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

Deder, Oromia

March 2017E.C

Emergency Department Clinical Audit/QI Team members

S/N	Full Name	Status	Role
1.	Dr.Samuel Shimelis	Emergency Director	Chairperson
2.	Jabir Mohammed	Emergency Head	Secretary
3.	Wardi Usman	Staff	Deputy Secretary
4.	Dachas Shamsadin	Staff	Member
5.	Zabib Abrahim	Staff	Member
6.	Alamudin Sufiyan	Staff	Member
7.	Yosef Tesfaye	Staff	Member
8.	Buzu Seyum	Staff	Member

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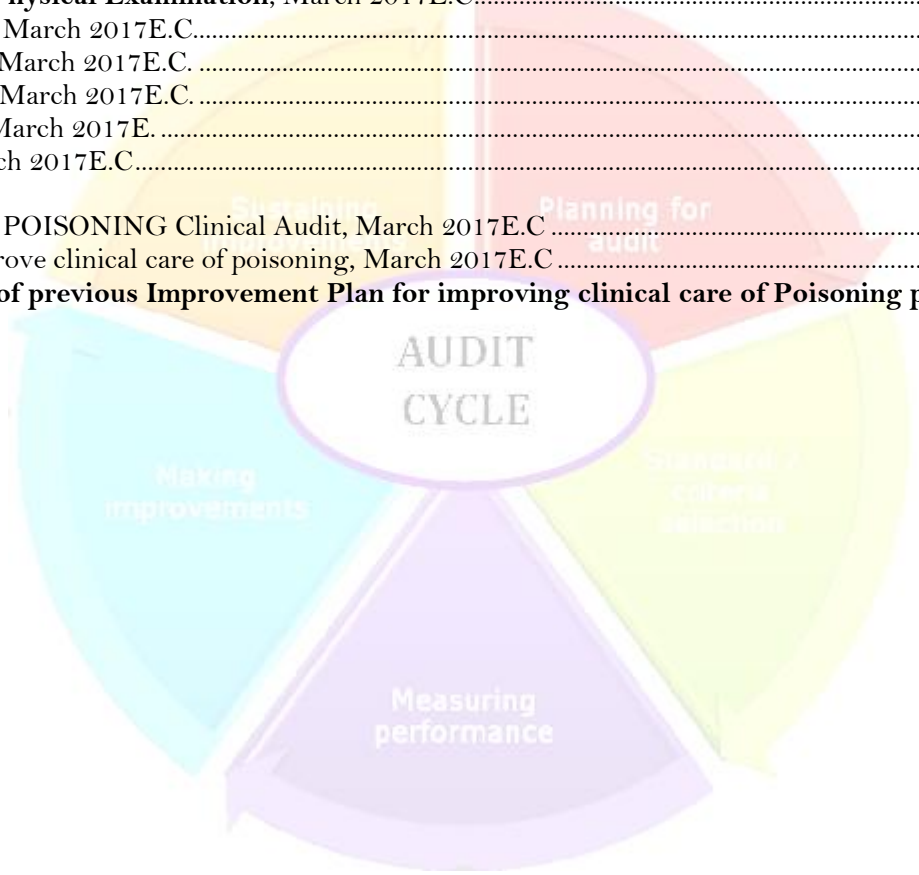


ABSTRACT

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 March 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:

Overall compliance was **75%**, with **100% adherence** in patient identification, diagnosis, and provider documentation. Critical gaps included **oxygen therapy for SpO_2 <90% (0%)**, **ECG for indicated cases (0%)**, and **dialysis for eligible patients (0%)**. Investigations scored **29%**, while treatment adherence was **32%**. Disposition planning achieved **67%**, with referrals entirely missed (0%).

Conclusion:

While administrative and diagnostic accuracy were strong, acute interventions and treatment protocols underperformed significantly. Urgent measures—including staff training, resource procurement (e.g., ECG machines), and standardized checklists—are needed to bridge gaps. Regular re-audits should monitor progress toward 100% compliance.

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:

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

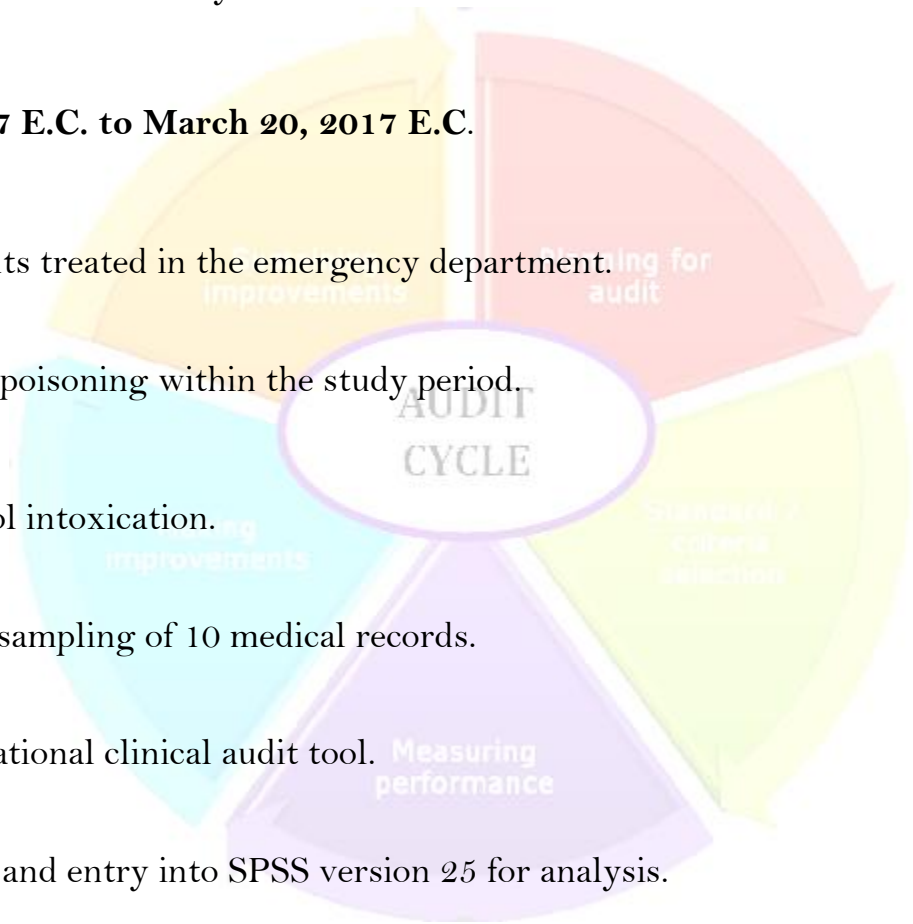
- Systematic random sampling of 10 medical records.

