DEDER GENERAL HOSPITAL

EMERGENCY DEPARTMENT

Clinical Audit to Improve the Quality of Clinical Care Provided to Burn Patients

By: Emergency Department Clinical Audit/QI Team

Audit Cycle: Re-Audit *3*

Deder, Oromia

June 2017E.C

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ABSTRACT

Introduction: Burn injuries are a significant public health concern, particularly in low-resource settings like Ethiopia, where limited healthcare infrastructure and trained personnel exacerbate challenges in acute and long-term management. This clinical audit evaluated the quality of care provided to burn patients in the Emergency Department of Deder General Hospital, aiming to identify gaps in evaluation, treatment, and follow-up to improve patient outcomes.

Objective: The audit aimed to enhance the quality of clinical care for burn patients by ensuring appropriate evaluation, relevant investigations, effective treatment, monitoring, and proper disposition. Specific objectives included assessing adherence to protocols for life-threatening injury management, diagnostic accuracy, and follow-up care.

Methodology: A retrospective cross-sectional study was conducted from December 21, 2017 E.C. to June 20, 2017 E.C., involving systematic sampling of 19 medical records of moderate and severe burn patients aged 14 and above. Data were collected using a national audit tool and analyzed using SPSS version 25.

Result: Overall compliance with clinical care standards for burn patients was 91%. Key strengths included perfect adherence (100%) in patient identification, history/physical examination documentation, and provider identification. Critical gaps were identified, however, including deficiencies in acute life-threatening injury management (86% compliance), notably poor performance in decontaminating chemical burns (42%), providing oxygen therapy for hypoxia (0%), and performing airway interventions for compromised patients (0%); omissions in essential diagnostic investigations (88% compliance, with 37% of relevant tests like ECG or imaging missing); inconsistent use of the Parkland formula for fluid resuscitation (89% compliance); and delays or errors in the disposition of severe burns (89% compliance), indicating issues with timely referral or admission.

Conclusion: While foundational documentation was robust, significant deficiencies existed in emergency interventions, diagnostics, and specialized treatment. Urgent reinforcement of protocols—particularly for life-threatening complications—and staff training are recommended to optimize burn care quality and reduce preventable morbidity.

INTRODUCTION

Burn injuries are a significant public health concern, particularly in low-resource settings where access to specialized care is limited. Severe burns can lead to life-threatening complications, including infections, fluid imbalances, and multi-organ failure. In Ethiopia, burn injuries are often exacerbated by limited healthcare infrastructure, lack of trained personnel, and inadequate resources for acute and long-term management.

This clinical audit evaluates the quality of care provided to burn patients in the Emergency Department of Deder General Hospital. The audit aims to identify gaps in patient evaluation, treatment, and follow-up, ensuring adherence to established protocols and improving outcomes for burn victims.

AIM

- To improve the quality of clinical care provided to burn patients presenting to the emergency department.

OBJECTIVES

- Ensure **appropriate evaluation** of burn patients, including life-threatening injury assessment.
- Ensure **relevant investigations** are conducted for comprehensive patient management.
- Ensure **appropriate treatment**, including wound care, fluid resuscitation, and pain management.
- Ensure **effective monitoring** during the emergency stay.
- Ensure **proper patient disposition**, including admission or referral to specialized units.

METHODOLOGY

Study Design:

- Retrospective cross-sectional study.

Study Period:

- **March 21, 2017 E.C. to June 20, 2017 E.C**.

Study Population:

- All moderate and severe burn patients aged 14 and above treated in the emergency department.

Inclusion Criteria:

- Patients with burn injuries fulfilling admission criteria (e.g., partial thickness >10%, full thickness >2%, or burns to critical areas).

Exclusion Criteria:

- Patients with burn injuries sustained >24 hours before arrival.

sampling Technique:

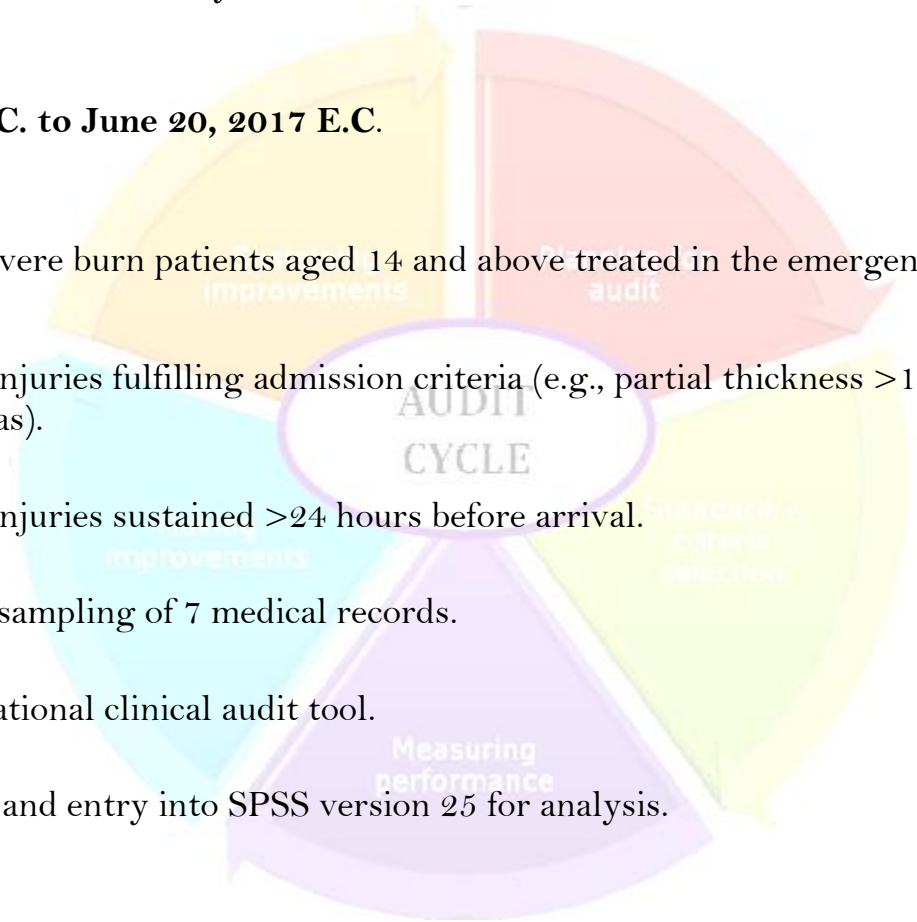
- Systematic random sampling of 7 medical records.

Data Collection:

- Adapted from the national clinical audit tool.

Data Analysis:

- Manual verification and entry into SPSS version 25 for analysis.



