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

Deder, Oromia

March 2017E.C

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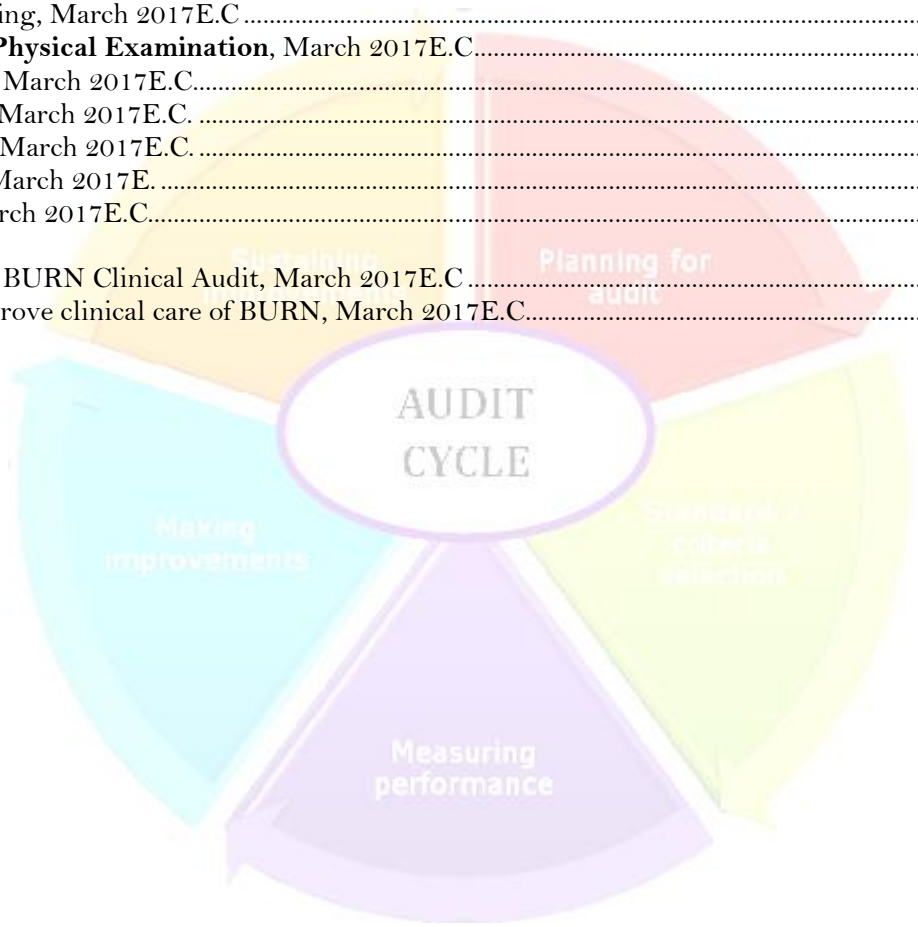


ABSTRACT

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 March 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: The audit revealed an overall performance of 72% against the target of 100%. Key strengths included perfect compliance in identification documentation (100%) and high scores in diagnosis (95%) and treatment (92%). Critical gaps were identified in life-threatening injury management (e.g., 0% compliance in airway management for compromised cases), diagnostic investigations (e.g., 0% ECG for electrical burns), and patient disposition (68% adherence).

Conclusion: While foundational aspects of care were well-managed, significant deficiencies in emergency interventions and diagnostics highlight the need for targeted training, protocol reinforcement, and resource allocation. Recommendations include mandatory staff training, standardized disposition pathways, and improved documentation accountability to enhance burn care quality and patient outcomes.

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:

- **December 21, 2017 E.C. to March 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.

Burnpling Technique:

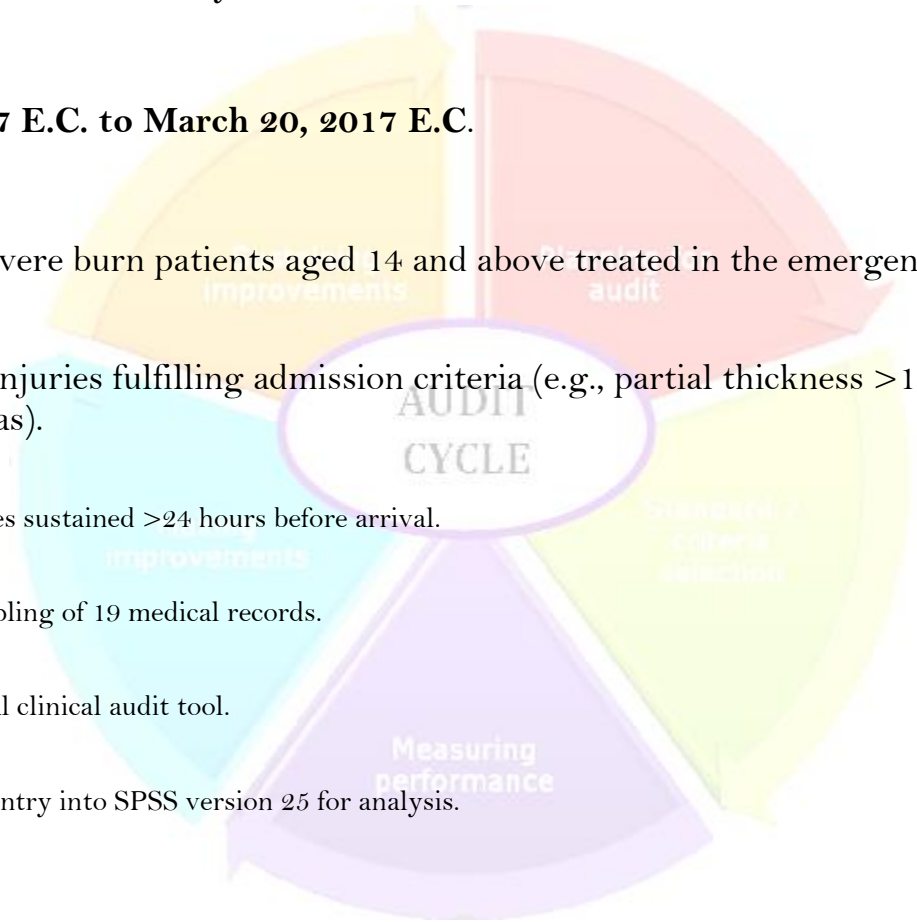
- Systematic random Burnpling of 19 medical records.

