

**CLINICAL AUDIT: ADHERENCE TO THE DE- ESCALATION OF ANTIBIOTIC
BASED ON THE SENSITIVITY TO THE STRAIN OF BACTERIA**

Dissertation Submitted to



The IIHMR University, Jaipur

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Master of Business Administration (MBA)

in

Hospital and Health Management

by

Pranali Mukund Thakre

Under the Supervision and Guidance of

Dr. Varsha Tanu

2025

June 02, 2025

TO WHOM SO EVER IT MAY CONCERN

This is to certify that **Ms. Pranali Mukund Thakre** (Student of IIHMR Jaipur, University), has successfully completed her internship training in Hospital Administration department from **10.03.2025 to 31.05.2025**

During her aforesaid tenure, she has been found to be extremely honest, regular and sincere.

For Wockhardt Hospitals Ltd.,

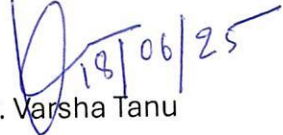


Abhijeet Pagade
Manager - HR



CERTIFICATE

This is to certify that dissertation titled “ Clinical audit: Adherence to the De-escalation of antibiotic based on sensitivity to the strain of bacteria “is a record of the research work undertaken by Pranali Mukund Thakre in partial fulfilment of the requirements for the award of the degree of MBA Hospital and Health Management from the IIHMR University, Jaipur under my guidance and supervision and ^{her} his approach to the research study has been sincere, scientific, and analytical.

A handwritten signature in blue ink, appearing to read 'V. Tanu', with the date '18/06/25' written below it.

Dr. Varsha Tanu

IIHMR University, Jaipur

Date- 18th June, 2025

A handwritten signature in blue ink, appearing to read 'S. Gupta'.

Dr. Sanjay Gupta

IIHMR University, Jaipur

Date- 18th June, 2025

DECLARATION BY STUDENT

I hereby declare that this dissertation titled **Clinical Audit: Adherence to the De-escalation of Antibiotic based on culture Sensitivity** is the bonafide record of my original research work. I declare that it has not been submitted to any other university or institution for the award of any degree or diploma. Information derived from the published or unpublished work of others has been duly acknowledged in the text.



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Date - 18/06/25

ABSTRACT :

Antimicrobial resistance is growing global health concern, largely driven by inappropriate use of antibiotic. Reduction of antibiotics centred on cultural sensitivity results is a key strategy to optimize antimicrobial therapy, reduce resistance, and improve patient outcomes. This clinical audit aimed to assess adherence to antibiotic de-escalation protocols in a tertiary care hospital by retrospectively reviewing 50 patient records. The audit evaluated the rates of de-escalation, escalation, and maintenance of empirical antibiotic therapy, along with documentation quality and timeliness of therapy adjustments. Results revealed a low de-escalation rate of 15% against the target of 80%, with significant delays in therapy modification and documentation gaps. Common barriers included clinical instability, pending diagnostic results, and lack of clear justification for non-de-escalation. Based on these findings, targeted interventions including electronic alerts, prescriber education, and multidisciplinary stewardship rounds were recommended to improve compliance. The re-inspection is scheduled to evaluate the effectiveness of those measures. This audit highlights the critical need for enhanced antimicrobial stewardship to promote rational antibiotic use and combat resistance. And also gives the recommendations for the part of gaps found and various challenges that would be prevented using those suggestions to make the audit and keep the records available and should be able to track the patients , suggestion's would improve the efficiency of the re- audit and provide better results. This audit provides the gaps of improvement area and steps to be taken to prevent it.

AKNOWLEDGEMENT

I am honoured to present this project report on “Clinical Audit: Adherence to De-escalation of Antibiotics Based on Sensitivity Results of strain of bacteria,” carried out at Wockhardt Hospital in partial fulfilment of M.B.A. at IIHMR University. This work would not have been possible without the support and guidance of many individuals. I would take this opportunity to grant my heartfelt appreciation to all who assisted me in completing this project.

