DEDER GENERAL HOSPITAL

NEONATAL INTENSIVE CARE UNIT (NICU)

CLINICAL AUDIT TO IMPROVE THE QUALITY OF CLINICAL CARE OF PRETERM BIRTH

By: NICU QI Team

Audit Cycle: Initial Audit

Deder, Oromia

June 2017E.C

NICU case team Clinical Audit/QI team members:

S/N	Name	Responsibility	ReJuneks
1.	Dr. Taju Abdi (MD, Senior)	**Team leader**	
2.	Abdi Baker	**Secretory**	
3.	Abdurhaman Bakri	Member	
4.	Abdi Bakar	Member	
5.	Maserat Megarsa	Member	
6.	Abdurhaman Said	Member	
7	Derartu Abdulaziz	Member	

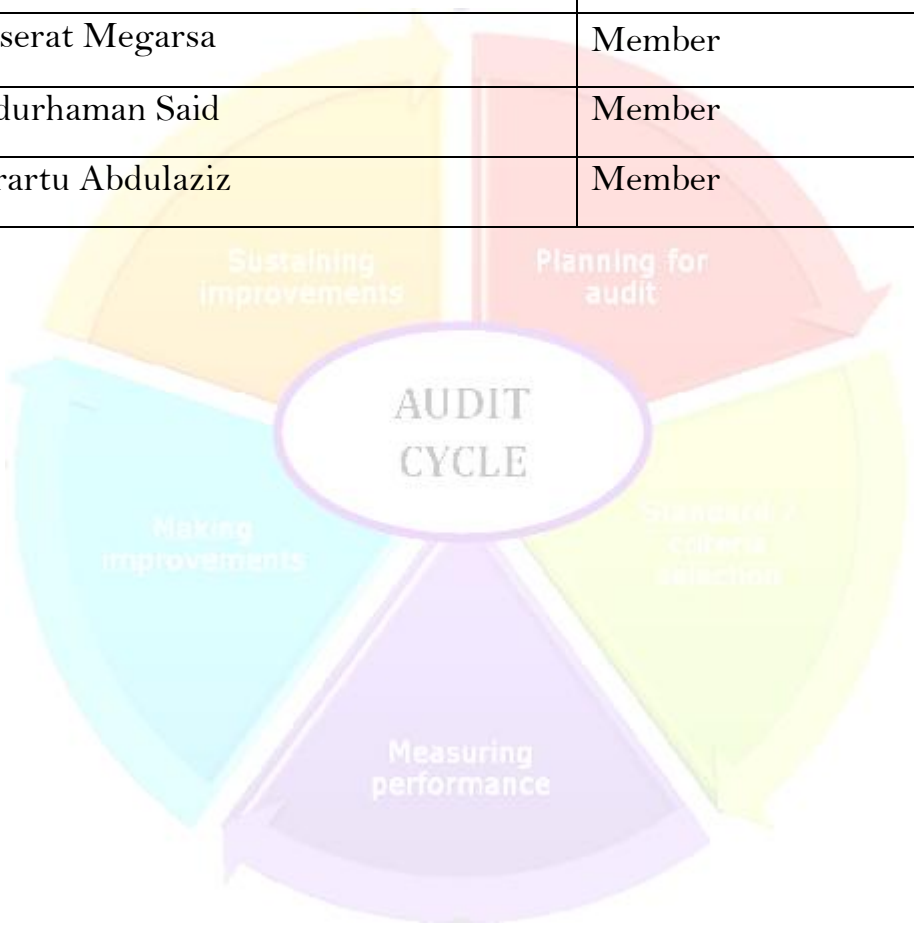


TABLE OF CONTENTS

Lists of Figures and Tables

ABSTRACT

Introduction: Preterm birth (PTB), defined as delivery before 37 weeks' gestation, is a leading cause of neonatal mortality and morbidity globally. In Ethiopia, complications of prematurity account for 35% of neonatal deaths. This clinical audit evaluates the quality of care for preterm neonates in our Neonatal Intensive Care Unit (NICU).

Objective: To assess adherence to evidence-based standards for PTB management and identify areas for quality improvement.

Methodology: A retrospective cross-sectional audit was conducted on 10 preterm neonatal records admitted to the NICU in June 2017 E.C. using the national PTB Clinical Audit Tool. Data were analyzed using descriptive statistics (SPSS version 25).

Results: The overall compliance with PTB care standards was **89%**. Full compliance (100%) was achieved in patient identification, physical examination, diagnosis, treatment, monitoring, discharge care, and provider identification. Gaps were noted in history documentation (88%, specifically maternal drug history) and relevant investigations (90%, with blood cultures omitted in suspected sepsis). Mortality was 0% against a 15% target.

Conclusion: While clinical care demonstrates strength in core processes and outcomes, critical gaps exist in maternal drug documentation and sepsis investigation. Standardizing history-taking tools, improving sepsis protocols, and regular audits are recommended to enhance care quality.

INTRODUCTION

Preterm birth (PTB), defined as delivery before 37 weeks' gestation, is a leading cause of neonatal mortality and morbidity globally. In Ethiopia, complications of prematurity account for 35% of neonatal deaths, with survivors facing risks of neurodevelopmental impairment and chronic health issues (WHO, 2017). This audit evaluates adherence to evidence-based standards for PTB management in our NICU to identify gaps and drive improvements.

OBJECTIVE

General objective

- To enhance the quality of clinical care for preterm neonates.

Specific objectives

- Ensure appropriate history-taking and physical examination
- Improve guideline-concordant investigations and treatment
- Strengthen monitoring and discharge protocols
- Reduce mortality through standardized care

METHODS

- **Study Design:** Retrospective cross-sectional audit
- **Period:** June 2017 E.C.
- **Study Population:** All preterm neonates admitted to NICU (GA <37 weeks)
- **Sample Size:** 10 records (systematic random sampling)
- **Data Source:** National PTB Clinical Audit Tool
- **Analysis:** Descriptive statistics (SPSS v25)

RESULT

The clinical care provided to preterm neonates in June 2017 E.C. achieved a total performance score of **89%** against an aggregate target of 100% **(figure 1).** This indicates that while the overall care delivered was generally strong, falling 11 percentage points short of the ideal target signifies there are key areas requiring improvement to meet the comprehensive standards set for preterm neonatal care. The performance demonstrates a high level of adherence to protocols in many critical aspects but highlights specific deficiencies impacting the total score **(Table 1)**.

Performance exceeded or met targets in the majority of measured variables. Exceptional achievement was noted in Identification Information (100%), Appropriate Physical Examination (100%), Appropriate Diagnosis (100%), Appropriate Treatment (100% vs 80% target), Appropriate Monitoring (100% vs 80% target), Appropriate Discharge Care (100%), and Identification of Provider (100%). Particularly noteworthy was the 0% mortality rate against a target of 15%. However, two variables underperformed: Appropriate History documentation fell significantly short (88% vs 100% target), representing the primary deficit. Additionally, Relevant Investigations were performed at 90%, exceeding the 80% target but potentially indicating over-investigation **(Table 1)**.

