart review
Recommendations for optimization	100%	AAGBI	Chart review
Signature	100%	AAGBI, GQI	Chart review

Phase 1: First phase report and establishing team

Written informed consent was taken from the anesthesia department to conduct this study. We granted written informed consent from each study participants to maintain the confidentiality of the information obtained from them.

Anesthetists, anesthesiologists, anesthesia students, and residents were involved in the project.

(A) Anesthetist and anesthesiologist roles:

- Being committed and willing to utilize the implementation guideline during their practice.
- Supervising anesthesia students and residents while they were implementing the evidence.
- Facilitating the conduct of best available evidence-informed pre-anesthetic evaluation and documentation practices for staff and students.

(B) Student role:

- Demonstrating dedication to following the implementation standards and commitment to conduct on the clinical practice.

In phase one, first audit was conducted to assess areas of decreased compliance or no compliance in the present practice of documentation at the pre-admission anesthetic clinic for 20 consecutive patients who underwent elective operations. The investigator develop a criterion based checklist adopted from the guidelines (shown in Supplementary Table 1 after result section). Thirty-three auditing criteria's were chosen from the guidelines and denotes "Yes" for complete record and "No" if left blank. Pre-Admission Anesthesia assessment checklist documented for every anesthetists or anesthesiologist will be checked at the end of each and every patient evaluation. We expect 100% rate of complete documentation for all auditing criteria's. Auditing criteria's documented above ninety percent is labeled as acceptable, those less than fifty percent critically need improvements, and indicators between 50% and 90% need improvements. The total duration of this study was from April 10 to June 10, 2023 at the pre-admission anesthesia evaluation clinic.

The data were collected by chart review, and the criteria for successful pre-anesthetic evaluation were assessed.

Auditing criteria's

A set of evidence-informed auditing criteria's were applied, and practices for assessing compliance with the best evidence-based clinical care for each auditing indicator are presented in Table 1.

Phase 2: The second phase reflects on the results of first audit, and the planning and implementation of an action plan to increase areas of decreased compliance or no compliance obtained with the introduction of researches into practice protocols.

(I) Generally implemented actions were as follows:

- Continuous and planned audit and proper feedbacks.
- Well-designed and progressive explanation and implementing standards of best practice with the anesthesia department heads on the necessity of the study.
- Informing anesthetists and students on the merits of evidence-informed clinical care implementation at pre-anesthetic evaluation, in order to apply the standards.
- Discussing and elaborating the main concepts of best available standards with anesthetists and anesthesiologists, and means of improving client safety by applying this best available standards.
- Providing training, posters, and reminders on the wall of the pre-admission anesthesia clinic, and providing guidelines and routine discussions in the morning session (**Figure 1 a, b, c**).

(II) Specifically implemented action:

- We applied the principles of Great Britain and Ireland Association of Anesthetists of (GBIAA), the Australian and New Zealand College of Anesthetists (ANZCA), and the Global Quality Index (GQI) evaluation methods.

Phase 3: Post-implementation audit

We have conducted post-implementation audit for two weeks.

During this period, documentation at the pre-admission anesthesia evaluation clinic utilized a newly developed evaluation form developed based on standards, followed by an assessment of the implementation of standard practice.

Data were collected from 18 patients who were referred to the pre-admission anesthesia clinic for assessment and evaluation to obtain the anesthetist's or anesthesiologist's decisions on ward admission.

Results

Phase 1: First audit

20 patients chart evaluated at the pre-admission anesthesia clinic outpatient department were reviewed. Hence, patient name, sex, age, medical history, pre-operative diagnosis, pre-operative vital signs, airway evaluation, respiratory assessment, cardiovascular examination, American Society of Anesthesiologists classification of patient status, and final assessment were completed with a high rate of completion (>90%). Unique patient identification number, date of visit, surgical procedure, allergies, weight, dentitions, perioperative risks explained, and recommendations were found to have a below-average ( ) completion rate (Table 3).

Dentition and weight were not documented (0%). The name of the patient, preoperative diagnosis, vital signs, airway examination, cardio-vascular evaluation, respiratory evaluation, American Society of Anesthesiologists classification of patient status, and final assessment were documented for all patients (100%) (Table 4).

