



DEDER GENERAL HOSPITAL

EMERGENCY DEPARTMENT

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

By: Emergency Department Clinical Audit/QI Team

Audit Cycle: Re-Audit 3

Deder, Oromia

June 2017E.C

Emergency Department Clinical Audit/QI Team members

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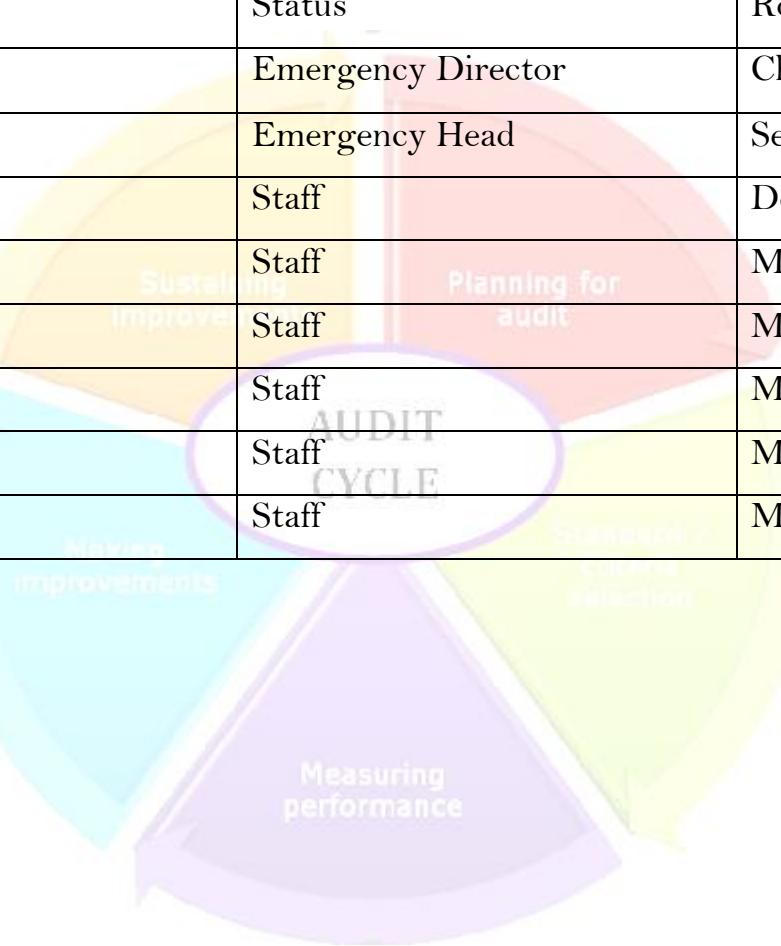
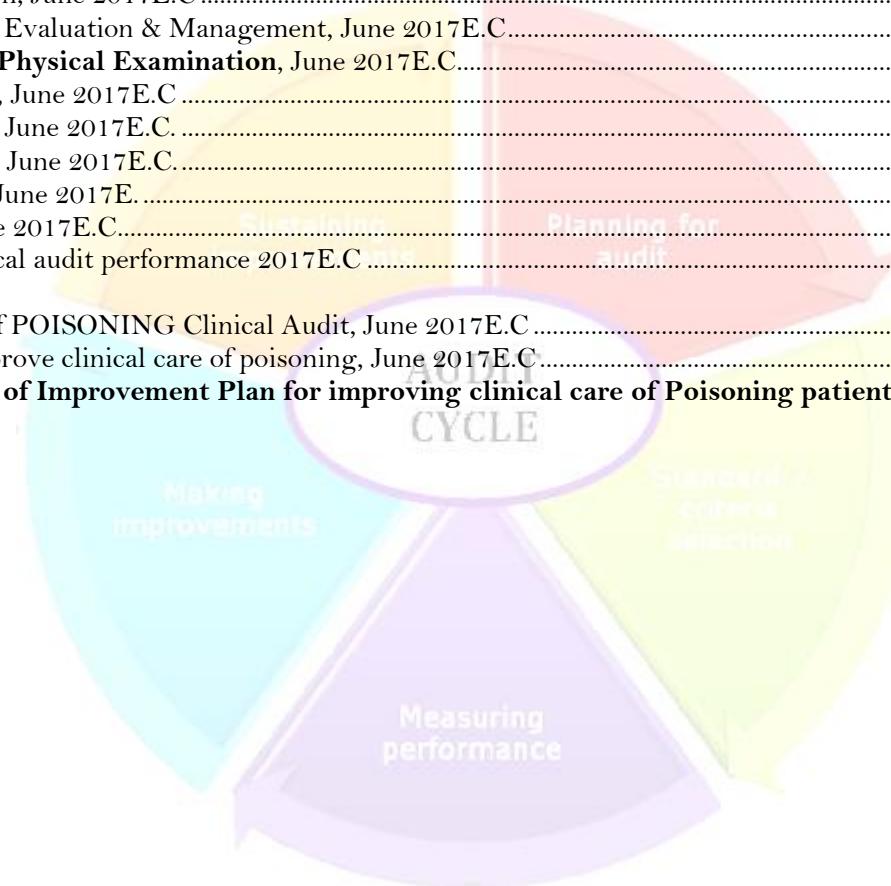


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ABSTRACT

Introduction: Poisoning remains a significant public health challenge in low-resource settings, requiring prompt and standardized emergency care. This clinical audit evaluated the quality of poisoning patient management at Deder General Hospital's Emergency Department during June 2017E.C, identifying gaps in acute interventions, diagnostics, and treatment protocols.

Objective: To assess compliance with national poisoning care standards and improve clinical outcomes by addressing deficiencies in evaluation, investigations, treatment, and disposition processes.

Methodology: A retrospective cross-sectional study analyzed 10 systematically sampled poisoning cases using a national audit tool. Data on identification, acute management, history-taking, investigations, diagnosis, treatment, disposition, and provider documentation were extracted from medical records and analyzed via SPSS version 25.

Result: The clinical audit revealed an overall compliance rate of 90% against the 100% target standard. Critical care gaps were identified across multiple domains: In acute interventions, no patients with GCS ≤9 received airway management (0%), no hypoxic patients ($\text{SpO}_2 <90\%$) received oxygen therapy (0%), and no decontamination procedures were performed (0%). Diagnostic investigations showed significant deficiencies with no ECGs conducted for indicated cases (0%), coagulation profiles rarely checked (26%), and suboptimal CBC/RFT testing (63%). Treatment protocols were compromised by the absence of dialysis for qualifying patients (0%) and no fluid balance monitoring (0%). Patient disposition planning failed to implement necessary referrals (0%). However, the audit demonstrated perfect compliance (100%) in documentation of patient identification, comprehensive history-taking, and accurate clinical diagnosis, indicating strengths in these foundational aspects of care.

Conclusion: Despite strengths in documentation and diagnostics, life-threatening gaps persist in acute stabilization and essential investigations. Urgent interventions are needed to address resource limitations (e.g., point-of-care testing), staff training in emergency protocols, and systemic adherence to decontamination/referral pathways.

INTRODUCTION

Poisoning is a significant public health concern, particularly in low-resource settings where access to specialized care is limited. Poisoning cases can lead to life-threatening complications, including respiratory failure, cardiac arrest, and multi-organ dysfunction. In Ethiopia, poisoning incidents 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 poisoning 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 poisoning victims.

AIM

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

OBJECTIVES

- Ensure **appropriate evaluation** of poisoning patients, including life-threatening injury assessment.
- Ensure **relevant investigations** are conducted for comprehensive patient management.
- Ensure **appropriate treatment**, including antidote administration, decontamination, and supportive care.
- 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 poisoning patients treated in the emergency department.

Inclusion Criteria:

- ❖ Patients treated for poisoning within the study period.

Exclusion Criteria:

- ❖ Patients with alcohol intoxication.