The outstanding achievement of 0% mortality against a 15% target is a critical positive outcome. The failure to meet the target for Appropriate History documentation (88%) was the main factor pulling down the overall score. While most clinical processes (examination, diagnosis, treatment, monitoring, discharge) were performed at or above target levels, the shortfall in obtaining complete histories indicates a specific administrative or procedural gap that needs addressing to achieve the overall 100% target in future reporting periods **(Table 1).**

Overall Performance of preterm neonates care Clinical Audit Result

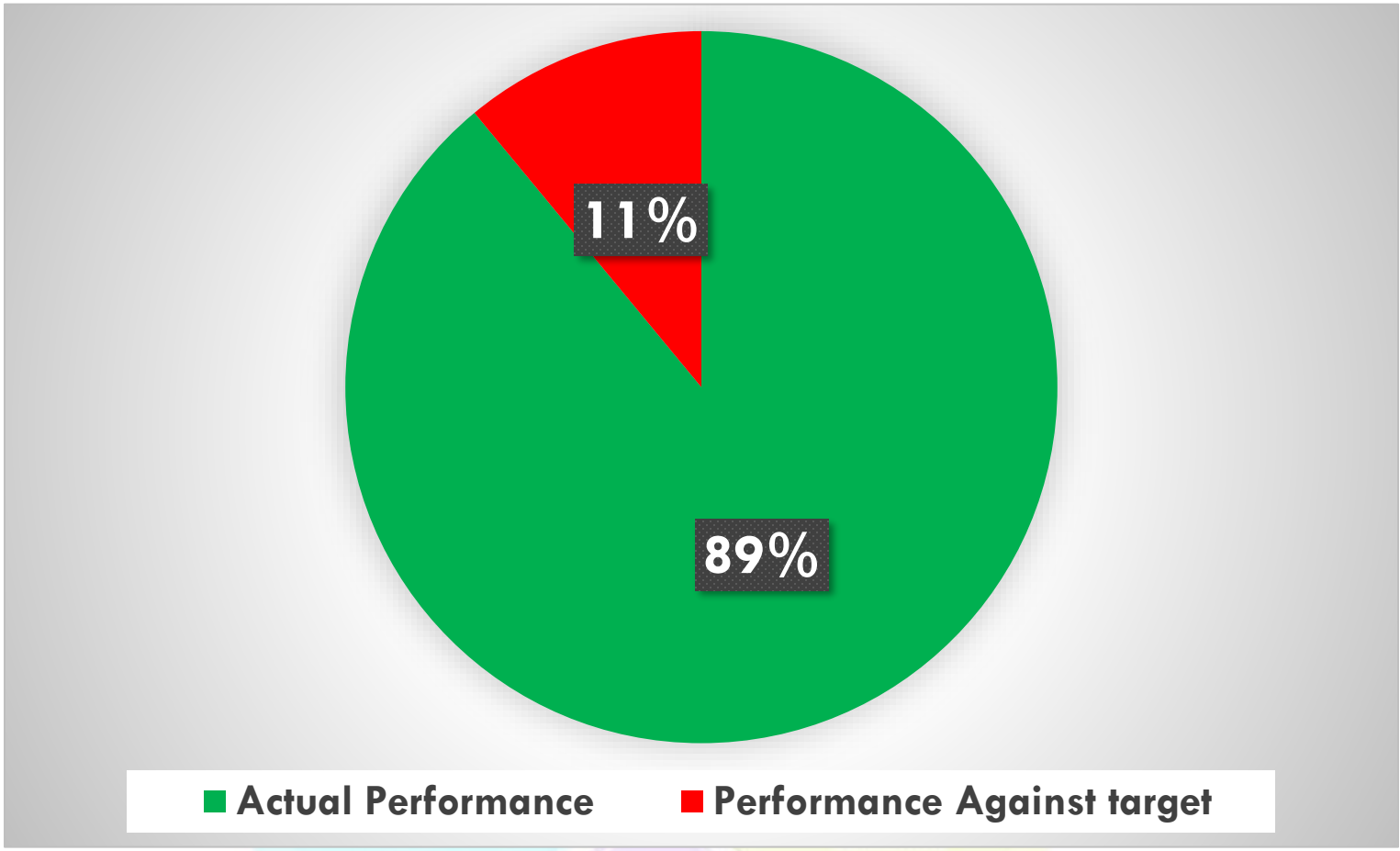


Figure 1: *Overall of Performance of preterm neonates care Clinical Audit, June 2017E.C*

Table 1: Overall of Performance of preterm neonates care Clinical Audit, June 2017E.C

S/N	Variables	Target (%)	Actual Performance (%)
1	Identification Information	100	100
2	Appropriate History	100	88
3	Appropriate Physical Examination	100	100
4	Relevant Investigations	80	90
5	Appropriate Diagnosis	100	100
6	Appropriate Treatment	80	100
7	Appropriate Monitoring	80	100
8	Appropriate Discharge Care	100	100
9	Identification of Provider	100	100
10	A preterm neonate died while being managed	15	0
	Total Percentage	**100**	**89**

Identification Information

- Performance for patient identification information was perfect, meeting the 100% target. All sub-criteria – including newborn name/ID, age at admission, gender, date/time of birth, and birth weight – were documented in 100% of audited cases. This indicates flawless adherence to basic identification protocols. All required patient identification elements (name, age, sex, date of visit, and medical record number) were fully documented in every case (100%) **(figure 2).**