Phase 2: Implementation of best available evidence in practice

Area of excellent practice:

- Of the 33 indicators, only name of the patient, preoperative diagnosis, vital signs, airway examination, cardio-vascular evaluation, respiratory evaluation, American Society of Anesthesiologists classification of patient status, and final assessment were acceptable.

Area which needs to be improved:

- All indicators other than name of the patient, preoperative diagnosis, vital signs, airway examination, cardiovascular examination, respiratory examination, ASA status, and final assessment need improvement.

Gaps

- Absence of pre-operative anesthesia evaluation documentation form in the hospital.
- Loss of interest to document all important items of pre-anesthesia evaluations.

Implementation strategies undertaken

We had a continuous active feedback and progressive explanation and implementing standards of best practice with the anesthesia department heads on the necessity of the study. Informing anesthetists and students on the merits of evidence-informed clinical care implementation at pre-anesthetic evaluation, in order to apply the standards.

The main concepts of best available standards, and means of improving client safety by applying this standards were discussed with anesthetists and anesthesiologists. Providing the audit results, training, guidelines, and standards, posters, and reminders on the wall of the pre-admission anesthesia clinic, routine discussion in the morning session about the importance of preoperative anesthesia evaluation documentation, and how to take documentation accordingly or appropriately were performed as shown in **Figure 1 a, b, c.**

We designed and implemented an action plan that was described with respect to the personnel responsible, time, and goal to be achieved at the pre-admission anesthesia clinic among anesthesia professionals for outpatient surgical patients at HUSCH in 2023 (Table 2).

Phase 3: Post-implementation audit

The post-implementation audit showed that the compliance rate of documentation is significantly improved and most indicators resulted in 100% compliance, as presented in Table 5.

The practice of documentation at the pre-admission anesthesia clinic were significantly improved following application of planned activities to solve the specifically noticed barriers.

There was a marked change in the practice of documentation when comparing the documentation practice of first audit with the documentation practice of re-audit at the pre-admission anesthetic clinic among anesthesia professionals for outpatient surgical patients at HUCSH following application of planned activities to solve the specifically noticed barriers.

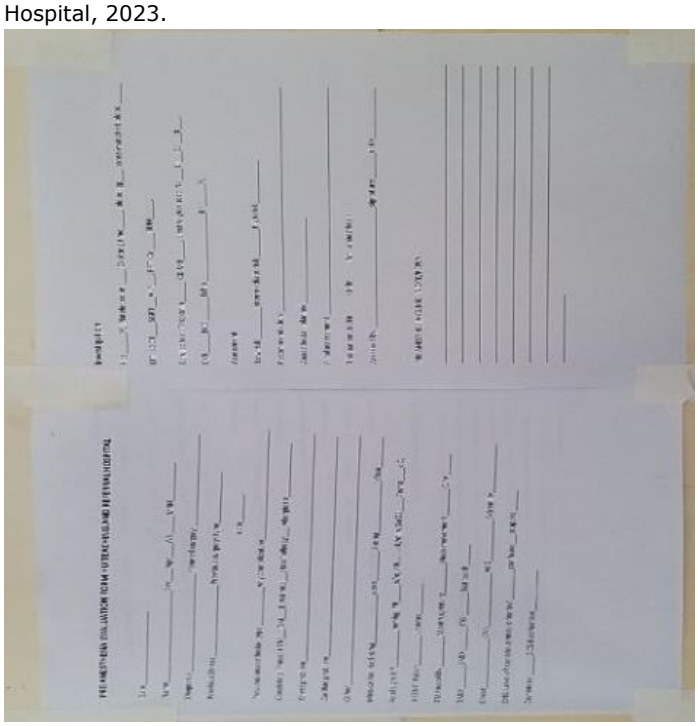
There was a marked change in the practice of documentation compared to the completion rate of first audit on indicators of physical examination and miscellaneous, with a highest value of 100% (Table 6).

A comparison of the results of the baseline audit and re-audit performance practices of documentation for identification and history is presented in Table 7, and Figure 2.

Figure-1: The practice of documentation, training, posters, and reminders posted at the pre-admission anesthesia clinic at HUCSH, 2023.

Figure–1a: The practice of documentation at the pre-admission anesthesia clinic among anesthesia professionals for outpatient surgical patients at Hawassa University Comprehensive Specialized Hospital, 2023.

