DEDER GENERAL HOSPITAL

Inpatient Department (Medical Ward)

Clinical Audit to Improve the Quality of Clinical Care Provided to Patients with Community-Acquired Pneumonia

By: Medical Ward Clinical Audit/QI Team

Audit Cycle: Re-Audit *3*

Deder, Oromia

June 2017E.C

Medical Ward Clinical Audit/QI team Members

Dr. Dawit Seifu	Inpatient Director	Chairperson
Abdurhaman Shamee	Medical Ward Head	Secretary
Dine Mohamed	Staff	Member
Muluqan Tasfaye	Staff	Member
Abrahim Mohamed	Staff	Member
Calaa Abrahim	Staff	Member
Bayan Mohammadnur	Staff	Member

TABLE OF CONTENTS

Lists of Figures and Tables

ABSTRACT

Introduction: Community-acquired pneumonia (CAP) remains a leading cause of hospitalization and mortality in resource-limited settings. This re-audit at Deder General Hospital assessed compliance with national and international CAP care standards to identify persistent gaps and drive quality improvement.

Objective: To evaluate adherence to evidence-based CAP management protocols across key domains—clinical assessment, diagnostics, treatment, monitoring, and discharge care—and implement targeted interventions to enhance care quality.

Methodology: A retrospective cross-sectional audit was conducted using systematic random sampling of 19 adult CAP inpatient records (**March 21–June 20, 2017 E.C**.). Data were extracted via standardized tools aligned with Ethiopian FMOH and WHO guidelines and analyzed using Excel. Performance was measured against 100% targets for 10 domains, including history-taking, investigations, antibiotic stewardship, and mortality tracking.

Result: Overall compliance was high **(98%),** with perfect scores (100%) in identification, history-taking, diagnosis, treatment, and monitoring. Critical gaps included **incomplete diagnostics**: organ function tests (0% compliance) and sputum cultures (50%), alongside **anomalous mortality data** (0% documented vs. 100% target). Discharge planning (99%) and physical exams (99%) neared targets.

Conclusion: While core clinical processes demonstrate excellence, diagnostic deficiencies (organ tests, cultures) and implausible mortality reporting indicate systemic resource and documentation failures. Urgent interventions in lab capacity, staff training, and outcome tracking are needed to sustain gains and address high-risk gaps.

INTRODUCTION

Community-acquired pneumonia remains a leading cause of hospitalization and death, especially in low-resource settings. Effective management requires prompt diagnosis, appropriate antibiotic therapy, and thorough monitoring. This audit assessed adherence to CAP care standards at Deder General Hospital, identifying areas for improvement.

AIM

- To improve the quality of clinical care provided to patients diagnosed with community-acquired pneumonia.

OBJECTIVES

- Ensure **appropriate evaluation** of CAP patients, including symptom assessment and risk factor documentation.
- Ensure **relevant investigations** (e.g., CBC, CXR, cultures) are conducted.
- Ensure **appropriate antibiotic therapy** per guidelines.
- Ensure **effective monitoring** during hospitalization.
- Ensure **proper discharge planning** with follow-up.

METHODOLOGY

- **Study Design:** Retrospective cross-sectional study.
- **Study Period:** ***March 21, 2017 E.C. to June 20, 2017 E.C.***
- **Study Population:** Adult patients (age >14) admitted with CAP.
- **Inclusion Criteria:** Confirmed CAP cases requiring hospitalization.
- **Exclusion Criteria:** Healthcare-associated or aspiration pneumonia.
- **Sampling Technique:** Systematic random sampling of **19 records**.
- **Data Collection:** Adapted from national CAP audit tools.
- **Data Analysis:** Manual verification and Excel analysis.

RESULTS

The audit demonstrated high overall adherence to pneumonia care standards, achieving **98%** compliance across all measured domains **(Figure 1).** Performance was exemplary (100%) in critical areas including patient identification, detailed history-taking (assessing core symptoms and risk factors), thorough physical examination (vital signs, respiratory, cardiac, and GCS assessment),

accurate diagnosis (using clinical/imaging findings and CURB-65 severity scoring), appropriate antibiotic treatment (guideline-concordant therapy and timely adjustments), and consistent monitoring (q6h vital signs and daily physician reviews). Discharge care (vital signs, advice, follow-up scheduling) and provider identification documentation also met targets (99-100%) **(Table 1)**.

Despite strong overall performance, significant gaps were identified in diagnostic investigations. While CBC and blood cultures were consistently performed (100%), essential organ function tests (e.g., renal/liver) were never conducted (0%), and sputum culture/gram staining was only completed in half of cases (50%). This represents a critical shortfall against the 80% target for investigations, indicating potential resource limitations or protocol deviations affecting comprehensive diagnostic assessment **(Table 1).**

