



ADDIS ABABA UNIVERSITY
COLLEGE OF HEALTH SCIENCES
SCHOOL OF MEDICINE
DEPARTMENT OF PEDIATRICS AND CHILD HEALTH

A RESEARCH THESIS TO BE SUBMITTED TO ADDIS ABABA UNIVERSITY, COLLEGE OF HEALTH SCIENCES, SCHOOL OF MEDICINE, PEDIATRICS AND CHILD HEALTH DEPARTMENT IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE SPECIALITY CERTIFICATE IN PEDIATRICS AND CHILD HEALTH.

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Addis Ababa University
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**Title: Evaluation of WHO Revised Early ENC implementation
in the Labor Ward at Tikur Anbessa Specialized Hospital,
2024**

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Abbreviations and acronyms

A.A – Addis Ababa

ANC – Antenatal care

CHS – College of health science

EBF – Exclusive breastfeeding

EENC – Early essential newborn care

ENC – Essential newborn care

LBW – Low birth weight

MCH – Maternal and Child Health

NICU – Neonatal intensive care unit

OBGYN – Obstetrics and Gynecology

OPD – Outpatient department

TASH – Tikur Anbessa Specialized Hospital

TTC – Tetracycline eye ointment

Vit K inj – Vitamin K injection

WHO – World Health Organization

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Abstract

Background: Sub-Saharan Africa has the highest neonatal mortality rate in the world (27 deaths per 1000 live births), with 43% of global neonatal mortality. Most neonates who die suffer from diseases associated with a lack of quality care at or immediately after birth and in the first days of life. WHO prepared 2022 revised early essential newborn care guideline so that health professionals can follow them to provide the best service to decrease neonatal mortality.

Objective: To assess the implementation of immediate ENC in the labor ward at Tikur Anbessa Specialized Hospital, Addis Ababa, Ethiopia, 2024.

Methods: An institution-based observational cross-sectional study was conducted at Tikur Anbessa Specialized Hospital from July to Dec, 2024. A structured observational qualitative data was prepared based on WHO immediate essential newborn care format and data was collected by trained health professionals.

Data collectors (Clinical year medical students assigned at Tikur Anbessa Specialized Hospital labor ward in the study period) were given half-day training on the data collection tools. Data was collected Monday to Friday, daytime within 6 months. Data was entered and analyzed using SPSS version 26. Odds ratios with 95% CI and p-values less than 0.05 were used to declare statistical significance.

Result: Seventy-five of health professionals score more than 70% which is good newborn care practice. And the remaining 25% had poor ENC practice.

Conclusion and recommendation: ENC practice among health care providers in Tikur Anbessa Specialized Hospital labor ward was fair compared to other studies conducted in different parts of Ethiopia. But since it is a tertiary hospital, it is expected to be better. Special attention should be given to uninterrupted skin-to-skin contact for the first 90

minutes after delivery. It is observed that other newborn care like Eye care and Vitamin K administration are given just after delivery which interrupts skin-to-skin contact.

1. Introduction

1.1 Background

The first month of life is the most vulnerable period for a child's survival. According to WHO 2022 updated EENC pocket guide (1), early essential newborn care can be divided into immediate (care given in the first 90 minutes) and care given from 90 minutes to 6 hours. Immediate newborn care includes care given in the first 90 minutes of life. It includes delivering the baby onto a dry cloth draped over the mother's abdomen, calling out the time of birth and sex of the baby, dry the baby's face, head, back, front, arms, and legs within 5 s after birth, check breathing while drying, remove the wet cloth, if no resuscitation needed position the baby prone on the mother's abdomen/chest and begin skin to skin contact for 90 minute uninterrupted unless there is maternal or newborn emergency, cover the baby with second dry cloth and hat, clamp and cut the cord after pulsation stop (between 1 and 3 minute after birth). Then start breastfeeding within 1 hour after birth. (1)

The care given from 90 minutes to 6 hours includes examining the newborn, putting an identification band around the ankle, weight the baby, seeing if there are any danger signs, give 1 mg vitamin K IM, give hepatitis B vaccine IM and BCG intradermal, administer tetracycline ointment to both eyes (from the inner corner of each eye to outwards), do cord care, and postpone bathing for > 24 hours. (1)

1.2 Statement of the problem

Most neonates who die within the first 28 days of birth suffer from conditions and diseases associated with lack of quality care at or immediately after birth and in the first days of life. WHO prepares updated early essential newborn care guideline so that health professionals can follow them to provide the best service to decrease neonatal mortality.

