# DEDER GENERAL HOSPITAL NEONATAL INTENSIVE CARE UNIT (NICU)

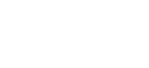
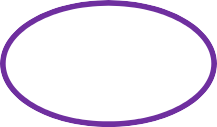
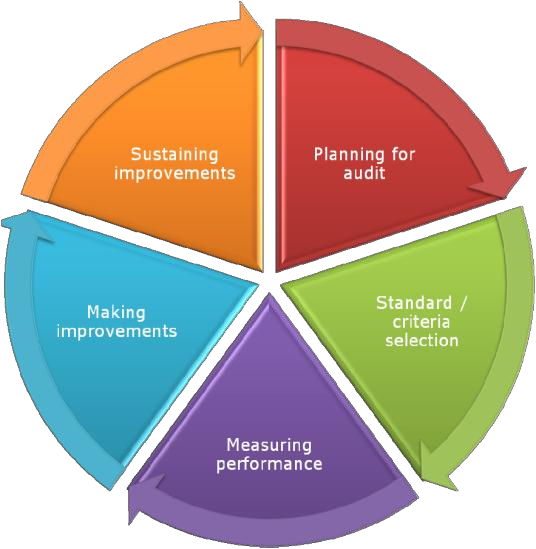
## CLINICAL AUDIT TO IMPROVE THE QUALITY OF CLINICAL CARE OF

**BIRTH ASPHYXIA**

**By:**

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## Advisors:



 ***HSQU Team***

***Dader, Oromia***

***December 2017EC***

## NICU case team Clinical Audit/QI team members:

|  |  |  |  |
| --- | --- | --- | --- |
| **S/N** | **Name** | **Responsibility** | **Remarks** |
| **1.** | Dr. Taju Abdi (MD, Senior) | **Team leader** |  |
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###### INTRODUCTION

Perinatal asphyxia is defined as a condition that leads to progressive hypoxemia, hypercapnia, and metabolic acidosis with multi-organ failure [1]. Perinatal asphyxia is also defined as the inability of a newborn to initiate and sustain adequate respiration after delivery [2]. According to the American College of Obstetricians and Gynecologists, and the American Academy of Pediatrics, a neonate is labelled to be asphyxiated if (a) umbilical cord arterial pH < 7; (b) Apgar score of 0–3 for longer than 5 min; (c) neonatal neurological manifestations (seizures, coma or hypotonia); and (d) multisystem organ dysfunction (cardiovascular, gastrointestinal, hematological, pulmonary or renal system) [3].

### Statement of problem

Globally, 2 to 10 per 1000 term newborns faced perinatal asphyxia [4]. The report of the World health organization (WHO) indicated that 4 million neonatal deaths occur yearly due to birth asphyxia [5]. The incidence of birth asphyxia in most developed countries accounts less than 0.1% of newborn deaths. But, in developing countries, it ranged from 4.6/1000 to 7–26/1000 live births [6]. More than 25.0% of the world's newborn deaths have occurred in Africa. Of those, birth asphyxia accounts 24.0%. From 20 countries in the world with the highest risk of neonatal death, 75.0 % are in Africa [7]. Birth asphyxia, infections and complications of preterm birth together account 88.0% of newborn deaths in Africa. In Sub-Saharan Africa, birth asphyxia brought 280,000 deaths of the newborn in the first day of life [8]. The incidence of asphyxia in East, Central, and Southern Africa was 22.0% [9]. The overall pooled prevalence of perinatal asphyxia in Ethiopia was 24.06% and it is the second commonest cause of neonatal mortality only preceded by prematurity related complications and the commonest cause of disability in surviving newborns (15).