Sampling Technique:

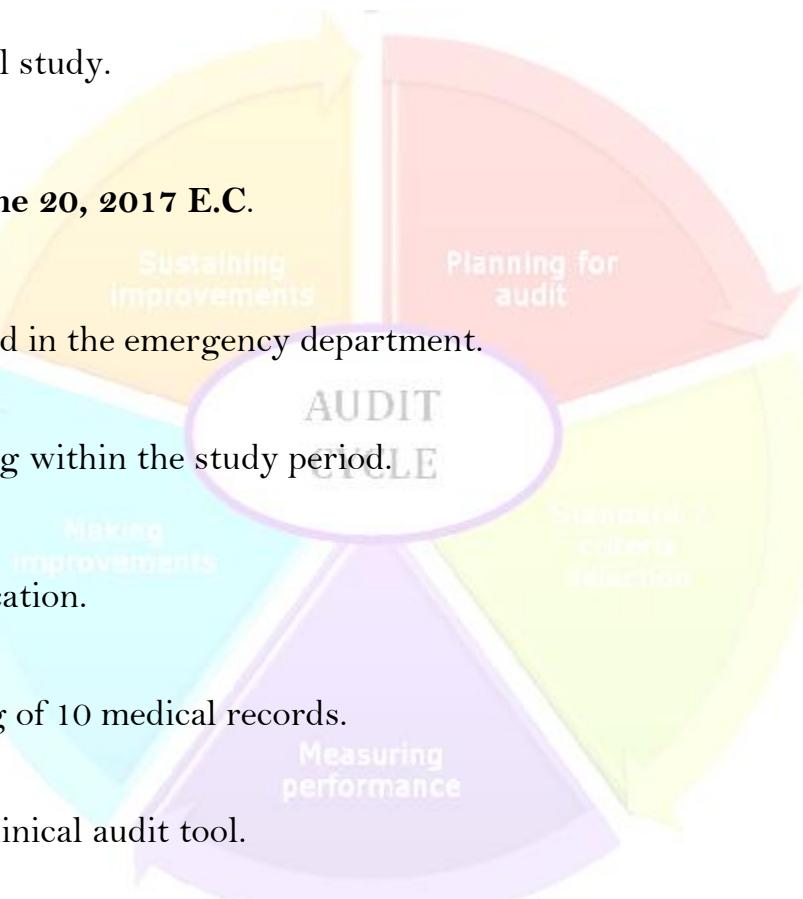
- ❖ Systematic random sampling of 10 medical records.

Data Collection:

- ❖ Adapted from the national clinical audit tool.

Data Analysis:

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



RESULTS

The audit achieved **90%** compliance against a 100% target across eight key care domains. Perfect adherence (100%) was observed in Identification Information (patient demographics, MRN documentation), Detailed History & Physical Examination (poison type/dose, exposure time), Appropriate Diagnosis (causative agent, complications), Patient Disposition (psychiatric follow-up, ICU admission), and Provider Identification (signatures on records). However, significant gaps were noted in other critical areas, pulling the overall performance below target (**figure 1**).

The most severe shortcomings occurred in **Relevant Investigations** (68% compliance), where ECG for indicated cases was never performed (0%), coagulation profiles were rarely checked (26%), and CBC/RFT testing was suboptimal (63%). **Acute Life-Threatening Evaluation** (96%) also revealed critical failures: no airway management for patients with GCS ≤ 9 (0%), no oxygen therapy for SpO₂ $<90\%$ (0%), and inconsistent RBS measurement (50%). **Appropriate Treatment** (96%) showed omissions in dialysis for indicated cases (0%) and fluid balance monitoring (0%), though hourly vital checks were mostly maintained (89%) (**Table 1**).

While **Evaluation & Management** (96%) excelled in basic interventions like airway patency checks (100%) and IV-line placement (100%), it struggled with decontamination protocols (0%). **Detailed History** had a minor lapse in assessing co-ingested substances (90%). **Patient Disposition** fully addressed admissions but failed in referrals when needed (0%), highlighting discharge planning weaknesses. These inconsistencies reflect systemic challenges in urgent care protocols despite strong administrative documentation (**Table 1**).

Overall Performance of poisoning Clinical Audit Result

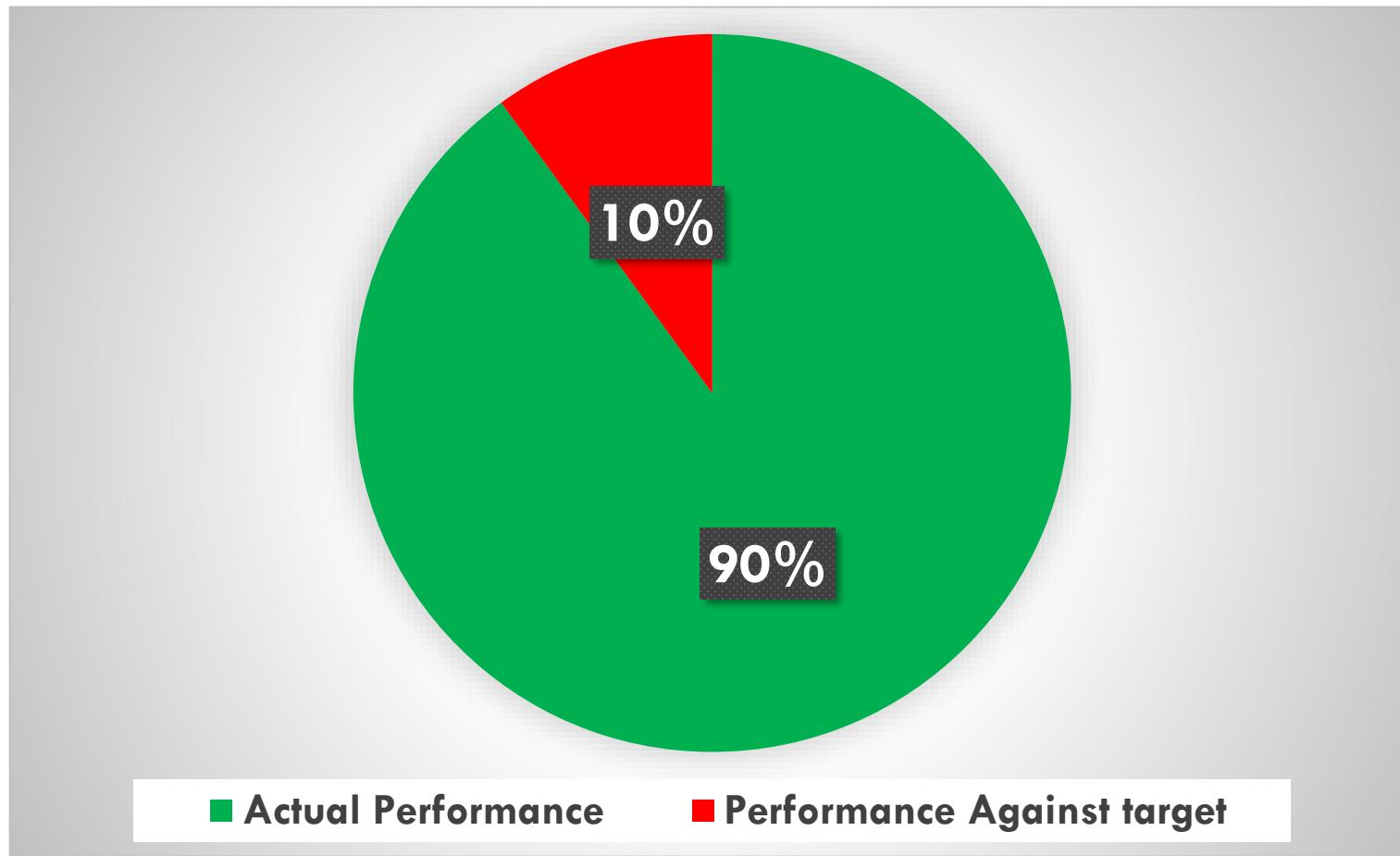


Figure 1: Overall of Performance of poisoning Clinical Audit, June 2017E.C

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

| S/ N | Variables | Target (%) | Actual Performance (%) |
|---------|------------------------------------|------------|------------------------|
| 1. | Identification Information | 100 | 100 |
| 2. | Evaluation and Management | 100 | 96 |
| 3. | Detailed History and Physical Exam | 100 | 100 |
| 4. | Relevant Investigations | 100 | 68 |
| 5. | Appropriate Diagnosis | 100 | 100 |
| 6. | Appropriate Treatment | 100 | 96 |
| 7. | Patient Disposition | 100 | 100 |
| 8. | Provider Identification | 100 | 100 |
| | Total Percentage (%) | 100 | 90% |