There have been researches that focus on the knowledge assessment of residents and midwives on essential newborn care. There is also research done on post-partum mothers about breastfeeding, thermal care and other components of essential newborn care. But to my knowledge, I couldn't find recent researches that assess health professional skills on the application of early essential newborn care in Tikur Anbessa Specialized Hospital.

1.3 Significance of the study

Since there is limited research in the study area, this study was intended to assess newborn care practice and associated factors among health professionals who deliver term newborns via SVD.

The information resulting from this study will be used as a baseline to plan appropriate interventions for improving newborn care practices and will give direction for healthcare professionals to take corrective measures and help them prioritize their efforts;

2. Literature Review

At 226 healthcare facilities in Afghanistan, the standard of neonatal resuscitation and critical newborn care was assessed. 49.2% of the babies in 643 deliveries were placed in skin-to-skin contact with their mother, 89.7% had their umbilical cord cut with a sterile blade or scissors, and 87.9% of the babies were dried immediately after birth. (2)

Another cross-sectional study was done to measure coverage of WHO-recommended essential newborn care practices in Pakistan. The survey was conducted to gather community-based data on newborn care practices from 416 mothers who delivered a live baby in the past twelve months. (3)

Three composite outcomes were evaluated: adequate neonatal feeding, safe cord care, and optimal thermal care. Only 17.1% of the neonates received the necessary components of safe cord care, 40.4% received the optimal thermal care, and 28.8% adhered to the WHO's recommendations for appropriate neonatal feeding practices, according to the study. (3)

A cross-sectional study was conducted in Addis Ababa, in 2017 to assess knowledge and practice of immediate newborn care and the result showed that 59.7% of health professionals practiced Immediate new-born care properly and 97.8% of health professionals had given vit k to immediate born baby (6).

The institutional-based cross-sectional study design was conducted from January to June 2016 in central zone public health facilities of the Tigray region. A sample of 150 currently working midwives was included in the study. According to this study, even though 85.7% of respondents had received in-service training, participants had poor knowledge regarding the care of newborns at birth (25.2%). (8)

3. Objective of The Study

3.1 General objectives

- To determine implementation of WHO Revised early essential newborn care in the labor ward at Tikur Anbessa Specialized Hospital, Addis Ababa, Ethiopia.

3.2 Specific objectives

- To identify the level of Health care providers' practice about immediate newborn care.
- To identify areas of further training associated with ENC practice

4. Materials and Methods

4.1 Study design and period -This study is an institution based observational cross-sectional study. And the study was conducted from July 2024 to Dec 2024.

4.2 Study area - The study was conducted at Tikur Anbessa Specialized Hospital (Tertiary level) which is found in Addis Ababa. Tikur Anbessa Specialized Hospital is the largest medical school in Ethiopia, a center of excellence for undergraduate, postgraduate and subspecialty training and research activities. Gynecology and Obstetrics department has been giving training for postgraduate residents. Its labor ward has 6 beds, 4 delivery couches, 3 post-op beds and 1 neonatal resuscitation center. There are also 2 operation rooms, one for elective and the other for emergency C/S deliveries. 19 midwives are working there. From those, 9 were assigned in day time and 9 at duty time. There were one R1, one R2/R3 and one R4 gynecology residents assigned at labor ward both day and duty time. There was also assigned Obstetrician in the ward. The study was done by observing the implementation of early essential newborn care after birth at Tikur Anbessa Specialized Hospital labor ward.

4.3 Source and study population

- **Source population**– Health professionals who give ENC at Tikur Anbessa Specialized Hospital Labor ward.
- **Study population** – Health professionals who give essential newborn care for term neonates delivered via SVD at Tikur Anbessa Specialized Hospital Labor ward.

4.4 Inclusion and exclusion criteria

- **Inclusion criteria** - All live term SVD deliveries at Tikur Anbessa Specialized Hospital labor ward.
- **Exclusion criteria** – C/S deliveries, instrumental deliveries, stillbirth, abortion (delivery before 28 weeks of GA), Preterm, LBW, newborn that needed advanced resuscitation like Bag mask ventilation, chest compression, adrenalin administration and intubation.