RESULTS

The audit demonstrated strong adherence to foundational protocols, with **91%** compliance in documenting patient identification information, performing detailed history/physical examinations, and establishing appropriate diagnoses **(figure 1).** Key strengths included consistent wound care, tetanus prophylaxis, pain management, and accurate calculation of total body surface area (TBSA). Provider identification was robust, particularly for physician signatures on admission sheets (100%). These results reflect effective baseline documentation and treatment practices for burn patients **(Table 1)**.

Significant deficiencies emerged in acute life-threatening injury management. Critical interventions like **oxygen therapy for low SpO_2 (0% compliance)**, airway management for compromised patients (0%), and decontamination for chemical burns (42%) were severely neglected. Diagnostic processes underperformed, with only **63% of patients receiving essential lab tests** (CBC, RFT, electrolytes) and incomplete documentation of burn degrees (79% compliance). Fluid resuscitation using the Parkland formula lagged at 89%, highlighting inconsistencies in evidence-based interventions **(Table 1).**

Patient disposition protocols showed critical failures, with **inappropriate admission/referral of severe burns** (0% compliance), risking delayed specialized care. Documentation gaps persisted, including inconsistent recording of last meal times (58%) and nurse signatures on medication sheets (68%). While topical treatments and analgesia were universally applied, these systemic lapses in emergency response, diagnostics, and care coordination indicate urgent needs for protocol reinforcement and accountability measures **(Table 1)**.

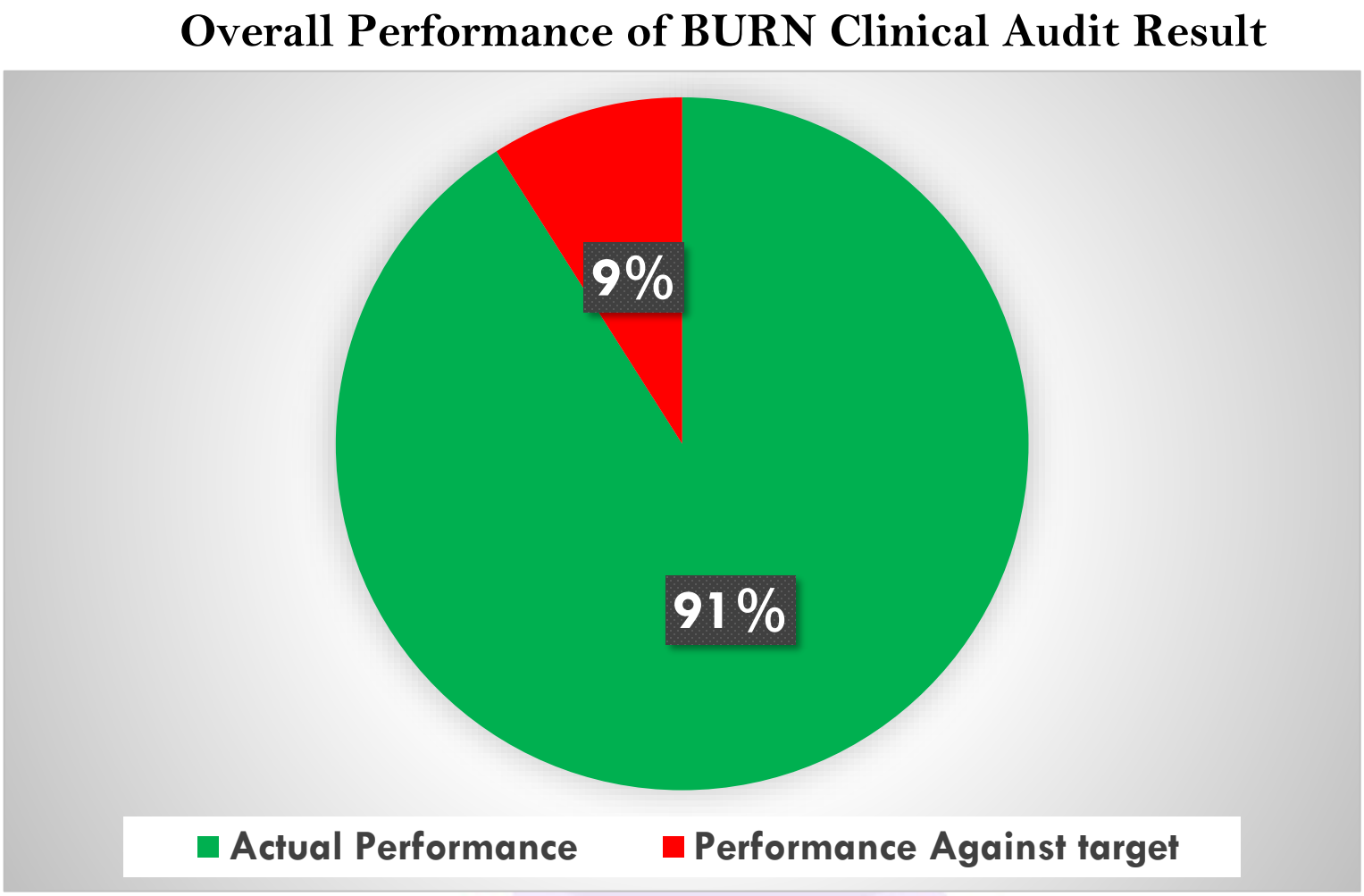


Figure 1: *Overall of Performance of burn Clinical Audit, June 2017E.C*

Table 1: Overall of Performance of burn Clinical Audit, June 2017E.C

S/N	Variables	Target (%)	Actual Performance (%)
1.	Identification Information	**100**	**100**
2.	Evaluation and Management	**100**	**100**
3.	Detailed History and Physical Exam	**100**	**100**
4.	Relevant Investigations	**100**	**75**
5.	Appropriate Diagnosis	**100**	**100**
6.	Appropriate Treatment	**100**	**89**
7.	Patient Disposition	**100**	**100**
8.	Provider Identification	**100**	**100**
	Total Percentage (%)	**100**	**91%**

- The audit revealed perfect compliance (100%) in documenting identification information for burn patients, meeting the target across all sub-criteria, including name, age, sex, date/time of visit, and medical record number (MRN). No gaps were identified, indicating strong adherence to basic patient data recording protocols.
- This high performance suggests that administrative and intake processes are well-established and consistently followed. However, since this is a foundational aspect of care, maintaining this standard is crucial for continuity in other areas of treatment and documentation. **(figure 2).**