This standard achieved perfect compliance (100%) across all sub-criteria, including documentation of patient name, age, sex, visit date/time, and medical record number (MRN). This reflects strong adherence to basic administrative and medico-legal requirements, ensuring traceability and continuity of care (**figure 2**).

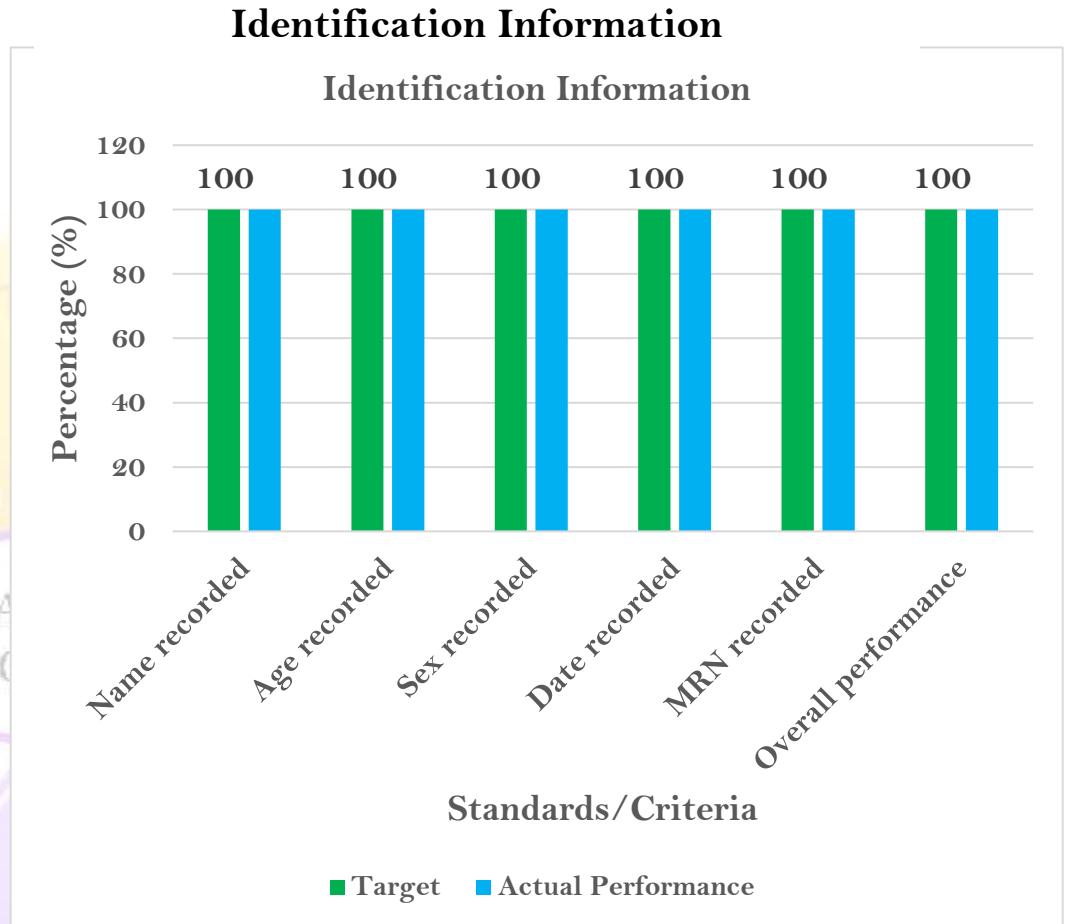


Figure 2: Identification Information, June 2017 E.C

Acute Life-Threatening Injury Evaluation

While airway patency assessment (100%) and IV-line placement (100%) were consistently performed, critical interventions like airway management for GCS ≤ 9 (0%) and oxygen therapy for SpO₂ $<90\%$ (0%) were entirely missed. The 50% compliance in RBS measurement and 0% in decontamination further indicate lapses in urgent care protocols (**figure 3**).

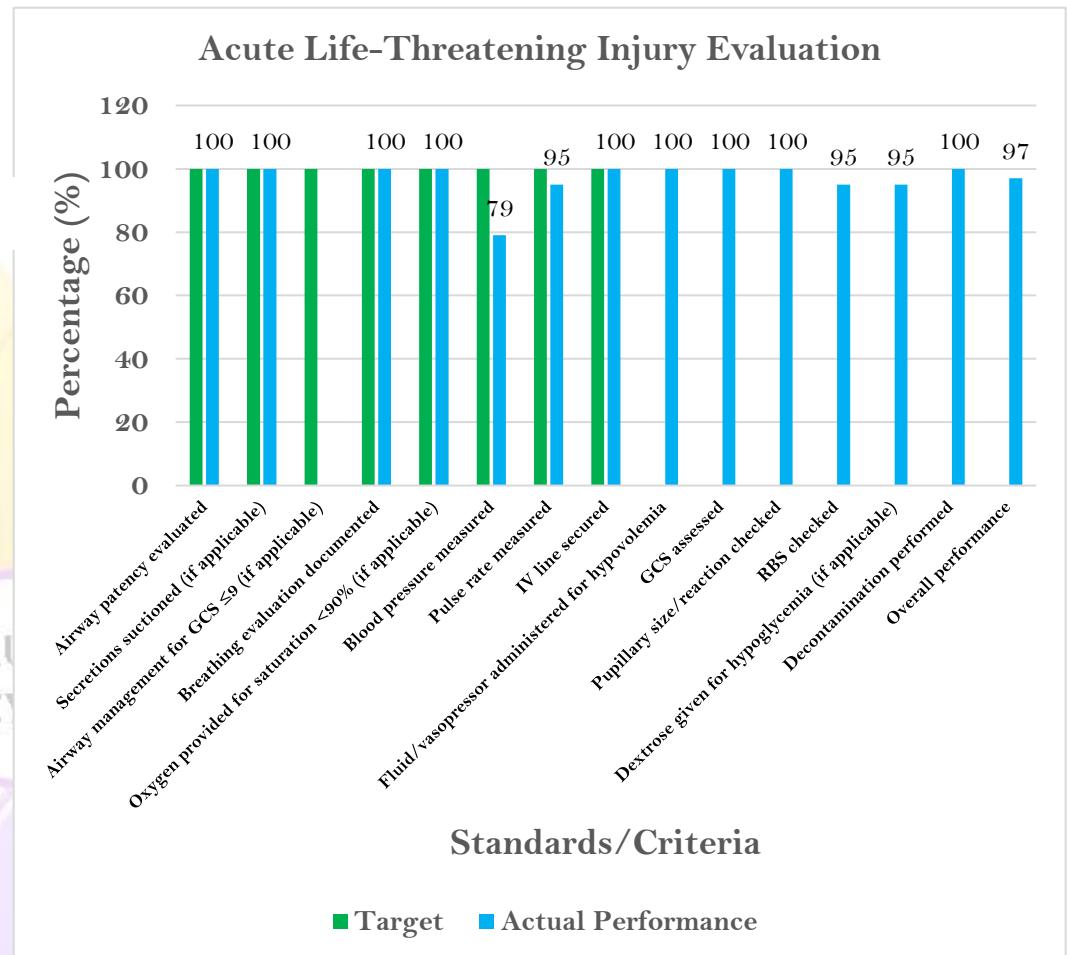


Figure 3: Acute Life-Threatening Evaluation & Management, June 2017E.C

Detailed History and Physical Examination

- This criterion performed well, with near-perfect documentation of poison type/dose (100%), exposure time (100%), and route (100%). However, assessment of additional ingested substances (90%) had a minor shortfall, possibly due to incomplete patient history-taking (**Figure 4**).