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Sincerely,

Pranali Thakre

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TITLE - Adherence to De-escalation of Antibiotics Based on Culture Sensitivity

BACKGROUND: - The intensification of antibiotic resistances possesses the severe hazard to the community fitness worldwide, frequently caused by excessive or improper use of broad-spectrum antibiotics. Antibiotic de-escalation, or adjusting antibiotic treatment according to culture and sensitivity results, is a crucial step in making sure patients get the best care possible. It not only aids in more precise infection control but also significantly lowers antibiotic resistance. Many healthcare settings find it difficult to consistently adhere to these guidelines, despite their significance. Clinical audits are extremely beneficial because they show us where we need to make improvements to deliver safer, better care and how well current practices match best standards.

The aim is to assess the degree to which current antibiotic prescribing practices adhere to de-escalation protocols in light of culture sensitivity findings and to pinpoint areas in need of improvement.

Purpose : To ensure antibiotics are used responsibly by verifying adherence to prescriptions , promoting timely de-escalation, and ultimately helping to slow the advance of antibiotic resistance.

CHAPTER 1-Introduction

Introduction

Antibiotics have revolutionised modern medicine once deadly infections are now routinely treatable and countless lives have been saved but with great power comes great responsibility . The widespread and sometimes unnecessary use of antibiotics has contributed to one of today's most pressing healthcare threats : antibiotic resistance the invisible enemy determines our ability to fight infections and places growing strain on global health system .

One of the most effective ways to understand and address this is through antibiotic de escalation the process of reviewing and adjusting treatment as more information becomes available , particularly culture and sensitivity reports. When done right de escalation involves switching from broad spectrum antibiotics to more targeted ones , minimising unnecessary drug exposure while ensuring that patient receives the most appropriate treatment . This approach not only improves outcome but also helps preserve the effectiveness of antibiotics for future use .

Despite its benefits and support through established protocols implementing de escalation consistently in everyday clinical settings remains a challenge pressures such as time constraints common diagnostic uncertainty habit chill prescription often stands in a way as a result patients may remain on broad spectrum antibiotics longer than needed raising the risk of side effects and contributing to development of resistant strain . This clinical audit was undertaken to explore the gaps evaluate real world practises and identify opportunities for improvement in how our hospital handles antibiotics de escalation treatment—overflowing schedules, complicated cases, and information overload—can make timely changes challenging. By means of this clinical audit, we hope to highlight these practical difficulties, identify areas needing development, and enable healthcare teams to make confident, well-informed decisions. More than just a review of procedures, this work is a step

towards improved patient care, increased confidence in clinical judgements, and long-term preservation of antibiotics' ability to save lives for future generations.

1.1 Aim:

To understand and improve how consistently medical terms follow antibiotic de-escalation protocols after receiving culture sensitive results - ensuring patients get the right care at right time, guaranteeing that patients receive the appropriate care at the appropriate time.

1.2 OBJECTIVES:

1.The first goal is to review current practices. Examine how frequently antibiotics are changed or discontinued after lab results are received, and determine whether these choices align with recommendations designed to safeguard patients and the efficacy of antibiotics.

2. Recognise the difficulties:

Examine the reasons why de-escalation isn't always successful. This involves spotting instances where clinical decisions are postponed because of uncertainty or workflow problems, or where documentation is ambiguous.

3. Examine the effect on patients:

Analyse the effects of adhering to or not adhering to de-escalation procedures on a patient's recuperation, infection control, and overall experience receiving care.

4.Create a plan for positive change:

Design simple, practical steps like awareness sessions, timely reminders, or

clinical checklists to help doctors and staff consistently follow best practices in antibiotic use.

5. Check back and measure progress:

Plan a re-audit after these improvements are in place to see what's working, what still needs attention, and how we can keep moving toward safer, smarter use of antibiotics.