Data Collection:

- Adapted from the national clinical audit tool.

Data Analysis:

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



RESULTS

The clinical audit on burn patient care conducted in March 2017 E.C. revealed an overall performance of 72% against the target of 100% **(Figure 1).** While some areas, such as Identification Information (100%), Detailed History and Physical Examination (89%), and Appropriate Diagnosis (95%), showed strong adherence to standards, others like Relevant Investigations (63%) and Patient Disposition (68%) fell significantly short. Notably, Acute Life-Threatening Injury Evaluation (85%) and Appropriate Treatment (92%) performed moderately well, but gaps in critical sub-criteria, such as airway management for compromised cases (0%) and ECG for electrical burns (0%), highlighted areas needing urgent improvement **(Table 1).**

The audit identified several critical gaps in sub-criteria across various standards. For instance, in Acute Life-Threatening Injury Evaluation, decontamination for chemical burns (42%), secretions suctioned (63%), and oxygen provision for SpO2 <90 (0%) were major deficiencies. Similarly, Relevant Investigations showed poor performance in ECG for electrical burns (0%) and other needed investigations (26%). Patient Disposition also underperformed, with only 68% adherence to admission/referral standards for severe burns. These gaps indicate systemic issues in emergency response, diagnostic protocols, and follow-up care **(Table 1).**

Despite these challenges, certain areas demonstrated excellence, such as Identification Information, which achieved 100% across all sub-criteria, and Appropriate Treatment, where wound care (100%) and standing analgesia (100%) met targets. However, the persistence of gaps, particularly in life-threatening scenarios and diagnostic investigations, underscores the need for targeted training, resource allocation, and protocol reinforcement. Addressing these deficiencies could significantly improve the overall quality of care for burn patients.