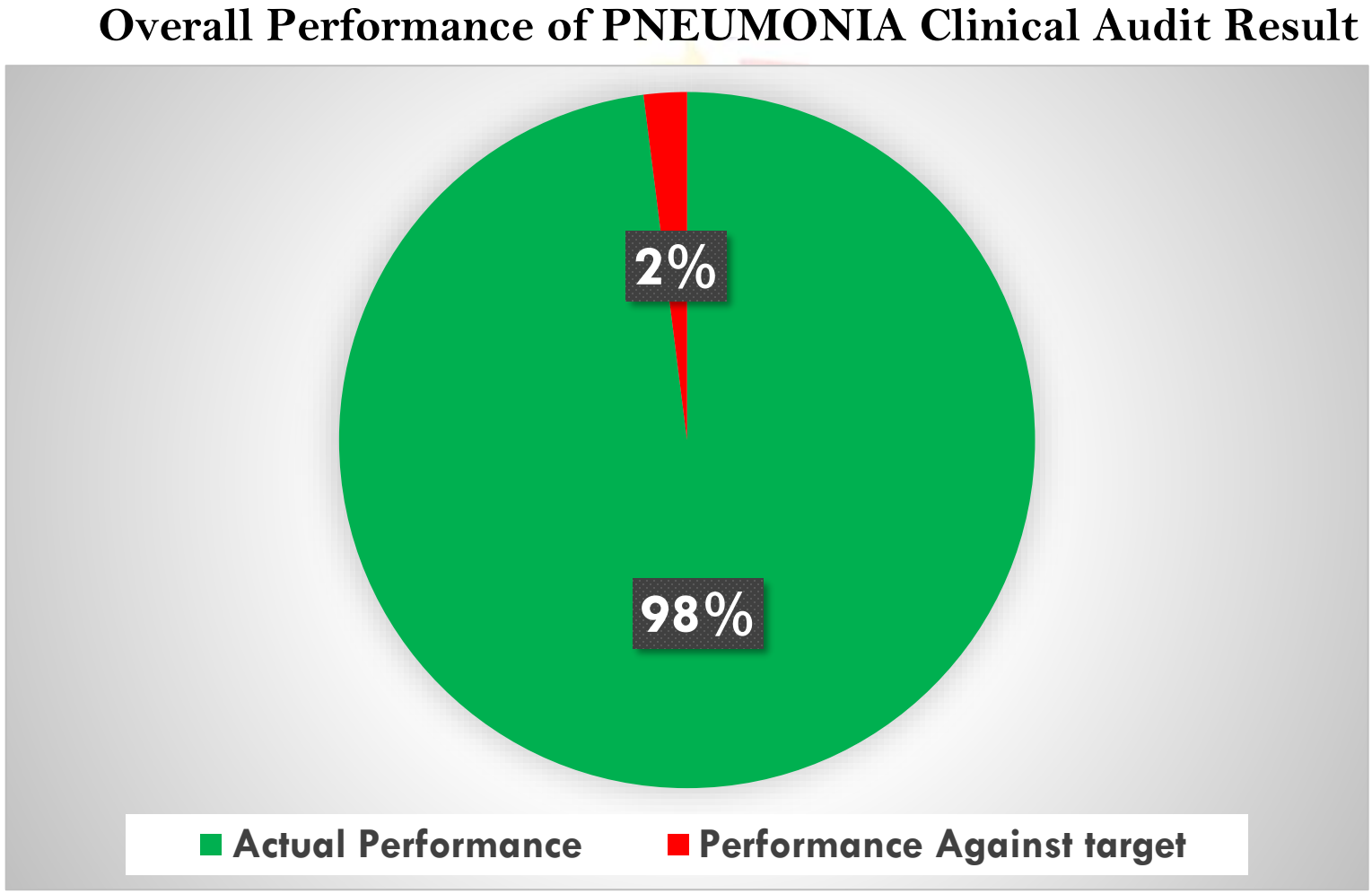
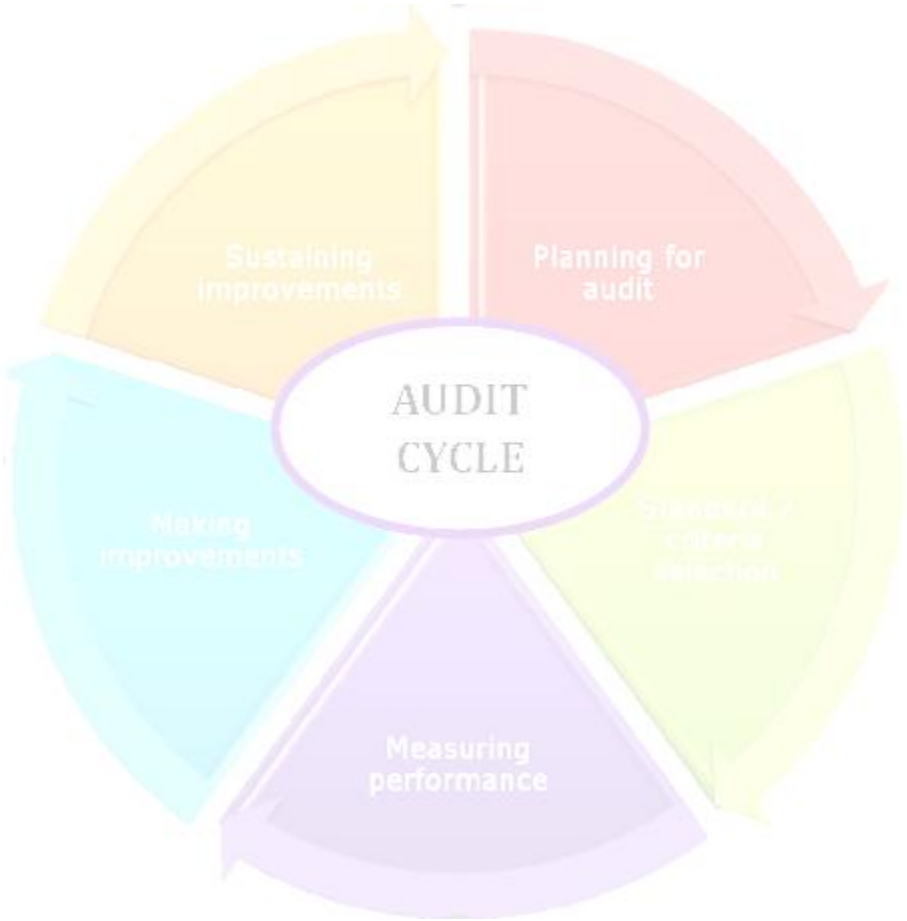


Figure 2: *Overall of Performance of pneumonia Clinical Audit, June 2017E.C*

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

S/N	Variables	Target (%)	Actual Performance (%)
1.	Identification Information	100	100
2.	History-Taking	100	100
3.	Physical Examination	100	99
4.	Investigations	100	100
5.	Diagnosis	100	100
6.	Treatment	100	100
7.	Monitoring	100	100
8.	Discharge Care	100	99
9.	Provider ID	100	99
10.	Mortality	100	0
	Total Percentage (%)	**100**	**98%**


AUDIT
CYCLE
Planning for audit
Measuring performance
Making improvements
Sustaining improvements

Identification Information

- The performance in recording identification information for pneumonia patients was exemplary, achieving a 100% compliance rate across all sub-criteria. Key details such as the patient's name, age, sex, date and time of admission, and Medical Record Number (MRN) were consistently documented. This high level of accuracy ensures that patient records are complete and traceable, which is critical for continuity of care and administrative processes. The overall performance of 100% reflects a well-established system for capturing essential patient data, minimizing errors, and supporting efficient healthcare delivery **(figure 2).**

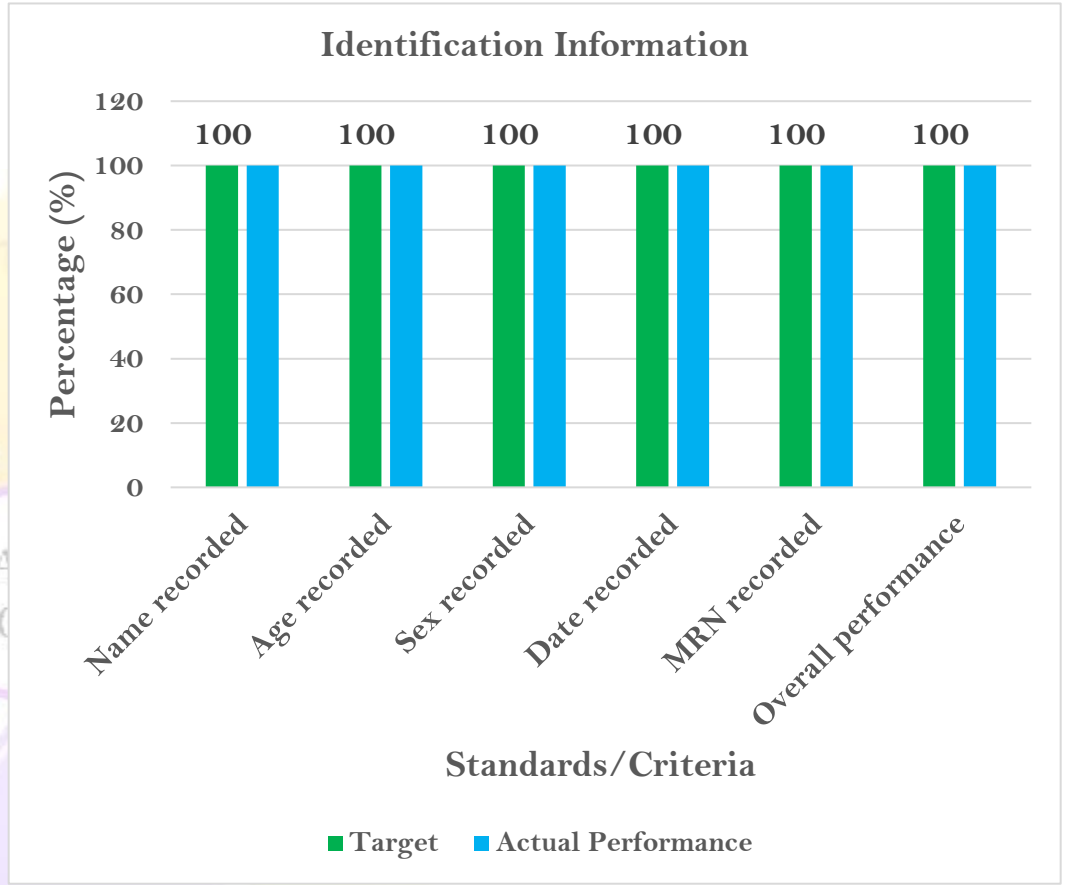


Figure 3: *Identification Information, June 2017E.C*

Detailed History Taken Performed

The assessment of core symptoms (e.g., cough, dyspnea, fever) and evaluation of risk factors for resistant pathogens and pneumonia were performed flawlessly, with a 100% adherence rate. This thorough history-taking process is vital for accurate diagnosis and tailored treatment plans. The consistent performance indicates that healthcare providers are diligent in gathering comprehensive patient histories, which helps in identifying underlying conditions and potential complications early. The overall score of 100% underscores the effectiveness of the clinical protocols in place for history documentation **(figure 3)**.

