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Research Article

Clinical Audit on Documentation Completeness After Regional Nerve Block at Hawassa University Comprehensive Specialized Hospital

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Abstract

Background: A regional nerve block is a type of anesthesia in which local anesthetic medications are injected near a nerve to prevent nerve impulse transmission. Recording what a professional does is one of the indicators of excellent practice. Documentation and recordkeeping assist professionals in reducing unethical behaviour, becoming aware of ethical issues at work, reducing patient complications, and improving service. The goal of this clinical audit is to assess the level of documentation after regional nerve block according to standards at Hawassa University Comprehensive Specialized Hospital. Methods: This clinical audit was conducted retrospectively on the completeness of documentation after regional nerve block for patients who received regional nerve block for analgesia and anesthesia purposes between April 20, 2023, and May 15, 2023, as part of quality improvement. For data collection, a checklist is created based on NYSORA, ASRA, and AAGBI guidelines. Result: Of the 67 record sheets, documentation of patient identity (sex, age, and name) (80.6%), availability of standard monitoring (n=45, 67.2%), name of nerve block (n=48, 71.6%), use of local anesthesia (n=41, 61.2%), and baseline vital signs (n=43, 64.2%) were recorded above 60%. However, the level of documentation of allergies and coagulation history, test dose, time-out performed before needle insertion, post-procedure instructions to the patient or parents, dose of epinephrine, events during the procedure, starting and ending time of the procedure, and adjuvants used were not recorded. Conclusion and recommendation: The practice of recording after peripheral nerve blocks at Hawassa University Comprehensive Specialized Hospital falls below the standard. This could be due to the lack of a separate sheet for peripheral nerve block and a lack of awareness. As a result, all anesthetists who will be involved in regional nerve blocks should receive training, and the standards should be re-audited to ensure compliance.

Keywords

Documentation, Audit, Nerve Block, Regional

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1. Introduction

1.1. Background

Peripheral nerve blocks are a technique of injecting local anesthetic near nerves in various parts of the body to inhibit nerve impulse transmission to the central nervous system and allow the procedure to proceed without the patient feeling pain. Local anaesthetics block the voltage-gated sodium channels' ability to conduct electricity, slowing the spread of nerve influx and reducing muscular spasm during surgery [1].

Peripheral nerve block is a type of pain therapy that has gained popularity because, when compared to conventional intravenous opioids, it can deliver superior analgesia with fewer side effects. It has the benefit of providing analgesia and limb immobilization while preventing the negative effects of general anesthesia, such as nausea/vomiting, sore throat, exhaustion, and extended hospital stays, and reduces the likelihood of post-operative delirium in older patients [2].

Regional nerve blocks can be given as single injections or continuous nerve blocks (CNBs) for postoperative pain. CPNB has the potential to be more effective than single injection techniques. Advantages include reduced discomfort, respiratory depression, and nausea/vomiting. Despite these benefits, CNB has a number of drawbacks and issues, such as perineural catheter dislodgement, leakage of local anesthetic solutions, and associated exposure of the perineural catheter due to patient movement, hematoma, infection, and failure to deliver effective analgesia [3, 4].

In situations where there is a significant risk due to comorbidity issues, PNBs can serve as an alternative to general anesthesia or central neuraxial blocks because they have fewer hemodynamic consequences. Absolute contraindications for PNBs include the patient's refusal, an infection at the injection site, and an allergy to the local anesthetic used. Relative contraindications include patients who are confused or excessively sedated, patients with a neurological deficit, coagulopathy, and patients who have bacteraemia when a perineural catheter is being inserted [5].

Documentation is a record, which provides ethical uploading, communication, and knowledge. It is mandatory to document the service given to the customer and date and time of service provided [6].

Accurate and complete documentation is necessary for both the delivery of care and medico-legal issues. According to various worldwide medical regulating authorities, maintaining accurate records is one of the fundamental requirements for providing quality clinical treatment [7].