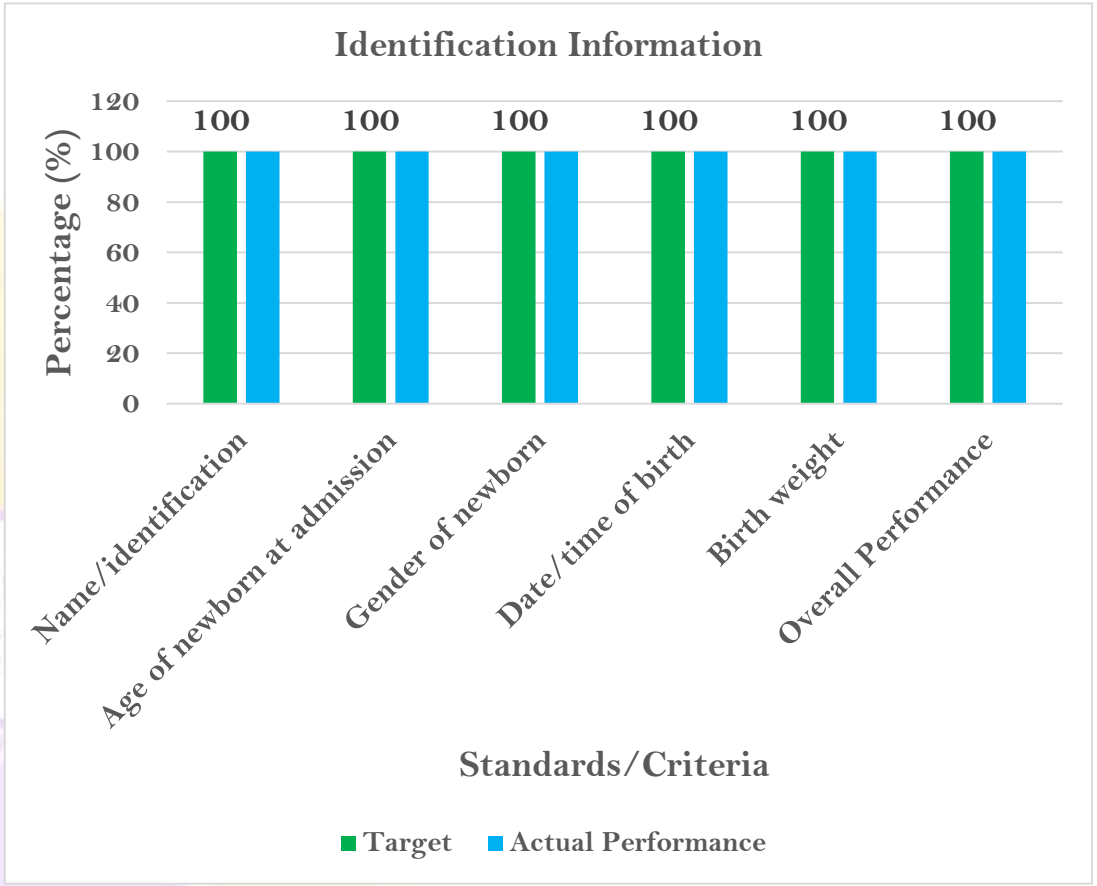


Figure 2: *Identification Information, June 2017E.C*

Appropriate History Taken

- History documentation fell short of the target at 88%. While most sub-criteria (place of delivery, gestational age determination, maternal demographics, ANC history, risk factors, labor circumstances, and delivery room interventions) were fully documented (100%), a critical gap existed: **drugs taken by the mother** (including dexamethasone, magnesium sulfate, antibiotics) were **not documented in any audited cases (0%)**. This single omission significantly impacted the overall history score (figure 3).

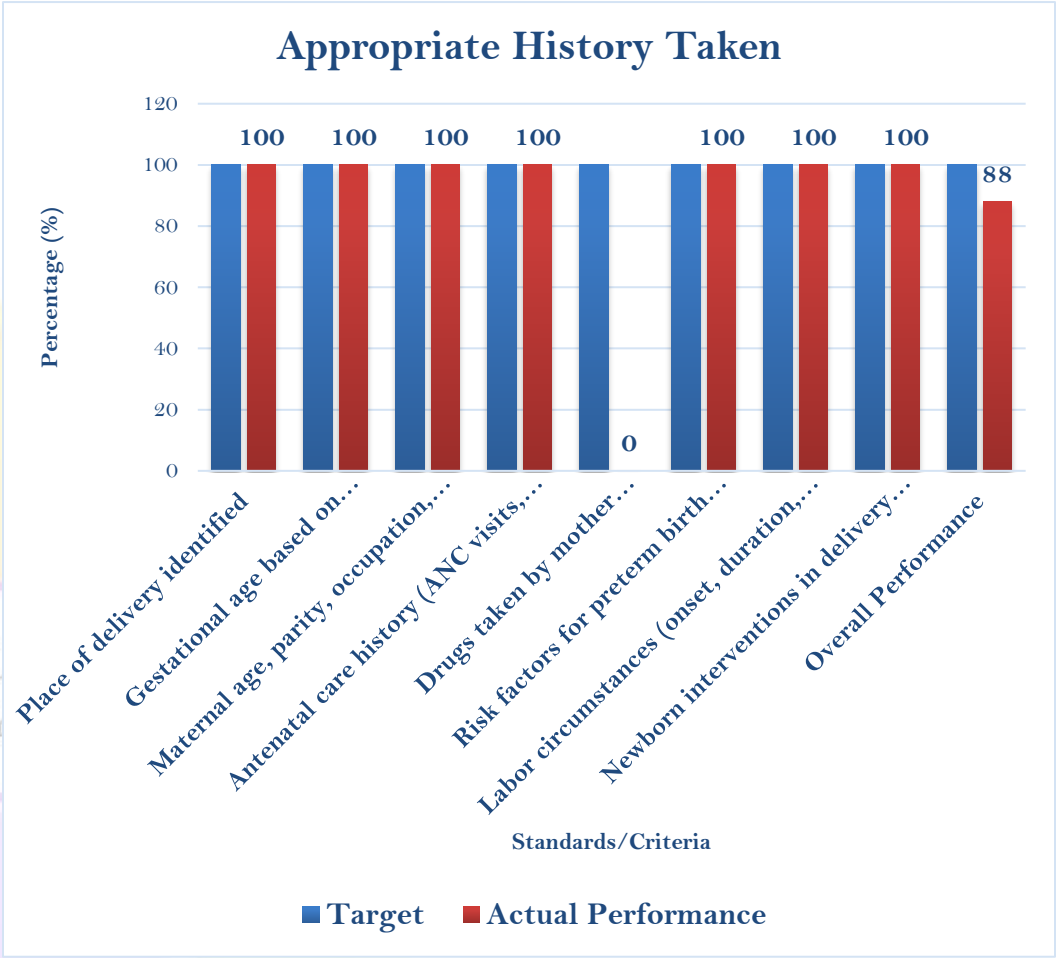


Figure 3: Appropriate History Taken, June 2017E.C

Appropriate Physical Examination Performed

- Physical examination documentation met the 100% target comprehensively. All sub-criteria – vital signs monitoring, anthropometric measurements, birth injury assessment, and full systemic examinations (respiratory, cardiovascular, abdominal, genitourinary, musculoskeletal, integumentary, and central nervous system) – were documented in 100% of cases **(figure 4).**