Figure-1b: Provision of training and discussion in the morning session on documentation at the pre-admission anesthesia clinic among anesthesia professionals for elective surgical patients at Hawassa University Comprehensive Specialized Hospital, 2023.



Figure–1c: Posters and reminders posted on the wall of the pre-admission anesthesia clinic at Hawassa University Comprehensive Specialized Hospital, 2023.

Table-2: Action to be implemented, responsible personnel, time, and goal to be achieved at the pre-admission anesthesia clinic among anesthesia professionals for outpatient surgical patients at Hawassa University Comprehensive Specialized Hospital, 2023.

Action to be implemented	By Whom	Time	goal to be achieved
Providing the audit result, giving training, posters and reminders on the wall of preadmission anesthesia clinic, providing guidelines, routine discussion on the morning session about the importance of preoperative anesthesia evaluation documentation and how to take it accordingly or appropriately	Mulualem Bunare Audit team	One day	Improve the practice of pre admission anesthesia evaluation documentation
Preparing preadmission anesthesia clinic Preoperative evaluation documentation form based on the standard	MSc student Anesthesia service clinical coordinator Anesthesia department HUCSH	Thre e days	
Follow up of anesthesia students on the way of their pre-anesthetic evaluation documentation and give immediate feedback at anesthesia clinic	Audit team Senior staffs Anesthesia department	Six days	

Table-3: First audit completion rate for the practice of documentation of identification and history at the pre-admission anesthesia clinic among anesthesia professionals for outpatient surgical patients at Hawassa University Comprehensive Specialized Hospital, 2023 (N = 20).

S.No	Indicator (Audit criteria)	Yes	No
Frequency (%)	Frequency (%)		
1	Date of visit	18(100)	0
2	Evaluated by	18(100)	0
3	Patient identification number	18(100)	0
4	Patient's name	18 (100)	0
5	Age	18(100)	0
6	Sex	18(100)	0
7	Weight	15(83)	3(17)
8	Past medical history	18(100)	0
9	Preoperative diagnosis	18(100)	0
10	Surgical procedure	15(83)	3(17)
11	Anesthetic history	18(100)	0
12	Medications	18(100)	0
13	Allergies	17(94)	1(6)

Table-4: First audit completion rate for the practice of documentation of physical examination and miscellaneous indicators at the pre-admission anesthesia clinic among anesthesia professionals for outpatient surgical patients at Hawassa University Comprehensive Specialized Hospital, 2023(N = 20).

S.No	Indication (Audit criteria)	Yes	No
Frequency (%)	Frequency (%)		
1	Vital signs	18(100)	0
2	Airway examination	18(100)	0
3	Dentitions	17(94)	1(6)
4	Cardiovascular examination	18(100)	0
5	Respiratory examination	18(100)	0
6	Neurological exam	18(100)	0
7	ASA class	18(100)	0
8	Result of indicated investigations	17(94)	1(6)
9	Smoking and alcohol	17(94)	1(6)
10	Perioperative management plan	16(89)	2(11)
11	Perioperative risks explained	17(94)	1(6)
12	Final assessment and decision	18(100)	0
13	Admission and appointment plan	17(94)	1(6)
14	Recommendations for optimization	17(94)	1(6)
15	Signature	18(100)	0

Table-5: Re-audit completion rate for the practice of documentation of identification and history at the pre-admission anesthesia clinic among anesthesia professionals for outpatient surgical patients at Hawassa University Comprehensive Specialized Hospital, 2023 (n = 18).

S.No	Audit criteria	Base line audit result		Re-audit result		Performance (%)
		Yes	No	Yes	No	
		Frequency (%)	Frequency (%)	Frequency (%)	Frequency (%)	
1	Date of visit	6(30)	14(70)	18(100)	0	70
2	Evaluated by	13(65)	7(35)	18(100)	0	35
3	Patient identification number	7(35)	13(65)	18(100)	0	65
4	Patient's name	20(100)	0	18 (100)	0	100
5	Age	18(90)	2(10)	18(100)	0	100
6	Sex	18(90)	2(16)	18(100)	0	100
7	Weight	0	20(100)	15(83)	3(17)	83
8	Past medical history	19(95)	1(5)	18(100)	0	5
9	Preoperative diagnosis	20(100)	0	18(100)	0	
10	Surgical procedure	4(20)	16 (80)	15(83)	3(17)	63
11	Anesthetic history	13(65)	7(35)	18(100)	0(100)	35
12	Medications	13(65)	7(35)	18(100)	0(100)	35
13	Allergies	6(30)	14(70)	17(94)	1(6)	64

Table-6: Re-audit completion rate for practice of documentation of physical examination and miscellaneous indicators at pre-admission anesthesia clinic among anesthesia professionals for outpatient surgical patients at Hawassa University Comprehensive Specialized Hospital, 2023 (n = 18).