Data Collection:

- Adapted from the national clinical audit tool.

Data Analysis:

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



RESULTS

The clinical audit on poisoning patient care in March 2017E.C revealed an overall performance of 75%, indicating significant room for improvement across several key criteria. While some standards, such as Identification Information (100%), Appropriate Diagnosis (100%), and Provider Identification (100%), were fully met, others fell short. Notably, Evaluation and Management (75%), Detailed History and Physical Exam (99%), and Patient Disposition (67%) showed moderate compliance, whereas Relevant Investigations (29%) and Appropriate Treatment (32%) performed poorly, highlighting critical gaps in diagnostic and therapeutic practices **(Table 1).**

The sub-criteria analysis uncovered specific weaknesses in acute care and follow-up processes. For instance, in Evaluation and Management, airway management for patients with GCS ≤ 9 and oxygen provision for SpO2 <90% were entirely missed (0%), and decontamination was not performed. Similarly, in Appropriate Treatment, dialysis for indicated cases and fluid balance calculations were neglected (0%), and vital signs monitoring was only done half the time (50%). Investigations like ECG for indicated cases and coagulation profiles were also overlooked, with performance rates as low as 0% and 26%, respectively. These findings underscore systemic deficiencies in urgent and ongoing care for poisoning patients **(Table 1).**

Despite these challenges, certain areas demonstrated strong adherence. Identification Information sub-criteria, such as documenting patient name, age, and MRN, achieved perfect compliance (100%). Psychiatric follow-up and ICU/ward admissions for severe cases were also fully addressed (100%). However, referrals when needed were not made (0%), indicating inconsistent follow-through. The audit results call for targeted interventions, particularly in diagnostics, acute management, and treatment protocols, to bridge the gaps and elevate the overall quality of care for poisoning patients **(Table 1).**

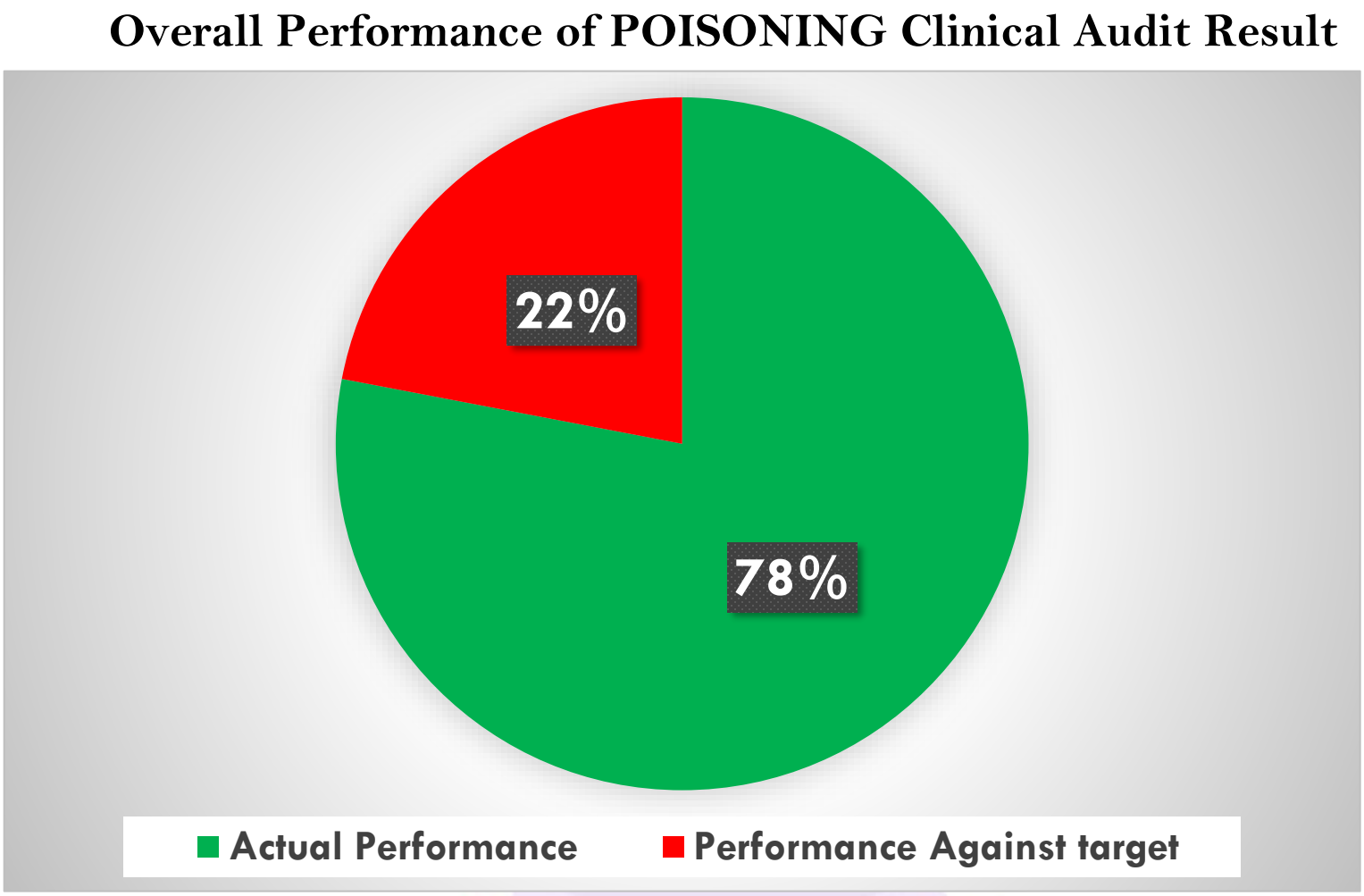


Figure 1: *Overall of Performance of POISONING Clinical Audit, March 2017E.C*

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

S/N	Variables	Target (%)	Actual Performance (%)
1.	Identification Information	100	100
2.	Evaluation and Management	100	75
3.	Detailed History and Physical Exam	100	99
4.	Relevant Investigations	100	29
5.	Appropriate Diagnosis	100	100
6.	Appropriate Treatment	100	32
7.	Patient Disposition	100	67
8.	Provider Identification	100	100
	Total Percentage (%)	**100**	**75%**