4.5 Sample size determination and sampling procedure

- **Sample size determination**

The sample is calculated by using single population proportion formula by assuming 73.8% (4) population proportion of good newborn care practice with 95% confidence interval and marginal error of 5% (0.05), sample size is calculated as.

$$n = \frac{(Z_{\alpha/2})^2 p (1-p)}{d^2}$$

Where

$$Z_{\alpha/2} = 1.96$$

P= proportion of newborn care practice, 73.8% (4)

$$q = 1-p = 1-0.738 = 0.262$$

d= marginal error= 5% (0.05)

$$n = \frac{1.96^2 * (0.738) (0.262)}{(0.05)^2} \quad n = 297$$

Considering 5% non-response rate the final sample size will be 312.

- **Sampling technique** – Convenient Sampling Method used for all deliveries in labor ward will be included until the final calculated sample size is reached.

4.6 Variables of the study

- **Dependent variable** – Quality of implementation of early essential newborn care.

- **Independent variable** – Profession and availability of the medications used for ENC.

- **Conceptual frame work of the study**

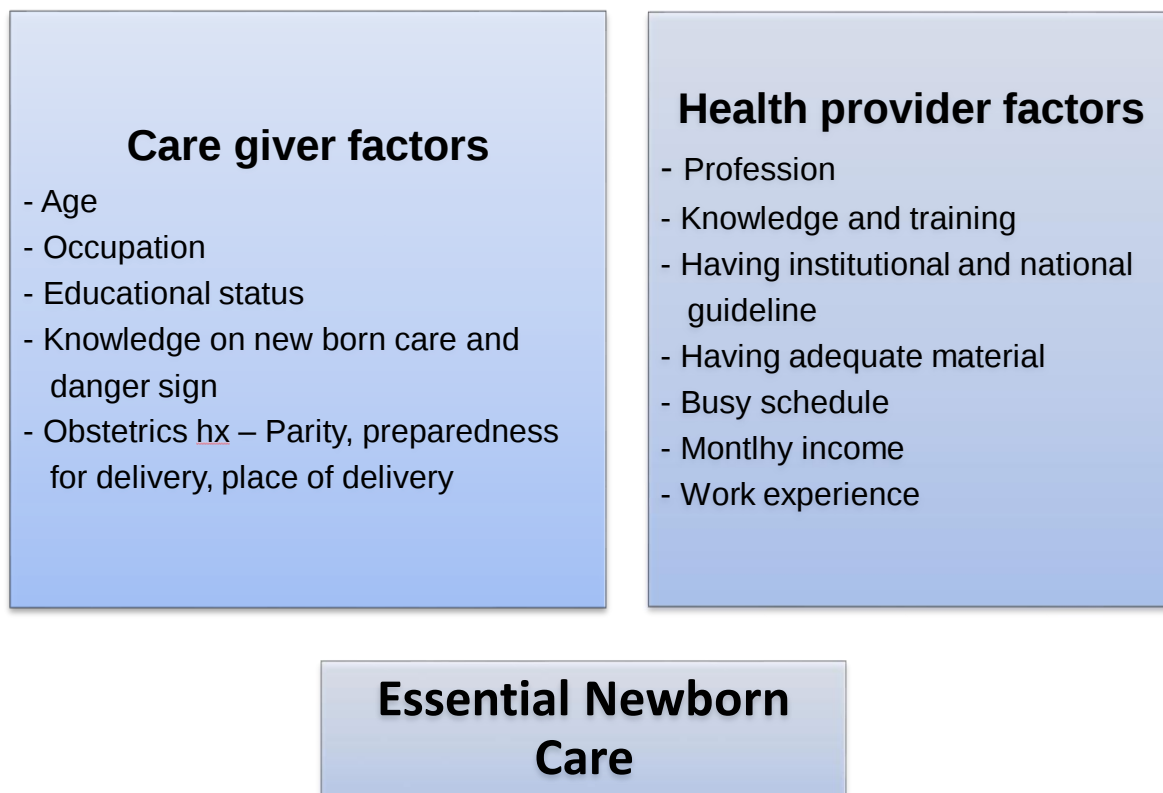


Figure 1: Conceptual Frame work of the study

4.7 Operational definition

Early essential newborn care – According to WHO 2022 updated EENC pocket guide, newborn care can be divided into immediate (care given in the first 90 minutes) and care given from 90 minutes to 6 hours. (1)