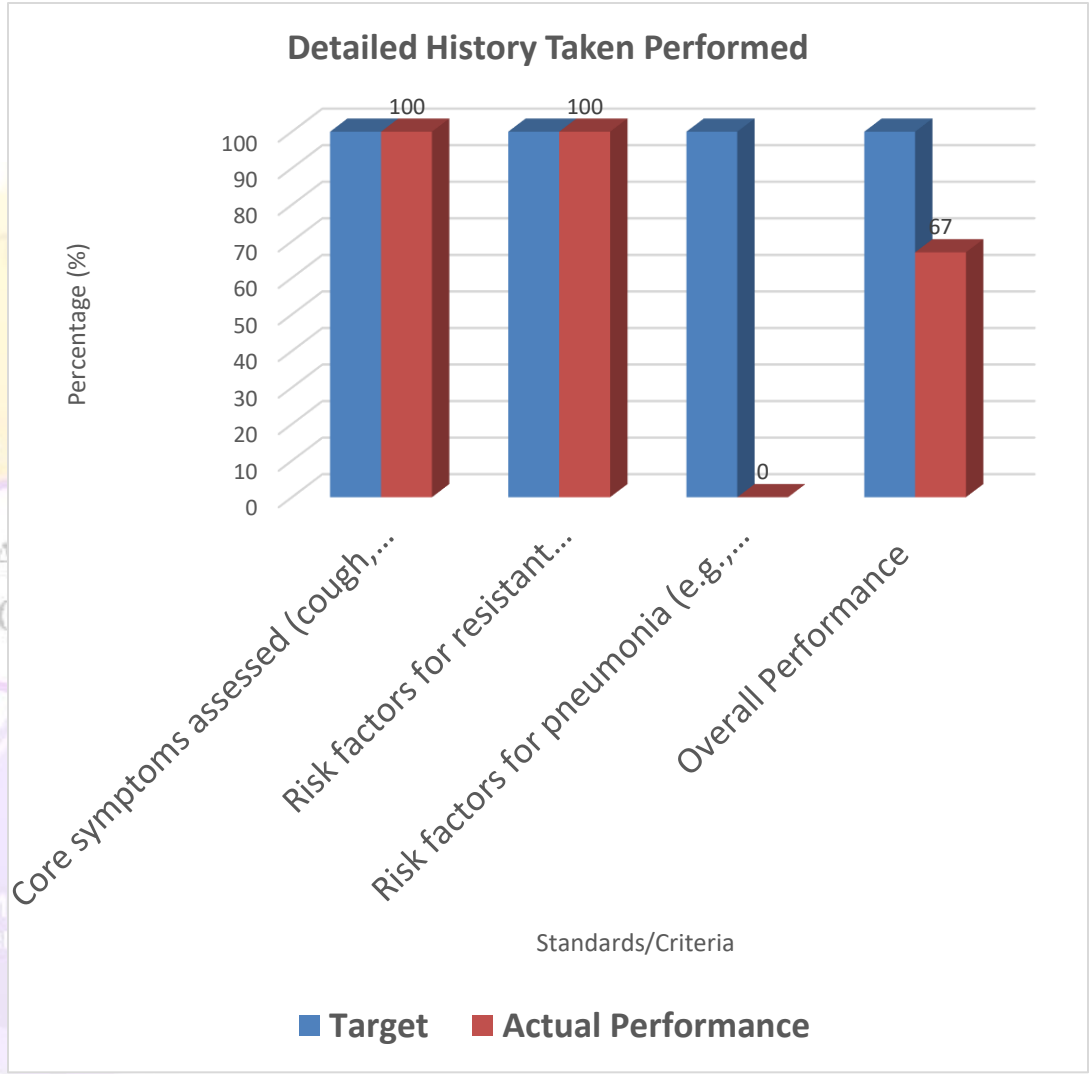


***Figure 4**: Detailed History Taken Performed, June 2017E.C*

Detailed Physical Examination

- Physical examinations were conducted meticulously, with all sub-criteria, including vital signs, respiratory distress documentation, chest and cardiac examinations, and Glasgow Coma Scale (GCS) assessment, meeting the 100% target. This demonstrates a high standard of clinical practice, ensuring that no critical signs are overlooked during patient evaluations. The rigorous examination process aids in early detection of severe symptoms and guides timely interventions. The perfect overall performance highlights the competence of the medical staff in performing thorough physical assessments **(Figure 4).**