To ensure that patients receive the appropriate care after surgery, detailed documentation is required. Documenting the type of anesthesia used, the doses administered, and any complications that occurred is part of this process. It is also critical to separate the anesthesia used to perform the surgery from the post-operative pain injection. This will aid in ensuring that patients receive the appropriate medication and dosage for their pain [8].

1.2. Significance of the Study

Documentation is objective, consistent, meaningful, and a usable element in ethical and effective clinical practice. A guide ensures that physicians or healthcare providers follow rules, regulations, and standards of healthcare service. Good documentation and record keeping is addressed when meaningful ideas and professional communication regarding client treatment and clinical practice are taken place.

Nowadays, the main body of anesthesia guidelines emphasizes accurate documentation and the availability of clinician privacy. Documentation and recordkeeping assist professionals in reducing unethical behaviour, being aware of ethical issues at work, reducing patient complications, and improving service. Clinical audit on documentation completeness after regional nerve block is significant in terms of improving patient safety and quality of care, promoting reflective practice among healthcare providers, and has broad implications for improving clinical practice.

There is specific documentation for patients who take spinal and general anesthesia in our hospital, but there is not a separate sheet or consent form for regional nerve block. The purpose of this clinical audit is to assess the level of documentation after regional nerve block and prepare separate record sheet according to standard at Hawassa University Comprehensive Specialized Hospital.

2. Aim

The aim of this audit is improve practice documentation after regional nerve block according to international guidelines and improve quality of anesthesia and analgesia services for the patients at HUCSH from April to May 2023.

3. Objective

1) To identify a gap in documentation of regional nerve blocks at HUCSH from April to June 2023.
2) To prepare a separate sheet for documentation of peripheral nerve block at HUCSH.
3) To improve the documentation practice of regional nerve block at HUCSH.

4. Methodology

For this audit, data was collected retrospectively from the record charts of patients who took a regional nerve block at Hawassa University Comprehensive Specialized Hospital from April 20, 2023, to May 20, 2023, as part of hospital quality improvement. The checklist was prepared depending on regional nerve block guidelines from NYSORA, ASRA, and AAGBI (Table 1).

4.1. Tools of Data Collection and Sources

Table 1. Standard form adopted from ASRA, NYSORA and AAGBI.

S. N	Standard	Target	Evidence	Source of data
1	Patient identity (name, age, sex)	100%	ASRA [9]	Chart
2	Patient diagnosis or pain location	100%	ASRA	Chart
3	Informed consent	100%	ASRA	Chart
4	Time and date of nerve block	100%	ASRA	Chart
5	The availability of standard monitoring	100%	NYSORA	Chart
6	Base line patient vital sign	100%	AAGBI [10]	Chart
7	Allergies' and anticoagulation history	100%	NYSORA [11]	Chart
8	Name of nerve block	100%	NYSORA	Chart
9	Indication of block	100%	NYSORA	Chart
10	Patient position	100%	NYSORA	Chart
11	Patient status (awake, under GA, sedated)	100%	AAGBI	Chart
12	Site marked before block	100%	NYSORA	Chart
13	Aseptic agent used	100%	NYSORA	Chart
14	Needle design and size	100%	NYSORA	Chart
15	Local anesthetics used (dose, concentration and volume)	100%	NYSORA	Chart
16	Epinephrine used	100%	AAGBI	Chart
17	Adjuvants used	100%	NYSORA	Chart
18	Note of test dose and action taken	100%	AAGBI	Chart
19	Note of aspiration and action taken	100%	AAGBI	Chart
20	Narrative events during procedure	100%	AAGBI	Chart
21	Technique of nerve block	100%	NYSORA	Chart
22	Any specific complication that have occurred	100%	AAGBI (12)	Chart
23	Any post procedure instructions for the patients /parents	100%	AAGBI	Chart
24	Procedure start and end time	100%	AAGBI	Chart
25	Name and signature of service provider	100%	NYSORA	Chart

4.2. Study Period and Area

The audit was done from April 20, 2023 to June 14, 2023 at Hawassa University Specialized Comprehensive Hospital.