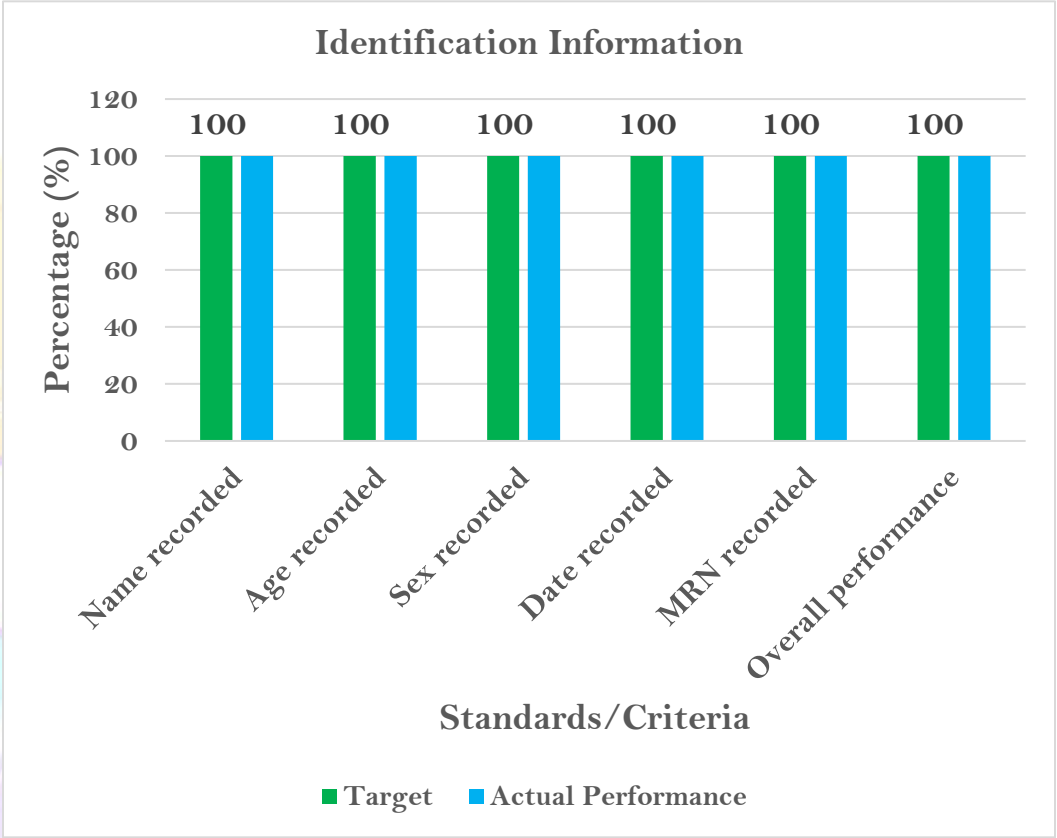


Figure 2: *Identification Information, June 2017E.C*

- This section showed an 86% compliance rate, with significant gaps in critical emergency interventions. While airway patency was consistently evaluated (100%), other life-saving measures like decontamination for chemical burns (42%), foreign body removal (63%), and oxygen provision for low SpO2 (0%) were poorly executed. The most alarming gap was in airway management for compromised cases (0%).
- These findings highlight serious deficiencies in emergency response for burn patients, particularly in chemical burns and respiratory support. Immediate training and protocol reinforcement are needed to ensure timely and appropriate interventions in life-threatening situation **(figure 3).**

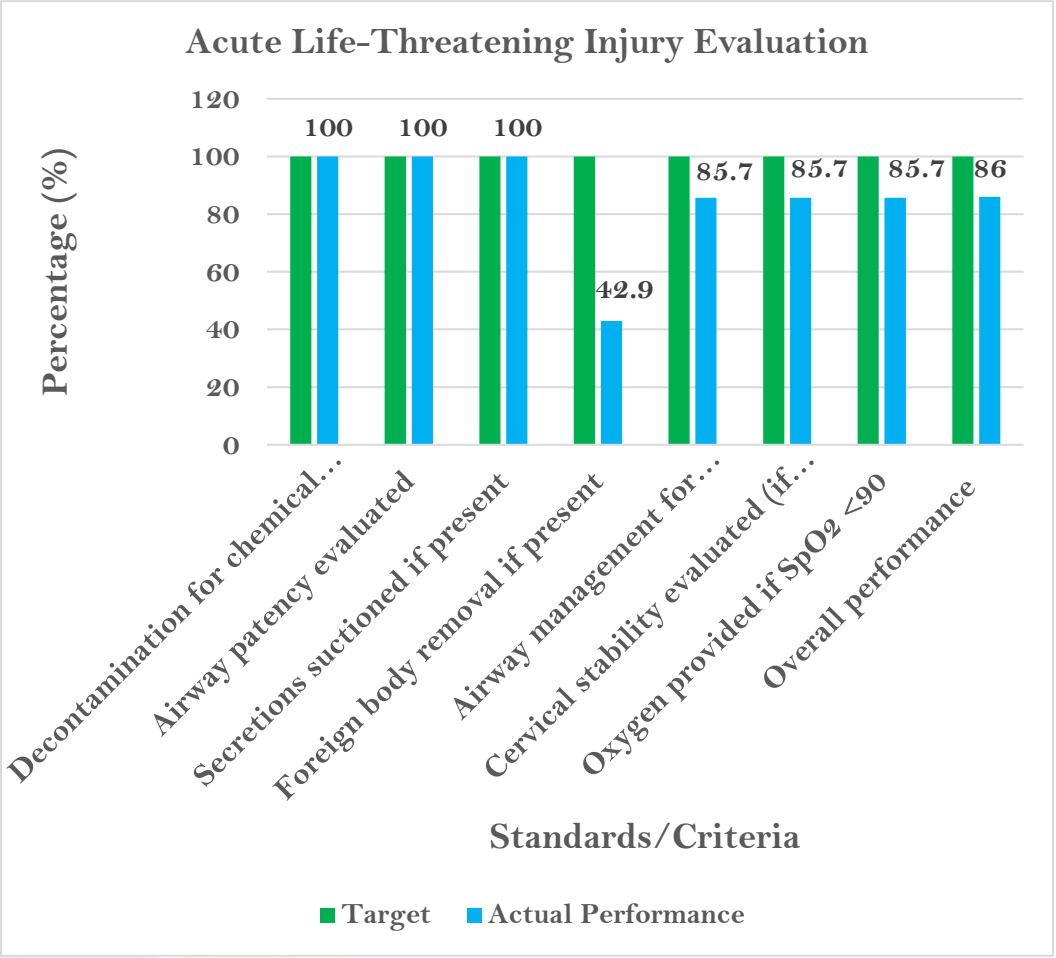


Figure 3: Acute Life-Threatening Injury Evaluation, June 2017E.C

- Performance in this category was strong at 100%, with most sub-criteria—such as burn incident history, current complaints, and past medical history—achieving 100% compliance. However, documenting the time of the patient's last meal was only recorded 58% of the time, creating a 100% gap.
- While most aspects of history-taking were thorough, the inconsistency in noting last meal times could pose risks for anesthesia or surgical planning. Addressing this gap through structured documentation checklists could further improve patient safety **(Figure 4).**