S.No	Indication (Audit criteria)	Yes	No
Frequency (%)	Frequency (%)		
1	Vital signs	18(100)	0
2	Airway examination	18(100)	0
3	Dentitions	17(94)	1(6)
4	Cardiovascular examination	18(100)	0
5	Respiratory examination	18(100)	0
6	Neurological exam	18(100)	0
7	ASA class	18(100)	0
8	Result of indicated investigations	17(94)	1(6)
9	Smoking and alcohol	17(94)	1(6)
10	Perioperative management plan	16(89)	2(11)
11	Perioperative risks explained	17(94)	1(6)
12	Final assessment and decision	18(100)	0
13	Admission and appointment plan	17(94)	1(6)
14	Recommendations for optimization	17(94)	1(6)
15	Signature	18(100)	0

Table-7: Comparison of the results of the baseline audit and re-audit performance practice of documentation for identification and history at the pre-admission anesthesia clinic among anesthesia professionals for outpatient surgical patients at Hawassa University Comprehensive Specialized Hospital, 2023.

S.No	Audit criteria	Base line audit result		Re-audit result		Performance (%)
		Yes	No	Yes	No	
		Frequency (%)	Frequency (%)	Frequency (%)	Frequency (%)	
1	Date of visit	6(30)	14(70)	18(100)	0	70
2	Evaluated by	13(65)	7(35)	18(100)	0	35
3	Patient identification number	7(35)	13(65)	18(100)	0	65
4	Patient's name	20(100)	0	18 (100)	0	100
5	Age	18(90)	2(10)	18(100)	0	100
6	Sex	18(90)	2(16)	18(100)	0	100
7	Weight	0	20(100)	15(83)	3(17)	83
8	Past medical history	19(95)	1(5)	18(100)	0	5
9	Preoperative diagnosis	20(100)	0	18(100)	0	
10	Surgical procedure	4(20)	16 (80)	15(83)	3(17)	63
11	Anesthetic history	13(65)	7(35)	18(100)	0(100)	35
12	Medications	13(65)	7(35)	18(100)	0(100)	35
13	Allergies	6(30)	14(70)	17(94)	1(6)	64

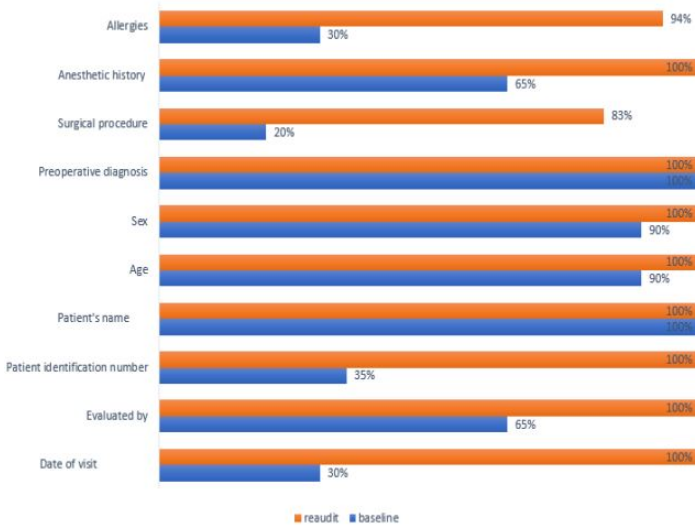
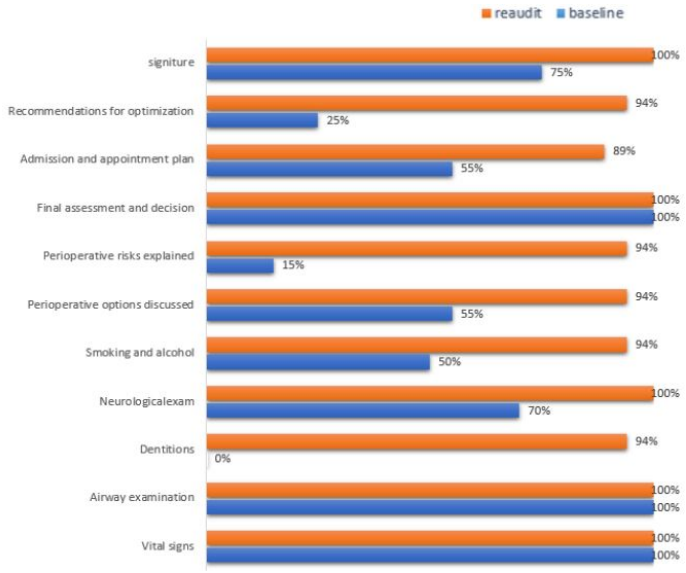