Overall Performance of BURN Clinical Audit Result

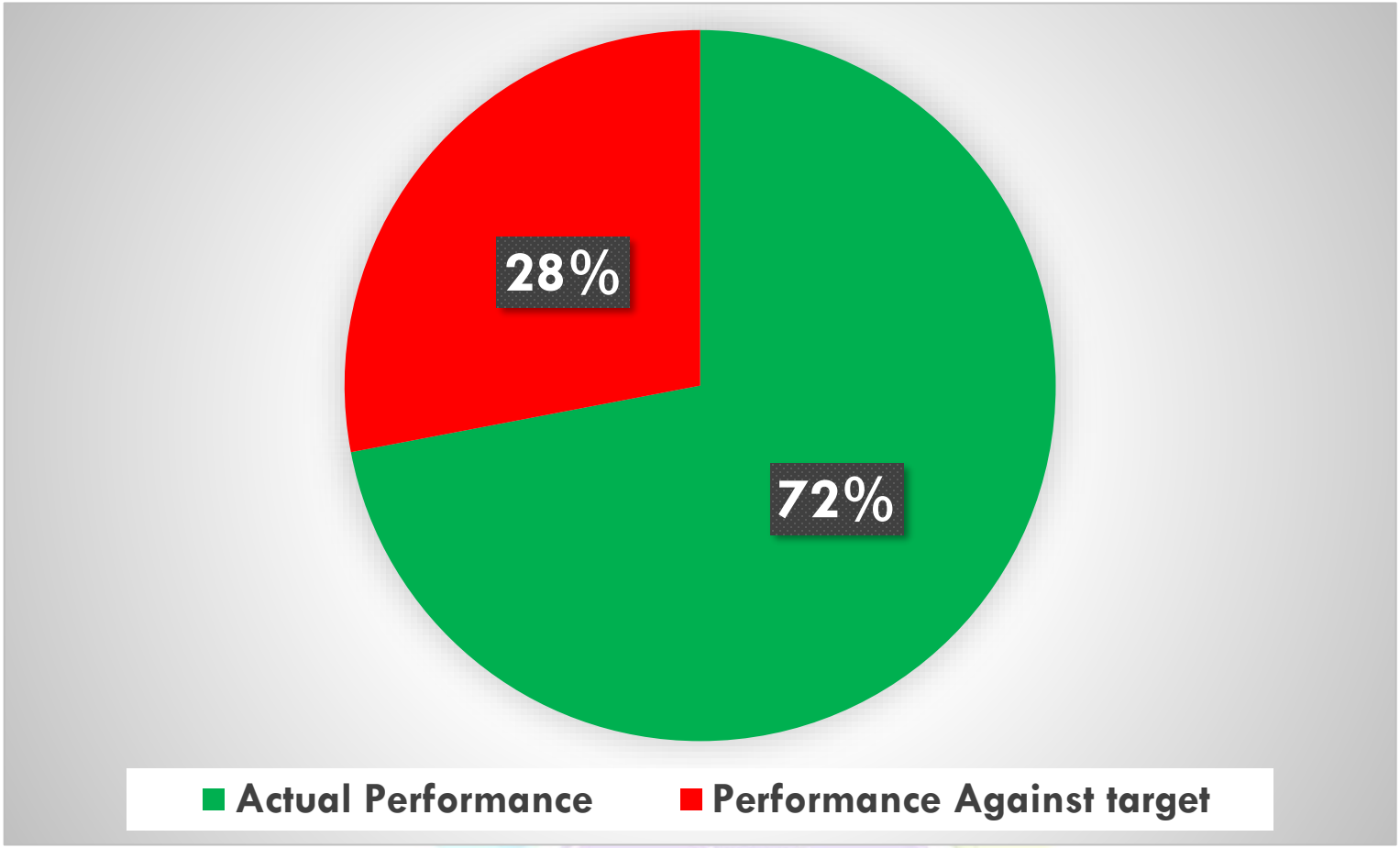


Figure 1: *Overall of Performance of BURN Clinical Audit, March 2017E.C*

Table 1: *Overall of Performance of BURN Clinical Audit, March 2017E.C*

S/N	Variables	Target (%)	Actual Performance (%)
1.	Identification Information	**100**	**100**
2.	Evaluation and Management	**100**	**85**
3.	Detailed History and Physical Exam	**100**	**89**
4.	Relevant Investigations	**100**	**63**
5.	Appropriate Diagnosis	**100**	**95**
6.	Appropriate Treatment	**100**	**92**
7.	Patient Disposition	**100**	**68**
8.	Provider Identification	**100**	**88**
	Total Percentage (%)	**100**	**72%**

- 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).**

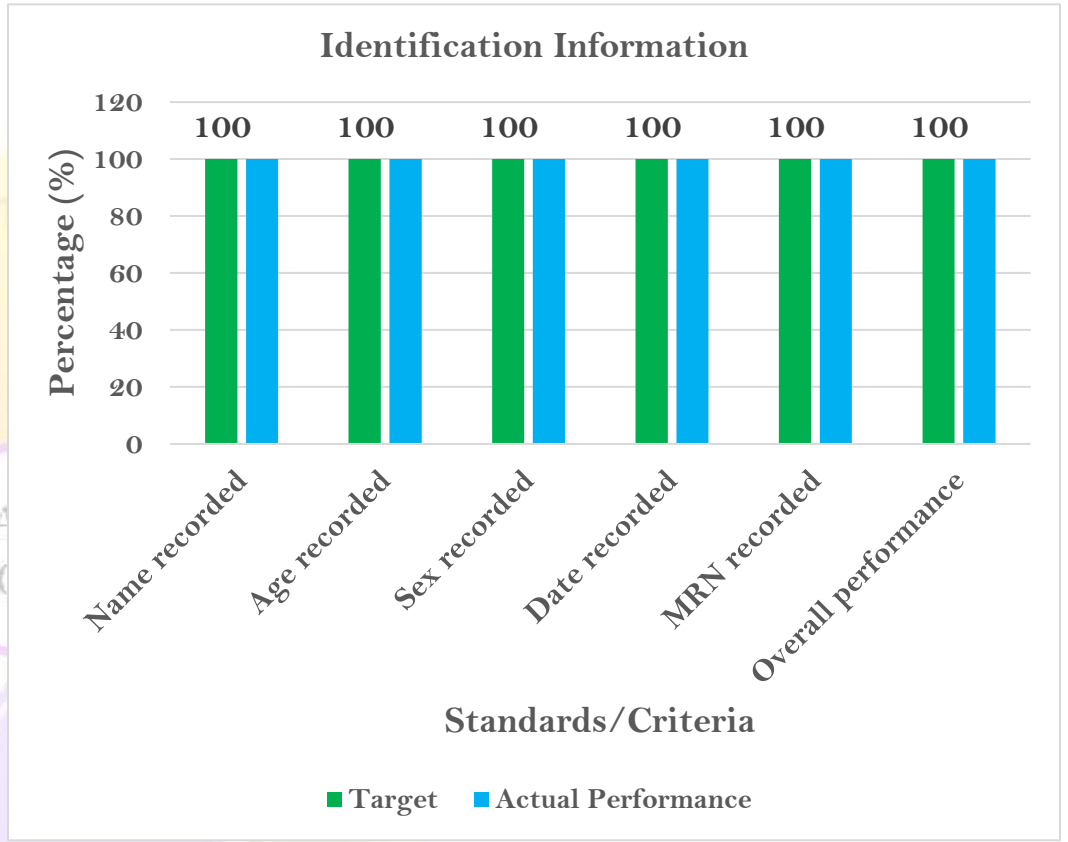


Figure 2: *Identification Information, March 2017E.C*

- This section showed an 85% 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).**