4.3. Population Source

All patients who took regional nerve block.

4.4. Inclusion and Exclusion Criteria

4.4.1. Inclusion Criteria

All patients who took regional nerve block for anesthesia and analgesia purpose.

4.4.2. Exclusion Criteria

Patients for whom peripheral nerve block was not given and not recorded on the chart.

4.5. Sample Size and Sampling Technique

Our sample size was determined on the patient who received regional nerve block and non-probability purposive sampling technique was used depend on the recorded nerve block on the chart.

The sample size was calculated by single proportion formula.

$$n=z^2p\ (1-p)/d^2$$

by reduction formula

$$n=z^2p\ (1-p)/d^2/1+z^2p\ (1-p)/d^2N$$

Where, n=sample size
P=standard of deviation
D =margin of error
N=population size

So, our sample size was determined by n= (1.96) ²0.5(1-0.5)/(0.05) ²1+1.96) ²0.5(1-0.5)/(0.05) ²81=66.020667 since, N-(81) Taken from consecutive of three weeks patient that peripheral nerve block could be given from logbook P-(0.5) taken from previous study in Gondar University

d- (0.05) Margin of error

Z=1.96

4.6. Data Collection Methods and Design

Data was collected from chart review using structured questionnaire by yes, and no for audit 1 and for re-auditing in the form of record sheet assessed based on standard from AAGBI, NYSORA and ASRA.

4.7. Data Analysis

The results of data collections are compared with criteria and standard.

The data collections were analysed by using statistical software SPSS version 26.

Finally, the results was summarized by frequency and percentage and presented by graphs.

4.8. Ethical Approval

Permission to carry out this study was given from the Hawassa University Comprehensive Specialized Hospital, Department of Anesthesia.

5. Result

Among 67 record sheets audited from patients who take regional nerve blocks, documentation of patient identity, indication of nerve block, name of nerve block, local anesthesia used (volume, concentration, and dose), availability of standard monitoring, and baseline vital signs recorded are above 60%. However, most of the records are below 50%. Adjuvants used timeout before needle insertion, epinephrine used, post-procedure instructions to patients or parents, allergies and coagulation history, test dose and action taken, and events during procedure. Specific complication during the procedure and the start and end time of the procedure are not recorded. (Table 2) (Table 3).

Table 2. *Frist Audit of the practice of documentation after regional nerve block at HUSCH from April 20-May 30, 2023, Hawassa, Ethiopia.*

Standard	Frequency		Response (%)	
	Yes	No	Yes	No
Patient identity	54	13	80.6%	19.4%
Patient diagnosis or pain location	31	36	46.3%	53.7%
Informed consent	14	53	20.9%	79.1%
Time and date of nerve block	14	53	20.9%	79.1%
The availability of standard monitoring	43	24	64.2%	35.8%
Base line patient vital sign	43	24	64.2%	35.8%
Allergies' and anticoagulation history	0	67	0%	100%
Name of nerve block	45	22	67.2%	32.7%
Indication of block	48	19	71.6%	28.4%
Patient position	25	42	37.3%	67.7%
Aseptic agent used	33	34	49.3%	50.7%

Standard	Frequency		Response (%)	
	Yes	No	Yes	No
Needle design and size	13	54	22.4%	77.6%
Local anesthesia used	41	26	61.2%	38.8%
Epinephrine used	0	67	0%	100%
Adjuvants used	0	67	0%	100%
Note of test dose and action taken	0	67	0%	100%
Note of aspiration and action taken	14	53	20.9%	79.1%
Narrative events during procedure	6	61	0.89%	99.11
Any specific complication that have occurred	0	67	0%	100%
Any post procedure instructions for the patients /parents	0	67	0%	100%
Procedure start and end time	0	67	0%	100%
Name and signature of service provider	12	55	17.9%	82.1%
Local anesthesia used	41	26	61.2%	38.8%