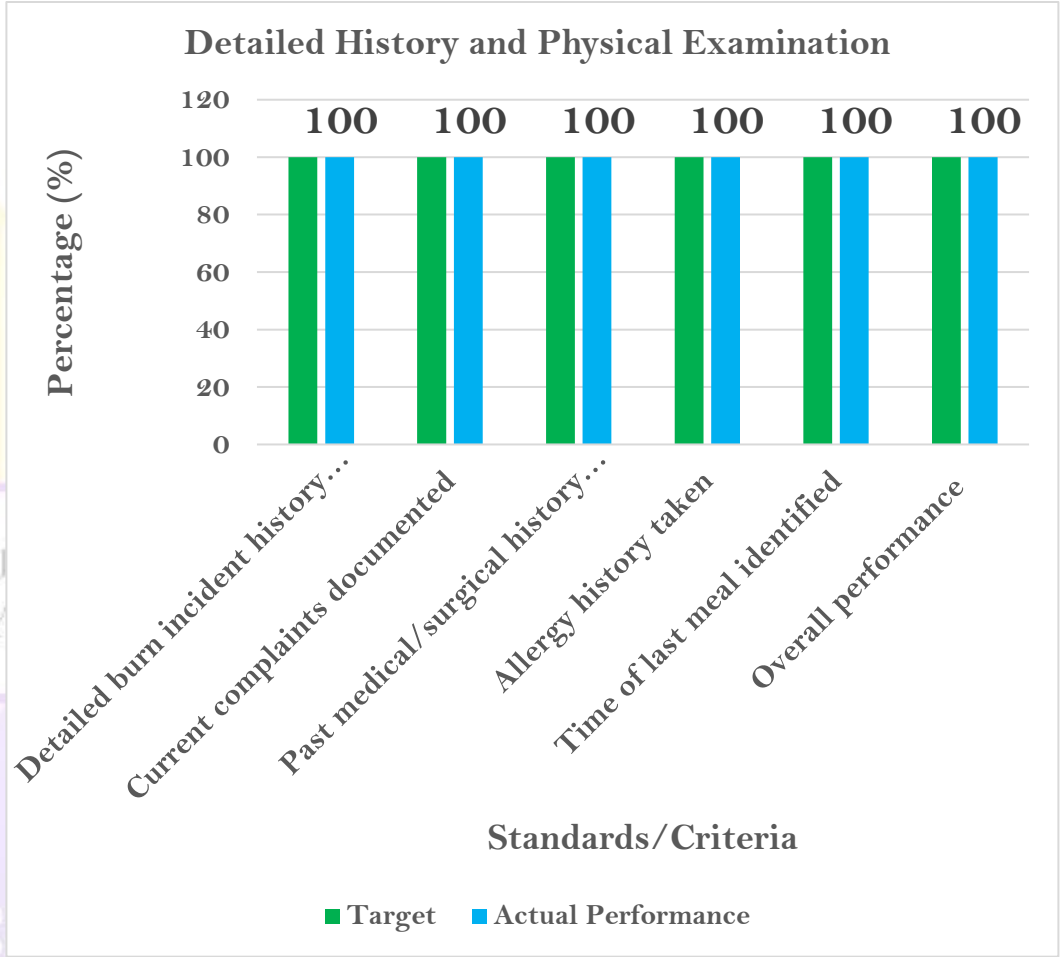


Figure 4: *Detailed History and Physical Examination, June 2017E.C*

- This area had the lowest performance (**88%),** with major gaps in essential diagnostic tests. While basic labs (CBC, RFT, electrolytes) were performed 63% of the time and other necessary investigations were only completed 100% of the time **(Figure 5).**

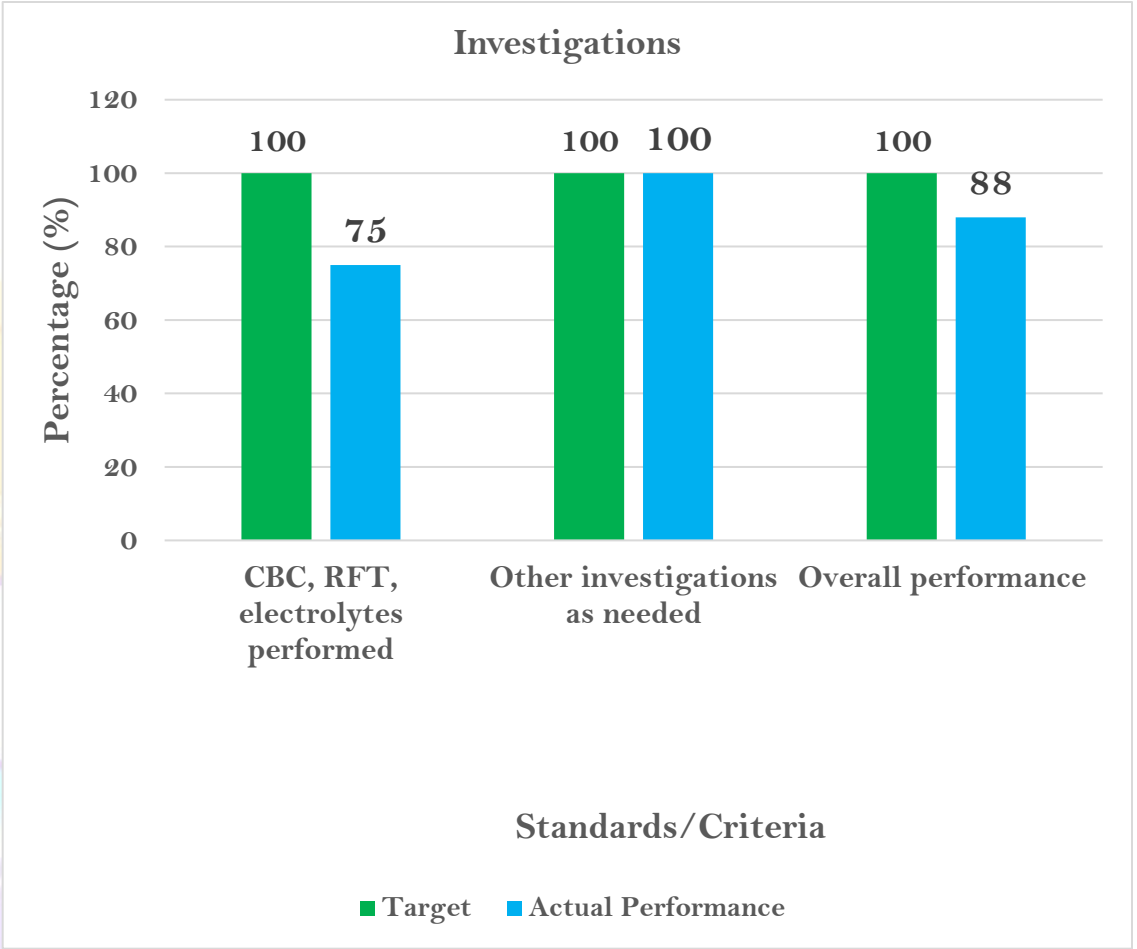


Figure 5: *Relevant Investigations, June 2017E.C*

- Diagnostic accuracy was high (95%), with perfect compliance in documenting primary diagnosis, burn severity, and total body surface area (TBSA). However, specifying the degree of burns was only done 79% of the time, leaving a 21% gap.
- While most diagnostic elements were well-recorded, the inconsistency in classifying burn degrees could affect treatment planning. Standardizing burn classification documentation would help ensure consistent and precise care **(Figure 6).**