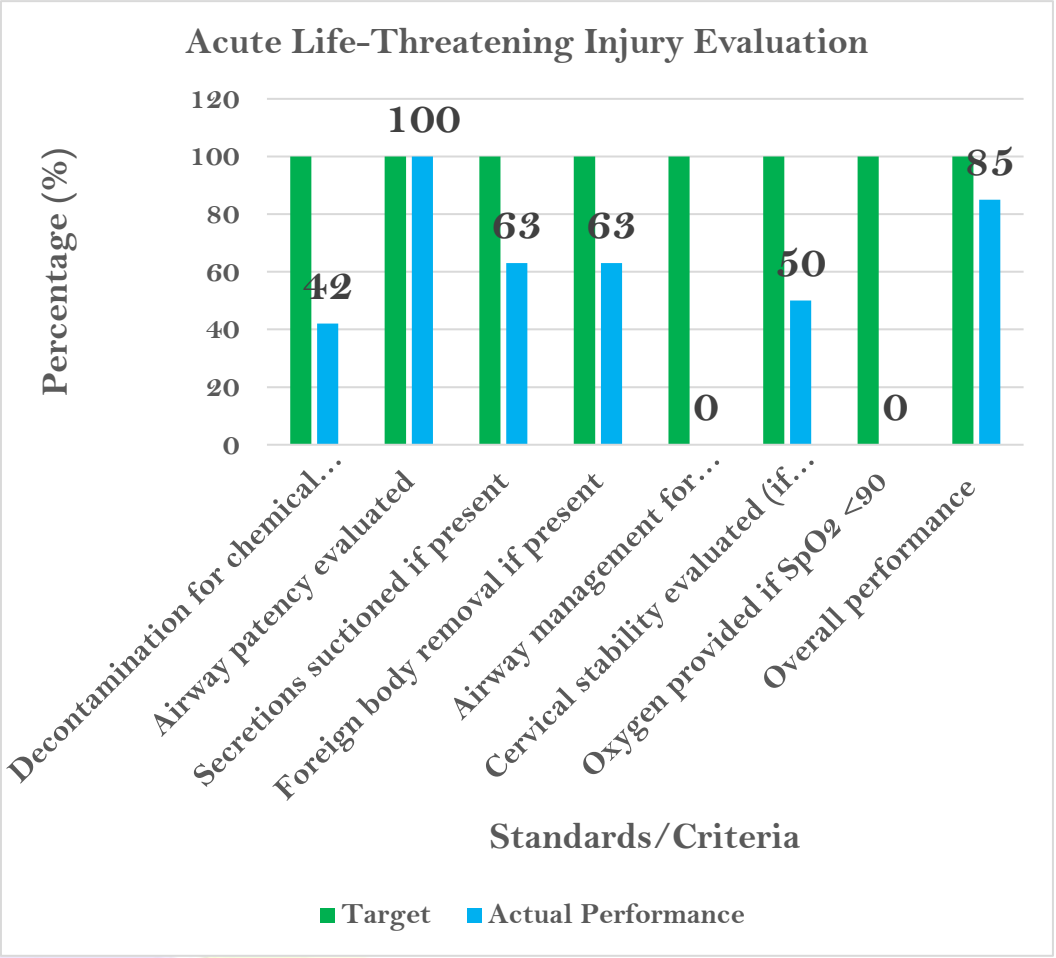


Figure 3:Appropriate History Taking, March 2017E.C

- Performance in this category was strong at 89%, 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 42% 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).**