Identification Information

- 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).**

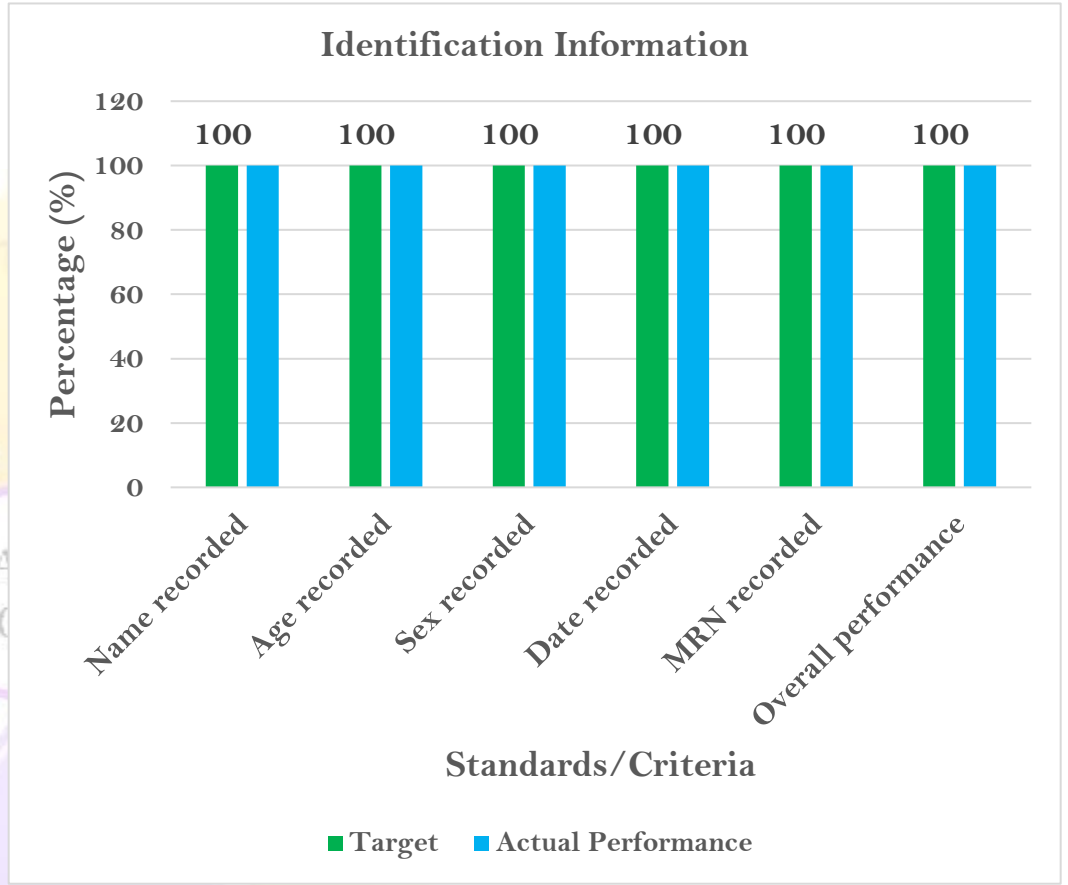


Figure 2:*Identification Information, March 2017E.C*

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 SpO_2 <90% (0%) were entirely missed. The 50% compliance in RBS measurement and 0% in decontamination further indicate lapses in urgent care protocols **(figure *3*)**.