Immediate newborn care – it includes care given in the first 90 minutes of life. It includes delivering the baby onto to dry cloth draped over the mother's abdomen,

calling out the time of birth and sex of the baby, dry the baby's face, head, back, front, arms and legs within 5 s after birth, check the breathing while drying, remove the wet cloth, if no resuscitation needed position the baby prone on the mother's abdomen/chest and begin skin to skin contact for 90 minute uninterrupted unless there is a maternal or newborn emergency, cover the baby with second dry cloth and hat, clamp and cut the cord after pulsation stop (between 1 and 3 minute after birth). Then start breastfeeding within 1 hour after birth. (1)

Care given from 90 minutes to 6 hours – It includes examining the newborn, putting an identification band around the ankle, weight the baby, seeing if there are any danger signs, giving 1 mg vitamin K IM, giving hepatitis B vaccine IM and BCG intradermal, administer tetracycline ointment to both eyes (from the inner corner of each eye to outwards), cord care and postpone bathing for > 24 hours. (1)

Practice - Refers to the practice of medical professionals following a designated checklist regarding early ENC activities. Good practice means if they correctly performed >70% of the tasks in the checklists. (4)

Danger signs – According to WHO 2022 updated EENC pocket guide, newborn danger signs include unable to feed, convulsion, Fast breathing (RR >60 breaths per minute), severe chest in drawing, high body temperature (>38°C), low body temperature (<35.5oc), movement only when stimulated or no spontaneous movement at all, jaundice present on face of a neonate < 24 hours old or on palms and soles of baby at any age. (1)

Cord care – cord care includes covering the cord stump loosely with a clean cloth, folding the diaper loosely with clear clothes, putting nothing on the stump and seeking care if the umbilicus is red or draining pus. (1)

4.8 Data collection tool and procedures

- **Data collection tools** – a structured observational checklist was prepared based on early essential newborn care WHO Revised

guideline. Observational qualitative data was collected by the observer since the data collection is blind.

- **Data collection Method** - Data collectors (clinical medical students attaching in Tikur Anbessa Specialized Hospital labor ward) were given half day training on the data collection tools. And data collection was done on Monday to Friday, daytime within 6 months' time period.

4.9 Data Quality Assurance

The observer gathered the data and its completeness were checked and coded. The Google form data were converted into SPSS data. The covered data were again cross-checked for completeness and consistency before executing any statistical analysis.

4.10 Data analysis and interpretation

Data was coded, entered and transferred to SPSS Vs. 26 for analysis. Basic descriptive analysis like frequency was done. Odds ratios with 95% CI and P values less than 0.05 were taken as statistically significant.

5 Ethical Consideration

Ethical approval was sought from the Department of Pediatrics and Child Health Research and Ethics Committee (REC) of the School of Medicine, College of Health Sciences, and AAU. Data was collected confidentially and recorded and analyzed using coded instruments.

6 Dissemination of result

The result will be disseminated to AAU through presentation and hard copy then steps will be taken to publish the paper in peer-reviewed local or international journal. The findings will be communicated to Obstetrics and Gynecology department and utilized to improve service at Tikur Anbessa Specialized Hospital.

The responsible government parties could use this material in the improvement of community health as part of the implementing plan.

7 Result

7.1 Socio demographic data of the health professionals attending ENC

A total of 312 attendants were enrolled in this study with a RR of 100%. The majority of them were male 65% (n = 205). 81.4% (n = 254) were midwives.

Table 1: Socio demographic characteristics of the health professional attending the ENC during the study period at TASH, 2024 (n - 312)

Variable	Category	Frequency	Percentage
Sex	Male	205	65.7%
	Female	107	34.2%
Profession	Midwife	254	81.4%
	Intern	18	5.8%
	OBGYN resident	40	12.8%

7.2 Availability of essential supplies used for essential newborn care

From a total of 312 essential newborn care given, vitamin K was available in 274 cases which accounts for 79.2% of cases. TTC availability was around 79.8% (n = 239). An

umbilical secure was available in 96% of the time.