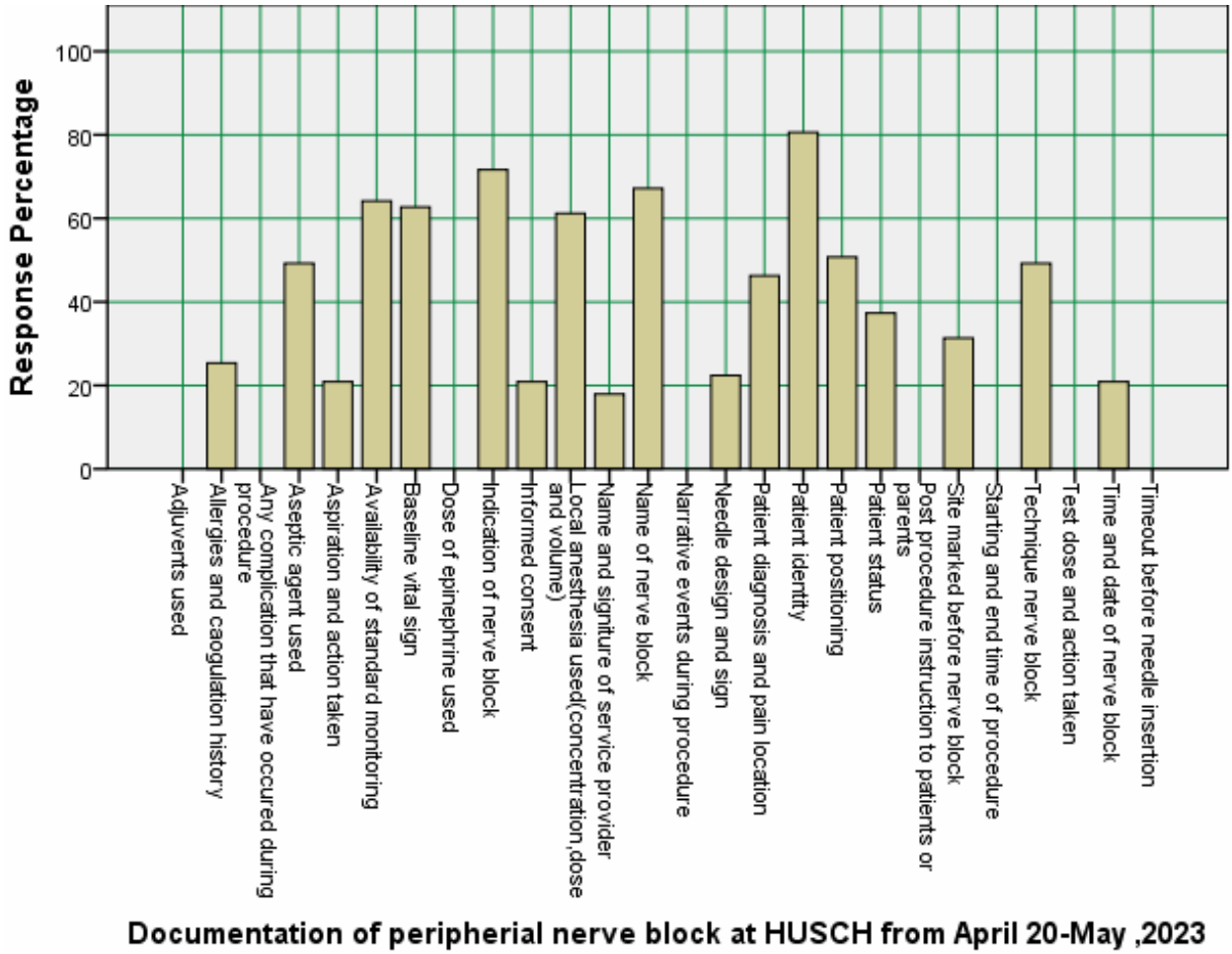

Figure 1. *Bar graph shows first audit of documentation completeness of regional nerve block at HUSCH from April 20 May 30, 2023.*