#### OBJECTIVE

#### General objective

* To improve the quality of clinical care provided for neonates admitted with the diagnosis of birth asphyxia

#### Specific objectives

* To ensure neonates with birth asphyxia are appropriately evaluated
* To ensure neonates with birth asphyxia are appropriately investigated
* To ensure neonates with birth asphyxia are appropriately treated
* To ensure neonates with birth asphyxia are appropriately monitored
* To ensure neonates with birth asphyxia receive appropriate discharge care Methods

##### Study area & period

The clinical audit was conducted in NICU of Deder General Hospital from

**September 21, 2017EC To December 20, 2017E.C**

##### Study design

Retrospective cross-sectional study Source population

All charts of Neonates admitted to NICU

Study population

All charts of neonate admitted to NICU with PNA diagnosis Inclusion criteria

All neonates admitted with a diagnosis of birth asphyxia to NICU

##### Exclusion criteria

Death on arrival, those who are observed and sent back to mother or discharged within 24 hours.

##### Sampling technique

A total of 19 medical records (client chart) of the last two months of reporting periods were sampled for the audit. The individual client charts were withdrawn by systematic random sampling.

**Study Variables** Dependent variables: Perinatal Asphyxia

##### Independent Variables

ANC follow-up, Place of birth, mode of delivery,

**Data collection method**

Data extraction sheet was adapted from National clinical audit tool

##### Data Processing & analysis

Data from extraction sheets was manually verified and entered into the SPSS version 25 software for analysis. The software checked data types, sizes, classifications, and allowable values. Corrections were made, and the findings were presented in tables and figures.

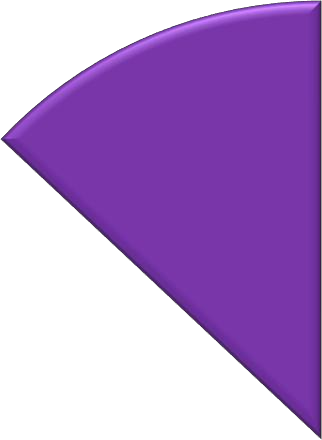
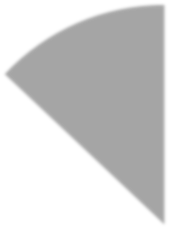
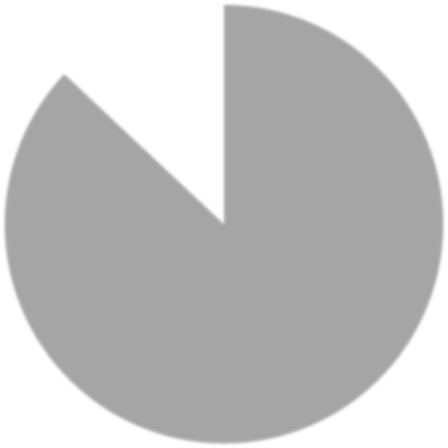
## RESULT

The overall performance of management of birth asphyxia was 87%. The clinical audit on perinatal asphyxia revealed strong performance in documentation, history-taking, diagnosis, treatment, and discharge care, all achieving 100% compliance, reflecting robust clinical protocols and staff diligence. Monitoring during hospitalization showed near-complete compliance (96%), highlighting minor gaps in consistency. However, only 70% compliance was achieved in performing relevant investigations on admission, indicating procedural or resource-related challenges. Most critically, the mortality reduction target was unmet, with no neonates surviving PNA treatment, underscoring an urgent need for improved resuscitation protocols, enhanced postnatal care, and better resource availability to address this critical issue. **(Table 1).**

Table 1**: ACTUAL PERFORMANCE ANDV PERFORMANCE AGAINST TARGET,** **December 2017E.C**

|  |  |  |  |
| --- | --- | --- | --- |
| **S.no** | **Standards/criteria for PNA** | **Target** | **Actual performance** |
| 1. | Identification information is recorded for a neonate with birth asphyxia | 100 | 100 |
| 2. | Appropriate history is taken for a neonate with birth asphyxia | 100 | 100 |
| 3. | Appropriate physical examination is performed for a neonate with birth asphyxia | 100 | 100 |
| 4. | Relevant investigations are done for a neonate with birth asphyxia at the day of admission | 80 | 70 |
| 5. | Appropriate diagnosis is made for a neonate with birth asphyxia | 100 | 100 |
| 6. | Appropriate treatment is provided for a neonate with birth asphyxia on the immediate admission day | 100 | 100 |
| 7. | Appropriate monitoring is done for a neonate with birth asphyxia during hospital stay | 100 | 96 |
| 8. | Appropriate discharge care is provided for a neonate with birth asphyxia | 100 | 100 |
| 9. | Identification of provider is documented for a neonate with birth asphyxia | 100 | 100 |
| 10. | A neonate with birth asphyxia died while being treated in the health facility 15% | 15 | NA |
|  | Total performance (%) |  | **866/1000=87%** |