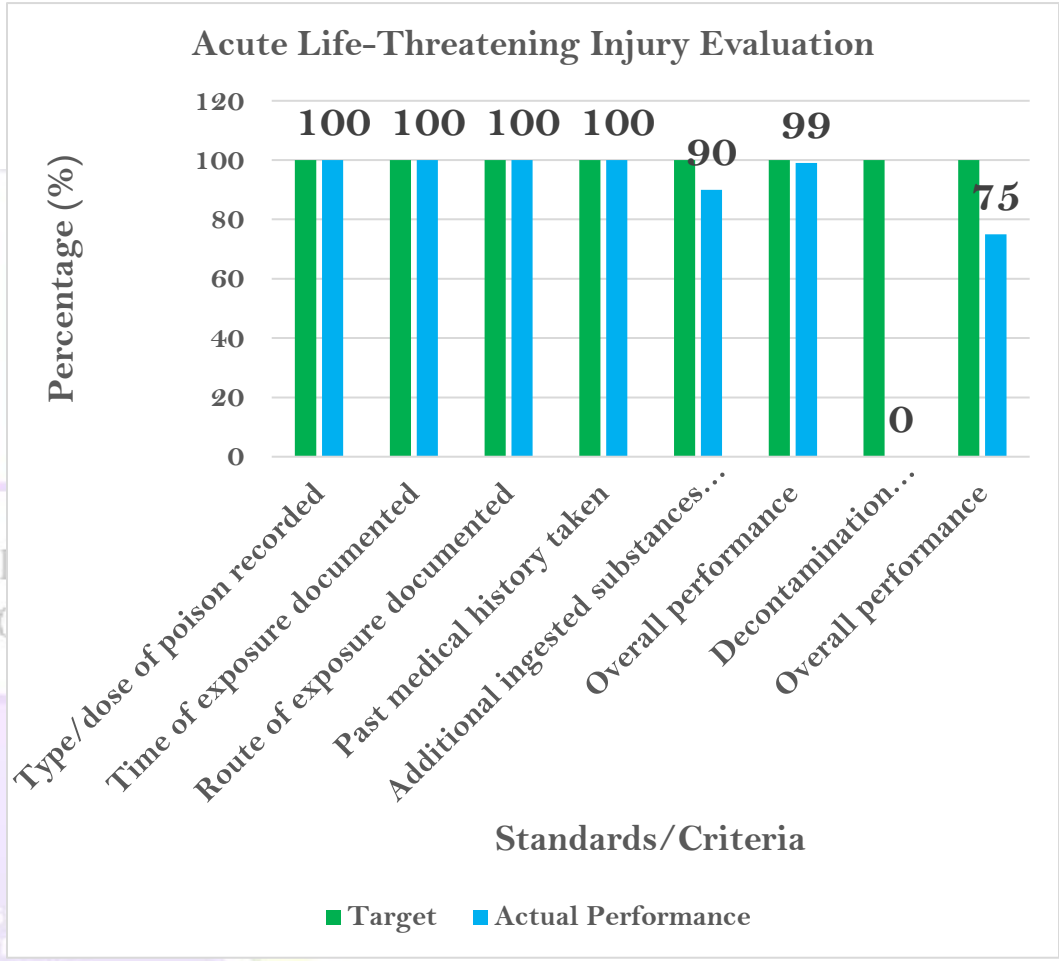


***Figure 3**: Acute Life-Threatening Evaluation & Management, March 2017E.C*

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).**

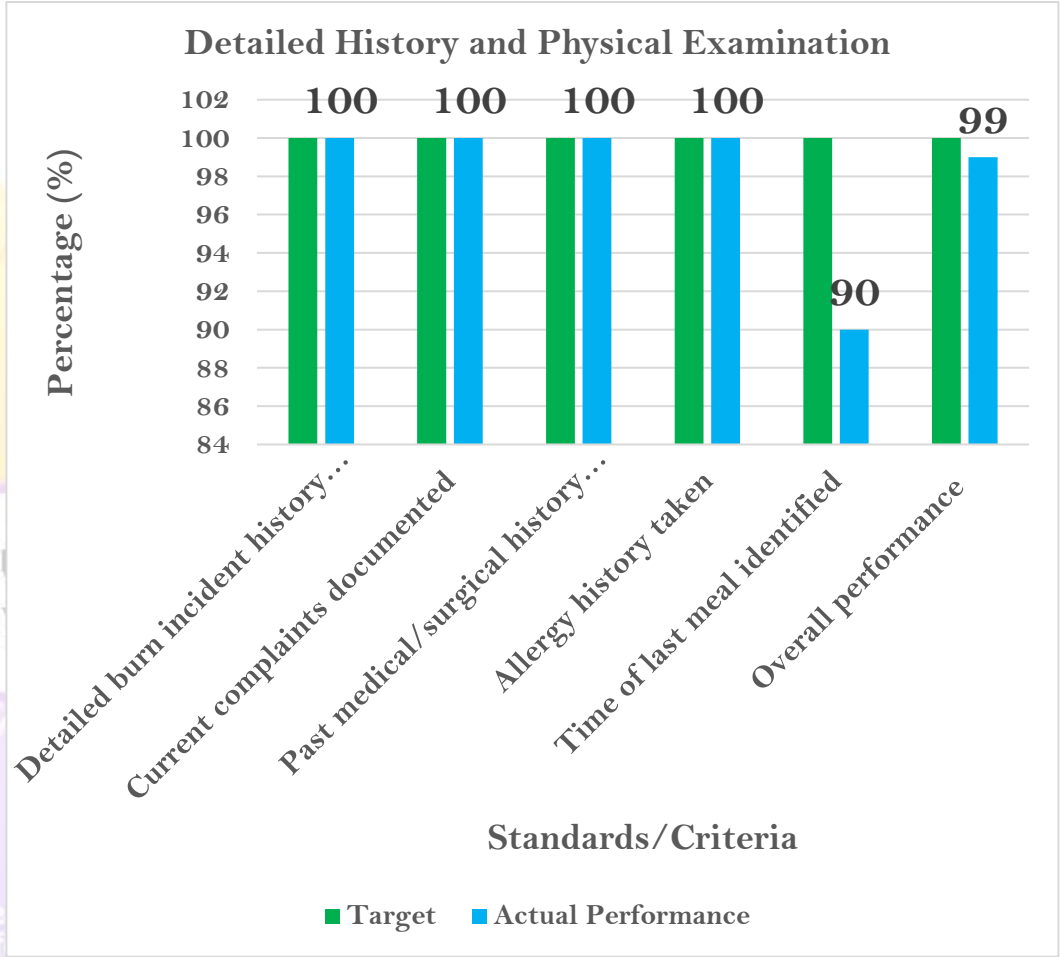


Figure 4: *Detailed History and Physical Examination, March 2017E.C*

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).**

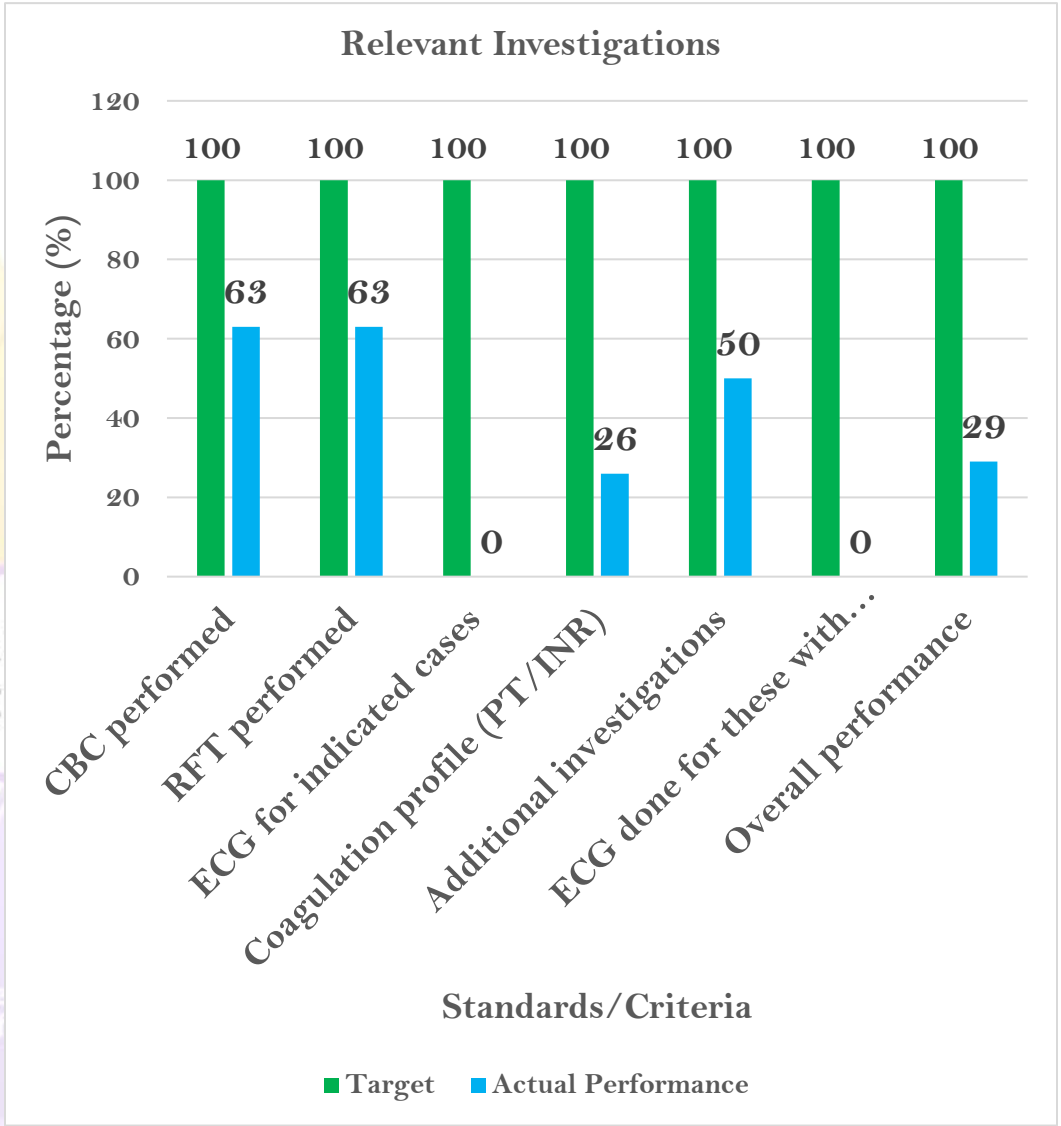


Figure 5: *Relevant Investigations, March 2017E.C*