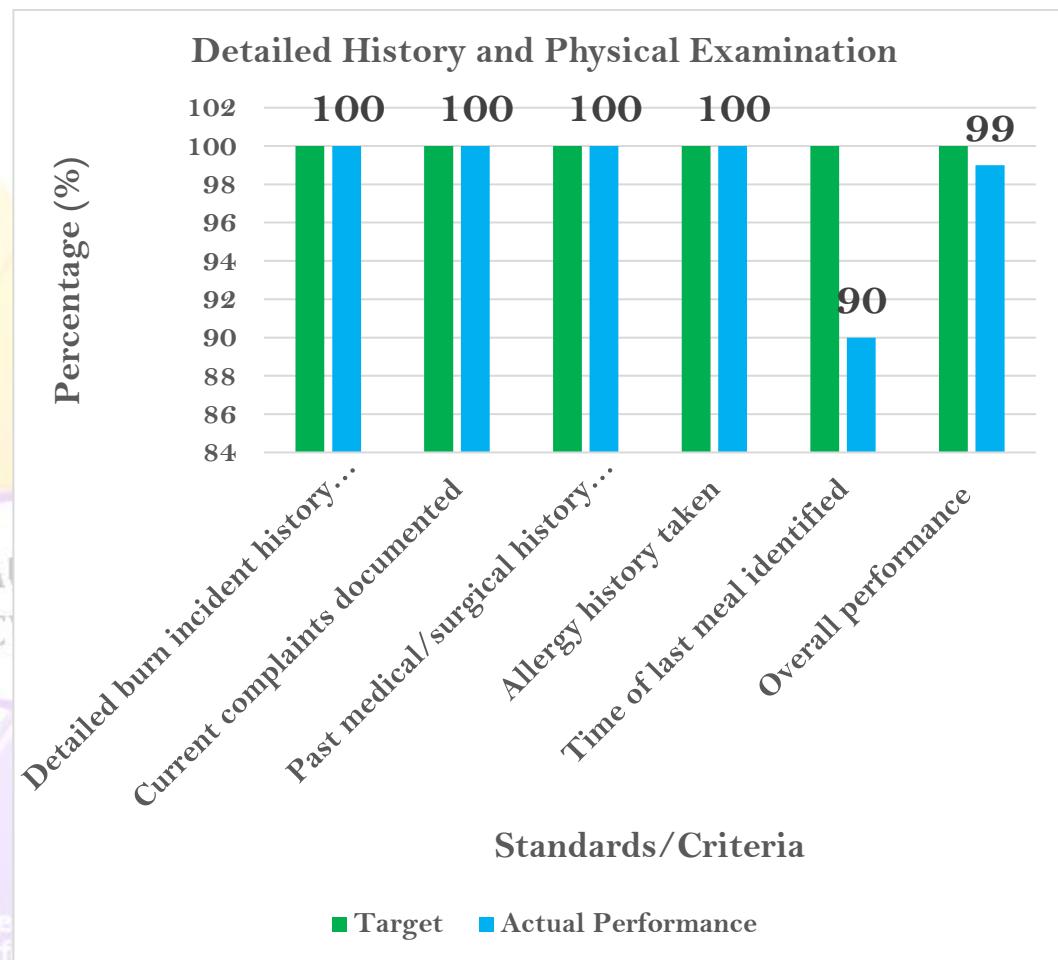


Figure 4: Detailed History and Physical Examination, June 2017E.C

Relevant Investigations

This was one of the weakest areas, with ECG for indicated cases (0%) and coagulation profile (26%) severely neglected. CBC and RFT (63%) had moderate compliance, but the overall 29% performance suggests systemic failures in diagnostic workup for poisoning cases (Figure 5).

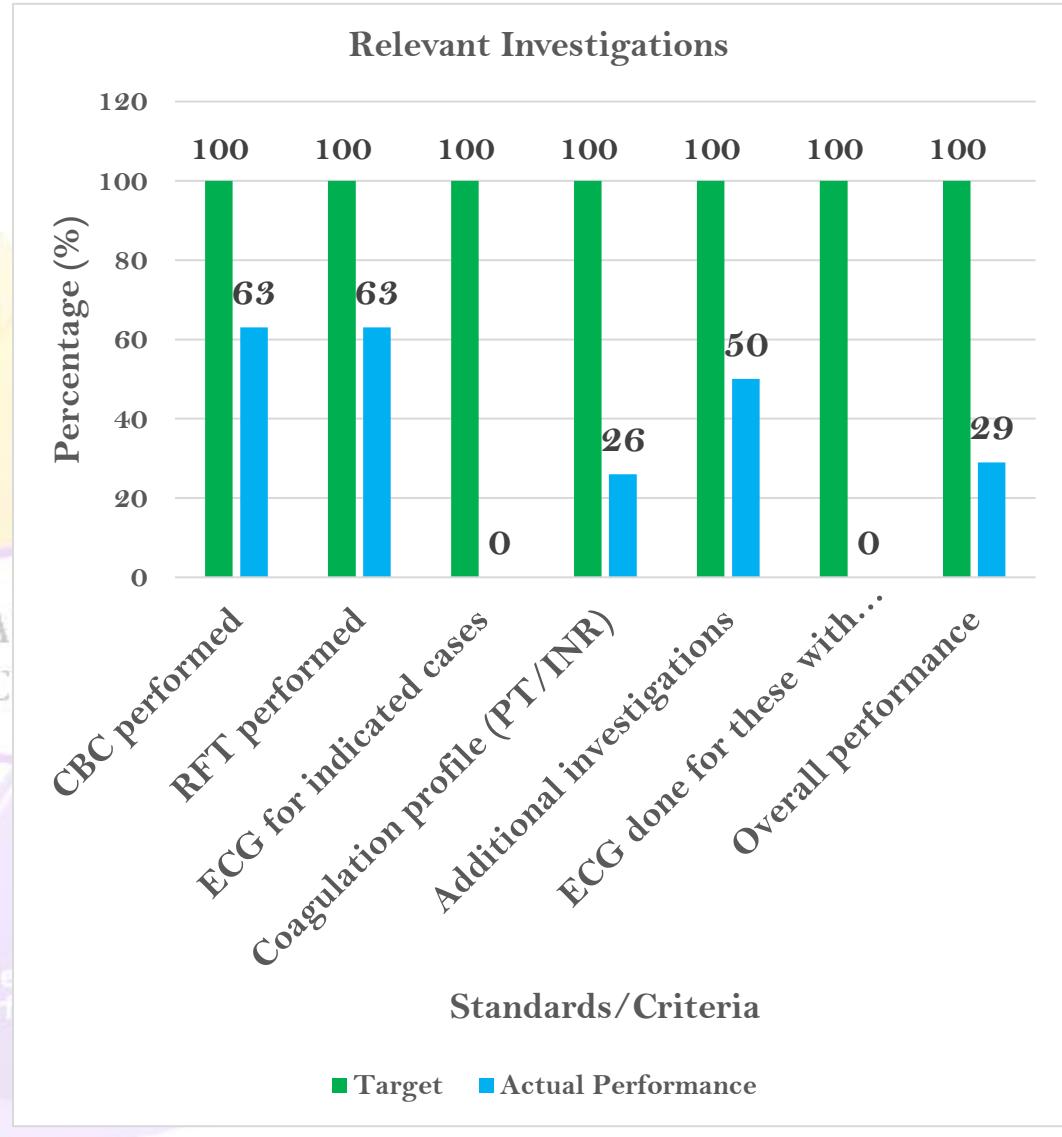
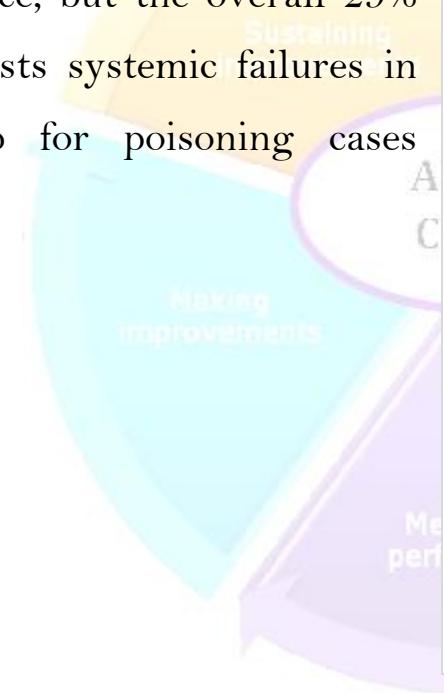