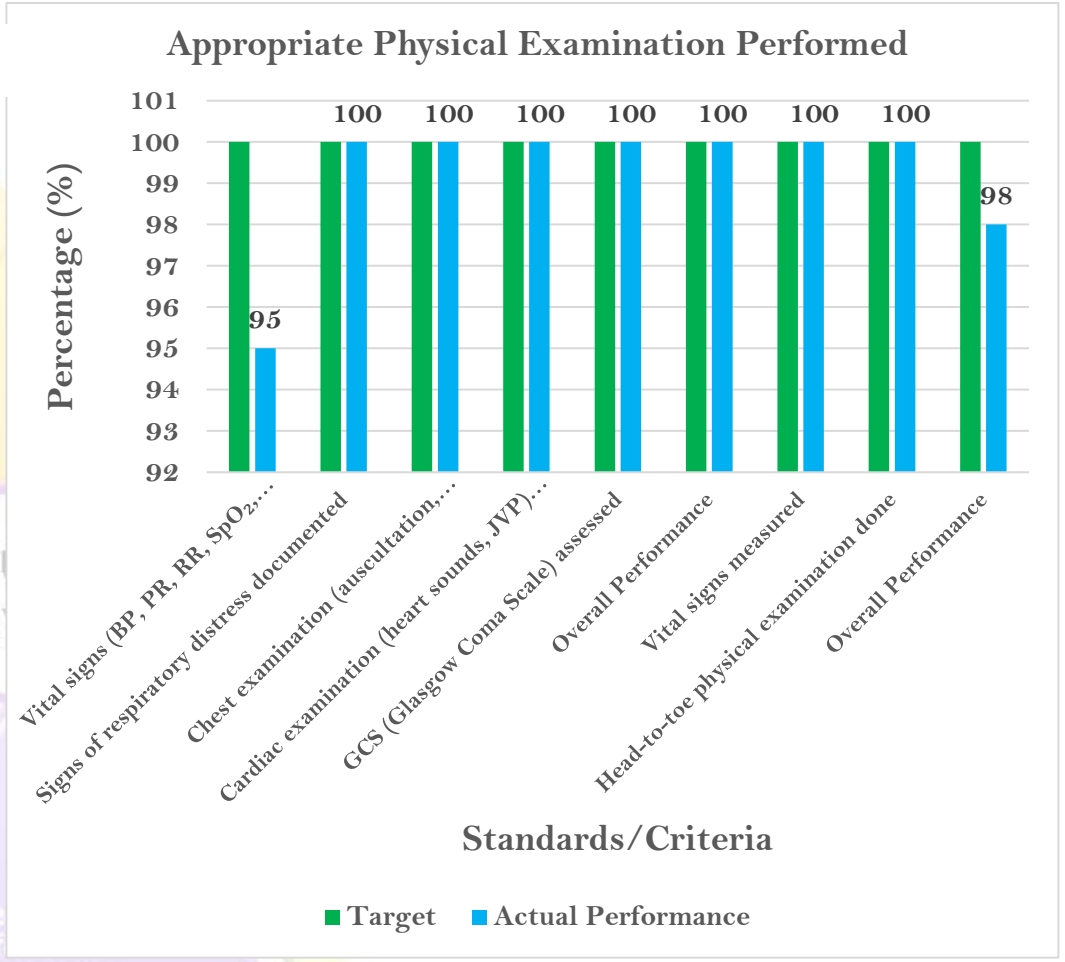


***Figure 5: Appropriate Physical Examination Performed**, June 2017E.C*

Relevant Investigations

- While most investigations, such as CBC, blood cultures, and chest X-rays, were performed at a 100% rate, there were notable gaps in organ function tests (0% performance) and sputum culture and gram staining (50% performance). These deficiencies suggest potential resource limitations or procedural oversights in certain cases. The overall performance of 75% against an 80% target indicates room for improvement, particularly in ensuring all recommended diagnostic tests are consistently conducted to support accurate diagnosis and treatment **(Figure 5).**

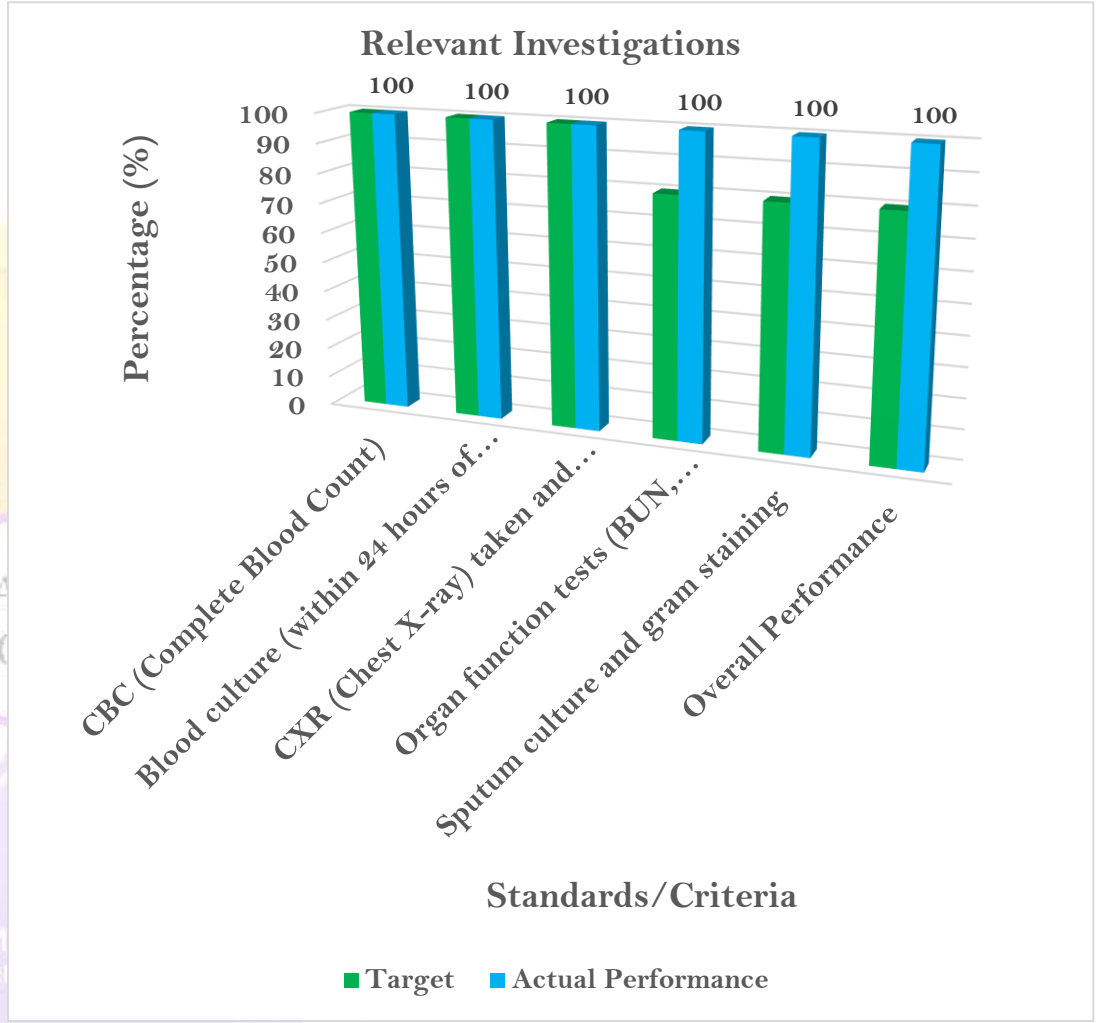


Figure 6: *Relevant Investigations, June 2017E.C*

Appropriate Diagnosis

- Diagnosis based on clinical and imaging findings, severity classification (CURB-65 score), and identification of comorbidities were all achieved at 100%. This reflects a robust diagnostic process that integrates multiple data points for comprehensive patient assessment. The consistent documentation of comorbidities and severity scores ensures that treatment plans are appropriately tailored to patient needs. The overall performance of 100% confirms the reliability of the diagnostic protocols in place **(Figure 6)**