**Overall Performance of Management of Birth Asphyxia**



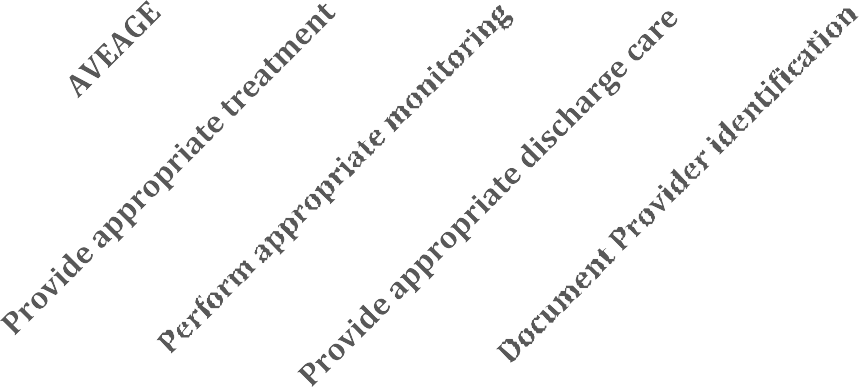
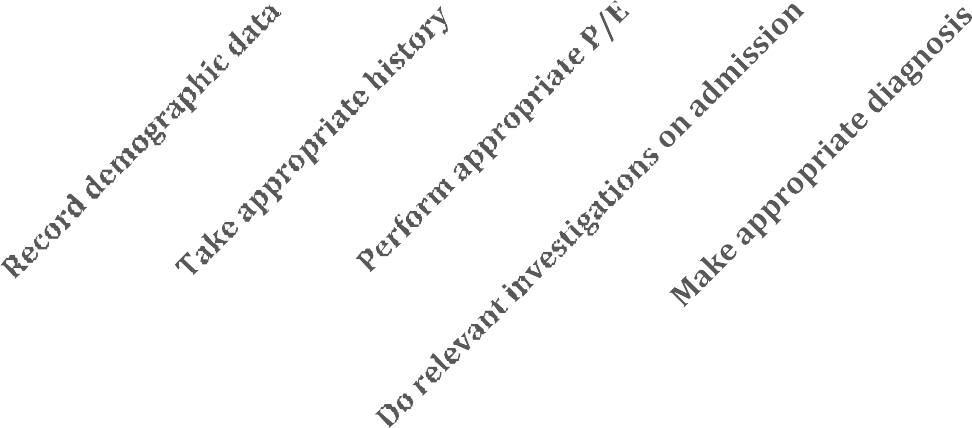
**13%**

**87%**

**Actual Performace**

**Performance against target**

Figure 1:**Overall Performance of Management of Birth Asphyxia at DGH NICU, Dec 2017EC**



**Graph showing score for each criterion/standard for management of Birth asphyxia, Dec 2017EC**

**Percentage (%)**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 120 |  |  |  |  |  |  |  |  |  |  |
| 100 | **100** | **100** | **100** |  | **100** | **87** | **100** | **96** | **100** | **100** |
| 80 |  |  |  | **70** |  |  |  |  |  |  |
| 60 |  |  |  |  |  |  |  |  |  |  |
| 40 |  |  |  |  |  |  |  |  |  |  |
| 20 |  |  |  |  |  |  |  |  |  |  |
| 0 |  |  |  |  |  |  |  |  |  |  |
| Figure 2 **score for each criterion/standard for management of Birth asphyxia, 2017** | | | | | | | | | | |