Figure 5: Relevant Investigations, June 2017E.C

Appropriate Diagnosis

- Full compliance was achieved in identifying the causative agent (100%), toxidrome (100%), and complications (100%), demonstrating accurate clinical diagnosis despite gaps in investigations (Figure 6).

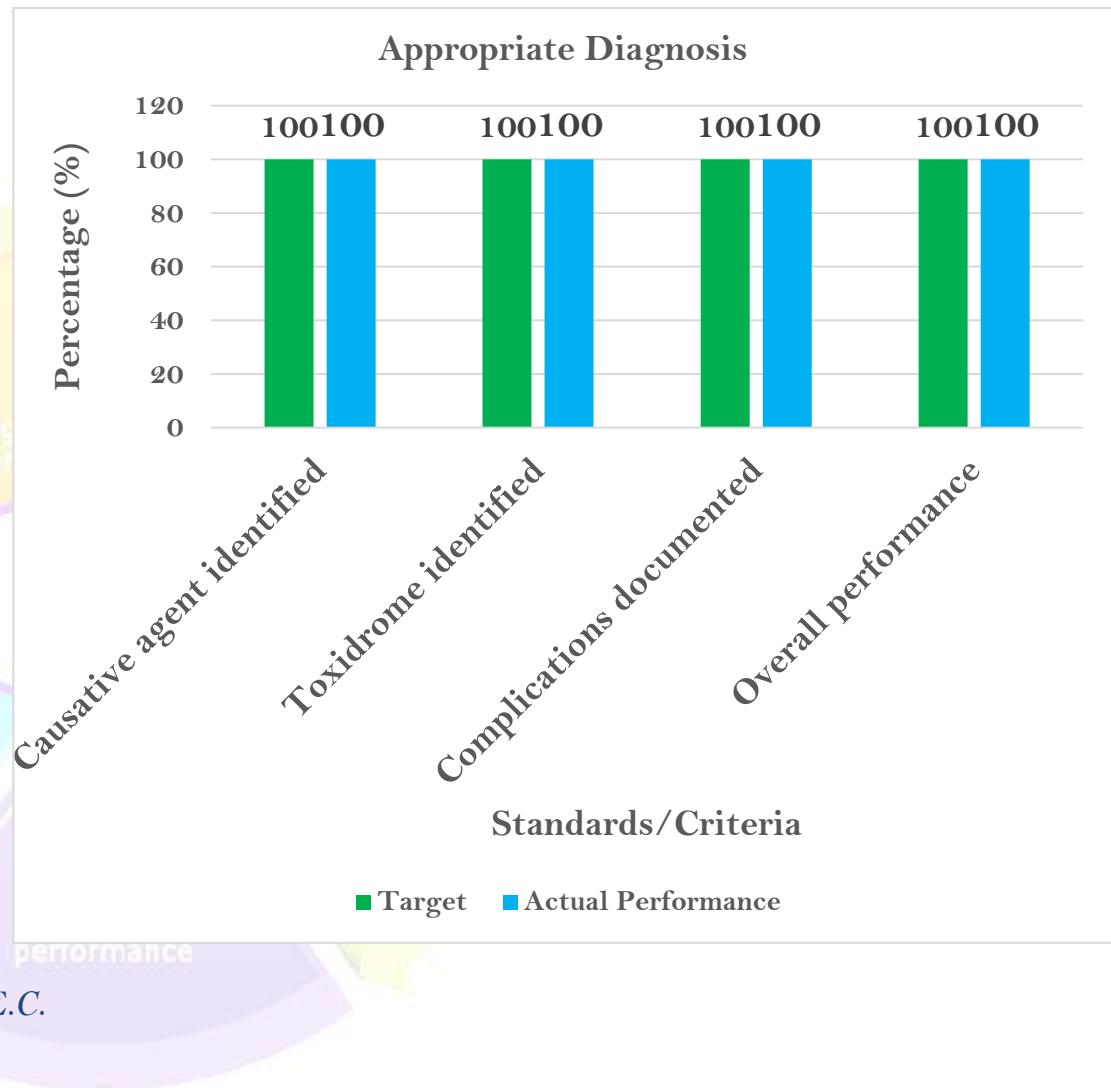


Figure 6:: Appropriate Diagnosis, June 2017E.C.

Appropriate Treatment

Critical deficiencies were observed, including no dialysis for indicated cases (0%) and no fluid balance monitoring (0%). While gastric lavage (100%) and antidote administration (100%) had moderate compliance, hourly vital sign monitoring (89%) was inconsistent, reflecting poor adherence to treatment guidelines (**Figure 7**).