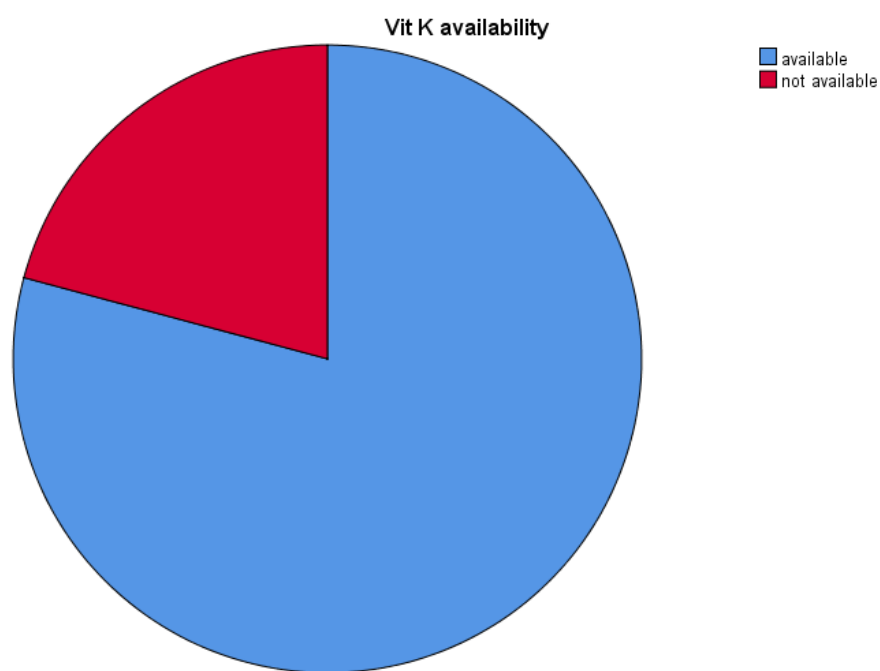


Figure 2: Availability of VIT K IM injection at Tikur Anbessa Specialized Hospital labor ward, 2024.

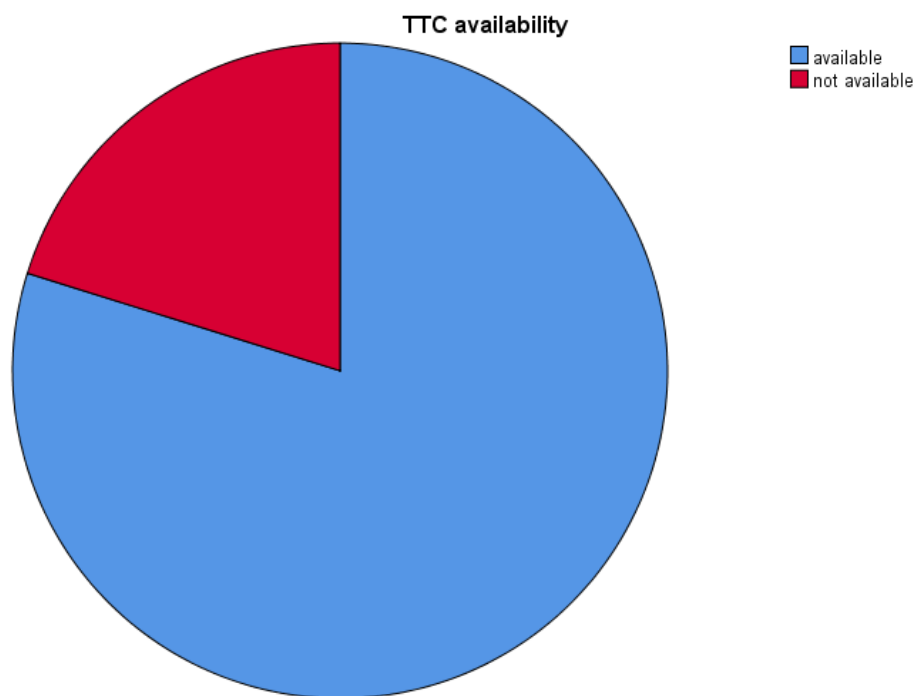


Figure 3: Availability of TTC eye ointment at Tikur Anbessa Specialized Hospital labor ward, 2024.