**RECOMMENDATIONS**

1. Improve Relevant Investigations:
2. Enhance Monitoring During Hospital Stay:

Table 2: **Clinical audit of Perinatal asphyxia identified gaps and action plan, December 2017E.C**

|  |  |  |  |
| --- | --- | --- | --- |
| **Gaps** | **Proposed Action** | **Responsible Person(s)** | **Timeline** |
| Low compliance in relevant investigations (64%) | * Ensure necessary diagnostic equipment and reagents are available * Develop a checklist for required investigations to be completed within 24 hours of admission. | * Finance head (Obsa) and * NICU head (Usmail) | 2 months (From Jan 10,  2017-mar 10, 2017E.C |
| Insufficient monitoring (96%) | * Reinforce accountability among nurses for accurate neonatal monitoring in hospital stay | NICU Head (Usmail) | From Jan 10,  2017 onward |
| **Monitoring and Evaluation** | | | |
| **Indicator** | **Monitoring Tool** | **Evaluation Frequency** | **Target** |
| Percentage of neonates with relevant investigations. | Investigation checklists, audit reports. | Monthly performance reviews, & quarterly audits. | 90% within 1 month, 100% in 3 months. |
| Percentage of neonates with complete monitoring. | Monitoring records, digital tools. | Monthly performance reports. | 90% within 1 month, 100% in 3 months. |

Table 3: **The implementation status report of Perinatal asphyxia clinical audit action plan, December 2017E.C**

|  |  |  |  |
| --- | --- | --- | --- |
| **S/N** | **Planned Action** | **Target Completion** | **Current Status** |
|  | Improve documentation standards | Achieved | Significant improvements, 100% compliance. |
|  | Enhance diagnosis and treatment protocols | Achieved | Diagnosis and treatment protocols consistently met with 100% compliance. |
|  | Ensure relevant investigations are performed | March 2017 | Partial improvement; 70% compliance achieved due to resource or procedural gaps. |
|  | Strengthen monitoring during hospitalization | January 2017 | Near-complete compliance; 96% achieved, with minor consistency gaps. |



**DEDER GENERAL HOSPITAL**

***CLINICAL AUDIT QUALITY IMPROVEMENT PLAN/PDSA FORM***

**Clinical Audit Title: CLINICAL AUDIT TO IMPROVE THE QUALITY OF CLINICAL CARE OF BIRTH ASPHYXIA**

**Clinical Audit Lead: Dr.Taju Abdi Department /Team NICU Audit Cycle: 2**

**Adapt***(Modify this change and plan next PDSA cycle; loop backto “Plan”)* **Abandon***(Change didn’twork/won’t leadtoimprovement. Identify new change; plannew PDSAcycle; loopbackto“Plan”)*

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  | **Plan** | | | | | **DO** | **STUDY** | **ACT** |
| **S/N** | **Recommendation** | **Actions to address the recommendation/Change idea** | **Person Responsible** | **Target Date** | **Data collection plan** | | Carry out the plan. Record data, observations and modifications to the plan. Use visual descriptions such as run charts to describe what actually happened | Complete analysis and synthesis. Do the results align with the explicit criteria?  Write the progress made in the implementation, the difficulties faced and actions taken to  address them. | **Decision**: What action are we going to take as a result of this cycle (**Adopt, Adapt, or Abandon**)? Are we ready to implement? What other processes or systems might be affected by this change? |
| Recommendation based on findings fromclinical audit report form | What change will we test? What do we need to try the change? | Who will  perform the test? (Name or Role) | When will this be complete? | How will we collect data? (Checklist, Chart audit,) | Who will collect the data? (Name or Role) |  |  |  |
|  |  | Improve Relevant Investigations: | * Ensure necessary diagnostic equipment and reagents are available * Develop a checklist for required investigations to be completed within 24 hours of admission | Finance head (Obsa) and NICU head (Usmail) | Until next audit (Mar 2017) | Checklist | Abdi & Abdella |  |  |  |
|  |  | Enhance Monitoring During Hospital Stay: | - Reinforce accountability among nurses for accurate neonatal monitoring in hospital stay | NICU Head (Usmail) | From jan 10,  2017 | Checklist | Abdi & Abdella |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |

**Adopt** *(Data revealed this change was effective andworked well; Nextstep, develop implementation plan)* **>>>>**

|  |  |  |
| --- | --- | --- |
| **Completed by:** | **Sign off:** | **Date of review of PDSA:** |

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