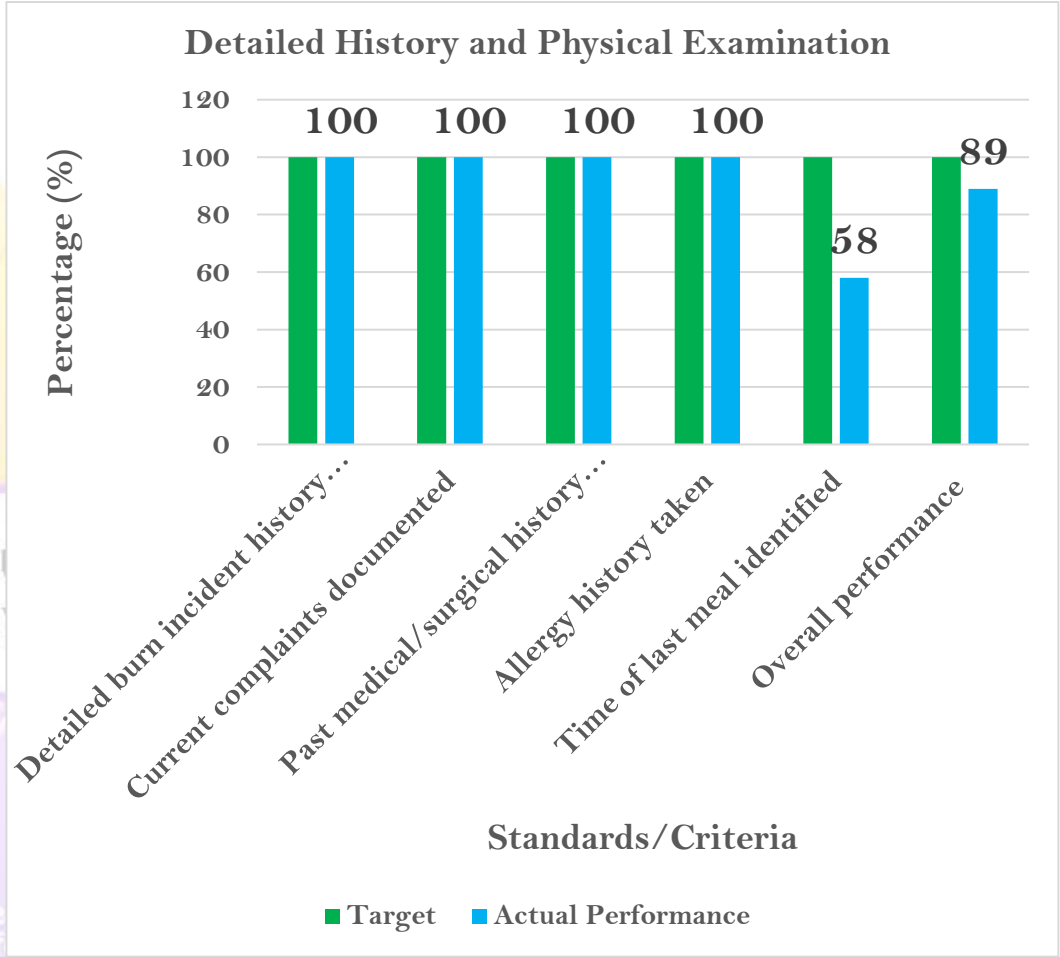


Figure 4: *Detailed History and Physical Examination, March 2017E.C*

- This area had the lowest performance (63%), with major gaps in essential diagnostic tests. While basic labs (CBC, RFT, electrolytes) were performed 63% of the time, ECG for electrical burns was never done (0%), and other necessary investigations were only completed 26% of the time.
- The lack of critical investigations, especially for electrical burns, suggests either resource limitations or oversight in diagnostic protocols. Strengthening lab and imaging workflows and ensuring adherence to burn-specific diagnostic guidelines are urgent priorities.
- **(Figure 5).**

