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Anticipating Cure: Blood and Urine Cultures Before Starting Antibiotics in Patients Admitted in Medical and Surgical Wards from Emergency Department at Lady Reading Hospital MTI, Peshawar

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ABSTRACT

Background: This medical review examines whether Lady Reading Hospital Peshawar follows IDSA recommendations when obtaining blood and urine cultures before starting antibiotics for new patients coming from ED. The accuracy of blood and urine culture tests depends on proper specimen collection procedures yet healthcare teams only stick to these methods inconsistently which leads to inappropriate antibiotic use and raises patient risks. **Methodology:** Staff from Lady Reading Hospital reviewed 200 past patient records through HMIS to perform this analysis. Our sample consisted of blood cultures taken from 100 patients alongside 100 urine tests. The review examined to what extent healthcare facilities followed IDSA recommendations and aimed for 95% implementation accuracy. The research team gathered information about patients such as age, culture testing schedule, and antibiotic treatment details. The audit uncovered system challenges affecting patient care and doctors' decision structures. **Results and Discussion:** The examination revealed poor culture practices with tests taken before antibiotics only in 10% of blood culture cases and 2% of urine culture cases which fell far below the desired 95% rate. The busy ED environment made clinicians rush the processing of patient samples which led to reduced adherence to antibiotic protocols and increased the risk of developing drug-resistant bacteria. **Conclusion:** The audit shows Lady Reading Hospital does not follow proper guidelines by taking diagnostic cultures before starting antibiotic treatment. Clinicians need education and workflow changes plus real-time monitoring to meet IDSA rules and help patients get better results.

INTRODUCTION

Hospitals rely on blood and urine cultures to detect blood and urinary tract infections while helping doctors choose the best antibiotics for treatment (Jarzembowski & Daca, 2024). Medical professionals follow a standard procedure of getting samples first to test whether the chosen antibiotics effectively treat patients' infections. When antibiotics are not given on time or incorrectly the health system faces higher drug resistance issues and patients must stay in hospitals longer at increased costs (Puri, Vaishya, & Vaish, 2024). Following IDSA guidelines promotes the best possible treatment results for patients (Haddad et al., 2024).

Medical experts from the IDSA recommend taking blood and urine samples before starting antibiotics to help identify the source of infection (Tabah et al., 2022). Recent research shows that healthcare teams follow pre-antibiotic culture collection rules inconsistently (Röder, Ng, & Conway Morris, 2024). Emergency department waits and high workload challenges combined with doctor knowledge gaps impact how often doctors follow the recommended procedures (Albergoni, 2024). Hospital audits help us examine how well practices are followed while spotting areas where healthcare compliance needs improvement.

Potentially life-saving decisions take place at the start of treatment in Peshawar's Lady Reading Hospital emergency room (ED) which serves as a major tertiary care facility and receives many sick patients daily. Many medical and surgical ward patients at this hospital arrive with sepsis or severe infections that need emergency antibiotic therapy (Zjajo, 2024). The rush to start treatment sometimes results in missing blood and urine

cultures before giving antibiotics which compromises diagnosis accuracy and treatment plans (Rush, 2023).

Our audit evaluates how well IDSA guidelines are followed by testing blood and urine samples before antibiotic treatment starts for patients transferred from the Emergency Department to medical and surgical wards at Lady Reading Hospital. We review current practices to determine how often patients receive necessary blood and urine tests before using antibiotics while finding out what makes healthcare teams fail to follow those procedures. Findings from this audit will contribute to evidence-based recommendations to improve adherence, enhance antimicrobial stewardship, and optimize patient care outcomes: (Xu et al., 2024).

Proper antibiotic management depends on closing these practice gaps since antibiotic misuse fuels drug resistance and testing confusion (Bothe, 2023). Orderly pathogen detection improves treatment choices and decreases broad-spectrum antibiotic use through culture management rules (Ceccato et al., 2024). Studies in similar healthcare facilities prove that quality improvement methods enhance rheumatoid medicine treatment by teaching better practices to experts and examining and upgrading systems (Thakur, Akerele, & Randell, 2023).

This research project aims to find better ways to follow recommended guidelines at clinical sites by examining existing practices. Our mission is to improve patient care through time-sensitive antibiotic decisions made with accurate microbiology results for patients who need urgent treatment at Lady Reading Hospital.