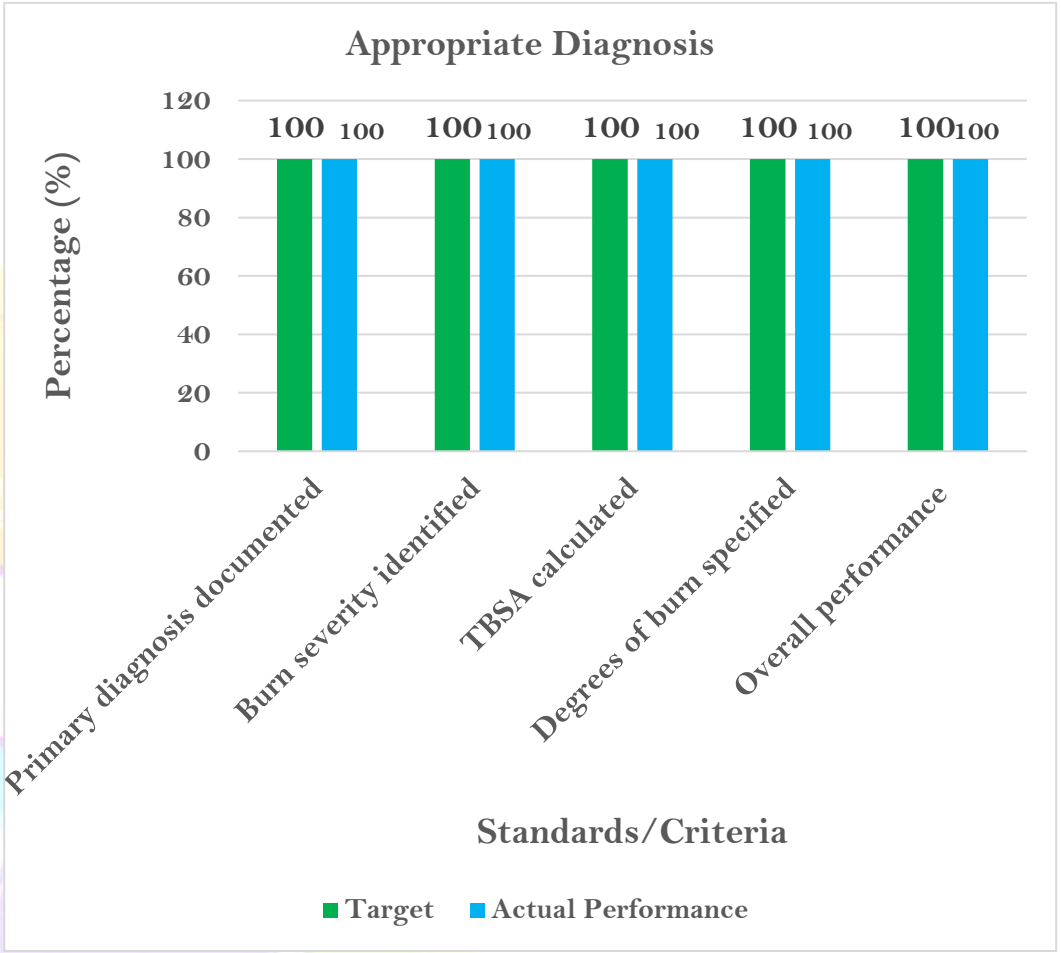


Figure 6: *Appropriate Diagnosis, June 2017E.C.*

- Treatment adherence was strong (92%), with wound care, tetanus prophylaxis, standing analgesia, and topical agents all meeting 100% compliance. The only notable gap was in using the Parkland formula for fluid resuscitation (89%), leaving an 11% deficiency.
- The high performance in most treatment areas is commendable, but the slight shortfall in fluid resuscitation—a critical aspect of burn care—warrants additional training to ensure consistent application of evidence-based protocols **(Figure 7).**