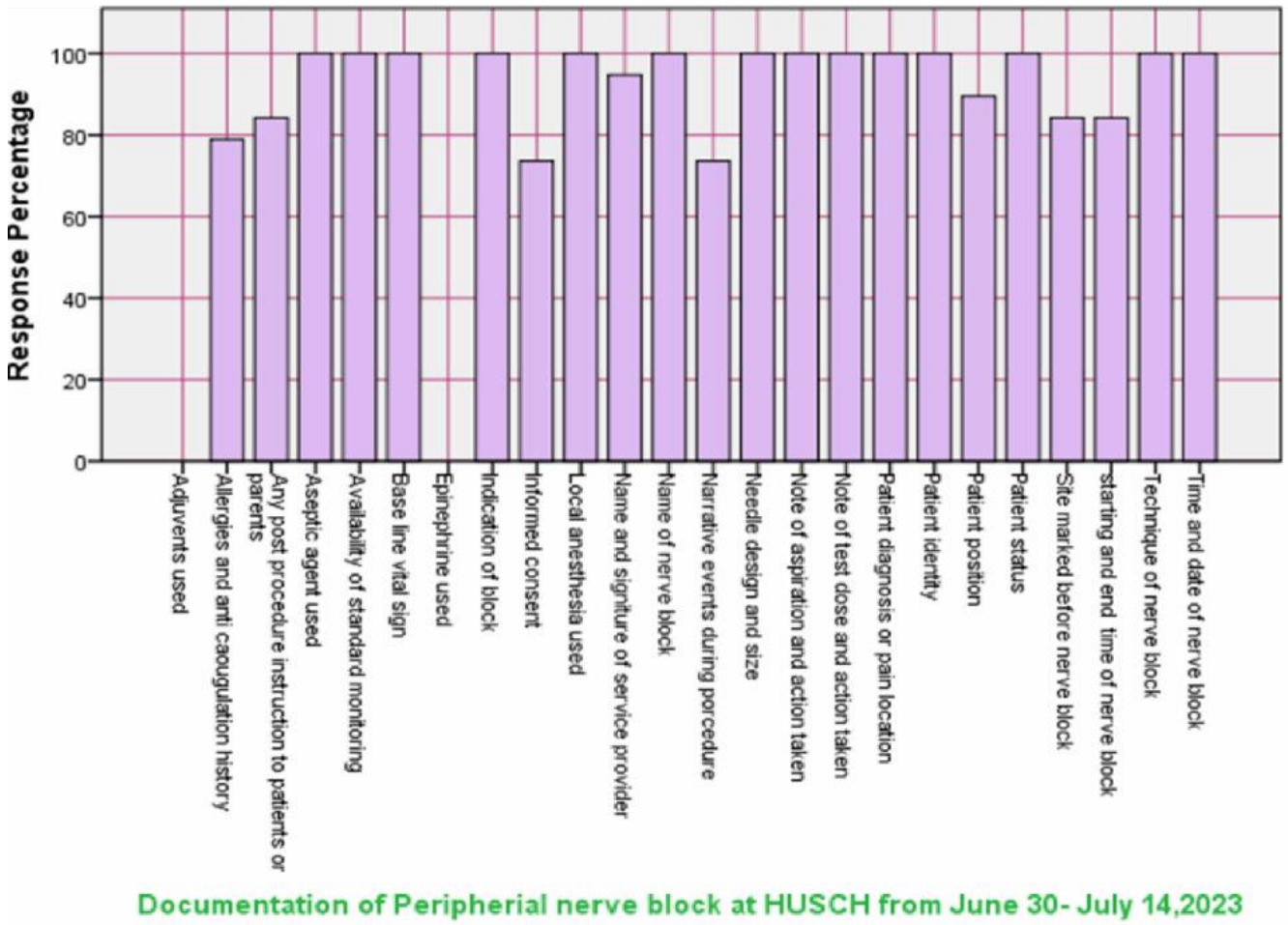

Figure 2. *Re-audit of practice of documentation completeness after regional nerve block at HUCSH from June 30–July 14, 2023, Hawassa, Ethiopia.*