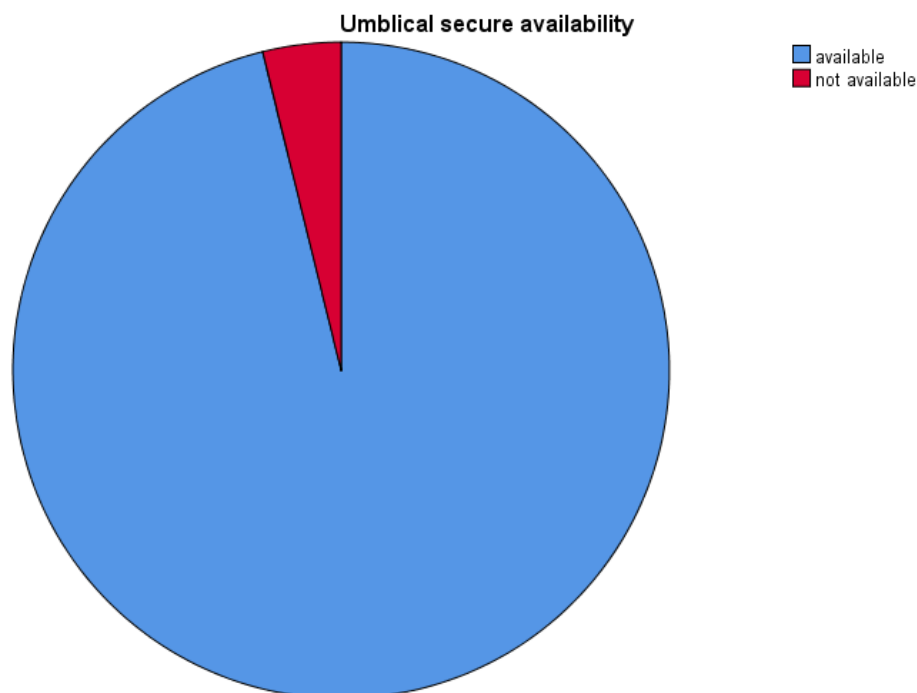


Figure 4: Availability of umbilical secure at Tikur Anbessa Specialized Hospital labor ward, 2024.

7.3 Essential newborn care practice

Of 312 births, 85.3% of neonates (n=266) were dried right away after birth (within 5 sec after birth), 46.5% (n=145) were placed in skin-to-skin contact with the mother, but only 18.3% (n = 57) of them skin to skin contact continued uninterrupted for at least 90 minutes after birth. In the remaining 81.7% (n - 255) of them, either skin-to-skin not started (53.3%, n = 167) or was interrupted (28.4% n = 88) for different reasons. The identified reasons were that 17.4% (n = 54) of them were sent to NICU either for RBS determination (7.1%, n = 22), blood group determination (7.1%, n = 22), or for further evaluation (3.2%, n = 10).

76.0% (n = 237) of newborns start breastfeeding within the first hour after birth. The odds of initiating breastfeeding within the first hour after birth were significantly higher in mothers who have immediate skin-to-skin contact with their newborns (unadjusted OR 2.599, 95% CI 1.487 – 4.544).

Only 35.3% (n = 110) of attendants call out the time of birth and sex of the baby. Routine suctioning was done in 26.9% (n = 84) of deliveries even though it is not recommended in WHO ENC guidelines. Eye care was provided to 79.8% of newborns (n=249) and vitamin K was administered to 76.6% (n=239). 100% (n=312) of health professionals use either a sterile blade or scissors to cut the cord. Of those only 67.6% (n = 211) of them cut the cord 1 – 3 minutes after delivery which is the WHO recommended time interval. The remaining 28.5% (n = 89) cut the cord in less than 1 minute and of those only 23.6% (n = 21) of them checked the umbilical pulsation before cutting the cord.

Table 2: ENC practice during the study period at TASH, 2024

Immediate ENC components	Category	Frequency	Percent %
Deliver the baby onto the dry cloth draped over the mother's abdomen	Yes	266	85.3%
	No	46	14.7%
Did the health professional call out the time of birth and sex of the baby?	Yes	110	35.3%
	No	202	64.7%
Did the newborn dry within 5 sec after birth?	Yes	266	85.3%
	No	46	14.7%
Remove the wet cloth	Yes	257	82.4%
	No	55	17.6%
Did skin to skin contact started?	Yes	145	46.5%
	No	167	53.5%
Was the skin to skin contact uninterrupted for at least 90 minutes after	Yes	57	18.3%
	No	255	81.7%

birth?			
Cut the cord within 1 – 3 minutes after birth.	Yes	211	67.6%
	No	101	32.4%
Was breast feeding started within the first 1 hour?	Yes	237	76%
	No	75	24%

75% of health professionals score more than 70% which is good newborn care practice. And the remaining 25% had poor ENC practice.