Figure-2: Comparison of results of baseline audit and re-audit performance practice of documentation for patient identification and history at pre-admission anesthesia clinic among anesthesia professionals for outpatient surgical patients at Hawassa University Comprehensive Specialized Hospital, 2023.

The comparison of compliance rate of first audit and re-audit were conducted, as presented in Table 8. There was a marked change in the practice of documentation compared to the first audit completion rate with the re-audit completion rate of the practice of documentation at the pre-admission anesthetic clinic among anesthesia professionals for outpatient surgical patients at HUCSH following application of planned activities to solve the specifically noticed barriers (Figure 3).



Figure–3: Comparison of the results of the baseline audit and re-audit performance practice of documentation for physical examination and miscellaneous indicators at the pre-admission anesthesia clinic among anesthesia professionals for outpatient surgical patients at Hawassa University Comprehensive Specialized Hospital, 2023.

Table-8: Comparison of the results of the baseline audit and re-audit performance practice of documentation for physical examination and miscellaneous indicators at the pre-admission anesthesia clinic among anesthesia professionals for outpatient surgical patients at Hawassa University Comprehensive Specialized Hospital, 2023.

S.No	Audit criteria	Base line audit result		Re-audit result		Performance(%)
		Yes	No	Yes	No	
		Frequency (%)	Frequency (%)	Frequency (%)	Frequency (%)	
1	Vital signs	20(100)	0	18(100)	0	100
2	Airway examination	20(100)	0	18(100)	0	100
3	Dentitions	0	20(100)	17(94)	1(6)	94
4	Cardiovascular examination	20(100)	0	18(100)	0	100
5	Respiratory examination	20(100)	0	18(100)	0	100
6	Neurological exam	14(70)	6(30)	18(100)	0	30
7	ASA class	20(100)	0	18(100)	0	100
8	Result of indicated investigations	13(65)	7(35)	17(94)	1(6)	29
9	Smoking and alcohol	10(50)	10(50)	17(94)	1(6)	44
10	Perioperative management plan	14(70)	6(30)	16(89)	2(11)	19
11	Perioperative risks explained	3(15)	17(85)	17(94)	1(6)	79
12	Final assessment and decision	20(100)	0	18(100)	0	100
13	Admission and appoint ment plan	11(55)	9(45)	17(94)	1(6)	39
14	Recommendations for optimization	5(25)	15(75)	17(94)	1(6)	69
15	Signature	15(75)	5(25)	18(100)	0	25