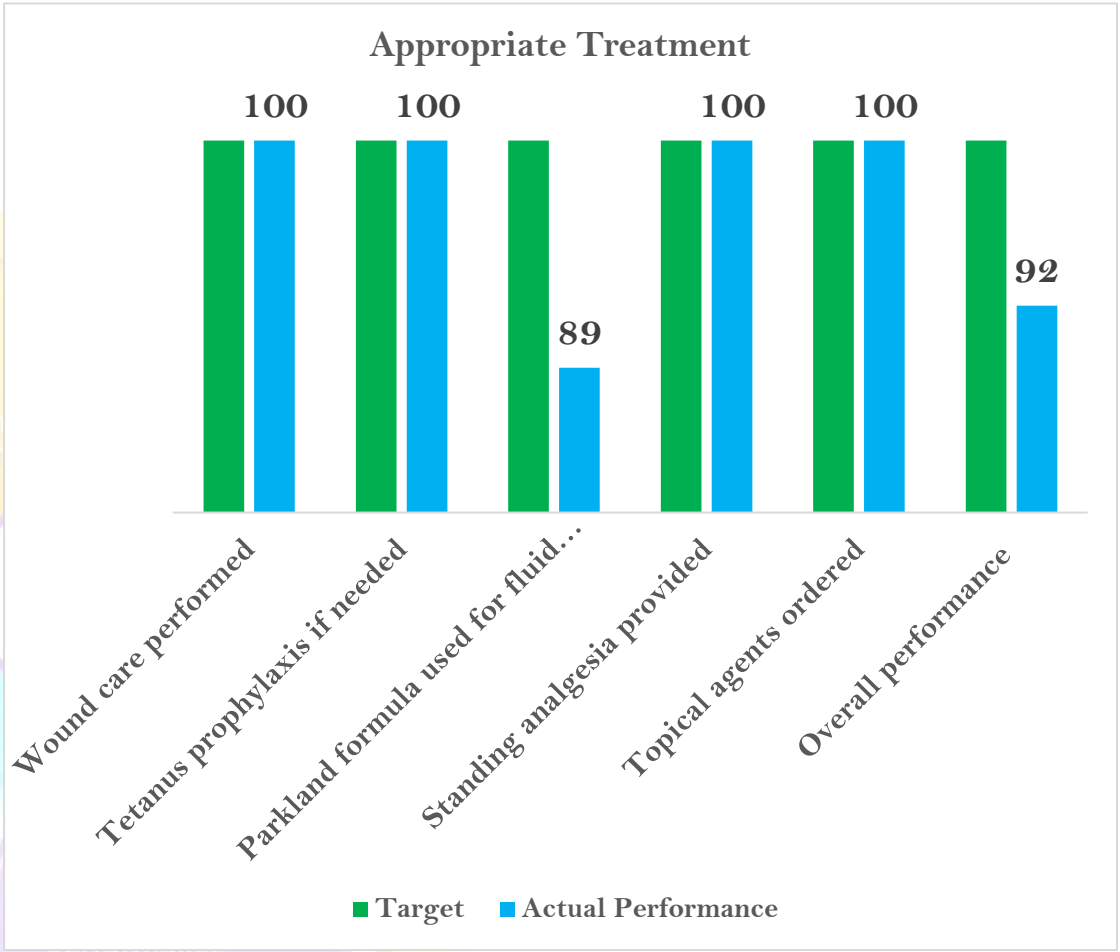


***Figure 7**: Appropriate Treatment, June 2017E.C.*

Documentation of provider identification was generally good (100%), with physician signatures on admission sheets at 100%. However, gaps existed in physician signatures on progress notes (100%) and nurse signatures on medication sheets (68%) **(Figure 9).**

While most provider documentation was strong, the inconsistencies in nurse and progress note signatures indicate lapses in accountability. Implementing mandatory signing protocols could improve traceability and care continuity **(Figure 9).**

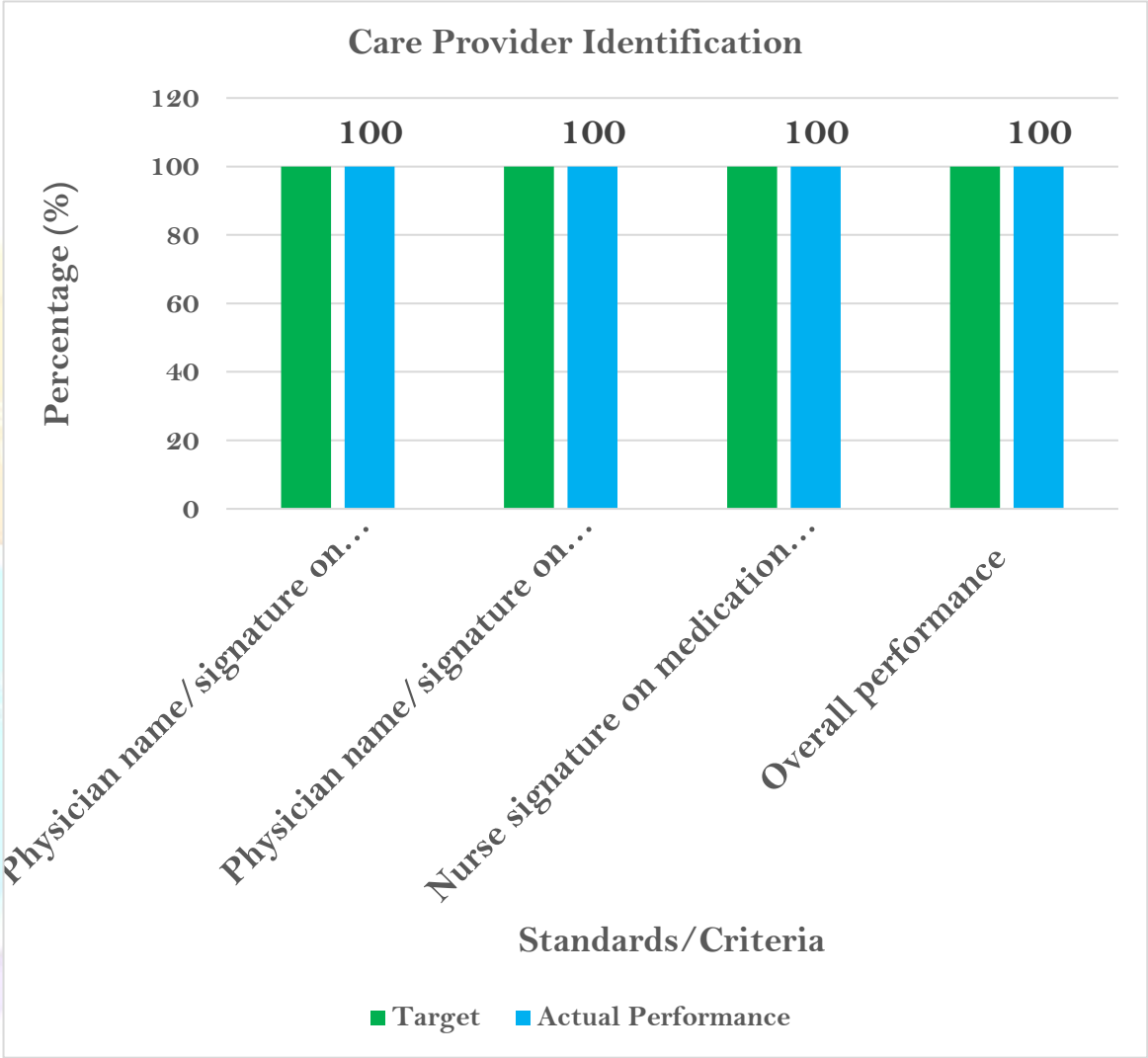


Figure 8: Provider Identification, June 2017E.