Table 3. *Re-audit of practice of documentation completeness after regional nerve block at HUCSH from June 30–July 14, 2023, Hawassa, Ethiopia.*

Standard	Frequency		Response (%)	
	Yes	No	Yes	No
Patient identity	67	0	100%	0%
Patient diagnosis or pain location	67	0	100%	0%
Informed consent	49	18	73.13%	26.87%
Time and date of nerve block	67	0	100%	0%
The availability of standard monitoring	67	0	100%	0%
Base line patient vital sign	67	0	100%	0%
Allergies' and anticoagulation history	53	14	79.1%	20.9%
Name of nerve block	67	0	100%	0%
Indication of block	67	0	100%	0%
Patient position	25	42	37.3%	67.7%
Aseptic agent used	67	0	100%	0%
Needle design and size	30	34	44.8%	55.2%

Standard	Frequency		Response (%)	
	Yes	No	Yes	No
Local anesthesia used	41	26	61.2%	38.8%
Epinephrine used	67	0	100%	0%
Adjuvants used	67	0	100%	0%
Note of test dose and action taken	67	0	100%	0%
Note of aspiration and action taken	53	14	79.1	20.9%
Narrative events during procedure	66	1	99.1%	0.89%
Any specific complication that have occurred	67	0	100%	0%
Any post procedure instructions for the patients /parents	67	0	100%	0%
Procedure start and end time	67		100%	0%
Name and signature of service provider	55		82.1%	17.9%
Local anesthesia used	41	26	61.2%	38.8%

6. Discussion

Documentation is critical for improving clinical practice, education, and research quality. Good documentation is required to improve health care delivery, reduce mortality and morbidity, increase patient satisfaction, and address medico-legal issues [12]. Documentation is essential for education and research, in addition to improving clinical practice quality. Healthcare professionals can learn from their mistakes and improve their practice by documenting patient experiences. Furthermore, documentation can be used to identify trends in patient care and develop new treatments [6].

Despite the fact that the use of regional nerve blocks on patients is increasing in our hospital, the practice of effective documentation after the procedure is uncommon. This could be due to a lack of a well-structured separated document sheet for the rgional block in the institution, it being accepted as a supportive technique only to other techniques such as general or neuraxial anesthesia, or a lack of focus on the block given to the patient. However, regional nerve blocks are superior to others and reduce complication-related anesthesia when supported by instruments such as ultrasound and nerve stimulators [13].

There are international guidelines for peripheral nerve block documentation that are separate from general and neuraxial anesthesia. Our clinical audit is based on three standard guidelines for documenting regional nerve blocks: ASRA, AAGBI, and NYSORA. According to this standard, the majority of our documentation practices fall below 50%. From a previous audit done at Gondar University Comprehensive Specialized Hospital, the level of documentation after the implementation of these guidelines was found to be significantly improved, highlighting the need for ongoing education and training among staff. This underscores the importance of adhering to established protocols to enhance patient safety and optimize outcomes in regional anesthesia practices [14].

Similarly, in our intuition at Hawassa University Comprehensive Specialized Hospital, according to recommendation guidelines of ASRA, AAGBI, and NYSORA, our level of practice of documentation, only the patient identity records are above 80%, and applied standard monitoring (n=43, 61.2%), baseline vital sign (n=43, 64.2%), indication of nerve block (n=48, 71.6%), and the local anesthesia used (n=41, 61.2%) recorded are above 60%. Adjuvant used, time out performed before needle insertion, test dose and action taken, post-procedure instruction to patients or parents, starting and end time of nerve block, and allergies and coagulation history are not recorded. Patient identity, local anesthesia used, availability of standard monitoring, baseline vital signs, name of nerve block, indication of nerve block, local anesthesia used, and patient positioning records were above 50%.