CHAPTER- 2

REVIEW OF LITERATURE

REVIEW OF LITERATURE

The literature review explored current global and national practises Related to antibiotics to worship with a specific focus on de escalation strategies in hospital settings. It highlighted the growing concern over anti microbial resistance amr and the critical role of timely antibiotic de escalation in minimising its impact. Consistently emphasise that while awareness of stewardship principle among healthcare professionals is increasing, actual implemThe review also underscored the importance of hospital based audits and continuous education in promoting rational antibiotic use this background informed the design and relevance of the present audit aimed at assessing real world adherence to the de escalation protocols.

Table 2.1: Summary of Reviewed Literature

Author (Year)	Study Location	Sample Size	Sampling Technique	Salient Features
Naicker et al. (2025)	South Africa	Not specified	Audit study	Conducted a pre- implementation audit of antibiotic prescriptions, highlighting areas needing stewardship intervention.
Fishman (2013)	USA	Not applicable	Literature- based review	Reviewed prospective audit and feedback mechanisms and discussed outcome measurement in antimicrobial

				stewardship.
Ghosh et al. (2021)	Not specified	Not specified	Review study	Detailed various antimicrobial stewardship implementation strategies and emphasized continuous improvement.
Kaki et al. (2011)	Multiple countries	Not specified	Systematic review	Found that stewardship interventions in critical care settings improve antibiotic use and patient outcomes.
CDC (2024)	USA	Not applicable	Policy guidance	Outlined core components for hospital antibiotic stewardship programs to ensure effective and sustainable practices.
WHO (2021)	Europe (regional)	Not applicable	Practical guide	Provided evidence-based guidance for implementing stewardship interventions at healthcare facility levels.
van den	Netherlan	Nationwid	Audit and	Evaluated national

Bosch et al. (2021)	ds	e data	feedback	implementation of antibiotic stewardship, promoting benchmarking and feedback mechanisms.
Aminov (2010)	Not applicable	Not applicable	Historical review	Provided a historical overview of antibiotics, focusing on the evolution of resistance and stewardship challenges.

SYNTHESIS

The reviewed literature collectively reveals a strong global consensus of the significant of timely antibiotic de escalation guided by culture sensitivity.

The studies consistently show that appropriate adjustment of antibiotic therapy reduces resistance shorten hospital stays and improves clinical outcomes. Despite existing protocols, the practical application of de escalation strategies remain inconsistent across setting due to clinical inertia workflow challenges and gaps in awareness or documentation. The synthesis reveals a critical implementation gap particularly in real world hospital settings emphasizing the need for regular audits to assist compliance Identify barriers and design targeted interventions. Earnings from previous audits and reviews serves as a guiding framework for clinical audit aiming to bridge the gap between the guidelines and the actual practice .

CHAPTER- 3

Research Methodology

Research methodology

This study employed a clinical audit design focusing on 50 hospitalised patient who were empirically started on antibiotics and had culture sensitivity reports available. The objective was to evaluate whether antibiotic de-escalation decisions aligned with the best practices following cultural results. The data was extracted from hospitalized her using a structured audit checklist capturing patients demographics, antibiotics, culture reports. The audit aims not only to major compliance but also assess documentation quality and decision making rational laying the groundwork for improvement strategies and potential reaudits.

3.1 Design

This clinical audit was conducted as a **retrospective review** of 50 patient records. The focus was on evaluating real-world adherence to antibiotic de-escalation practices in a hospital setting.

❖ Inclusion Criteria

To ensure the audit targeted relevant cases, the following inclusion criteria were applied:

- **Hospitalized patients** who were started on empirical antibiotics for suspected infections.
- Patients for whom sensitivity and cultures was available during their hospital stay.

Cases where antibiotics were continued for more than 48 hours after the culture results became available, allowing assessment of whether therapy was appropriately adjusted.

❖ Exclusion Criteria

Certain cases were excluded to maintain clarity and accuracy in the audit:

- Patients who received **prophylactic antibiotics** (i.e., antibiotics given to prevent, rather than treat, infection).
- Cases involving **polymicrobial infections**, where more than one organism was identified, making de-escalation decisions more complex and less standardized.
- Patients who experienced **early discharge before culture results** were available, as there was no opportunity to adjust therapy based on those results.