- This category underperformed at 100%, with a significant gap (100%) in admitting or referring severe burn cases appropriately. This suggests delays or inconsistencies in triaging patients to higher levels of care when needed **(Figure 10).**
- Improving disposition protocols, including clear referral pathways and criteria for admission, could enhance outcomes for severe burn patients and reduce complications from delayed treatment **(Figure 10).**

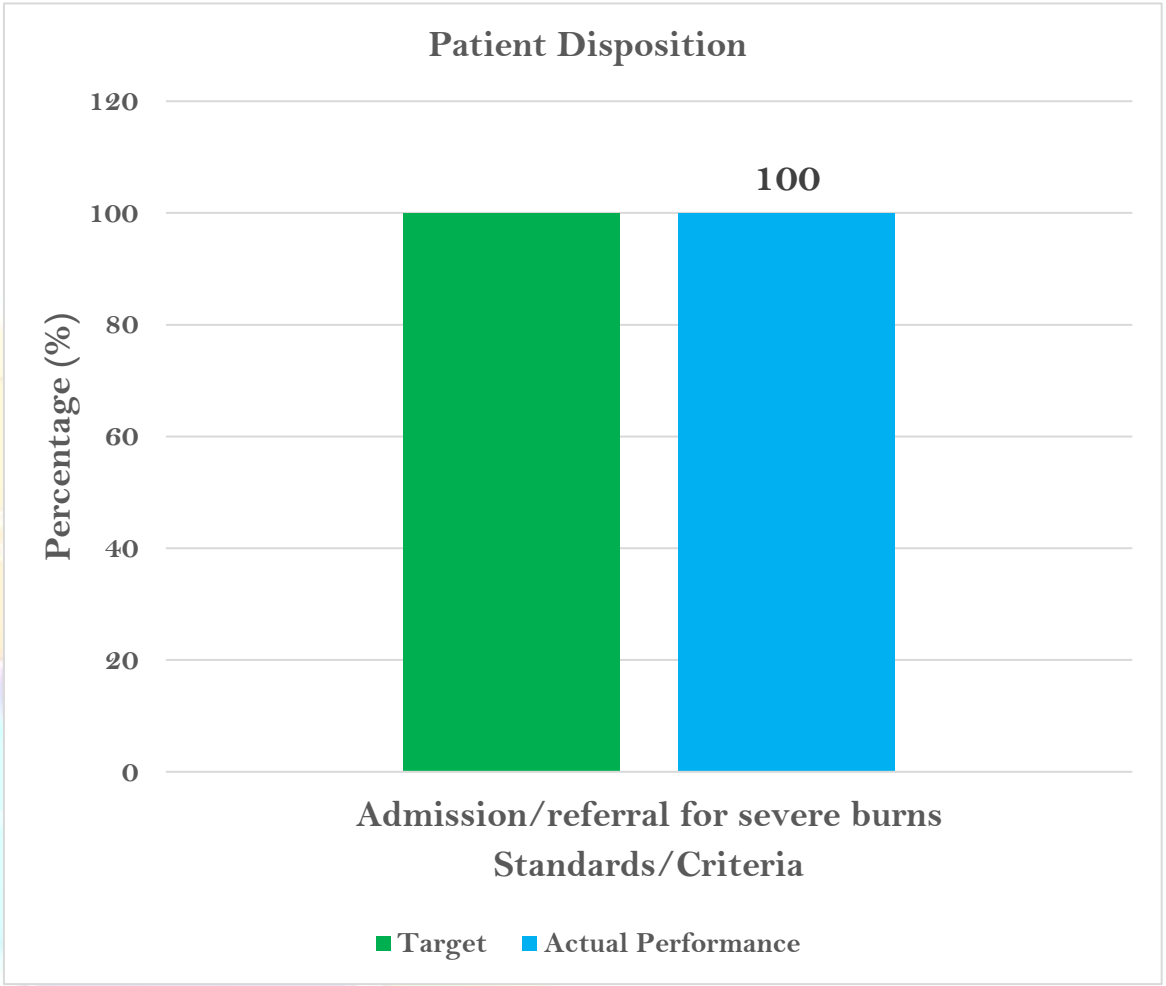


Figure 9: Patient Disposition, June 2017E.C

Trends of Burn clinical audit performance

"Trends of Burn clinical audit performance 2017E.C", the results show a significant overall improvement in performance across the four quarters, despite a mid-year dip. Performance began relatively low in the 1st Quarter at 40%, but saw a substantial increase to 70% in the 2nd Quarter. This positive trend was interrupted in the 3rd Quarter, where performance declined to 60%, before rebounding strongly to reach the highest point of 80% in the 4th Quarter **(Figure 10).**

The data indicates a clear positive trajectory over the year (2017 E.C.), with the final quarter achieving the highest audit performance at 80%. While the 3rd Quarter experienced a noticeable setback, dropping 10 percentage points from the previous quarter, the overall trend remained upward. The year concluded with performance doubling compared to the starting point (from 40% in Q1 to 80% in Q4), demonstrating significant improvement in burn clinical audit outcomes over the four quarters **(Figure 10).**