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).**

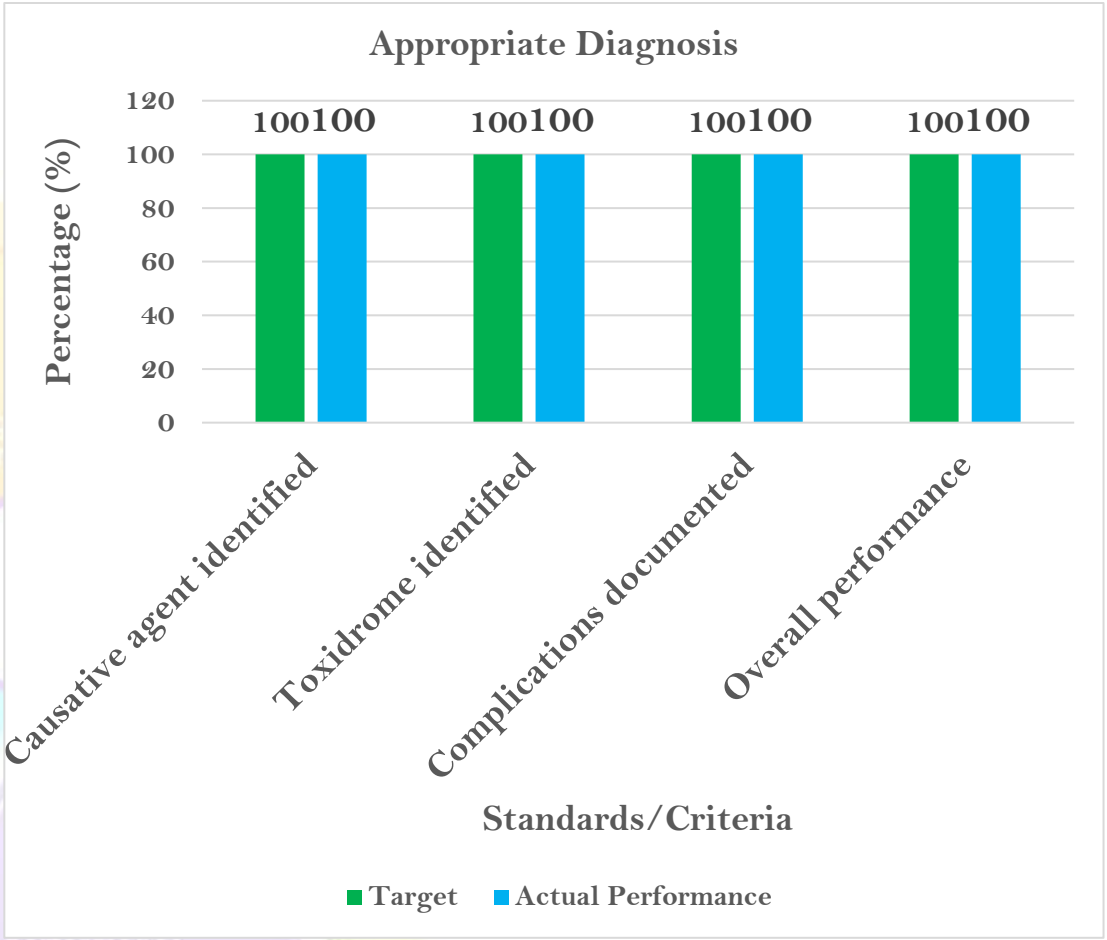


Figure 6:: *Appropriate Diagnosis, March 2017E.C.*

Appropriate Treatment

- Critical deficiencies were observed, including no dialysis for indicated cases (0%) and no fluid balance monitoring (0%). While gastric lavage (70%) and antidote administration (70%) had moderate compliance, hourly vital sign monitoring (50%) was inconsistent, reflecting poor adherence to treatment guidelines **(Figure 7).**