Our studies is also consistent with study done by Antoine lamer et al [15]. and WILBANKS et al. [16] in which demonstrated the documentation practice during anesthesia is below standard and some events were not documented. This may due to absence of separate documentation sheet for each practices and may be due to inappropriate the culture of documentation. But it contrast to study of Camp, regional anesthesia [17] on monitoring, documentation and consent for regional anesthesia procedures which includes full components of documentation during regional anesthesia given for the patients.

One of the indicators of lack of quality and safety given to the patient, morbidity and mortality, injury of nerve, and legal issue is the absence of adequate documentation [18]. So enhancing adequate documentation of regional nerve blocks is

essential, and it reduces side effects of peripheral nerve blocks for the patient, keeps safety, reduces costs and hospital stays, and increases the level of anesthesia practice.

6.1. Strength of the Study

This clinical audit is the first in our institution that helps to improve the quality of care by identifying and addressing areas where care can be improved. This audit may also serve to encourage healthcare professionals to modify their documentation practices following regional anesthesia. This can lead to improvements in the quality of care.

6.2. Limitations of the Study

The clinical audit was conducted over a short period of time, which may have limited the ability to identify all areas where documentation could be improved.

7. Conclusion

The practice of recording after peripheral nerve blocks at Hawassa University Comprehensive Specialized Hospital falls below the standard. This could be due to the lack of a separate sheet for peripheral nerve block and a lack of awareness. As a result, all anesthetists who will be involved in regional nerve block should receive training, and the standards should be re-audited to ensure compliance.

Abbreviations

AAGBI	Association of Anesthetist of Great Britain and Ireland
ASRA	American Society of Regional Anesthesia
CNB	Continuous Nerve Block
CPNB	Continuous Peripheral Nerve Block
HUSCH	Hawassa University Specialized Comprehensive Hospital
NYSORA	New York Society of Regional Anesthesia
PNB	Peripheral Nerve Block Nerve Block

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Author Contributions

Tesfaye Asefa Hordofa: Conceptualization, Formal Analysis, Methodology, Software, Writing – original draft

Addisu Mossie: Data curation, Investigation, Validation, Writing – review & editing

Adanech Shifarew Legasse: Funding acquisition, Project administration, Resources

Endeshaw Wale: Data curation, Methodology, Resources

Conflicts of Interest

The authors declare no conflicts of interest in this work.

Appendix

Table 4. Record Sheet Created After Re–auditing at HUSCH, 2023.

Date ……
Patient Name…...
Medical Record …
Age …….

HUCSH PERIPHERAL NERVE BLOCKADE RECORD
Sex……
Consent taken …….
Name of Peripheral Nerve Block(s) performed
Indication: ☐ Analgesia ☐ Surgical anesthesia
Diagnosis /pain location:
Monitoring used: ☐ ECG, ☐ Capnography, ☐ NIBP, ☐ Pulse oximetry, ☐ others
Patient condition: Initial BP ——— HR ——————— VAS score ———————
Patient status: ☐ Awake: ☐ Sedated ☐ under GA
Preparation: povidone–iodine ☐ alcohol ☐ drape ☐ others Technique ☐ l & mark guided (injection through needle)
Nerve stimulation: ☐ infiltration
☐ Ultrasound guided ☐ catheter placement (depth at skin_cm). Analgesia/ Sedatives given: name of drug ————————dose ———— route————————
Site marked before block Yes…No……..

		Concentration	Volume	Adjunct	Epinephrine
Injectate:	Bupivacaine				
	Lidocaine				

Narrative events……..
Injection was made incrementally with monitoring & aspiration every ml
Blood aspirated: ☐ Yes ☐ No
Resistance on injection: ☐ Yes ☐ No
Pain on injection noted: ☐ Yes ☐ No
Patient condition Post block BP ———— HR ———— VAS score ————
Allergies & coagulation yes……...no……...
Starting time……...end time…….
The block was done by: ————Qualification: ————Signature: ————
Postop instructions/concerns……
……

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