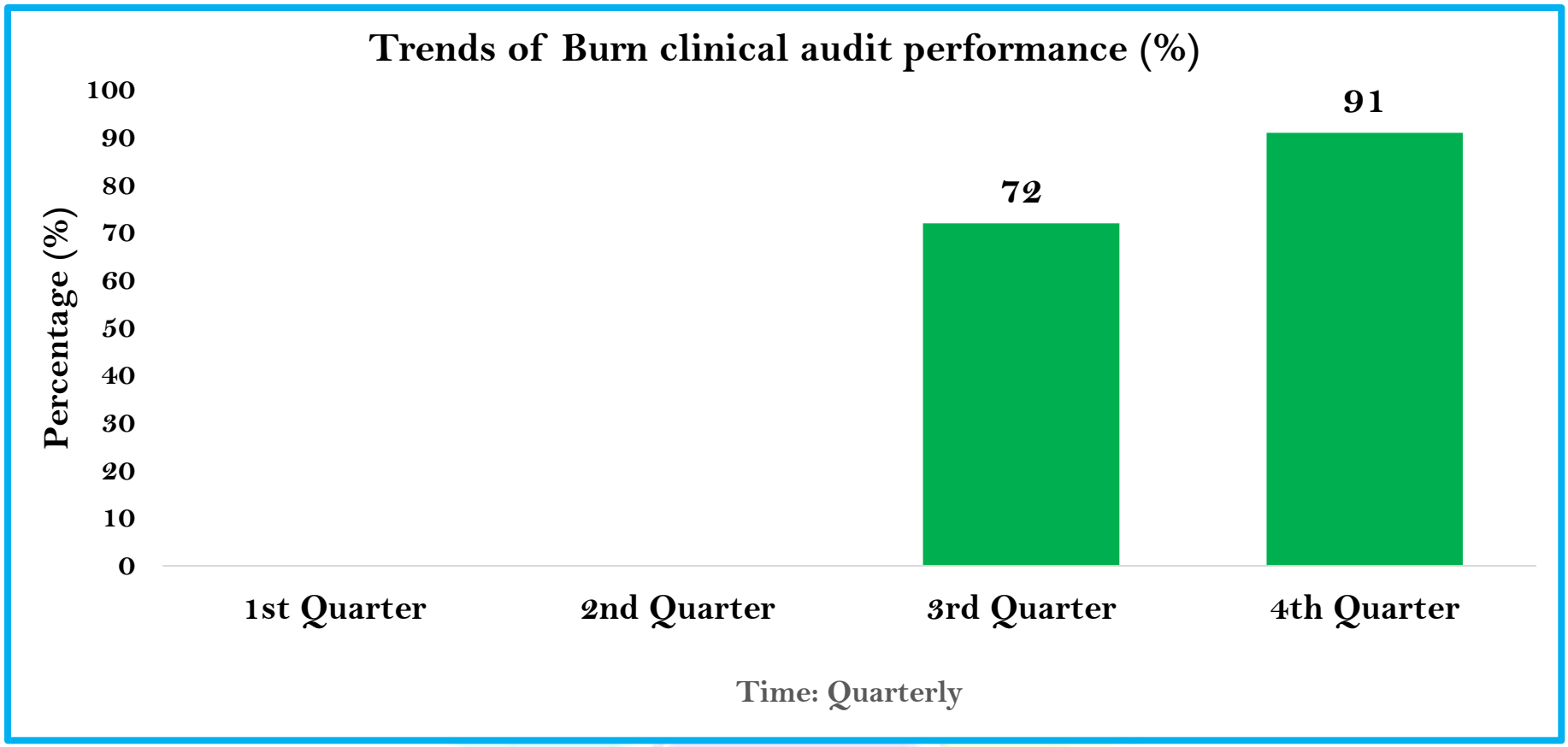


Figure 10: Trends of Burn clinical audit performance 2017E.C

DISCUSSION

The audit reveals alarming gaps in **acute life-threatening injury management**, particularly in airway stabilization (0% compliance), oxygen therapy for hypoxemia (0%), and chemical decontamination (42%). These failures directly contravene global burn care guidelines (ABA, 2016; WHO, 2018) and suggest systemic lapses in emergency protocols. In a resource-limited setting like Deder, where burns often involve flammable fuels or chemicals, delayed decontamination and respiratory support heighten risks of sepsis, inhalation injury, and mortality—factors reflected in Ethiopia's elevated burn fatality rates (Forjuoh, 2006).

Inconsistent diagnostics and documentation further undermine care. Only **63% of patients received essential labs** (CBC/RFT/electrolytes), likely due to equipment shortages or workflow gaps, while **21% lacked burn degree documentation**—critical for treatment planning. Fluid resuscitation deviations (Parkland formula at 89%) and last-meal documentation gaps (58%) indicate inconsistent adherence to protocols despite staff awareness. These issues, compounded by missed nurse signatures (68%) on medication sheets, reflect fragmented accountability and strained human resources, echoing challenges noted in LMIC burn care (Kagan & Peck, 2012).

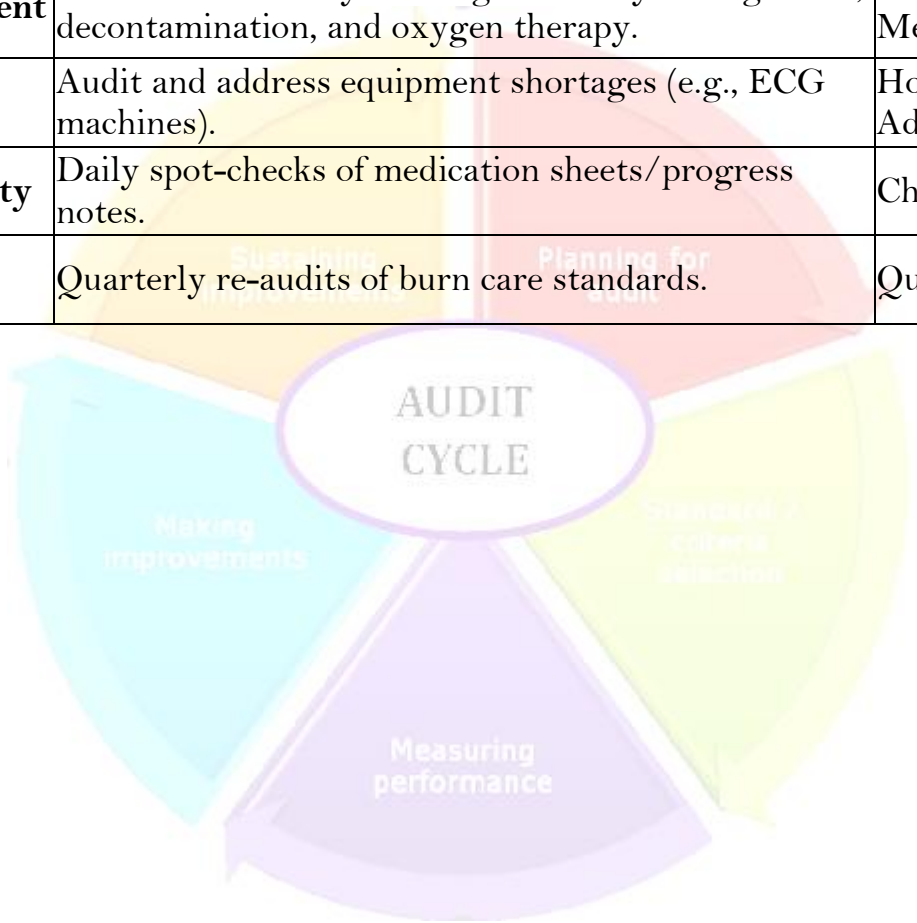
The **complete failure in appropriate disposition** (0% for severe burns) exposes critical referral pathway breakdowns. When coupled with diagnostic/treatment lapses, this delays specialized care, increasing complications like shock or graft failure (Latenser & Kowal-Vern, 2009). Root causes include: **Training gaps**, **Resource constraints**, **Accountability systems**.

RECOMMENDATIONS

- Emergency Care Reinforcement
- Diagnostic Strengthening
- Documentation Accountability
- Monitoring & Sustainability

Table 2: *Improvement plan to improve clinical care of BURN, June 2017E.C*

Priority Area	Action to be taken	Responsible body	Timeline
Emergency Care Reinforcement	Conduct mandatory training on airway management, decontamination, and oxygen therapy.	Burn Unit Lead, Medical Education	Month 1–2
Diagnostic Strengthening	Audit and address equipment shortages (e.g., ECG machines).	Hospital Administration	Month 1
Documentation Accountability	Daily spot-checks of medication sheets/progress notes.	Charge Nurses	Ongoing
Monitoring & Sustainability	Quarterly re-audits of burn care standards.	Quality Team	Every 3 months



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

Dhimmi: waa'ee Gabaasa CLINICAL AUDIT galchuu ilaallata

Akkuma mata Dureerrattii ibsamuuf yaalameettii clinical audit" **Burn mgt**" jedhamu kan **kurmaana 4ffaa** bara **2017** xalayaa Fuula **23** qabuu gaggeessituu kana waliin walqabsiifnee isiiniif eerguu keenya kabajaan isiniif beeksiifnaa.

Nagaya wajjiin!!