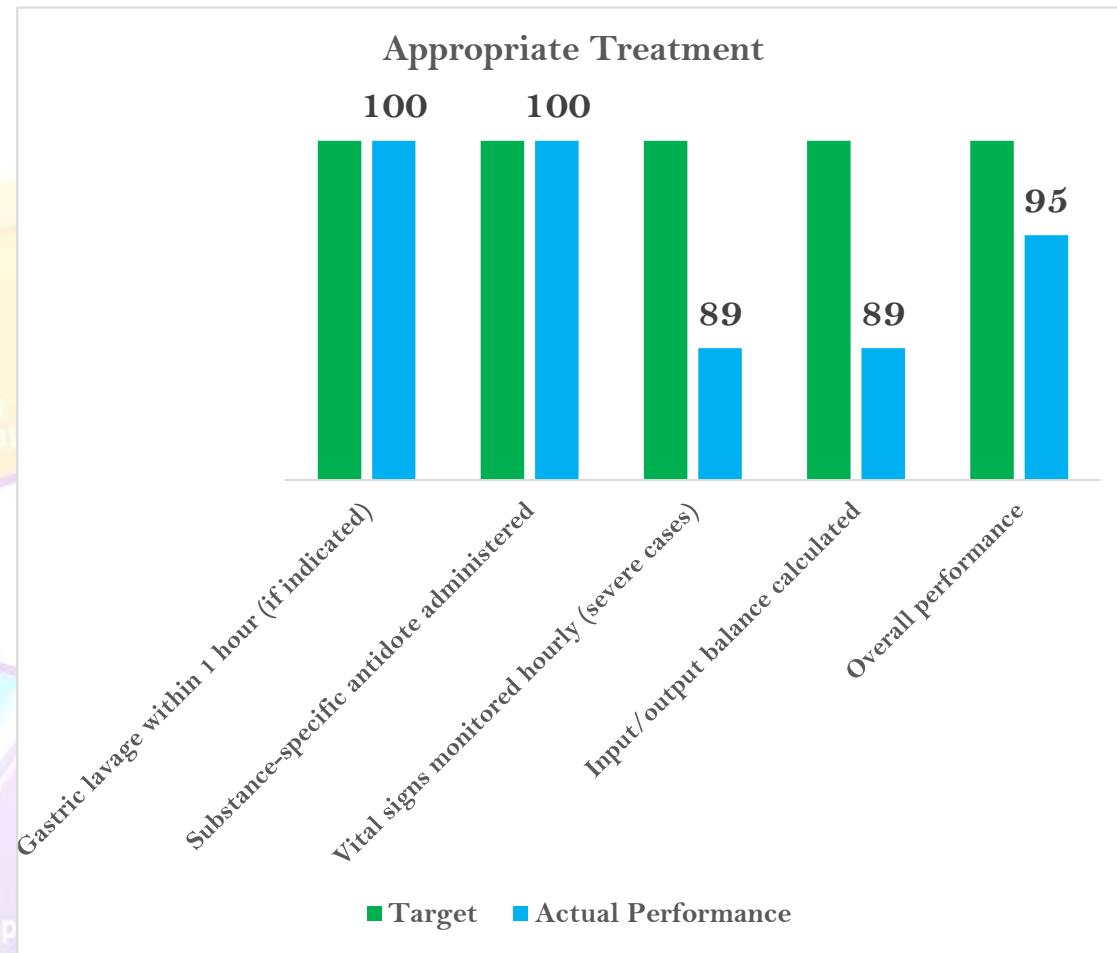


Figure 7: Appropriate Treatment, June 2017E.C.

Patient Disposition

- While psychiatric follow-up (100%) and ICU/ward admission (100%) were fully addressed, referrals when needed (0%) were entirely missed, indicating gaps in discharge planning and continuity of care (Figure 8).

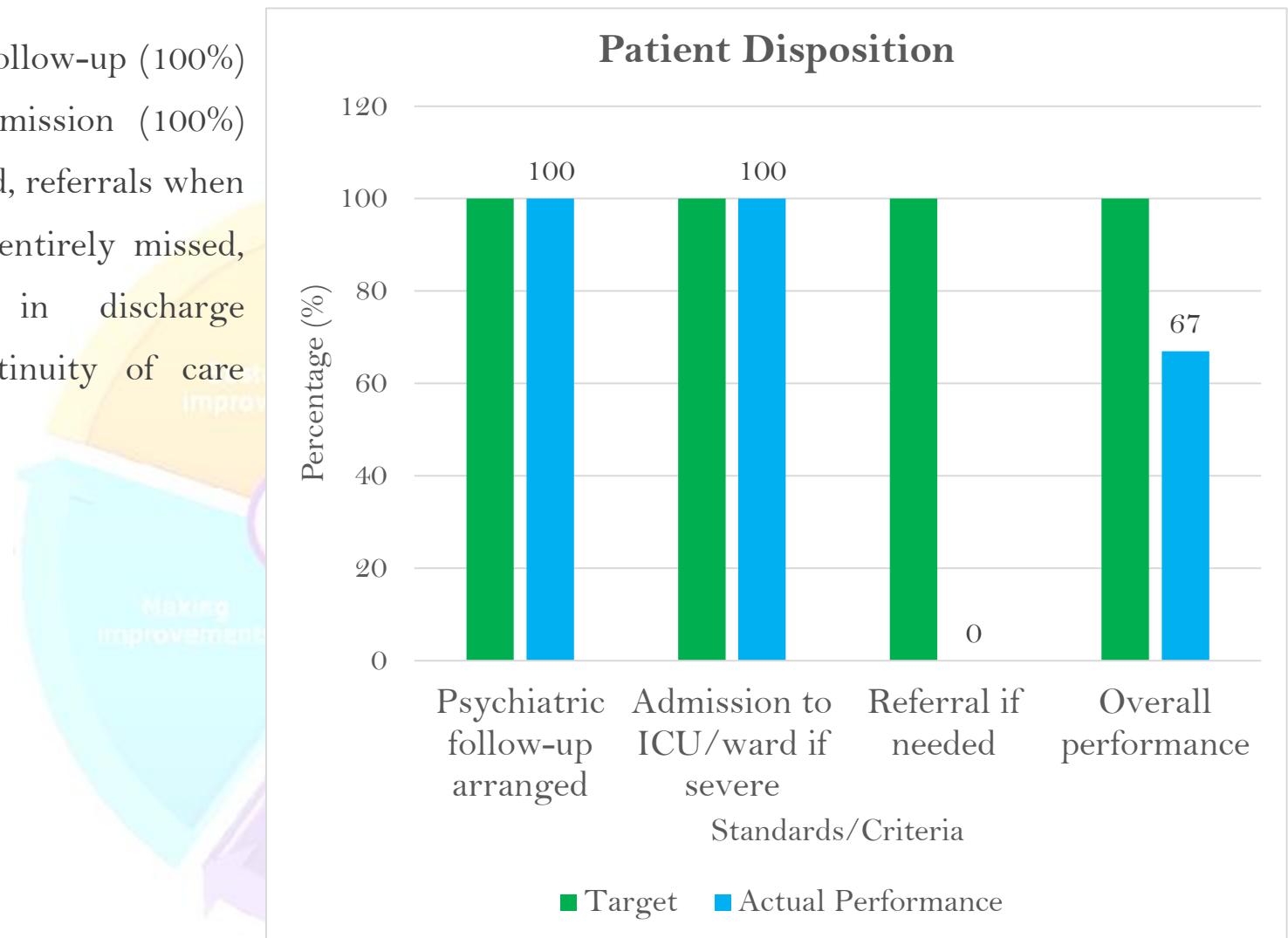


Figure 8: Patient Disposition, June 2017 E.C

Provider Identification

All sub-criteria, including physician signatures on admission/progress notes (100%) and nurse signatures on medication sheets (100%), were met, ensuring accountability in documentation (**Figure 10**).