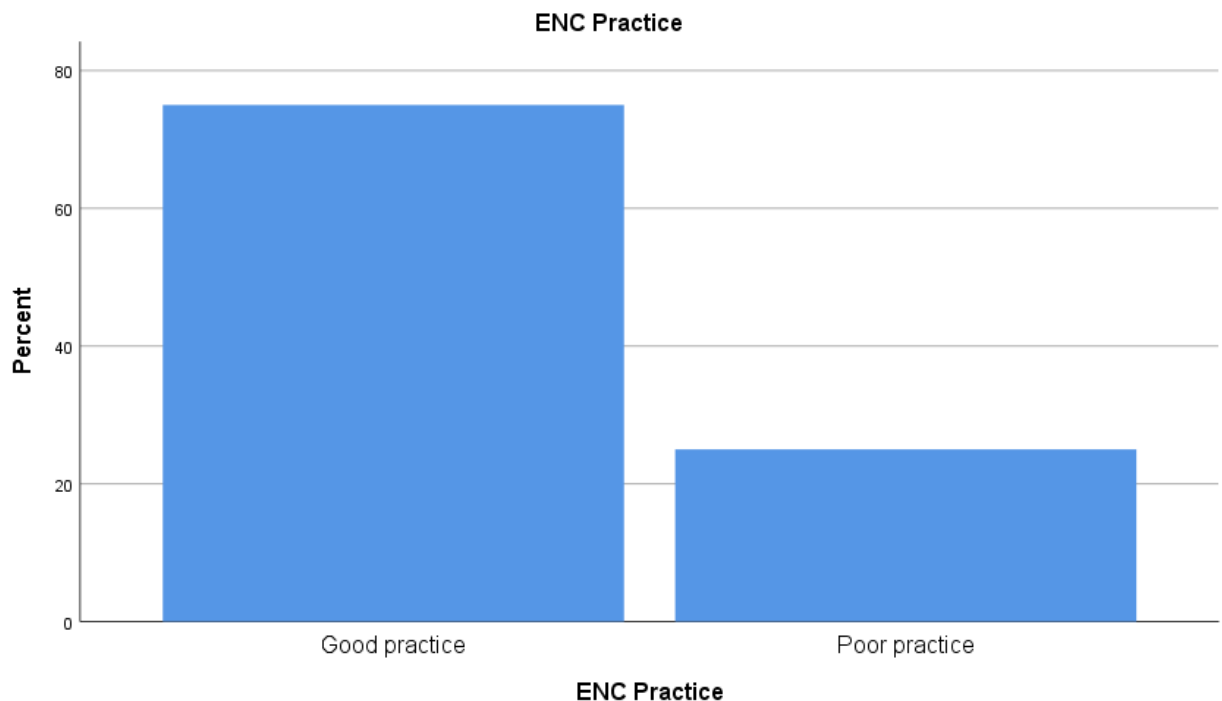


Figure 5: Practice of essential newborn care at Tikur Anbessa Specialized hospital labor ward, 2024.

7.4 Factors associated with the practice of essential newborns care

The availability of medications like Vitamin K injection and TTC eye ointment has been associated with the likelihood of administration. TTC eye ointment was available around 79.8% of the time and all neonates received TTC eye ointment when available.

Vitamin K injection is available 79.1% of the time and of those 96.7% of newborns get the injection when available.

Table 3: Availability and administration of TTC eye ointment and Vit K inj during the study period at TASH, 2024 (n = 312)

		Given	Not given
TTC availability	Available	249	0
	Not Available	0	63
Vit K availability	Available	239	8
	Not Available	0	65

8. Discussion

In this study, ENC among health care providers in Tikur Anbessa Specialized Hospital labor ward has been evaluated. It was found that good practice of ENC among healthcare providers was 75%. The proportion of practice of ENBC in this study was almost similar to the survey conducted in northeast Ethiopia (73.8%) (4) and at Addis Ababa health centers (80.7%) (11). However, this percentage is lower in the study conducted in Tigray (52.4%) (8). That is probably because of the difference in the education qualification of the study participants. The study conducted in Tigray was done among midwives, unlike our research which also included OBGYN residents and interns.