METHODOLOGY

This medical review checked patient results from the Hospital Management Information System at Lady Reading Hospital by viewing the stored data records. Our study included 200 patients from both medical and surgical hospital wards. These patients entered the hospital Emergency Department first before getting assigned to open beds.

The study population was divided into two groups: We conducted tests on 100 blood samples for the Blood Sample Group and 100 urine samples for the Urine Sample Group. We wanted to measure how often healthcare providers followed IDSA guidelines for taking cultures before starting antibiotics. We applied the 95% adherence level as recommended by IDSA.

The study team obtained patient information and lab results directly from the HMIS database. The researchers used statistical tools to check how many patients got their blood or urine culture samples done before receiving antibiotics. Our record system captured both emergency department workflow limitations and physician choices as reasons for missed procedures.

Exclusion Criteria

The audit checked only blood and urine collection before patients started taking antibiotics. We excluded patients who entered medical or surgical wards from outpatient departments and institutional-based practices since our research focused solely on patients who directly came to the Emergency Department. The strict exclusion rule narrowed the study scope to match only patient information from the selected group.

RESULTS

The clinical audit inspected 200 patients through two distinct groups of 100 patients each who got blood or urine tests performed. Our study found that healthcare providers performed blood and urine cultures to detect infections as recommended by IDSA guidelines in fewer than half of the cases.

Blood Culture Results

Out of 100 patients in this group nurses obtained 10 blood samples before starting antibiotics leading to a sample success rate of 10%. The actual adherence rate stands at 10% which is notably lower than the required standard of 95%.

Urine Culture Results

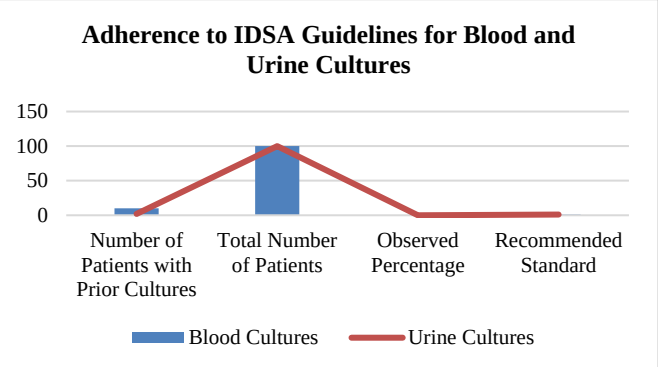
Urine culture tests done ahead of antibiotics failed to meet the standard quality as they reached only 2% in 100 patient samples. The acceptance rate in this situation remains far below the needed 95% standard guidelines.

Table 1

Adherence to IDSA Guidelines for Blood and Urine Cultures

Culture Type	Number of Patients with Prior Cultures	Total Number of Patients	Observed Percentage	Recommended Standard
Blood Cultures	10	100	10%	95%
Urine Cultures	2	100	2%	95%

Figure 1



Key Findings

- The blood sample group tested blood from just 10% of patients before starting antibiotics compared to the recommended testing of 95% patients.

- The doctors took urine samples from just 2% of patients before prescribing antibiotics.
- The current data shows that healthcare providers do not follow IDSA guidelines enough when obtaining cultures before starting antibiotics.

Implications of Findings

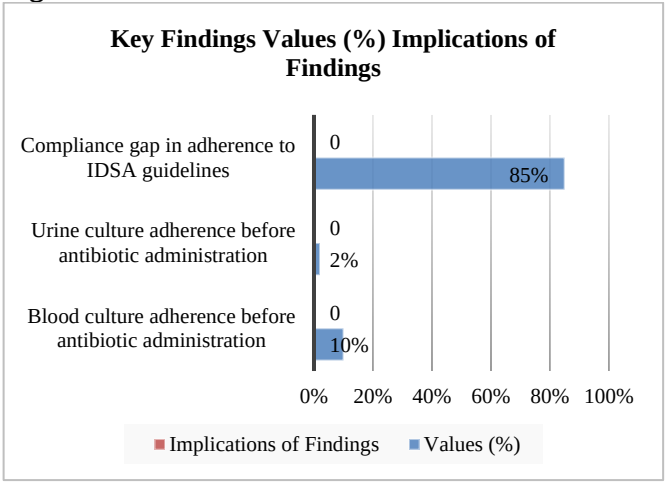
The study shows that doctors test patients too late to start antibiotics inappropriately and fuel antibiotic resistance which causes poorer health results. The bad patient follow rates indicate that we need to take important steps to help healthcare providers follow IDSA rules better. Our team will improve clinician knowledge through guideline training and create uniform treatment protocols for both emergency rooms and wards while monitoring adherence through ongoing audits and feedback. To meet patient care goals the emergency department needs to improve how staff work together to get cultures done quickly before starting antibiotics.