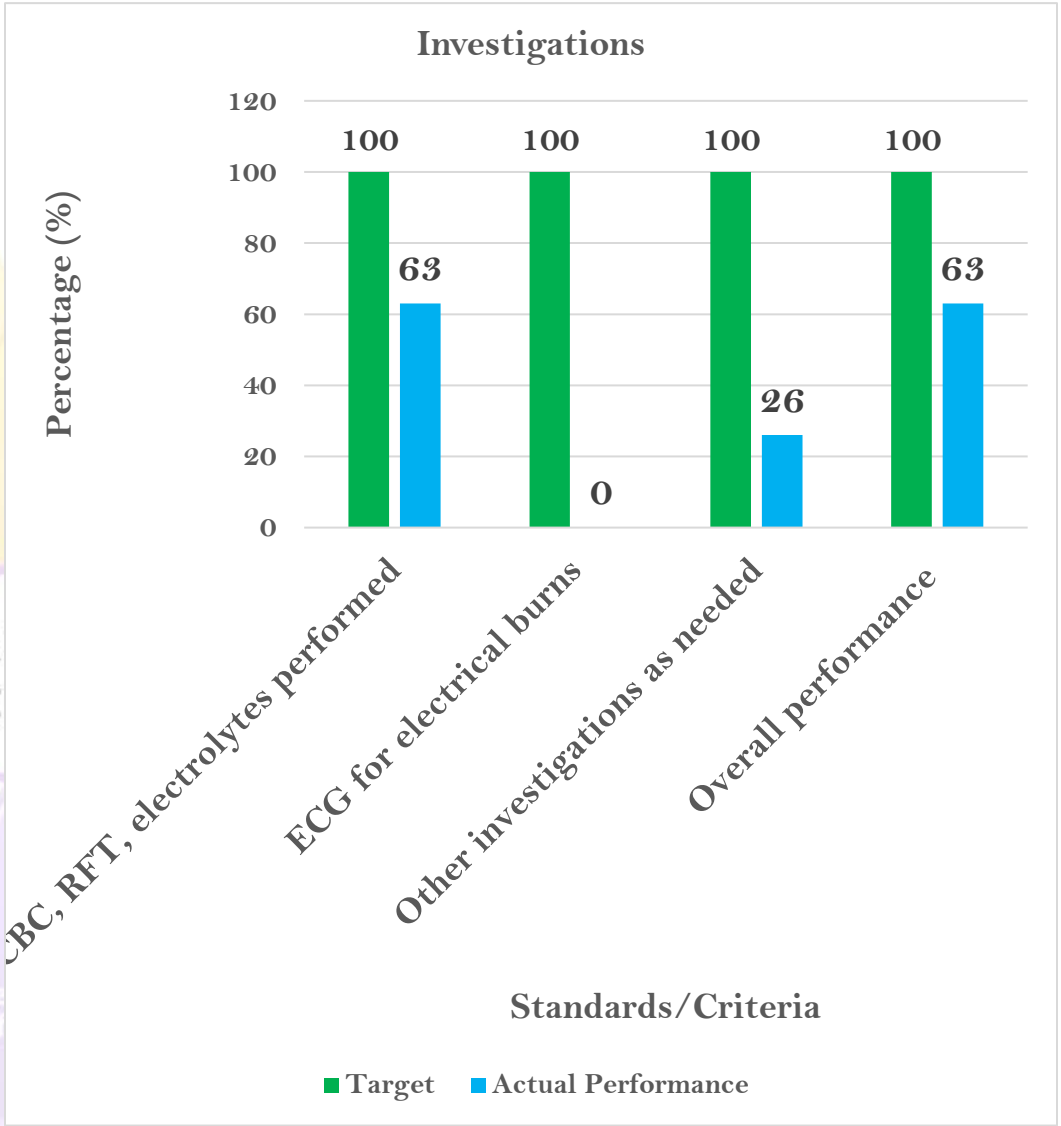


Figure 5: *Relevant Investigations, March 2017E.C*

- 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).**

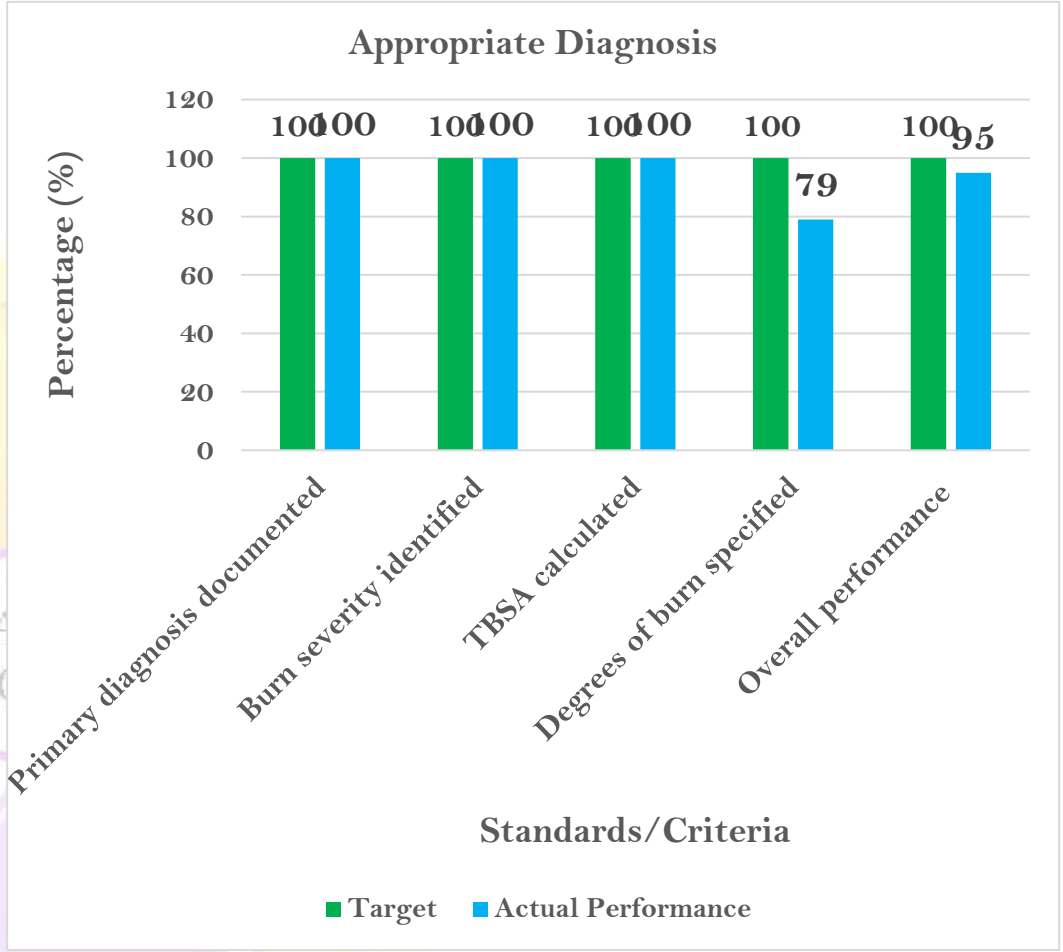


Figure 6: *Appropriate Diagnosis, March 2017E.C.*

- 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).**

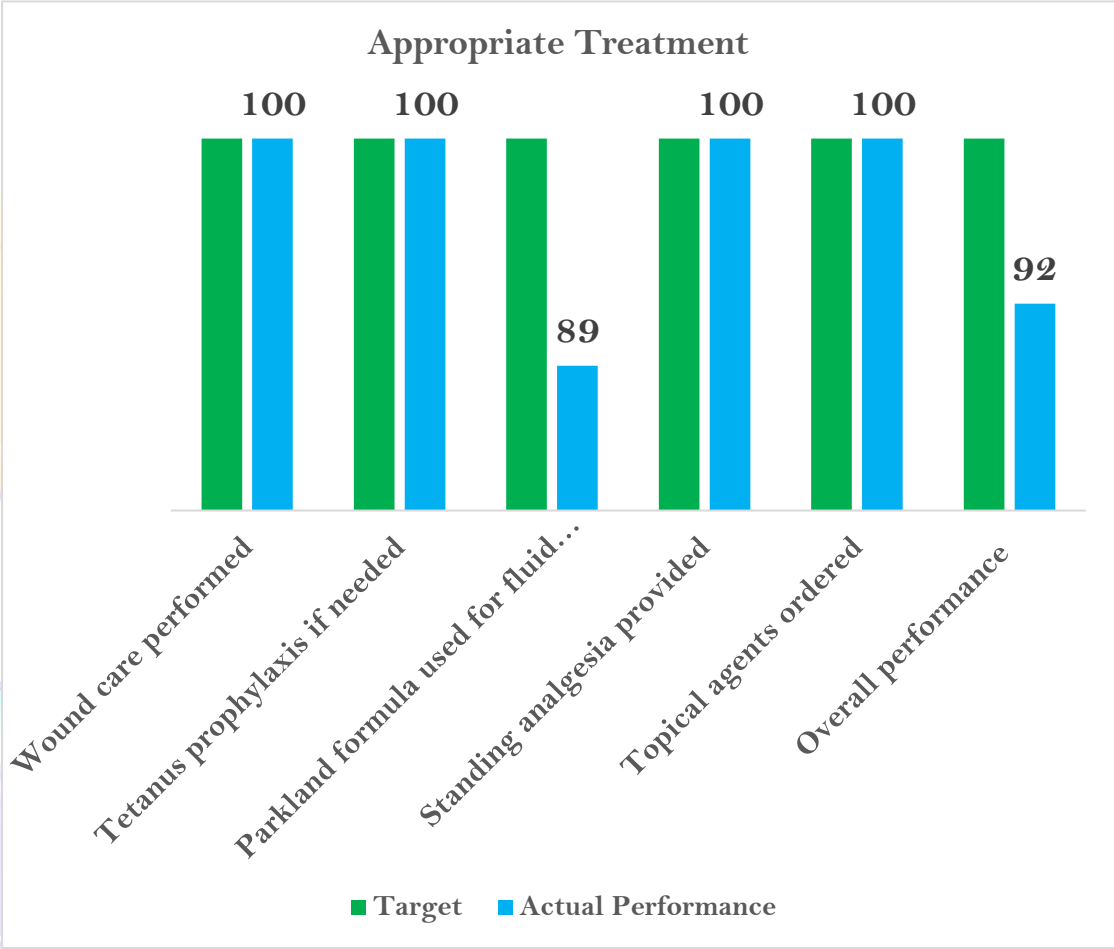