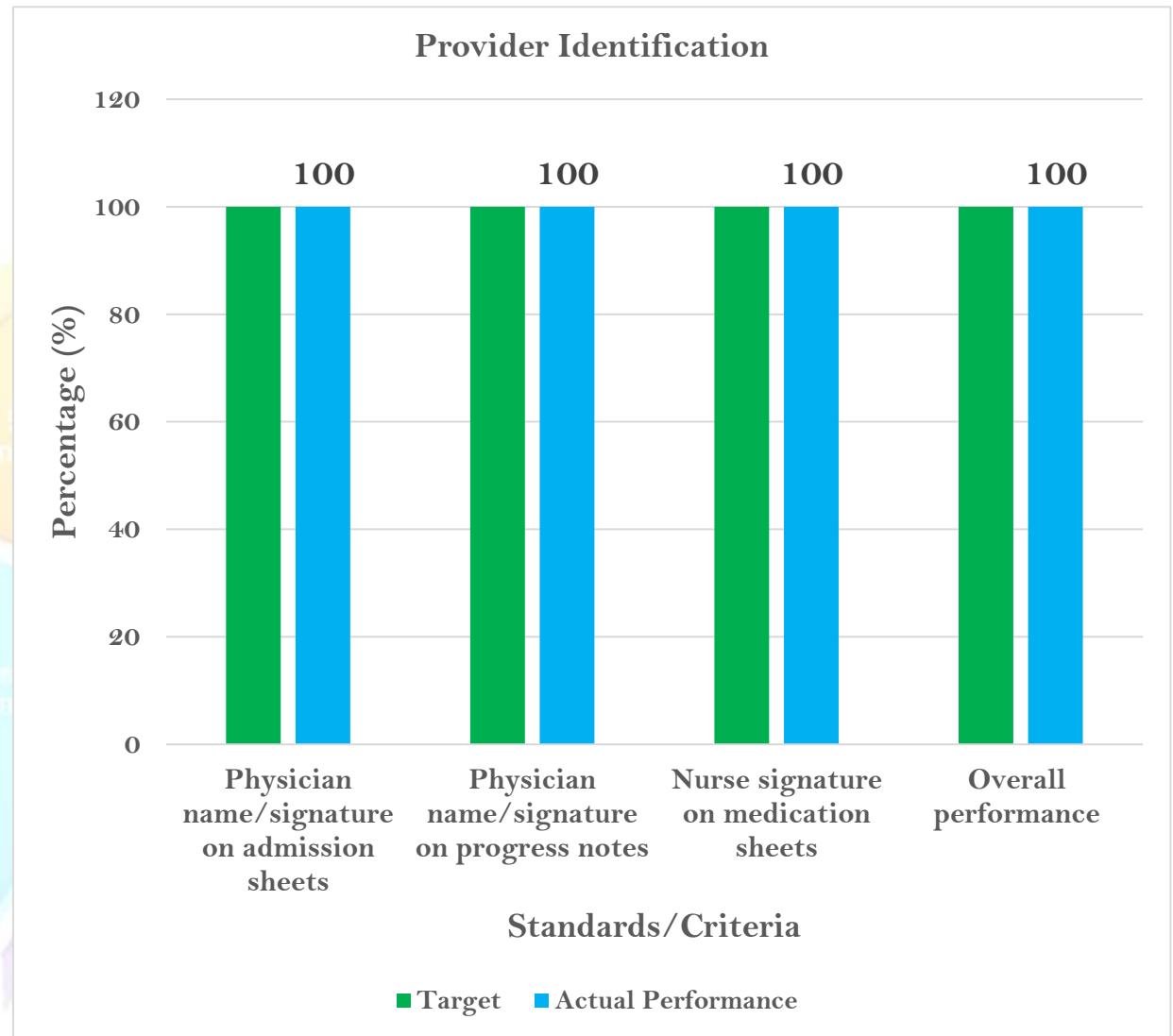
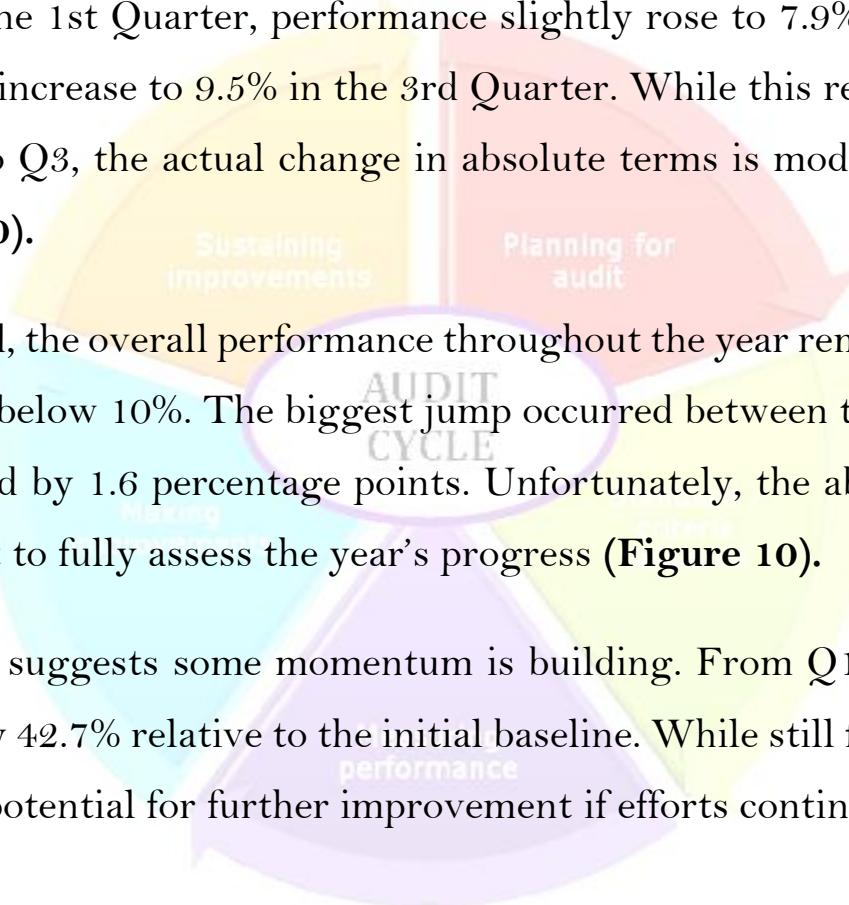


Figure 9: Provider Identification, June 2017E.

Trends of Poison Clinical Audit Performance

The results reflect a slow but steady improvement over the first three quarters. Starting from a very low baseline of 7.5% in the 1st Quarter, performance slightly rose to 7.9% in the 2nd Quarter, and then saw a more notable increase to 9.5% in the 3rd Quarter. While this represents a 26.7% relative improvement from Q1 to Q3, the actual change in absolute terms is modest—only a 2-percentage point increase (**Figure 10**).



Despite the positive trend, the overall performance throughout the year remained critically low, with all three quarters falling below 10%. The biggest jump occurred between the 2nd and 3rd Quarters, where the score improved by 1.6 percentage points. Unfortunately, the absence of data for the 4th Quarter makes it difficult to fully assess the year's progress (**Figure 10**).

Nonetheless, the pattern suggests some momentum is building. From Q1 to Q3, the clinical audit performance improved by 42.7% relative to the initial baseline. While still far from where it needs to be, the progress signals potential for further improvement if efforts continue (**Figure 10**).