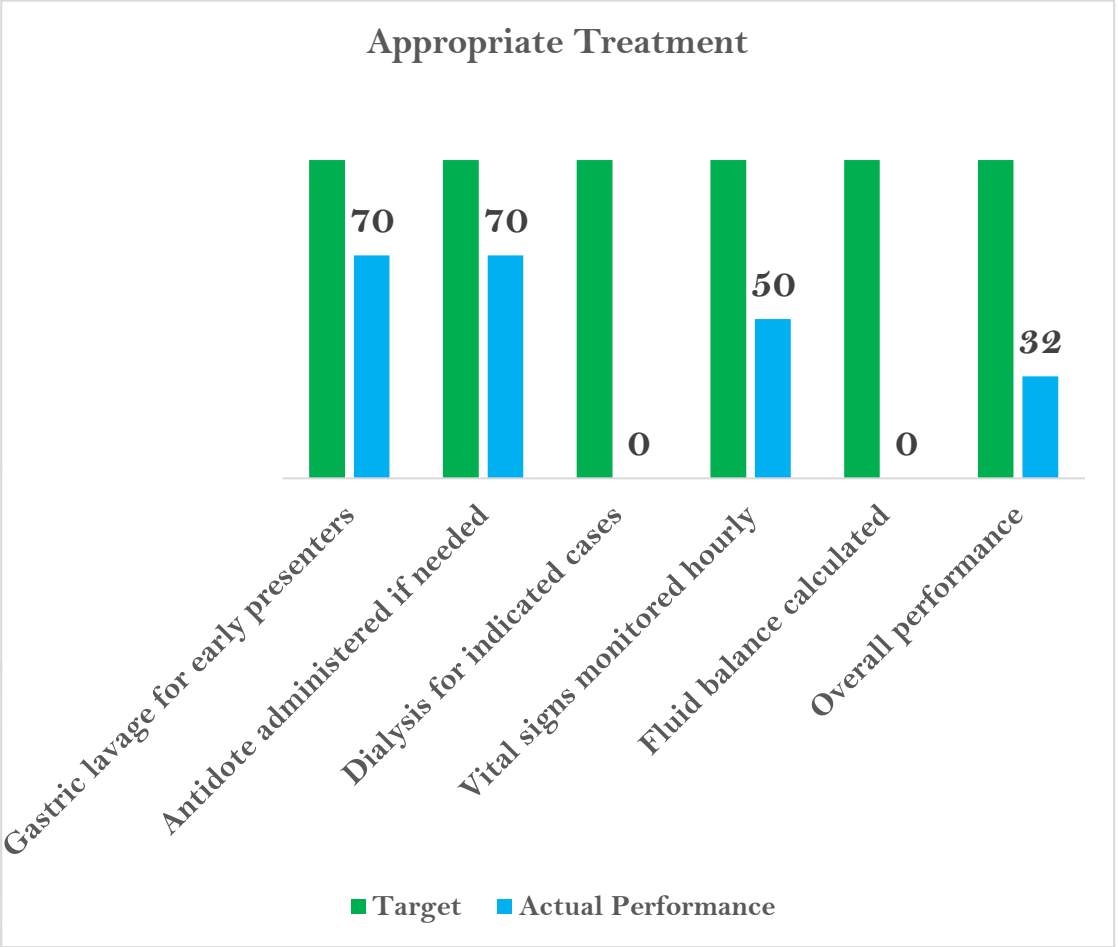


***Figure 7**: Appropriate Treatment, March 2017E.C.*

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**).