3.2 Data Collection

For this clinical audit, we approached data collection with care, knowing that even the smallest detail can offer valuable insight into how antibiotics are being used—and whether they’re being used wisely. Every piece of data was carefully extracted from the hospital’s electronic health records (EHR), giving us an accurate and comprehensive look at each patient’s treatment journey.

To stay consistent and focused throughout the process, we developed a structured audit checklist. But this wasn’t just a standard form—it served as our guide, helping us capture every important element of clinical care and antibiotic decision-making. It ensures that no crucial information leaked through crack.

3.3 Audit Checklist – Key Data Points Collected

1. **Patient Information** :The first step in finding trends and enhancing care is figuring out who our patients are:
2. **Name** : Ensures that each is tracked uniquely by serving as identification proof within the system.
3. **Age** : Assist in identifying trends and risks among various age groups, such as how elderly patients react to modifications in antibiotics in contrast to younger ones.

4. **Sex :** This enables us to investigate if there are any gender-based variations in the prescription or modification of antibiotics.
5. **Bed Number :** Ensures we know the patient's exact location in the hospital during treatment, which is important for tracing care settings and clinical workflows.
6. **Diagnosis:** The medical reason for admission and for starting antibiotics.

❖ **Empirical Therapy**

- **Initial antibiotic(s) prescribed:** Documenting the first choice(s) of antibiotics started before culture results.
- **Subsequent changes (up to 6 choices):** Tracking any modifications in therapy as the clinical picture evolved.

❖ **Dates of Therapy**

- **Start date:** When the antibiotic was initiated.
- **End date:** When the antibiotic was stopped or changed.

❖ **Specimen Sent**

- **Specimen sent (Yes/No):** Whether a sample (e.g., blood, urine, sputum) was collected for culture.
- **Sent date:** The exact date the specimen was sent to the lab.

❖ **Culture Results**

- **Results of culture and sensitivity:** The specific organisms identified and their antibiotic sensitivities.

❖ **Escalation/De-escalation/Maintenance Decisions**

- **Type of decision:** Noting whether therapy was escalated (broader spectrum), de-escalated (narrowed or stopped), or maintained.
- **Date of decision:** When the change (or decision to maintain) was made.

❖ **Justifications**

- **Reason for decision:** The clinical rationale for escalating, de-escalating, or maintaining therapy, such as patient stability, culture results, or lack of improvement.

❖ **Documentation**

- **Quality and completeness:** Whether each decision and its justification were properly recorded in the patient's notes.

3.4 Sample Size

A total of **50 patient records** that met criteria of inclusion and exclusion were reviewed for this audit.

This methodology ensured a focused and relevant assessment of current de-escalation practices, providing a solid foundation for identifying gaps and recommending improvements.

CHAPTER 4

DATA ANALYSIS

DATA ANALYSIS

The collected data were reviewed and analysed retrospectively from patient medical records focusing on antibiotics usage patterns, specifically de-escalation practices. Statistics were used to summarise key findings such as percentage of the cases where de-escalation was properly implemented, delay. And reason for escalation, maintenance of empirical therapy, and gaps in documentation were also categorized and quantified. The analysis helps identify common barriers to de-escalation and areas requiring targeted interventions providing a foundation to strengthen antibiotics stewardship in the hospital setting.

4.1 Age Distribution Analysis

Sample size: 50 patients were distributed among ICU wards over a 3-month period of study.