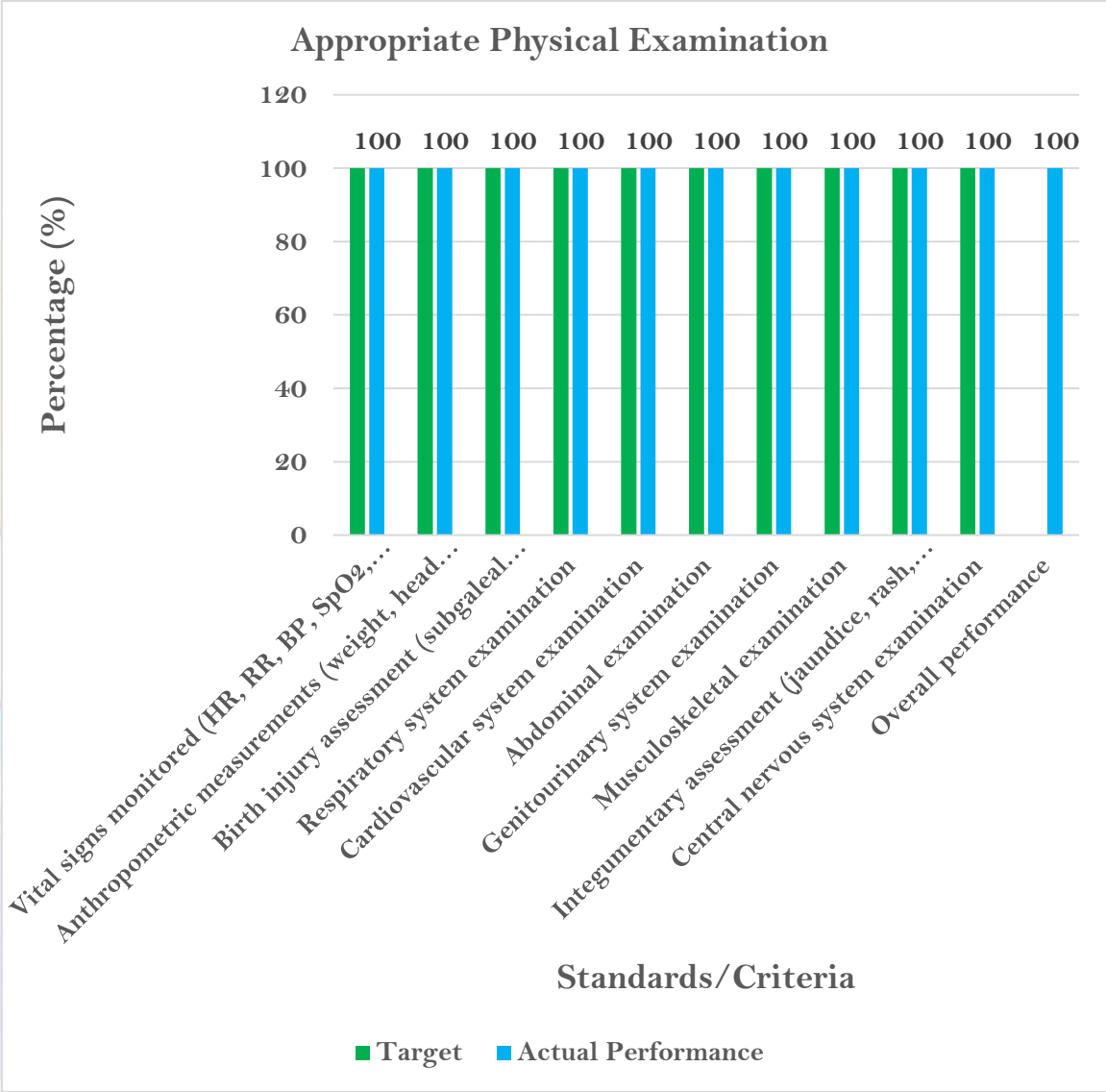


Figure 4: *Appropriate Physical Examination, June 2017E.C*

Relevant Investigations

Performance for relevant investigations was suboptimal at 60% against a 100% target. While CBC (90%) and RBS (90%) testing were performed close to the target, a major deficiency was found: **blood cultures were never performed (0%)** in cases where sepsis was suspected. This critical gap drove the overall low score for this variable **(Figure 5).**

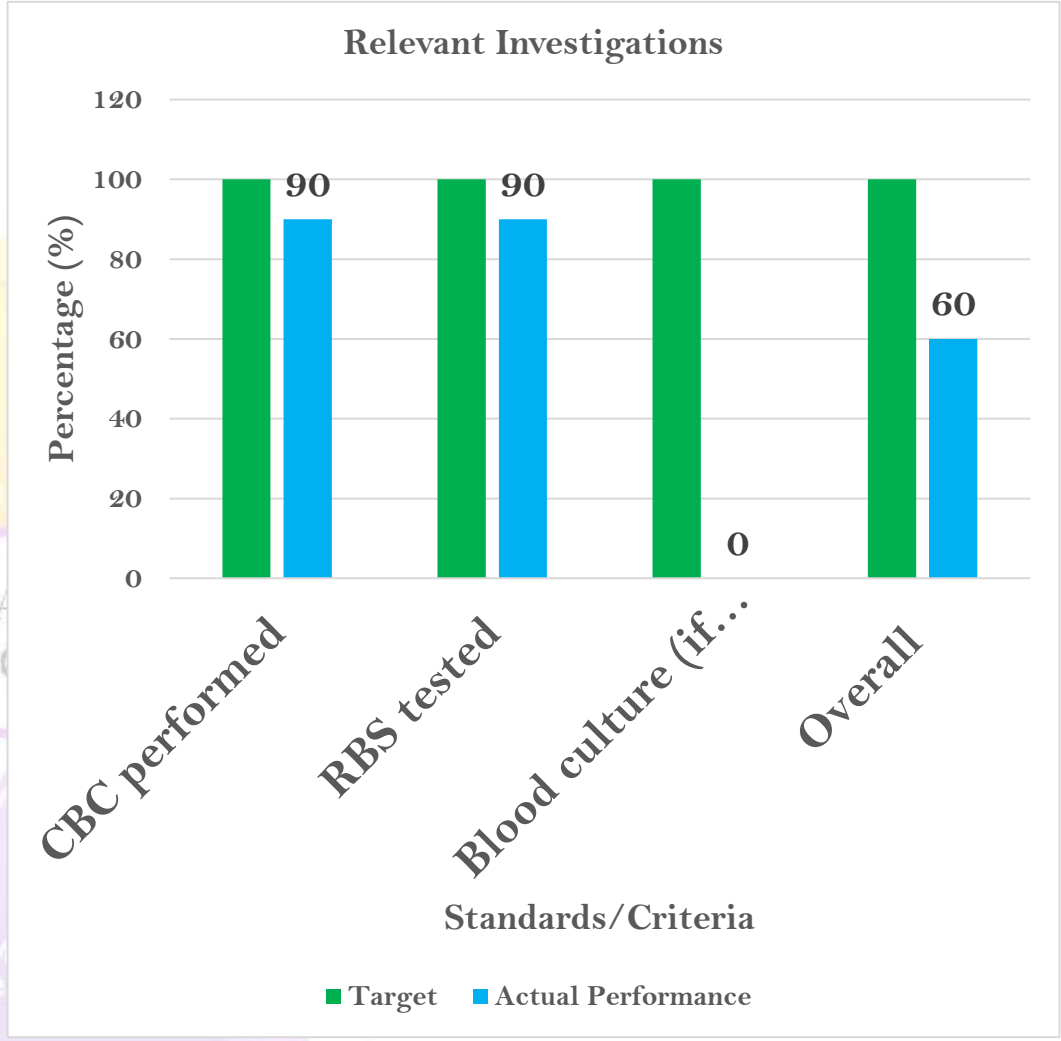


Figure 5: *Relevant Investigations, June 2017E.C*

Appropriate Diagnosis

- Diagnosis determination met the 100% target. All sub-criteria – classification of gestational age (term/preterm), birth weight category, weight-for-age appropriateness (AGA/SGA/LGA), and identification of additional diagnoses – were appropriately documented in 100% of audited cases **(Figure 5).**