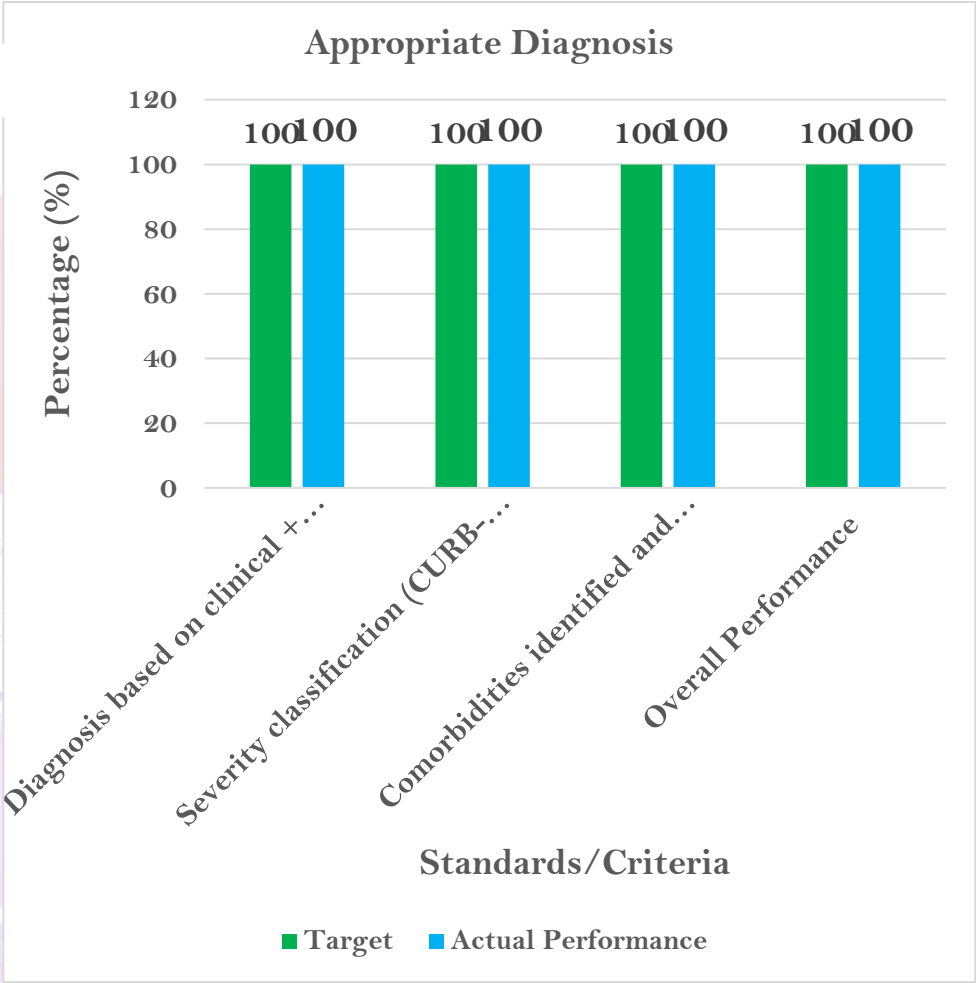


Figure 7:: *Appropriate Diagnosis, June 2017E.C.*

Appropriate Treatment

Treatment provision exceeded expectations, with all sub-criteria, including guideline-concordant antibiotics, proper disposition, antibiotic adjustments, and oral therapy switches, achieving 100% performance despite an 80% target. This indicates a high level of adherence to treatment guidelines and flexibility in adjusting therapies based on patient responses. The outstanding overall performance of 100% showcases the effectiveness of the treatment protocols and the proactive approach of healthcare providers **(Figure 7)**

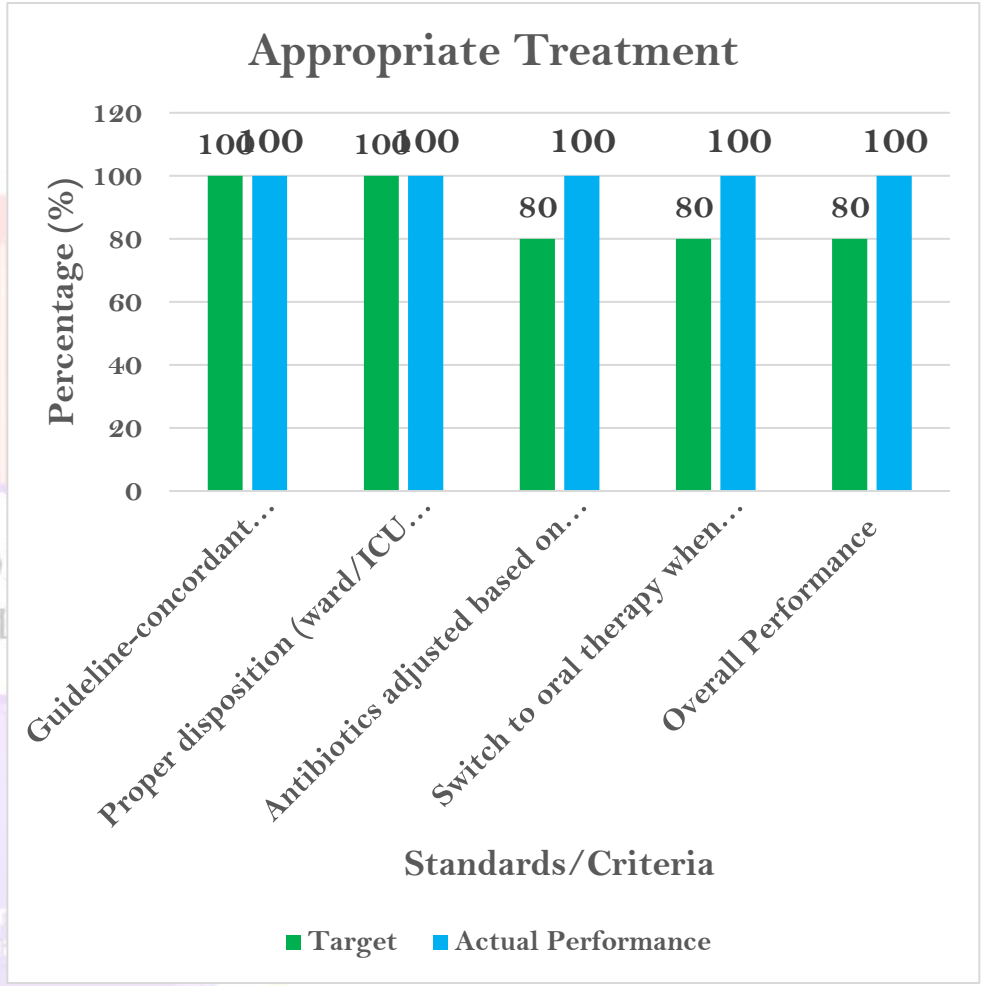


***Figure 8**: Appropriate Treatment, June 2017E.C.*

Appropriate Monitoring

- Monitoring practices, including vital sign checks every 6 hours, daily physician assessments, and further investigations for non-improving patients, were consistently performed at 100%. This rigorous monitoring ensures timely detection of complications and adjustments to treatment plans. The flawless overall performance reflects a strong commitment to patient safety and continuous care throughout hospitalization **(Figure 8).**