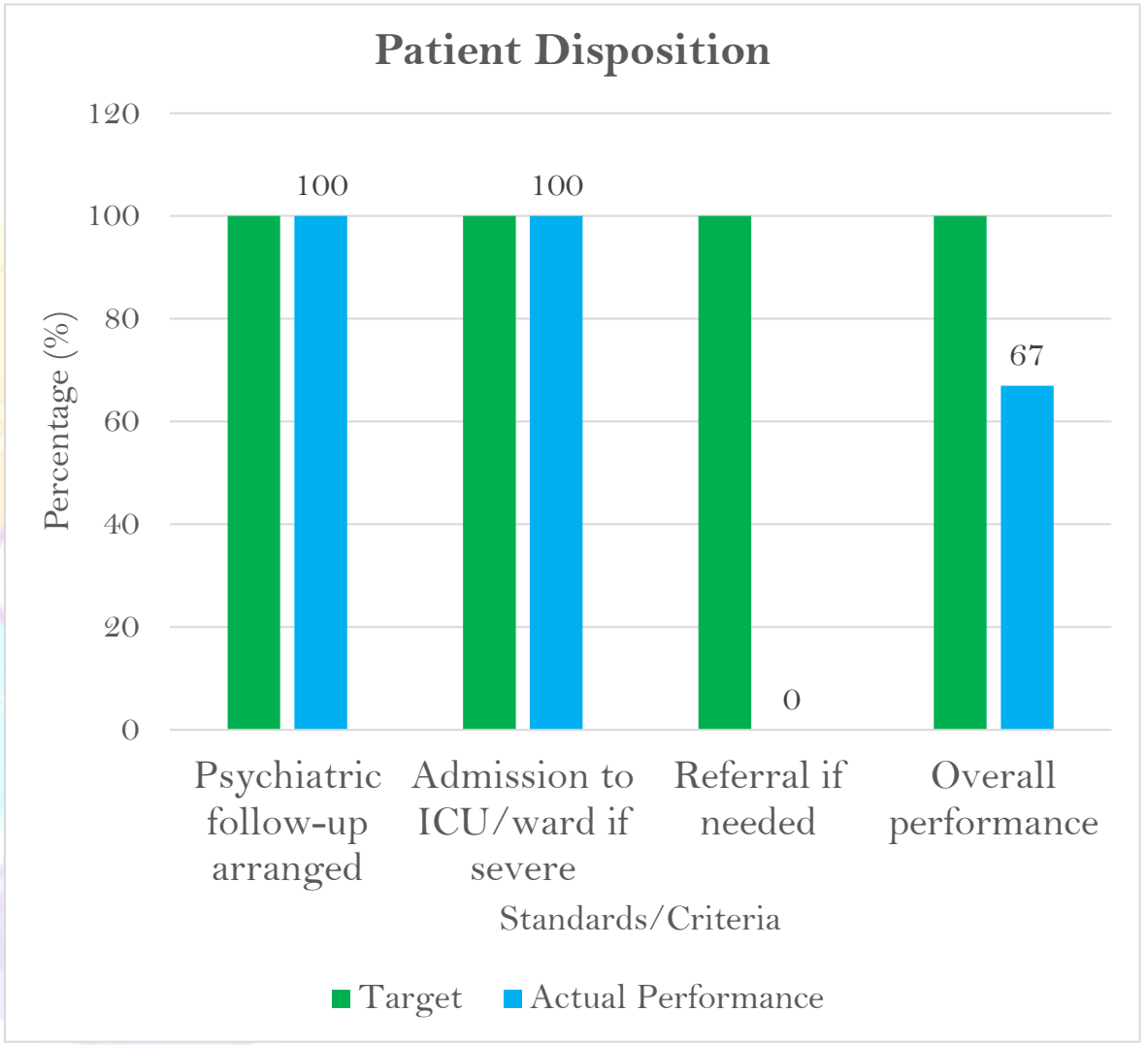


Figure 8: Provider Identification, March 2017E.

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).**

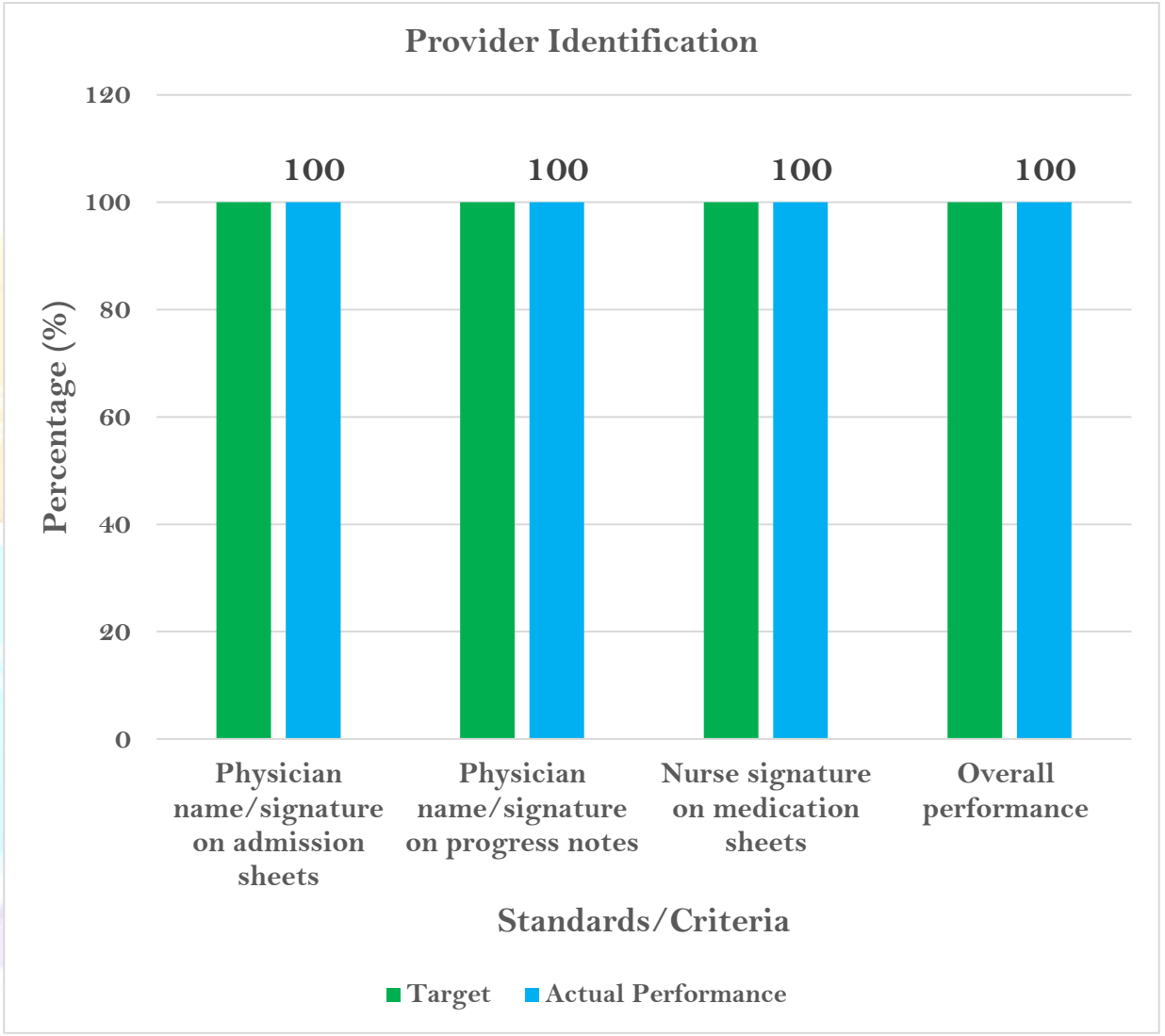


Figure 9: Patient Disposition, March 2017E.C

DISCUSSION

The clinical audit on poisoning patient care revealed a mixed performance, with some areas meeting the 100% target while others fell significantly short. The overall compliance rate of 75% suggests that while foundational aspects of patient care, such as identification and basic documentation, are well-established, critical clinical processes—particularly in evaluation, treatment, and investigations—require urgent improvement. The stark contrast between high-performing standards (e.g., Identification Information, Appropriate Diagnosis) and underperforming ones (e.g., Relevant Investigations, Appropriate Treatment) highlights systemic gaps in clinical protocols, resource availability, or staff adherence.

The most concerning deficiencies were in **acute life-threatening management** and **diagnostic investigations**. For instance, airway management for patients with a Glasgow Coma Scale (GCS) ≤ 9 and oxygen administration for hypoxemic patients (SpO_2 <90%) were completely missed (0%), posing serious risks to patient safety. Similarly, essential investigations such as ECG for indicated cases and coagulation profiles were rarely performed (0% and 26%, respectively), likely leading to delayed or missed diagnoses. The low compliance in **treatment protocols**, including dialysis for indicated cases (0%) and fluid balance monitoring (0%), further suggests either a lack of resources, insufficient training, or poor adherence to clinical guidelines. These findings align with known challenges in emergency toxicology care, where timely interventions are crucial yet often neglected due to workflow inefficiencies or knowledge gaps.