***Figure 7**: Appropriate Treatment, March 2017E.C.*

Documentation of provider identification was generally good (88%), with physician signatures on admission sheets at 100%. However, gaps existed in physician signatures on progress notes (95%) 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).**

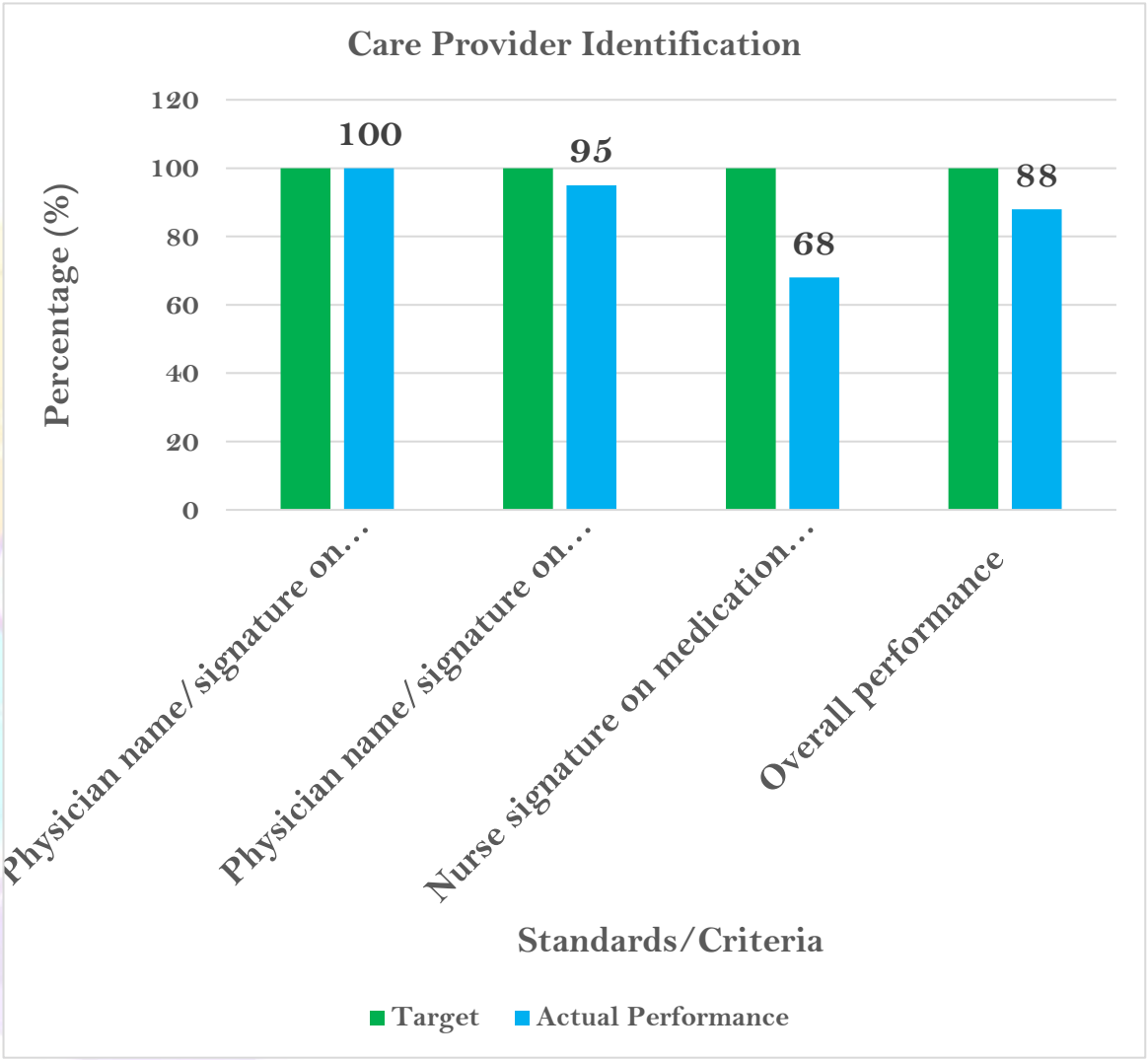


Figure 8: Provider Identification, March 2017E.