Table 4.1- Allocation of the sample According to Gender

Age Group (years)	Number of Patients	Percentage
20–29	4	8%
30–39	1	2%
40–49	4	8%
50–59	10	20%
60–69	9	18%
70–79	15	30%
80–89	5	10%
90+	2	4%

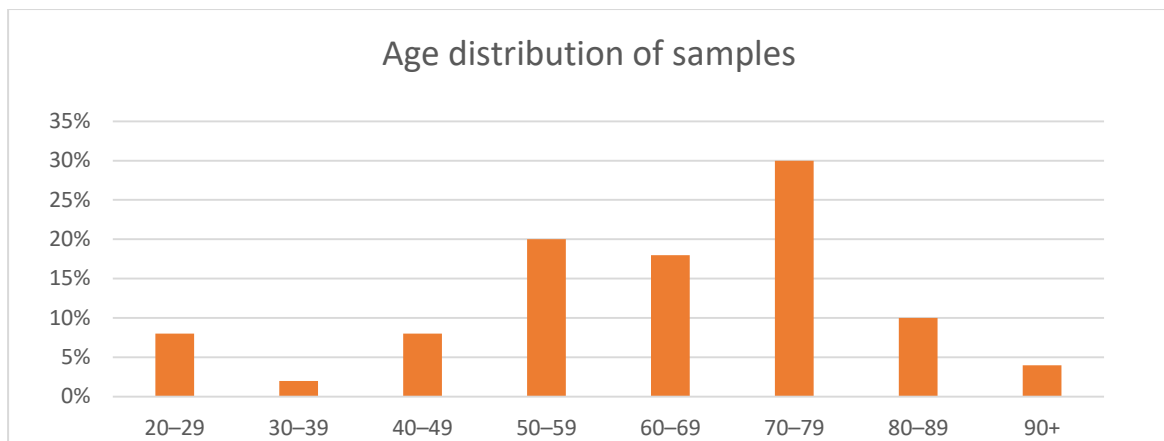


Fig 4.1- bar graph showing allocation of the sample by age

The graph presents the distribution of patients across various age groups in the clinical audit sample.

- The largest proportion of patients (30%) falls within the 70–79 years age group, highlighting a strong representation of elderly individuals in the study.
- This is followed by the 50–59 years group, which comprises 20% of the total sample, and the 60–69 years group at 18%.
- Patients aged 80–89 years account for 10%, while those in the 20–29 and 40–49 age brackets each represent 8% of the sample.
- The 90+ age group constitutes 4%, and the 30–39 years group has the lowest representation at just 2%.

Overall, the data indicates that a significant majority of patients (62%) are aged 60 years and above, reflecting the higher prevalence of severe infections and antibiotic use among the older population in the hospital setting. This age distribution is important for interpreting the audit findings and underscores the need for targeted antimicrobial stewardship interventions for elderly patients. The graph shows us the significant age group affected by the antimicrobial resistance and provide us insight of which age group is critically falls under serious health issue, helping us to understand the amount of resistance of antibiotic in elderly group can get affected.

4.2 Gender distribution analysis

Table 4.2- Allocation of sample Accordance to gender

GENDER	FREQUENCY	PERCENTAGE
Male	27	54%
Female	23	46%
TOTAL	50	100%

This gender distribution is shown in figure 2 in the form of a bar diagram. This demonstrates allocation of sample according to sex. The female sample accounted for 46 % of the total, whereas the male sample accounted for 54%.