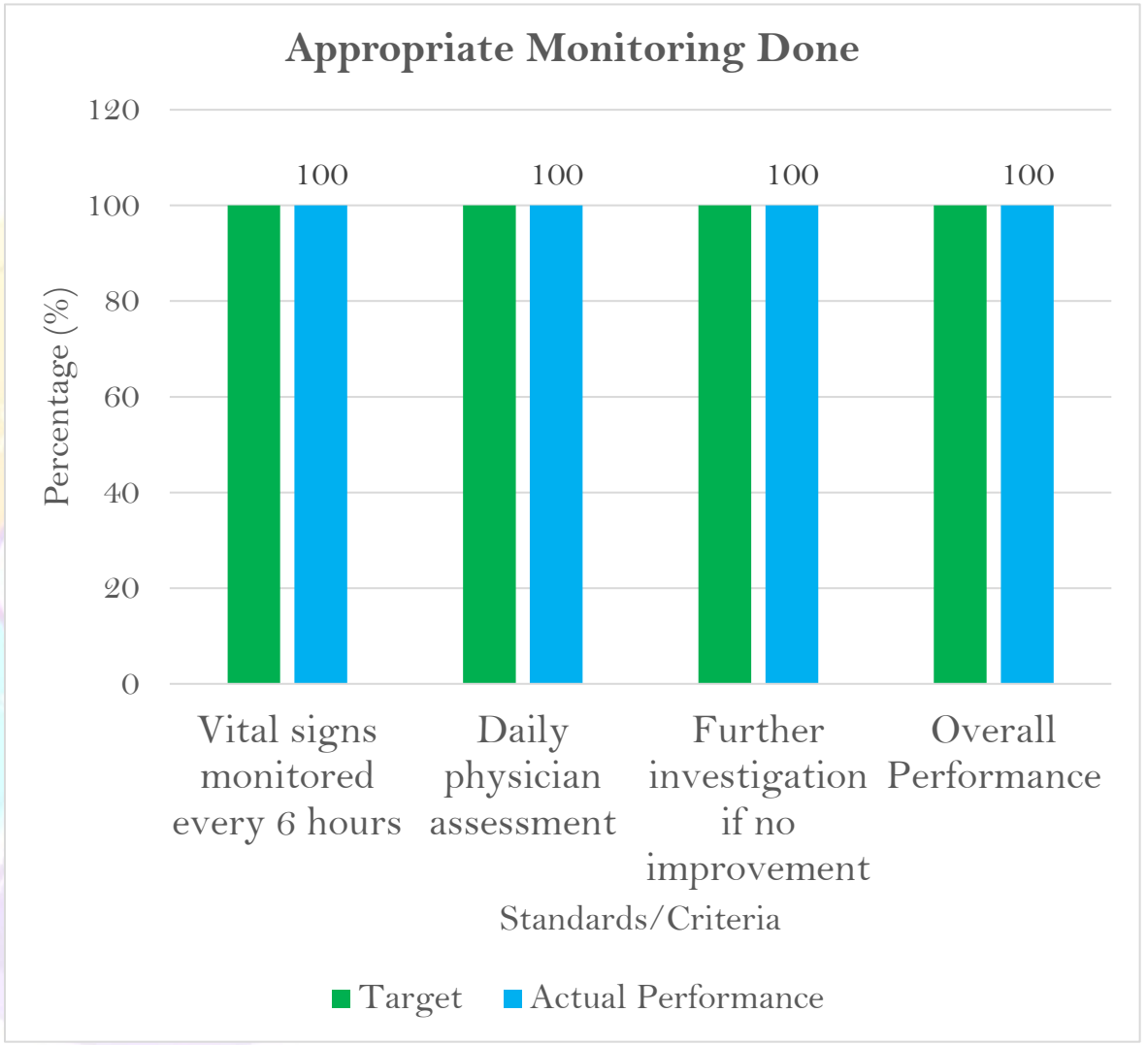


***Figure** 9: Appropriate Monitoring Done, June 2017E.*

Appropriate Discharge Care

- Discharge care was comprehensively addressed, with vital sign checks, discharge advice, and follow-up schedules all meeting the 100% target. This thorough approach ensures patients are well-prepared for post-hospitalization care, reducing the risk of readmission. The perfect overall performance underscores the effectiveness of discharge protocols in promoting patient recovery and long-term health **(Figure 9).**

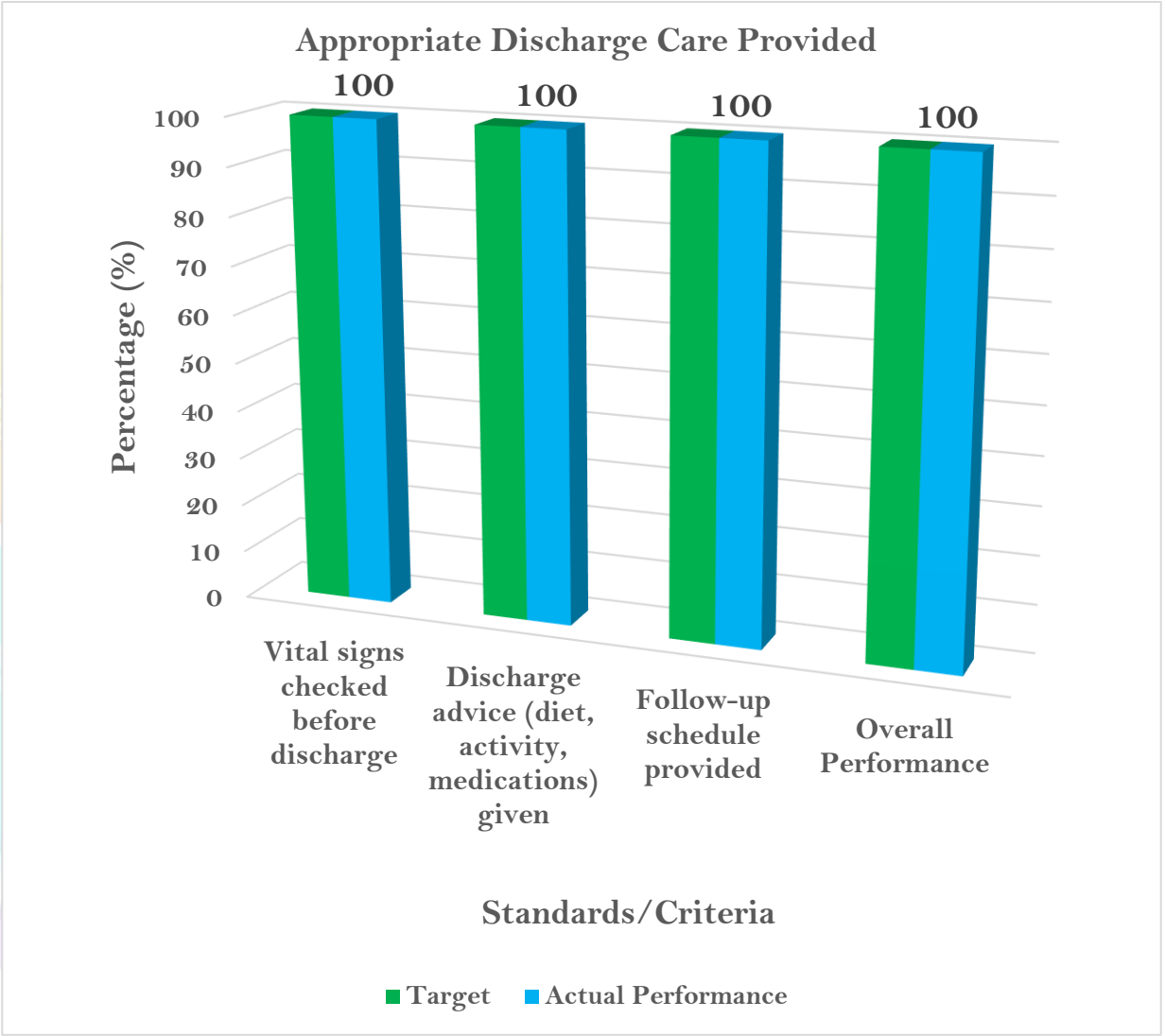


Figure 10: *Appropriate Discharge Care Provided, June 2017E.C*

Identification of Provider Documented

- Documentation of provider identification, including physician and nurse signatures on admission notes, progress notes, and medication sheets, was consistently achieved at 100%. This ensures accountability and clarity in patient records, facilitating seamless communication among healthcare teams. The overall performance of 100% highlights the adherence to documentation standards, which is essential for legal and operational purposes **(figure 10).**