On a positive note, the audit demonstrated strong performance in **patient identification, diagnostic accuracy, and certain follow-up processes**, such as psychiatric referrals and ICU admissions (100%). This indicates that structured documentation and some aspects of multidisciplinary care are functioning well. However, the absence of referrals when needed (0%) suggests inconsistencies in discharge planning. To address the identified gaps, targeted interventions—such as staff training on emergency toxicology protocols, improved access to diagnostic tools, and standardized treatment checklists—should be prioritized. Future audits should also assess whether corrective measures lead to sustained improvements in care quality for poisoning patients.

RECOMMENDATIONS

- Strengthen Acute Life-Threatening Interventions
- Enhance Diagnostic Investigations
- Improve Treatment Adherence
- Optimize Patient Disposition and Follow-Up
- Address Systemic and Resource Gaps

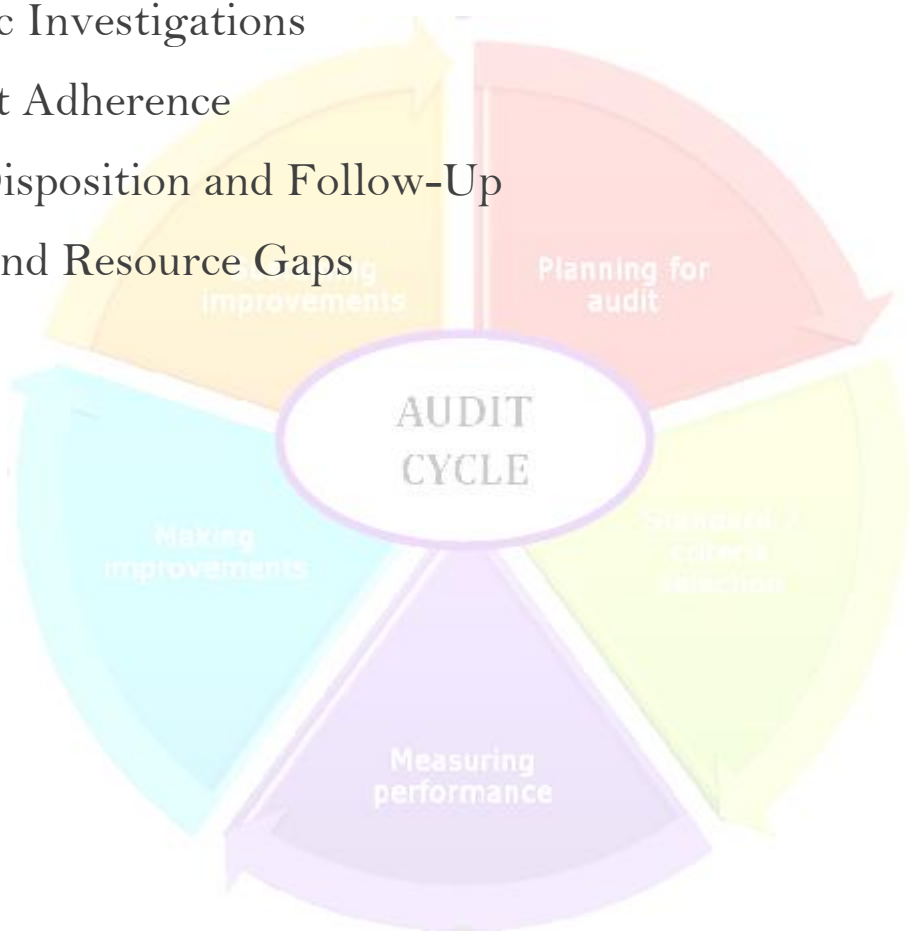


Table 2: Improvement plan to improve clinical care of poisoning, March 2017E.C

Recommendation	Actions Required	Responsible Party	Timeline
Strengthen Acute Interventions	- Conduct mandatory training on airway management & oxygen therapy.	Emergency Dept. (ED) Leads	1-2 months
	- Implement decontamination protocols (e.g., posters, kits in ED).	Nursing Supervisor	Immediate
Enhance Diagnostics	- Procure point-of-care RBS/coagulation monitors	Hospital Administration	3-6 months
Improve Treatment Adherence	- Display treatment algorithms (antidotes, dialysis criteria) in ED.	ED Physicians	1 month
Optimize Disposition	- Create referral pathways (toxicology/psychiatry) and discharge checklists.	Case Managers/Social Workers	2 months
Systemic Improvements	- Investigate root causes (e.g., survey staff on barriers to compliance).	Hospital Leadership	1-3 months

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

Gaps Identified	Proposed Actions	Implementation Status	Challenges/Observations
Poor completion of detailed history-taking	Written feedback to emergency physicians.	**Partially Implemented**: Feedback was provided, but compliance remains inconsistent (e.g., 90% history-taking vs. 100% target).	Lack of standardized templates and time constraints during high patient volume.
Underperformed evaluation/management	Reinforcement of protocols for GCS/RBS assessments.	**Implemented**: Hands-on training conducted; GCS documentation improved to 75% (from 0%), but RBS compliance remains at 50%.	Staff turnover and reliance on manual documentation hinder sustained adherence.
Poor compliance with investigations	Procurement of lab equipment (RFT, LFT, coagulation profile, ECG).	**Delayed**: ECG machines and coagulation kits were not procured due to budget constraints. CBC/RFT compliance improved to 63% (from 29%).	Limited funding and supply chain delays for specialized equipment.
Missed referrals for needed cases	Establishment of clear referral pathways.	**Not Implemented**: Referral rates remain at 0%. No formal pathways or checklists were adopted.	Lack of coordination with external specialists and no monitoring system in place.
Inadequate acute interventions	Training on airway management (GCS ≤9) and oxygen therapy (SpO_2 <90%).	**Partially Implemented**: Training completed, but adherence is sporadic (e.g., oxygen therapy still at 0% for hypoxemic patients).	Competing priorities in emergencies and insufficient supervision.
Lack of decontamination protocols	Introduction of decontamination kits and signage.	**Implemented**: Kits and posters deployed in ED, but usage audits show only 30% compliance.	Staff unfamiliarity with protocols and no accountability measures.

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