Supplementary table-1: Pre-Admission Anesthesia assessment checklist documented

Indicators	Yes	No
Does Date of patient visit documented?	Yes	No
Does the Name of evaluator documented?	Yes	No
Does date planed for surgery documented?	Yes	No
Does patient identification number documented?	Yes	No
Does full Patient's name documented?	Yes	No
Does Age of the patient documented?	Yes	No
Does sex of the patient documented?	Yes	No
Does the Weight of the patient documented?	Yes	No
Does height of the patient documented?	Yes	No
Does BMI of the patient documented?	Yes	No
Does Past medical history documented?	Yes	No
Does Preoperative diagnosis documented?	Yes	No
Does the type of surgical procedure which will be done documented?	Yes	No
Does any previous anesthesia exposure and history documented?	Yes	No
Does any medication history documented?	Yes	No
Does the patient have any Allergies and documented?	Yes	No
Does vital signs of the patient recorded?	Yes	No
Does Airway examination done and documented?	Yes	No
Does Dental examination done and documented?	Yes	No
Does Cardiovascular examination done and documented?	Yes	No
Does Respiratory examination done and documented?	Yes	No
Does neurological examination done and documented?	Yes	No
Does ASA class of the patient documented?	Yes	No
Does the Result of indicated investigations documented?	Yes	No
Does smoking history and status documented?	Yes	No
Does Perioperative management plan documented?	Yes	No
Does medications to continue and discontinue documented?	Yes	No
Does Perioperative options discussed documented?	Yes	No
Does Perioperative risks explained documented?	Yes	No
Does Final assessment and decision documented?	Yes	No
Does Admission and appointment plan documented?	Yes	No
Does Recommendations for optimization documented?	Yes	No
Does the evaluator sign at the end?	Yes	No

Discussions

In phase one, the results showed that overall documentation practice was poor, specifically for date of visit, patient ID number, history of allergy, risks explained, recommendations, weight, dental examination, surgical procedure, and signature. In phase one, we have obtained a large gap in the practice of pre-admission pre-operative anesthesia evaluation documentation. However, in phase three after applying the documentation form based on standards, the results showed a significant improvement in the rate of compliance.

Indicators such as risks (94%), recommendations (94%), dental examination (94%), history of allergy (94%), date of visit (100%) and patient ID number (100%) showed a significant change to reach up to 100% in phase three.

The highest performance rate was observed for dentition examination (94%), patient identification number (65%), weight (83%), surgical procedure (63%), allergies (64%), risks (79%), and recommendations for optimization (69%).

All pre-admission anesthesia evaluations were performed by the students. No documentation form was available at the pre-anesthesia clinic, which may explain the poor documentation practice. Active participation and regular follow-up by senior anesthesia staff might be advantageous. The development of a pre-admission anesthesia evaluation documentation form for pre-admission anesthesia clinics is mandated. An improper approach toward documentation can be rectified through training.

Implementing a digitalized documentation system in a medical facility can enhance the caliber of the data acquired and the documentation procedures.

Sustainability

It is worth mentioning that the study was effective, and played an important role in promoting patient outcomes and reducing economic burdens on the patient due to delay or cancellation the day before surgery in the studied institution, even if it was on a limited scale.

Hence, regular direction and training will be necessary in establishing a progressive and conducive environment for the continuity of this best available evidence-informed quality improvement clinical care.

Conclusion

Documentation practice during phase one was below standard. Therefore, we delivered training, posters, and reminders on the wall of the pre-admission anesthesia clinic, provided guidelines, and presented routine discussion in the morning session about the importance of preoperative anesthesia evaluation documentation and how to take it accordingly or appropriately. We developed a pre-admission evaluation form for documentation at the pre-admission anesthesia clinic and followed its use during the re-audit phase. This audit illustrated that the implementation of these standards has a crucial role on the improvement of documentation practices toward the standard level.

Recommendation

For the Anesthesia department Clinical Service Coordinator:

- Ensure that a pre-admission anesthesia evaluation documentation tool or form is available and accessible for use.
- Proper completion of the pre-admission anesthesia evaluation documentation tool or form by the anesthesia team.

For the Anesthesia department:

- The department should consider using this pre-admission anesthesia evaluation documentation tool, which was developed based on the standard.
- Provide training to anesthesia students to improve their attitude toward documentation.
- Conduct regular clinical audits on documentation of pre-admission anesthesia clinic evaluation.

For Senior Anesthesia staff:

- Involve and give supervision to the students during pre-anesthesia evaluation.

For the HUCSH:

- In the future, introducing an electronic-based documentation system at Hawassa University, a comprehensive specialized hospital, could maximize the quality of information obtained and documentation practice.

Limitation of the study: The re-audit was conducted over a short period of time.

Abbreviations: HUCSH – Hawassa University Comprehensive Specialized Hospital.

Ethics approval and consent to participate: Not applicable

Consent for publication: Informed written consent for publication of their images was obtained from respective participants.

Availability of data and materials: Data are available from the corresponding author upon reasonable request.

Funding: None.

Competing interest: none.

Acknowledgments: We would like to thank our team members, who devoted their time to conceptualizing, writing, and preparing the final draft of the paper.

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