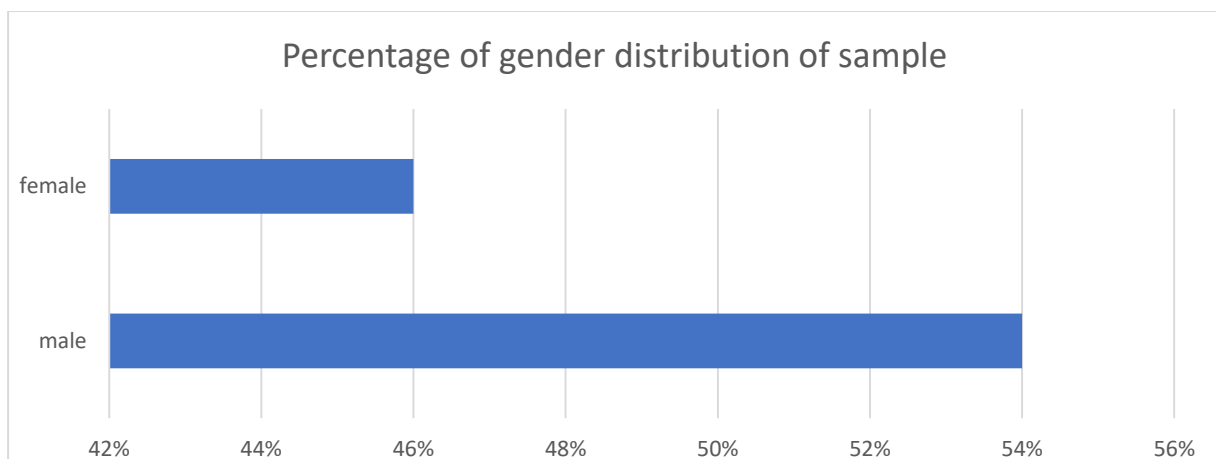


Fig 4.2 Bar Diagram Showing Distribution of Sample by Gender.

The bar chart shows the gender distribution of the sample, with males making up 54% and females 46%. This indicates The slight high proportion of male patient paralleled to female patient in the study group. However the difference is not significant, suggesting that the sample includes a fairly balanced representation of both genders. Balance representation is important in health

related studies and it helps ensures the finding are not biased by gender and are accurate.

4.3 Key metrics for data analyzation

Table 4.3, Table representation if formulas used for calculation of key metrics and standards for compliance of the metrics

Metric	Formula	Standard
De-escalation Rate	$(\text{De-escalated Cases} / \text{Total Eligible Cases}) \times 100$	$\geq 80\%$
Escalation Rate	$(\text{Escalated Cases} / \text{Total Eligible Cases}) \times 100$	100%
Maintenance Rate	$(\text{No-Change Cases} / \text{Total Eligible Cases}) \times 100$	100%
Justification Adherence	$(\text{Non-De-escalations with Valid Justification} / \text{Total Non-De-escalations}) \times 100$	100% documentation
Time to De escalation	Average hours from culture result to adjustment	≥ 48 hours
Documentation Compliance	$\text{Cases with Documentation} / \text{Total Cases} \times 100$	100%
Specimen Sent Rate	$\text{Total Patients Number of "YES"} \times 100$	100%

The table outlines the key metrics used to evaluate antibiotic stewardship practices, along with the formulas for calculating each and the standards they are measured against.

- The **De-escalation Rate** is determined by dividing the number of cases where antibiotics were appropriately narrowed via total number of eligible cases, multiply by 100; Standard is to achieve at least 80%, reflecting best practice in tailoring therapy.
- The **Escalation Rate** and **Maintenance Rate** are both calculated as the proportion of cases where antibiotics were either broadened or left unchanged, respectively, with the ideal being to minimize both in order to avoid unnecessary use of broad-spectrum agents and its rational use for assessing the AMR.
- **Justification Adherence** measures the proportion of non-de-escalation cases that had a valid, documented reason for not stepping down therapy, aiming for 100% documentation to ensure transparency and accountability.
- **Time to De-escalation** tracks the average number of hours from when culture results become available to when therapy is adjusted, with the goal of making changes within 48 hours to optimize patient care.
- **Documentation Compliance** assesses the percentage of cases with complete and accurate records, targeting 100% as the standard for high-quality clinical practice.
- **Specimen Sent Rate** reflects the proportion of patients for whom appropriate cultures were sent before starting antibiotics, with full compliance (100%) expected as a foundational step in guiding effective therapy. Together, these metrics provide a comprehensive framework for assessing and improving antibiotic stewardship within the hospital. It provides the proof adhering to the protocol of the standards by the hospital settings and gives the complete compliance of adhering to standards.