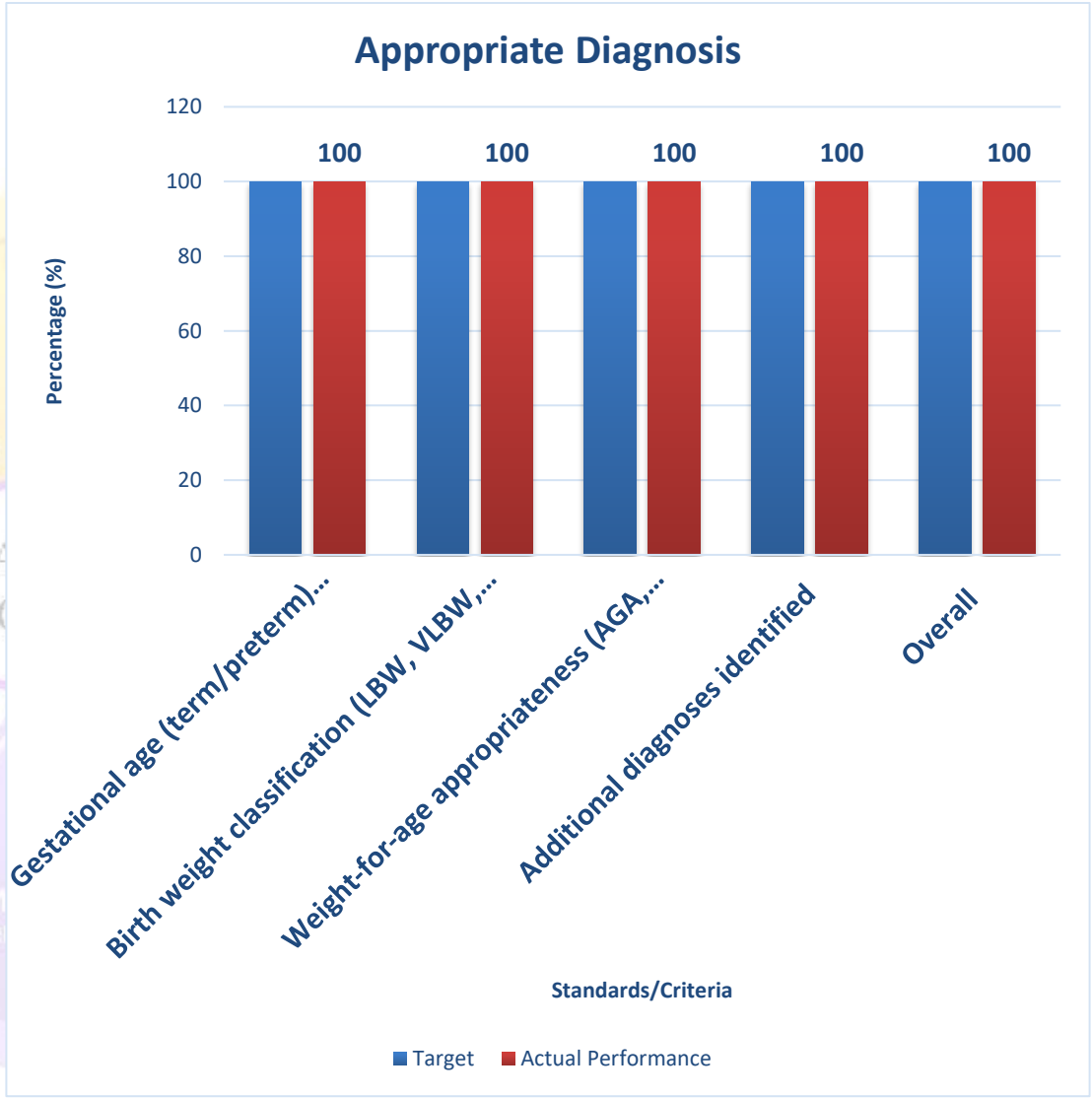


Figure 6: *Appropriate Diagnosis, June 2017E.C*

Appropriate Treatment Provided

- Treatment provision exceeded the target, achieving 100%. All sub-criteria were met perfectly: ensuring a thermo-neutral environment, providing oxygen/CPAP support, initiating feeding/fluids within 1 hour, initiating expressed breast milk within 24 hours, administering guideline-concordant antibiotics for sepsis, and providing parent/caregiver counseling **(Figure 7).**