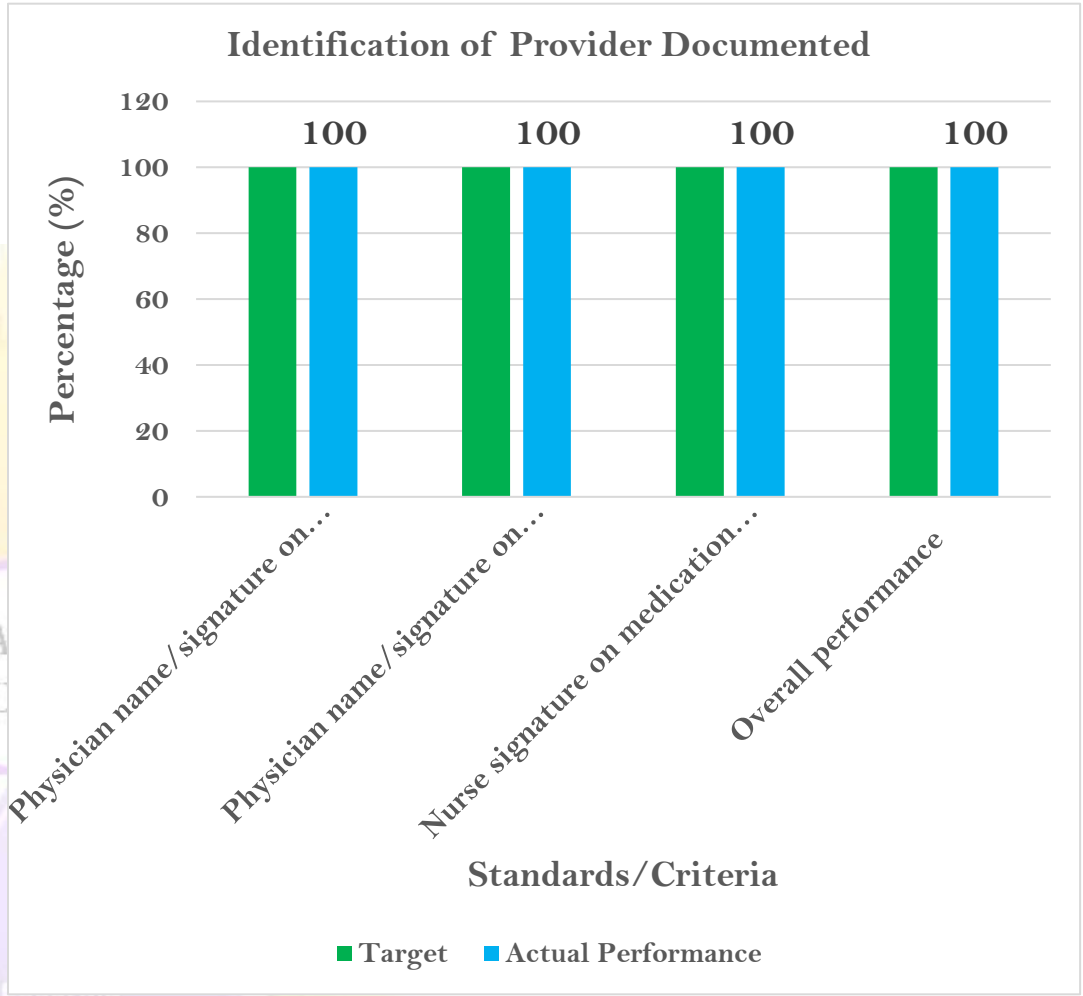


Figure 10: Identification of Provider Documented, June 2017E.C

Trends of Pneumonia clinical audit performance

The bar chart shows a clear and encouraging improvement in pneumonia clinical audit performance over four quarters. Starting at 70% in the first quarter, the performance steadily climbed to 80% in the second, reached 87% in the third, and peaked at an impressive 98% in the final quarter. This marks a total improvement of 28 percentage points across the year **(Figure 11).**

What stands out is the consistent upward trend, with each quarter outperforming the last. The most remarkable gain occurred between the third and fourth quarters, where performance jumped by 11 percentage points. This strong and steady progress reflects the impact of targeted quality improvement efforts or strengthened adherence to clinical standards over time **(Figure 11).**

By the end of the year, the near-perfect score highlights how sustained commitment and teamwork can drive meaningful change in healthcare quality.

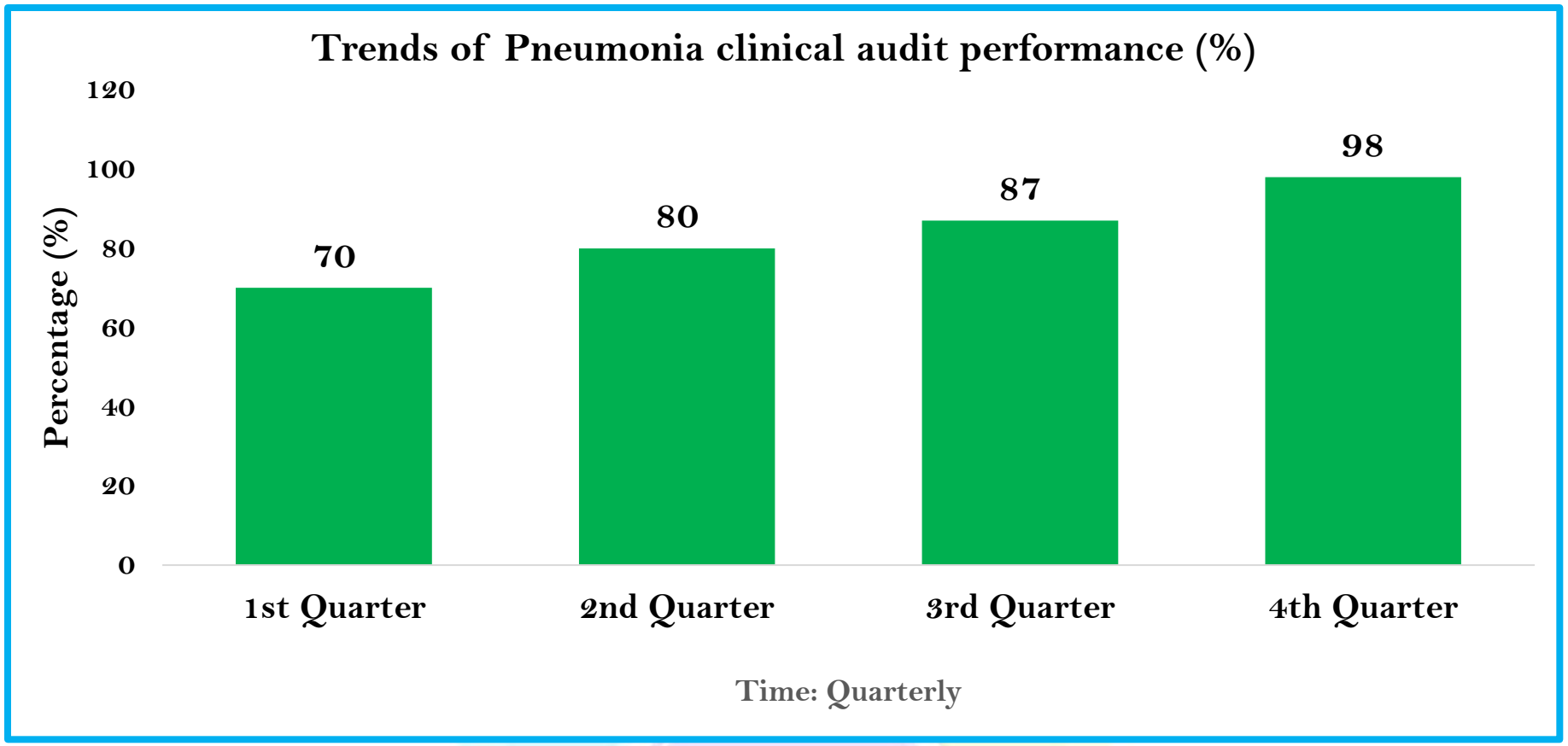


Figure 11; Trends of Pneumonia clinical audit performance 2017E.C

DISCUSSION

This re-audit reveals robust adherence to core processes of pneumonia care, with near-perfect performance (98–100%) in identification, history-taking, physical examination, treatment, monitoring, and discharge planning. These strengths reflect successful implementation of prior quality initiatives, standardized protocols, and staff commitment to guideline-concordant care. High compliance in antibiotic selection, CURB-65 scoring, and discharge counseling demonstrates institutional capacity to meet international standards despite resource constraints, directly supporting patient safety and recovery trajectories.