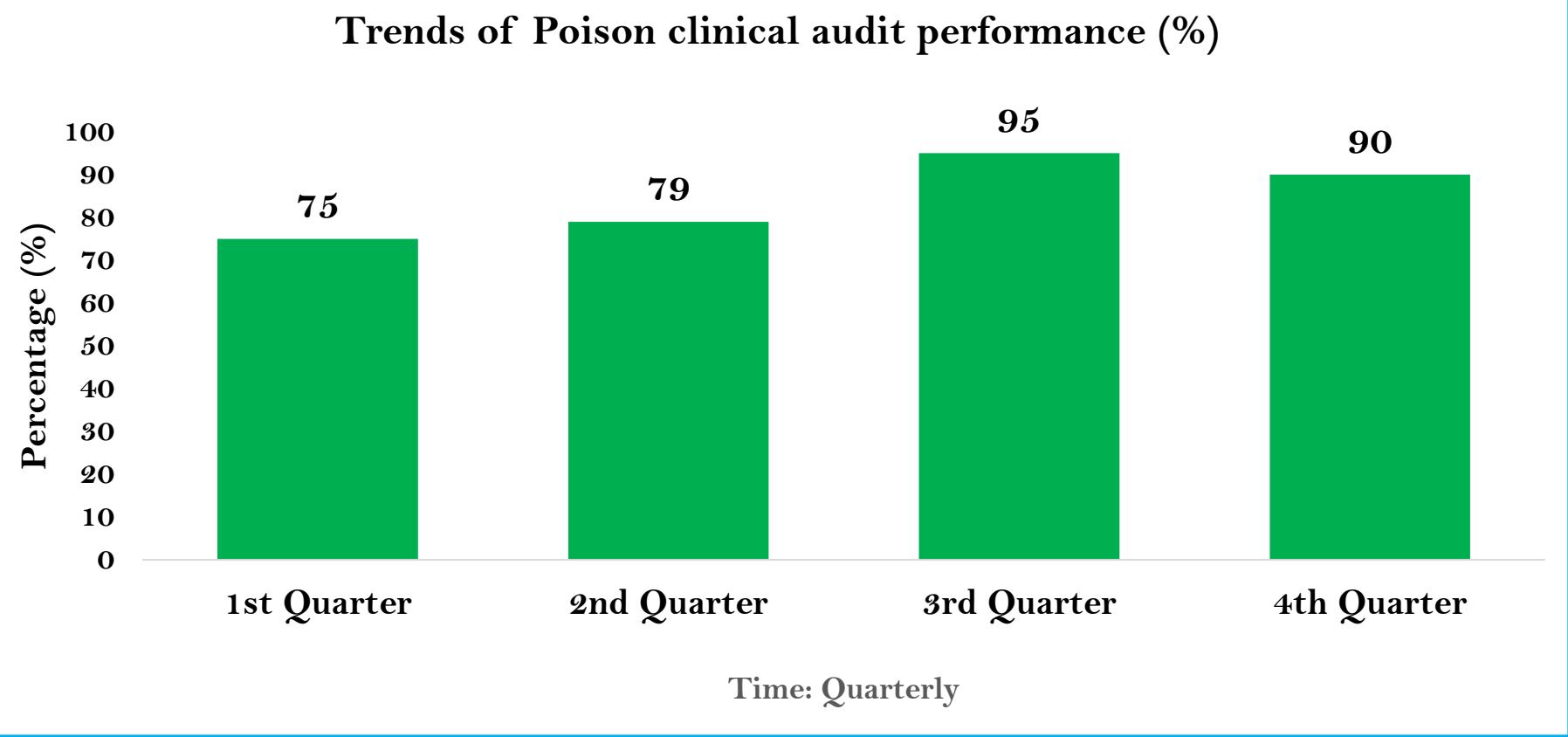


Figure 10: Trends of Poison clinical audit performance 2017E.C

DISCUSSION

The most alarming gaps were in **acute life-threatening interventions** and **essential diagnostics**. The absence of airway management for patients with GCS ≤ 9 (0%) and oxygen therapy for hypoxemia ($\text{SpO}_2 < 90\%$, 0%) directly violates WHO and FMOH emergency poisoning guidelines (Ref 1, 3), risking respiratory arrest or hypoxic brain injury. Similarly, the neglect of ECG for toxin-induced cardiac risks (0%) and coagulation profiles (26%) – critical for agents like rodenticides or snake venoms – reflects a failure to identify complications such as arrhythmias or hemorrhage (Ref 2, 5). These omissions suggest *triage protocols were either unknown or inconsistently applied*, prioritizing administrative tasks over physiological stabilization.

The poor compliance in **investigations** (68%) and **treatment adherence** (e.g., 0% dialysis, 0% fluid balance monitoring) highlights systemic barriers. Limited access to point-of-care RBS/coagulation testing and dialysis facilities (Table 3) indicates *resource constraints common in low-resource settings* (Ref 4, 9). However, gaps in decontamination (0%) and psychiatric referrals (0%) are process failures unrelated to resources, pointing to *inadequate training, supervision, or protocol internalization*. Staff turnover (Table 3) further eroded gains from prior training, underscoring the need for sustainable competency frameworks.

The audit confirmed strengths in **diagnostic accuracy** (100% toxicome identification) and **basic documentation** (100% ID, history-taking), demonstrating clinical expertise despite resource limits. However, the 90% overall compliance masks severe risks: *high scores in non-urgent areas (e.g., provider signatures) inflated performance*, while life-saving interventions lagged. The partial success of past interventions (e.g., improved CBC/RFT to 63%) proves change is feasible but requires addressing root causes:

RECOMMENDATIONS

☒ Enhance Diagnostic Investigations

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

| Recommendation | Actions Required | Responsible Party | Timeline |
|--|--|-------------------------|------------|
| | - Implement decontamination protocols (e.g., posters, kits in ED). | Nursing Supervisor | Immediate |
| Enhance Diagnostics investigation | - Procure point-of-care RBS/coagulation monitors | Hospital Administration | 3-6 months |

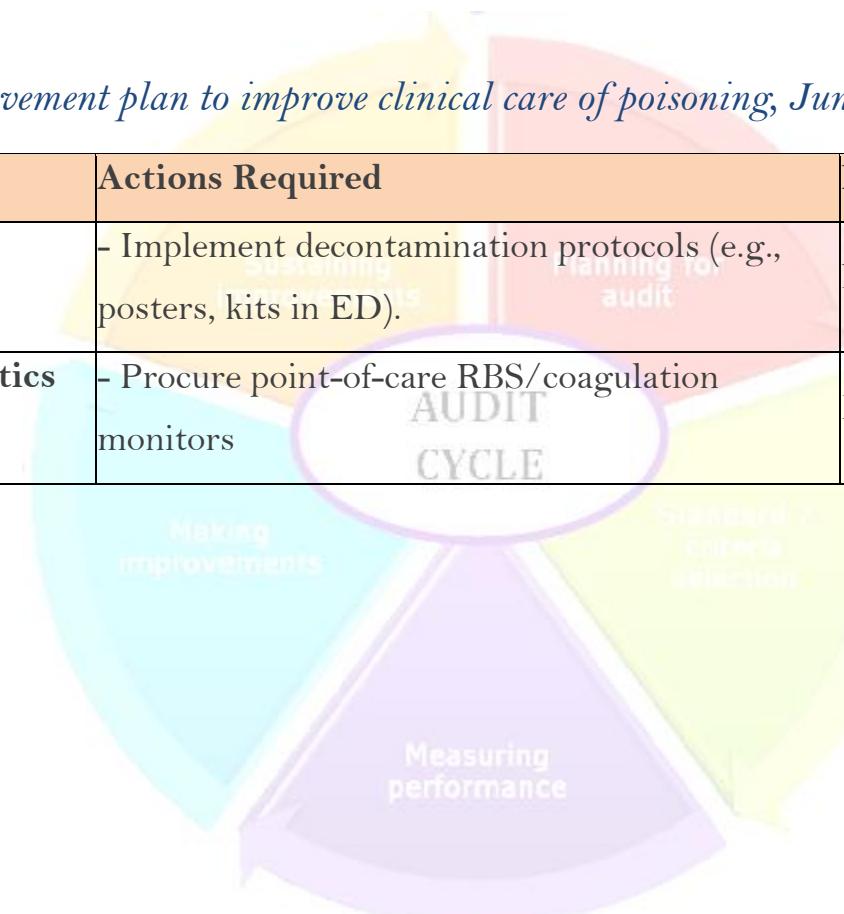


Table 3: Implementation Status of Improvement Plan for improving clinical care of Poisoning patient, June 2017E.C

| Recommendation | Actions Required | Status | Remarks |
|--|---|--------------------|---|
| Training on Acute Interventions | Conduct mandatory training on airway management, oxygen therapy, and decontamination. | Implemented | Training initially conducted, but high staff turnover eroded retention. No airway/O ₂ therapy observed for critical cases. |
| Improve Diagnostics | Procure point-of-care RBS/coagulation monitors. | In Progress | RBS monitors partially available (50% compliance); coagulation equipment ordered but not delivered (26% compliance). |
| Enhance Investigations | Ensure ECG/CBC/RFT for indicated cases. | Implemented | CBC/RFT improved to 63% (from baseline), but ECG compliance remained 0%. Resource constraints cited. |
| Treatment Adherence | Implement fluid balance monitoring. | Implemented | No dialysis (0%) or fluid balance (0%) performed. Protocols displayed but not utilized. |



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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” **Poison mgt**” jedhamu kan **kurmaana 4ffaa** bara **2017** xalaya Fuula **23** qabuu gaggeessituu kana waliin walqabsiifnee isiiniif eerguu keenya kabajaan isiniif beeksiifnaa.

Nagaya wajjiin!!