Another research done on the quality of ENC implementation among health facility deliveries in the north Gondar zone, quality of ENC, components including cord care was 75.4%, breast-feeding was initiated within 1 hour in 72.2%, thermal care implementation was 66.3% and eye care was 61.5%. However, vitamin K is administered in only 22.8% of newborns. (10) In our study, eye care was given for 79.8 % of newborns, and vitamin K was administered in 76.6% of the cases which is higher than previously mentioned research. That is probably due to the higher availability of the medications (TTC eye ointment and vitamin K injection).

9. Strength and limitation of the study

9.1 Strength of the study

- Blind study – The health professional is not aware of the study being conducted.
- Real-world applicability – since the data is collected from a real-world setting, it can give an in-depth understanding.

9.2 Limitations of the Study

- The study didn't include associated factors that can affect essential newborn care practices. For example: - sex, monthly income, profession, work experience, whether the health professional is trained or not, and so on. The research is exploratory and the data collection is blind.
- Data collector bias – measurement bias, social desirability bias...
- Convenience sampling was used
- Limited generalizability - As the study was performed in Tikur Anbessa Specialized Hospital only and since this is a tertiary hospital, the finding in this study can't be generalized to all hospitals in different parts of Ethiopia.

10. Conclusion

In this study, essential newborn care practice among health care providers in Tikur Anbessa Specialized Hospital labor ward was fair compared to other studies conducted in different parts of Ethiopia. But considering the study is conducted in one of the biggest tertiary hospital in the country, the care is expected to be better than this. Special attention should be given to uninterrupted skin-to-skin contact for the first 90 minutes after delivery. It is observed that other newborn care like Eye care and Vitamin K administration are given just after delivery which interrupts skin-to-skin contact.

11. Recommendation

This study is mainly an observational descriptive study that assessed the quality of ENC in the labor ward, it didn't include associated factors that can affect essential newborn care practices. For example, knowledge, attitude, work experience, whether the health professional is trained or not, and so on. So further studies should be done

to identify associated factors that affect the quality of essential newborn care implementation.

On job training on ENC should be given to health professionals attending delivery at TASH including midwives, interns, and OBGYN residents. Also, the availability of medications like TTC eye ointment and Vitamin K injection should be improved at all time including duty time.

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Annex:-

Observational checklist (The checklist will be filled by the data collector. He/she will observe the immediate essential newborn care given by the health professional that assists the delivery and fills the checklist)

1. Sex of the health professional attending the essential newborn care
Male/Female
2. Qualification of the health professional attending the birth
 - a) BSC nurses
 - b) Midwives
 - c) Intern
 - d) OBGYN year 1 resident
 - e) OBGYN year 2 resident
 - f) OBGYN year 3 resident
 - g) OBGYN year 4 resident
 - h) OBGYN senior
3. Mark 'yes' if the medication/material is available and mark 'no' if the medication/material is not available in the hospital.
 - a) Vitamin K injection – Yes/No
 - b) Tetracycline eye ointment - Yes/No
 - c) Umbilical secure - Yes/No
4. Just after delivery, was the newborn placed on a dry cloth dripped on the mother's abdomen? Yes/No
5. Did the health professional call out the time of birth and sex of the baby? Yes/No
6. Did the newborn dry within 5 sec after birth? Yes/No
7. While drying, does the health professional check the breathing of the newborn if there is any need for resuscitation? Yes/No
8. Did the health professional remove the wet cloth after drying? Yes/No
9. Does the health professional cover the baby with a dry cloth? Yes/No

10. Do the mother and baby have skin-to-skin contact? Yes/No
11. If yes, when does the skin-to-skin contact start?
Immediately after drying / After all other newborn care given
12. Does the skin-to-skin contact uninterrupted for atleast 90 minutes after birth?
Yes/No
13. If skin-to-skin contact is interrupted, what is the reason? _____
14. Is routing suctioning done? Yes/No
15. When was the cord clamp after birth? < 1 minute / 1 – 3 minutes / > 3 minutes
16. Did the health professional check the umbilical pulsation before cutting the cord?
Yes/No
17. Was breastfeeding initiated within the first 1 hour after birth? Yes/No
18. Was the tetracycline eye ointment was applied? Yes/No
19. If the 18th question answer is yes, when was it applied?
Within 90 minutes / After 90 minutes of birth
20. If the 18th question's answer is yes, how was it applied?
From inward to outward / From outward to inward
21. Was the Vitamin K 1mg IM injection given? Yes/ No
22. If the 21st question answer is yes, when was it given?
Within 90 minutes / After 90 minutes of birth