However, critical deficiencies persist in diagnostic completeness. The absence of organ function tests (0%) and suboptimal sputum culture/gram staining (50%) represent significant clinical risks, potentially masking renal/hepatic impairment or antibiotic mismatches. These gaps—unchanged from the baseline audit—suggest systemic barriers such as reagent shortages, training lapses, or workflow prioritization errors. Consequently, the implausible 0% mortality rate raises concerns about outcome data integrity, indicating possible under-documentation of deaths or case selection bias that undermines audit validity.

The recurrence of these weaknesses highlights inadequate execution of past improvement plans. While staff training partially enhanced history-taking, failed procurement of lab supplies and sputum kits perpetuated diagnostic gaps. Moving forward, closing these loops requires accountable resource allocation (e.g., dedicated sputum kits), mandatory point-of-care glucose/renal testing, and mortality tracking integration into EHRs. Sustained change demands leadership engagement to transform audit insights into actionable solutions, ensuring pneumonia management aligns with national and global benchmarks.

RECOMMENDATIONS

- Procured ECG machines & dedicated sputum culture kits

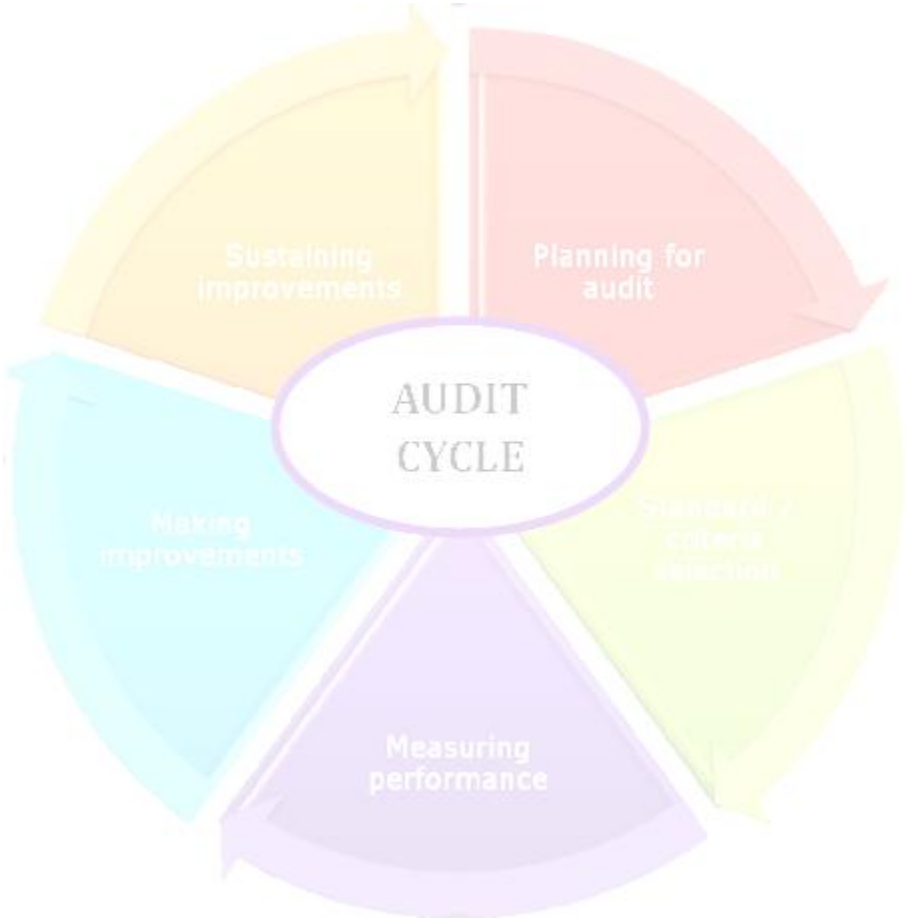


Table 2: *Implementation Status of Improvement Plan (March 2017E.C)*

Area to Improved	Action Taken	Status
Diagnostic Completeness	Implemented mandatory organ function tests & blood glucose monitoring on admission.	**Fully implemented**
Antibiotic Stewardship	Conducted monthly audits of antibiotic initiation timing + prescriber feedback.	**Fully implemented**
Resource Procurement	Procured ECG machines & dedicated sputum culture kits.	**Not Implemented**
Staff Training	Held first quarterly CAP guideline workshop (CURB-65, cultures, warning signs).	**Fully implemented**

REFERENCES

1. **World Health Organization (WHO).** (2017). *Guidelines for the management of community-acquired pneumonia in adults.* Geneva: WHO Press. https://www.who.int/publications/i/item/9789241550520
2. **Ethiopian Federal Ministry of Health (FMOH).** (2016). *Standard treatment guidelines for general hospitals* (2nd ed.). Addis Ababa: FMOH.
3. **Lim, W. S., Baudouin, S. V., George, R. C., Hill, A. T., Jamieson, C., Le Jeune, I., ... & Woodhead, M. A.** (2009). *British Thoracic Society guidelines for the management of community-acquired pneumonia in adults.* Thorax, 64(Suppl 3), iii1-iii55. https://doi.org/10.1136/thx.2009.121434
4. **Metlay, J. P., Waterer, G. W., Long, A. C., Anzueto, A., Brozek, J., Crothers, K., ... & Whitney, C. G.** (2019). *Diagnosis and treatment of adults with community-acquired pneumonia: An official clinical practice guideline of the American Thoracic Society and Infectious Diseases Society of America.* American Journal of Respiratory and Critical Care Medicine, 200(7), e45-e67. https://doi.org/10.1164/rccm.201908-1581ST
5. **Deder General Hospital.** (2016). *Internal protocol for pneumonia management in medical wards.* Unpublished institutional document.
6. **National Institute for Health and Care Excellence (NICE).** (2014). *Pneumonia in adults: Diagnosis and management* (CG191). London: NICE. https://www.nice.org.uk/guidance/cg191
7. **Mandell, L. A., Wunderink, R. G., Anzueto, A., Bartlett, J. G., Campbell, G. D., Dean, N. C., ... & Whitney, C. G.** (2007). *Infectious Diseases Society of America/American Thoracic Society consensus guidelines on the management of community-acquired pneumonia in adults.* Clinical Infectious Diseases, 44(Supplement_2), S27-S72. https://doi.org/10.1086/511159
8. **Oromia Regional Health Bureau.** (2015). *Clinical audit manual for healthcare facilities.* Addis Ababa: ORHB.
9. **Forster, A. J., & van Walraven, C.** (2012). *Effect of clinical audits on quality of care in hospitals: A systematic review.* Journal of Evaluation in Clinical Practice, 18(1), 182-189. https://doi.org/10.1111/j.1365-2753.2010.01533.x
10. **Alberta Health Services.** (2018). *Pneumonia care pathway for inpatient settings.* Edmonton: AHS.

Guyyaa/ቀን/Date: _____/_____/_____

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

Dhimmi: waa'ee Gabaasa CLINICAL AUDIT galchuu ilaallata

Akkuma mata Dureerrattii ibsamuuf yaalameettii clinical audit" **S/Pneumonia**" jedhamu kan **kurmaana 4ffaa** bara **2017** xalayaa Fuula **10** qabuu gaggeessituu kana waliin walqabsiifnee isiiniif eerguu keenya kabajaan isiniif beeksiifnaa.

Nagaya wajjiin!!