- This category underperformed at 68%, with a significant gap (32%) 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).**

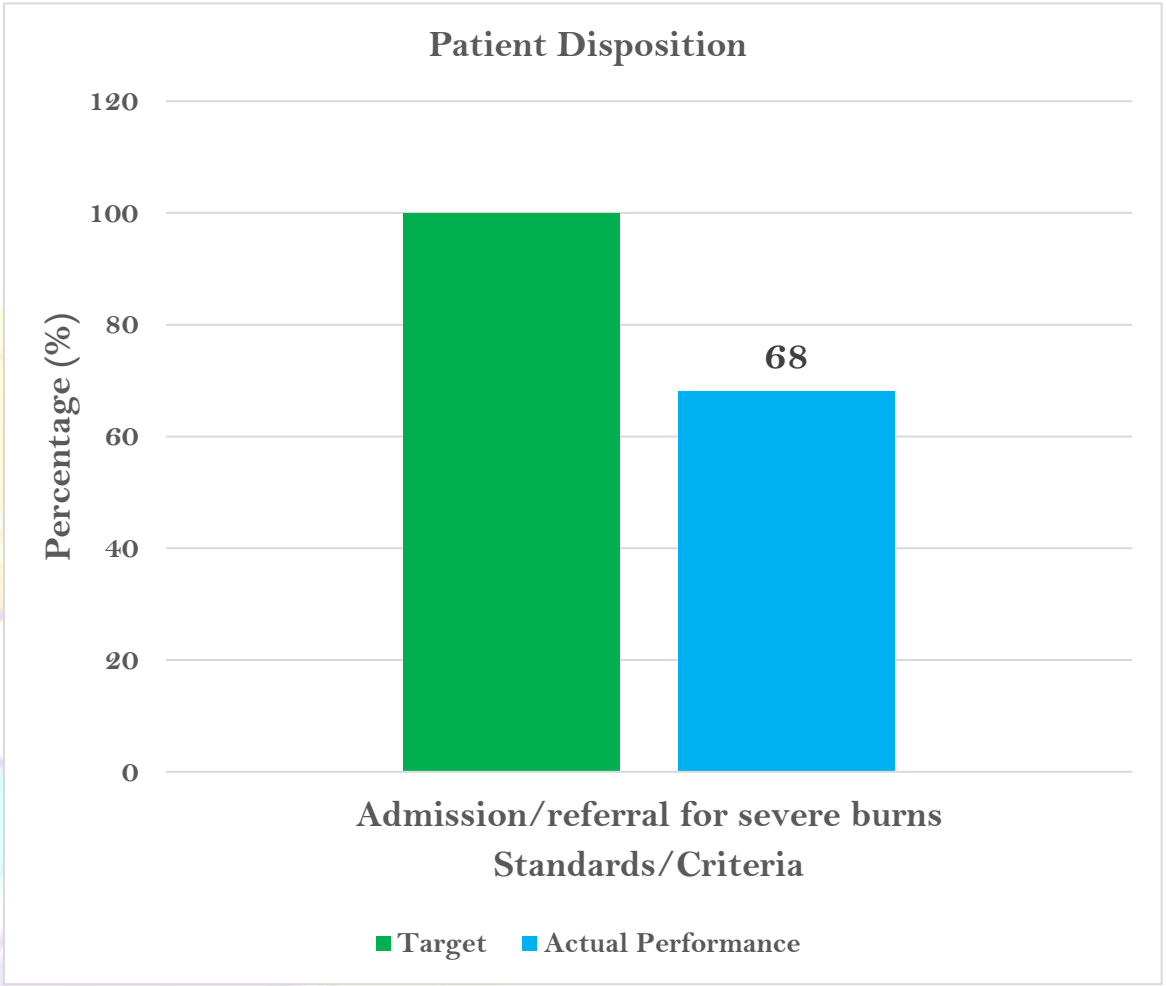


Figure 9: Patient Disposition, March 2017E.C

DISCUSSION

The clinical audit conducted in March 2017 E.C. provides a comprehensive assessment of the quality of care for burn patients, revealing both strengths and critical gaps in adherence to clinical standards. The overall performance score of **72%** against the target of **100%** indicates that while certain areas of care are well-managed, significant deficiencies exist in others, particularly in life-threatening emergency interventions, diagnostic investigations, and patient disposition. These findings underscore the need for targeted improvements to enhance patient outcomes and ensure compliance with best practices in burn management.

The audit highlighted **strong performance in documentation and routine care**, such as **Identification Information (100%)**, **Detailed History & Physical Examination (89%)**, and **Appropriate Diagnosis (95%)**, demonstrating effective baseline protocols. However, **critical gaps were identified in Acute Life-Threatening Injury Evaluation (85%)**, where key interventions like **decontamination for chemical burns (42%) and airway management for compromised cases (0%)** were severely lacking. Similarly, **Relevant Investigations (63%)** showed alarming deficiencies, particularly in **ECG for electrical burns (0%)**, suggesting either systemic resource shortages or lapses in clinical judgment. These gaps pose serious risks to patient safety and demand urgent corrective measures, including staff training, updated emergency protocols, and improved diagnostic resource allocation.

Another concerning area was **Patient Disposition (68%)**, where nearly **one-third of severe burn cases were not properly admitted or referred**, potentially delaying critical care. Meanwhile, **Appropriate Treatment (92%)** showed high compliance in wound care and analgesia but had room for improvement in **fluid resuscitation using the Parkland formula (89%)**. **Provider Identification (88%)** was mostly well-documented, but inconsistencies in **nurse signatures on medication sheets (68%)** indicate accountability issues that could impact care continuity.

RECOMMENDATIONS

- **Emergency Care Reinforcement:** Mandatory training on **airway management, chemical burn decontamination, and oxygen therapy** to address life-threatening gaps.
- **Diagnostic Protocol Strengthening:** Ensure **ECGs for electrical burns** and other essential investigations are routinely performed.
- **Standardized Disposition Pathways:** Implement **clear triage and referral criteria** for severe burns to prevent delays in specialized care.
- **Documentation Accountability:** Enforce **mandatory provider signatures** on all medical records to enhance traceability

Table 2: *Improvement plan to improve clinical care of BURN, March 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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