Table 2

Key Findings Values (%) Implications of Findings

Key Findings	Values (%)	Implications of Findings
Blood culture adherence before antibiotic administration	10%	Low adherence to guidelines indicates a gap in the timely collection of blood cultures before antibiotic therapy.
Urine culture adherence before antibiotic administration	2%	A significantly lower rate for urine culture collection, highlighting a critical area of underutilization and the need for intervention.
Compliance gap in adherence to IDSA guidelines	85%	A substantial gap in adherence (from the 95% target), indicating potential risks for inappropriate antibiotic use, antimicrobial resistance, and poor patient outcomes.

Figure 2



Our audit results will guide specific measures intended to enforce recommended treatment practices and help Lady Reading Hospital give better patient care through responsible antibiotic use.

DISCUSSION

This clinical audit shows that hospital staff fails to follow IDSA recommendations by taking blood and urine samples before starting antibiotic treatment. The actual performance rate of 10% for blood cultures and 2% for urine cultures drops far below the necessary 95% as defined by IDSA standards. Systematic changes in diagnosis must become a top priority for Lady Reading Hospital staff.

The weak performance shows issues in training or reminding healthcare staff to follow established protocols. When medical staff deals with busy EDs, quick patient movements and excessive workload they may follow unconventional patient treatment practices. Hospital staff must deliver antibiotics promptly to treat urgent medical cases instead of waiting for culture results. Delays in antibiotic treatment plus increased antibiotic resistance happen when cultures are not obtained.

The lack of appropriate supplies and transportation systems strongly affected these results. The doctors do not follow testing guidelines because testing takes too long and they must work with limited equipment and staff. Work routines in emergency rooms and patient areas slow specimen collection because doctors must give urgent treatment to sick patients.

These results are very important to understand. Healthcare providers need blood and urine samples before starting antibiotics to determine the exact germs that caused the infection to pick the right treatment options. The inadequate testing practices directly harms patients and puts both society and healthcare settings at risk of health consequences. Regularly prescribing broad-spectrum antibiotics without test results exposes patients to dangerous treatments and excessive healthcare costs.

Successful solutions depend on teams working together across different knowledge areas. Medical personnel training must show them how testing for bacteria before prescribing antibiotics leads to superior patient outcomes. Hospital staff members would receive a technical notice about antibiotic guidelines through their healthcare system platform. The institution needs to establish new policies that clearly define how medical staff should include culture testing processes in their regular work procedures. Our procedures need to explain which members of our medical team take the required bacterial samples from patients before beginning antibiotic treatment.

Medical teams strengthen their standard guideline use by studying feedback results to improve their work. Evaluation steps plus performance assessments assist organizations in understanding outcomes without neglecting personal development. Health care teams

need additional staff and faster lab tools to properly follow these standards.

The audit finds major issues in pre-antibiotic culture collection at Lady Reading Hospital that put patient health and antibiotic usage control at risk. Our team must make specific improvement plans to resolve these practices and better treat patients while battling drug resistance.

CONCLUSION

The clinical audit shows that patients of Lady Reading Hospital do not get IDSA-standard care because antibiotics begin before proper specimen collection takes place. The correct blood culture protocol was followed in just 10% of tests despite urine cultures having the lowest performance at 2%. When doctors do not test patients enough they create bad treatment choices that let bacteria develop immunity to drugs. Our analysis shows reasons behind non-compliance: Emergency rooms suffer from high patient volumes which creates work stress for medical staff and tests the system's capacity. Medical staff need specific training to follow standard procedures so performance experts verify test results with direct feedback. Our hospital should improve emergency department sample collection procedures to get patient samples before starting antibiotic treatment. Our hospital can manage its antibiotic use better by following treatment standards yet still providing patient care.

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