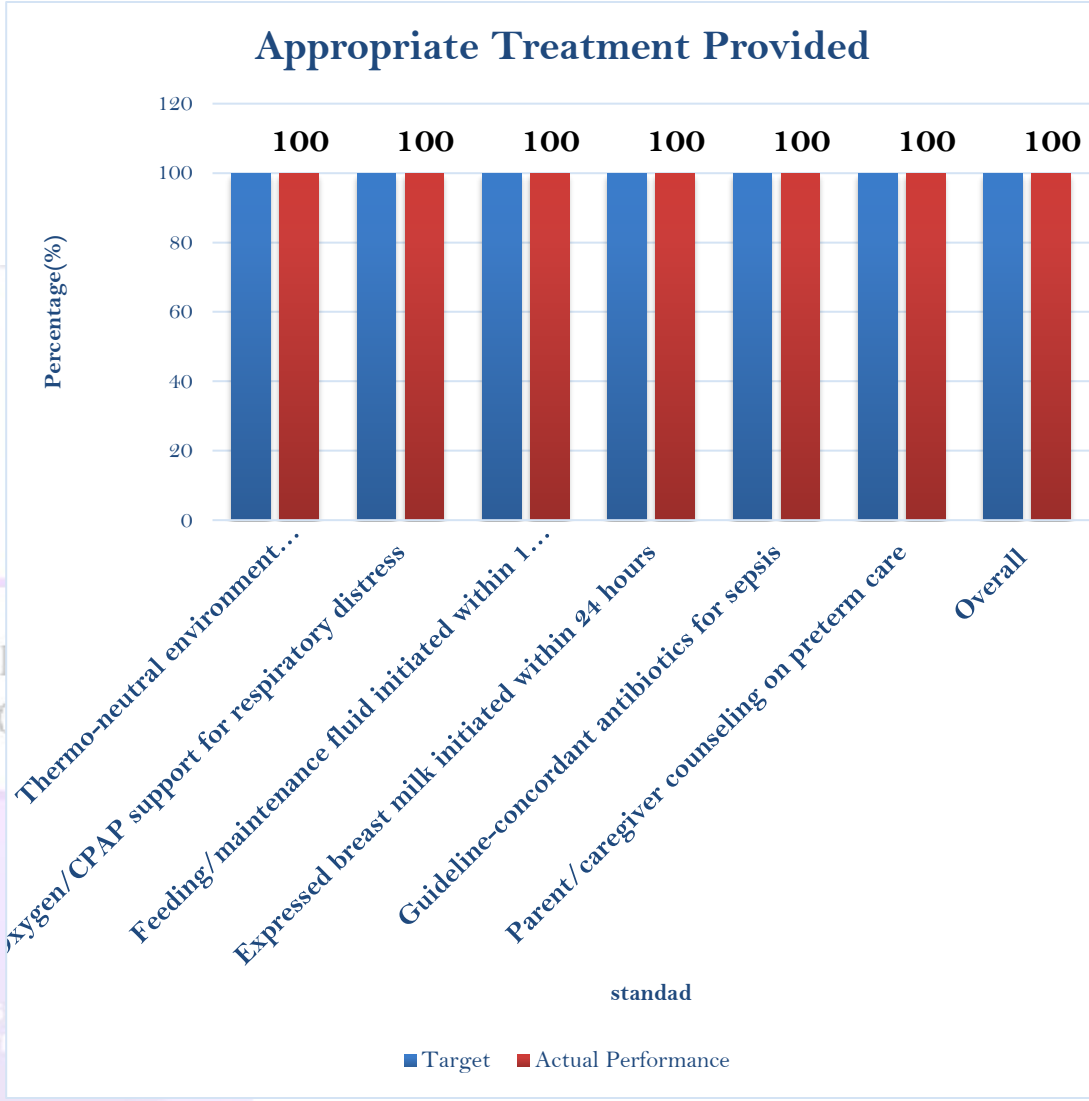


Figure 7: *Appropriate Treatment Provided, June 2017E.C.*

Appropriate Monitoring

- Monitoring practices significantly exceeded the 80% target, achieving 100%. All detailed sub-criteria for vital sign monitoring (frequency based on stability), hydration/feeding intolerance assessment, daily weight and urine output checks, physician evaluations, documentation of NPO status, jaundice evaluation, feeding/fluid calculation and revision, phototherapy initiation, Kangaroo Mother Care provision, and brain ultrasound scheduling were met in 100% of cases **(Figure 8).**

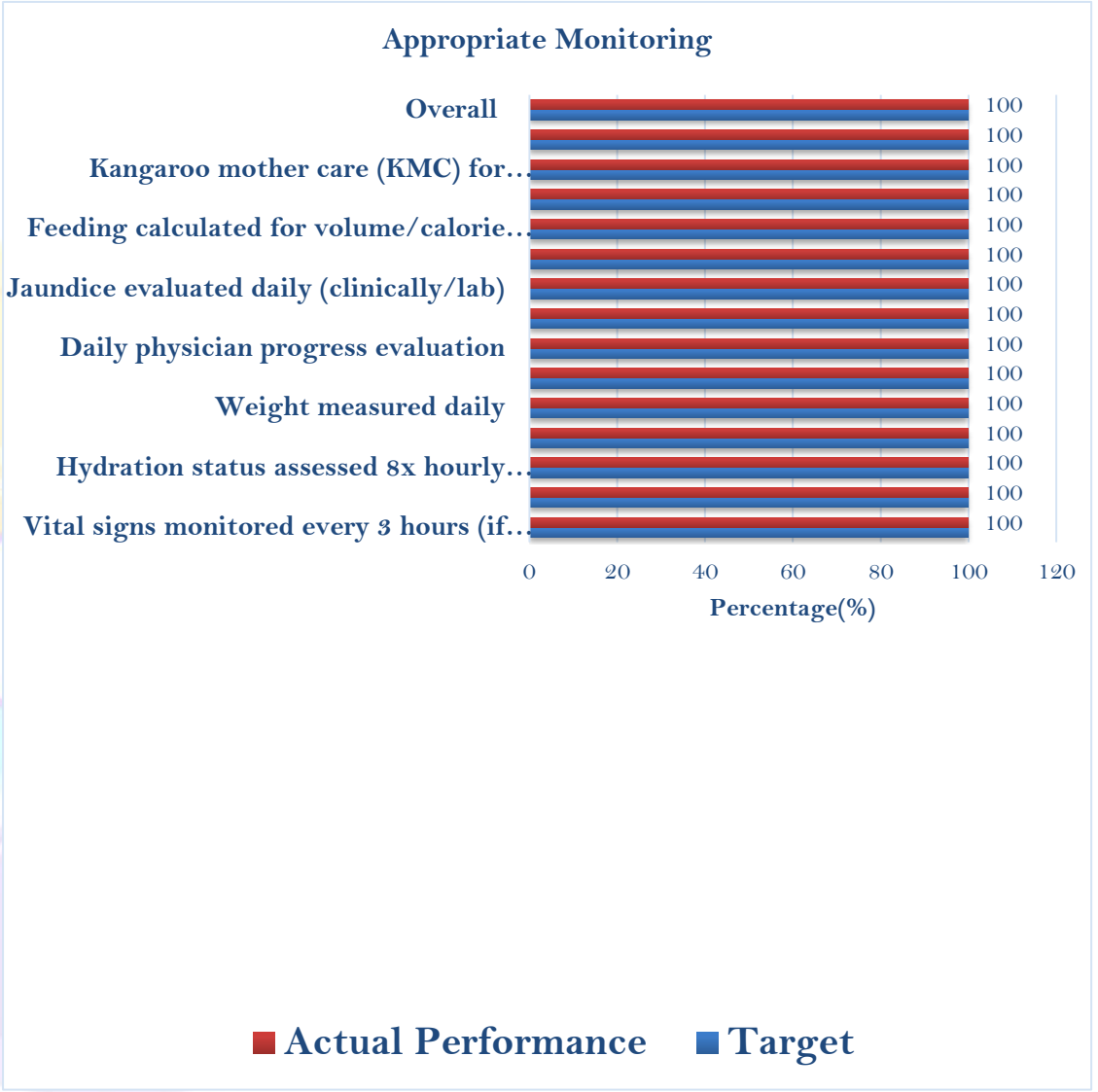


***Figure 8**: Appropriate Monitoring, June 2017E.C.*

Appropriate Discharge Care

- Discharge care met the 100% target. All sub-criteria were fulfilled: clinical assessment at discharge, provision of a complete diagnosis list, comprehensive parent/caregiver counseling (KMC, EBF, sunlight, vaccination, ROP), iron/vitamin D supplementation for eligible infants, vaccination status documentation, and scheduling follow-up with ultrasound requests (**Figure 9**).

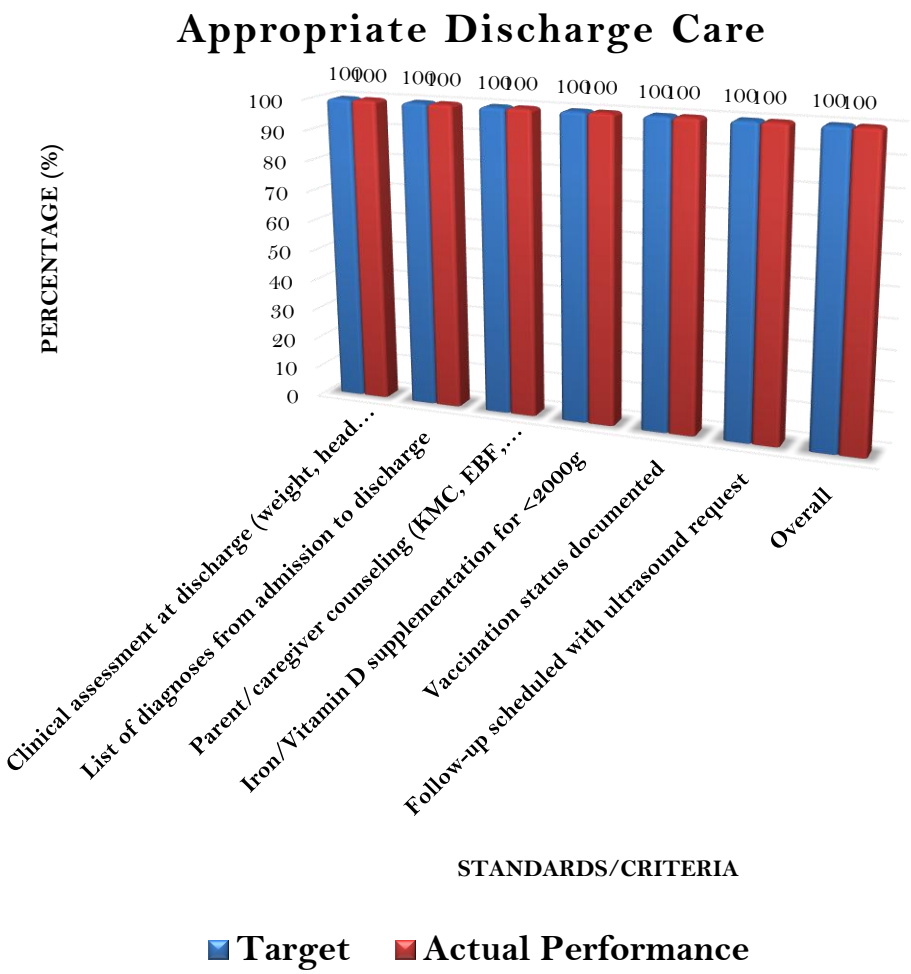


***Figure 9**: Appropriate Discharge Care, June 2017E.*

Provider identification

- Provider identification met the 100% target. Signatures from physicians were present on all required documents (admission H&P, progress notes, order sheets, discharge summaries), and nurse signatures were present on all medication sheets **(Figure 10)**.

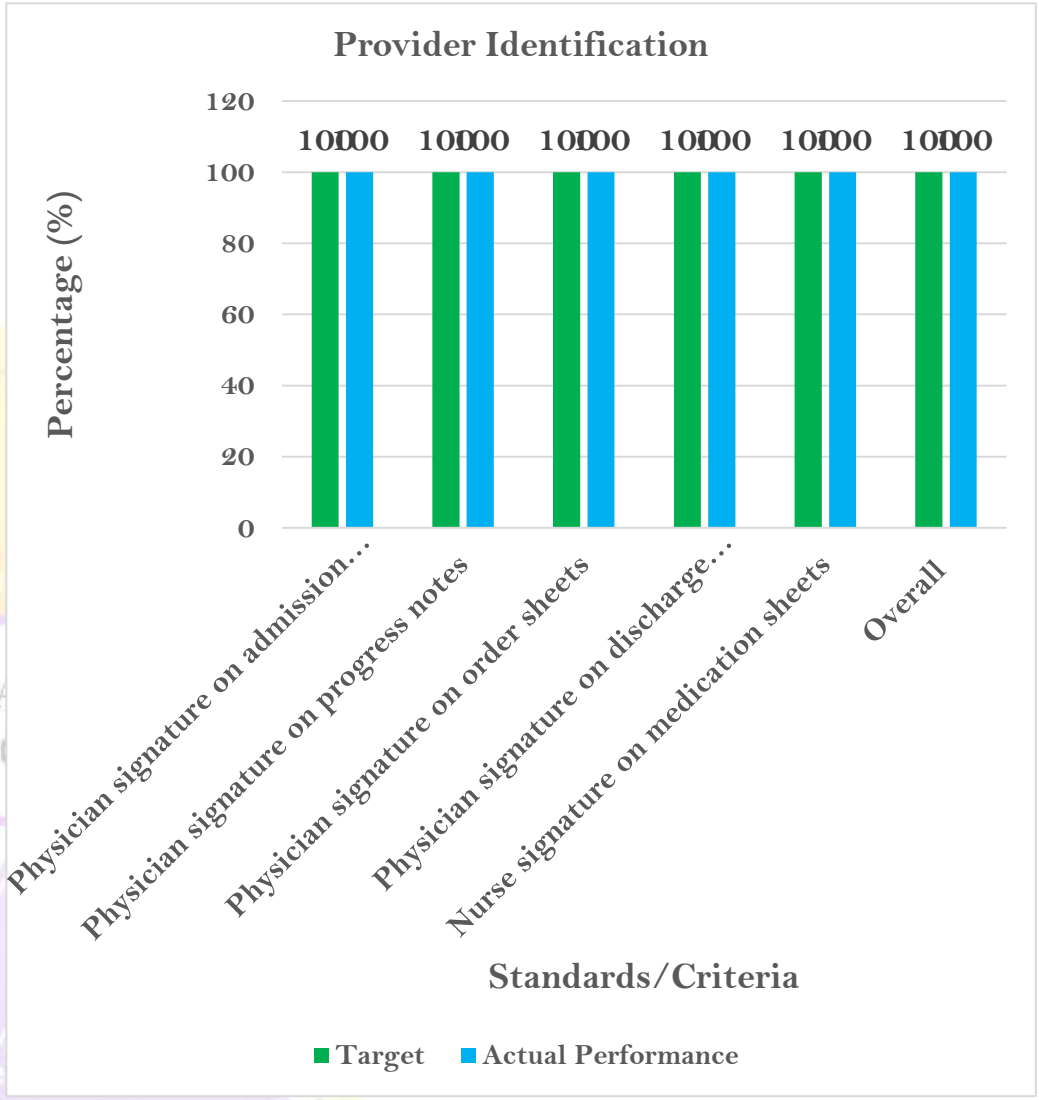


Figure 10: Provider Identification, June 2017E.

Discussion

The overall performance of clinical care for preterm neonates in June 2017 E.C., achieving 89% against a target of 100%, indicates a generally high standard of care delivery, though falling short of the comprehensive ideal. This aggregate score primarily reflects a significant strength in most clinical processes but is notably impacted by a single underperforming variable: Appropriate History documentation. The exceptional achievement of a 0% mortality rate against a 15% target stands out as the most critical positive outcome, suggesting highly effective clinical management and potentially favorable case mix or circumstances during this period.

The data reveals a clear pattern of exceeding expectations in core clinical interventions. Performance surpassed targets substantially in Appropriate Treatment (100% vs 80%) and Appropriate Monitoring (100% vs 80%), indicating strong adherence to therapeutic and observational protocols. Similarly, perfect scores were achieved in Identification, Physical Examination, Diagnosis, Discharge Care, and Provider Identification, demonstrating robust systemic processes in these areas. However, the failure to meet the 100% target for Appropriate History (88%) represents a significant deviation. This gap is crucial, as a thorough history is foundational for accurate diagnosis, risk assessment, and tailored management in vulnerable preterm neonates. The reason for this specific shortfall warrants investigation – it could relate to documentation practices, time pressures, or communication challenges at admission. Conversely, the performance in Relevant Investigations (90%) exceeded its target (80%), potentially indicating either commendable diligence or, less favorably, a tendency towards over-investigation which requires review for cost-effectiveness and necessity.

In conclusion, while the clinical care provided demonstrates considerable strength, particularly in active treatment, monitoring, and achieving an outstandingly low mortality rate, the deficiency in obtaining appropriate histories prevents the service from reaching its overall 100% target. This highlights a specific area requiring focused quality improvement efforts, such as enhanced training, standardized history-taking tools, or process streamlining at admission. Addressing this documentation and information-gathering gap is essential for achieving the highest standard of comprehensive care. The overachievement in investigations also merits review to ensure alignment with evidence-based guidelines and resource optimization. Sustaining the high performance in critical clinical areas while rectifying the history-taking shortfall should be the priority for future improvement initiatives.

RECOMMENDATIONS

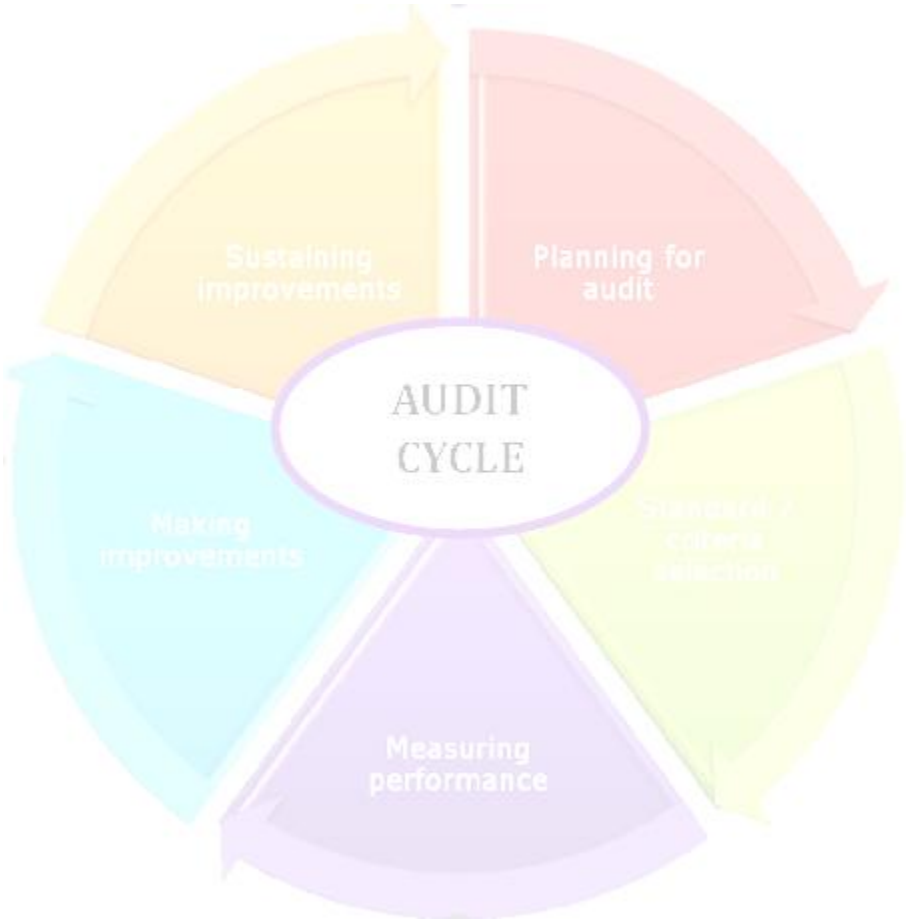
- Standardize history-taking tools (include maternal drugs)
- Procure blood culture bottles & train staff on sepsis protocols
- Monthly audits of drug documentation

Table 2: ***Improvement Plan, June 2017E.C***

Action	Responsible	Timeline
Standardize history-taking tools (include maternal drugs)	Head of Obstetrics	1 month
Procure blood culture bottles & train staff on sepsis protocols	Lab Manager	2 months
Monthly audits of drug documentation	QI Team	Ongoing

REFERENCES

1. WHO. (2017). *Preterm Birth Fact Sheet*. Geneva.
2. Ethiopian Federal Ministry of Health. (2016). *Neonatal Care Guidelines*.
3. Lawn JE, et al. (2014). *Lancet*; 384(9940): 347-370.
4. Sendeku FW, et al. (2020). Perinatal asphyxia in Ethiopia. *BMC Pediatrics* 20: 135.



Guyyaa/ቀን/Date: _____/_____/_____

- **Garee tajaajila NICU ward irraa**
- **Garee Qulquullina Tajaajila Fayyaatiif**

Dhimmi: waa'ee Gabaasa CLINICAL AUDIT galchuu ilaallata

Akkuma mata Dureerrattii ibsamuuf yaalameettii clinical audit" **PRETERM BIRTH**" jedhamu kan **kurmaana 4ffaa** bara **2017** xalayaa Fuula **20** qabuu gaggeessituu kana waliin walqabsiifnee isiiniif eerguu keenya kabajaan isiniif beeksiifnaa.

Nagaya wajjiin!!