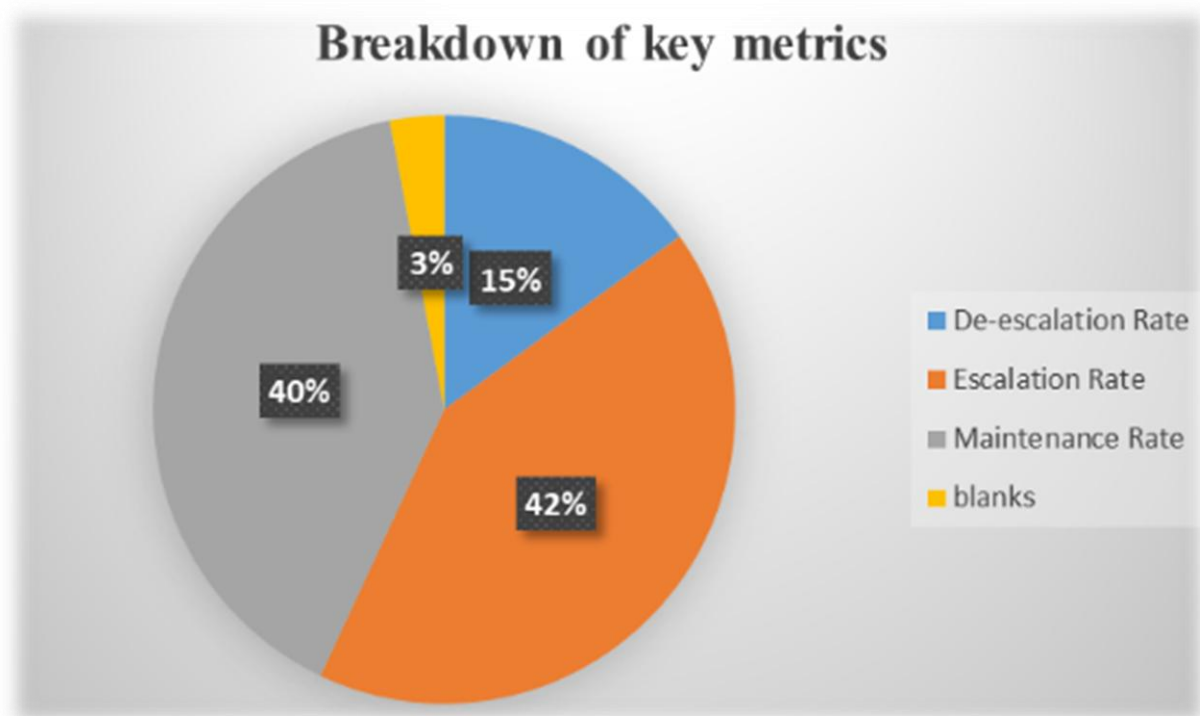
4.4 Key metrics , compliance, standards and gaps analyzation

Table 4.4, Table representation key metrics and their compliance rate found , standard and gap found

Metric	Compliance	Standard	Gap
De-escalation Rate	15%	≥80%	-65%
Escalation Rate	42%	Minimize	High
Maintenance Rate	40%	Minimize	High
Justification Adherence	94%	100%	-6 %
Avg Time to De-escalation	(110.4 hrs) 15%	≥48 hrs	(+62.4 hrs) 85%
Documentation Compliance	89 %	100%	-11%
Specimen Sent Rate	100%	100%	0 %

- ❖ The audit's key metrics table provides a snapshot of current antibiotic stewardship practices compared to established standards. The de-escalation rate was just 15%, falling significantly short of the recommended minimum of 80%, resulting in a compliance gap of 65%.
- ❖ Escalation and maintenance rates were both high at 42% and 40% respectively, indicating frequent continuation or broadening of antibiotic therapy when ideally these should be minimized to reduce unnecessary exposure.
- ❖ Justification adherence was strong at 94%, but still did not meet the ideal of 100%, revealing a 6% shortfall where decisions were not fully documented or justified.
- ❖ The average time to de-escalation was notably delayed, with only 15% of cases meeting the target of adjusting therapy within 48 hours; the majority experienced an average delay of 110.4 hours, representing an 85% gap.
- ❖ Documentation compliance was also below standard at 89%, with an 11% gap indicating incomplete or missing records in some cases.

- ❖ On a positive note, the specimen sent rate achieved full compliance, with 100% of patients having appropriate cultures sent, aligning perfectly with best practice standards.
- ❖ Overall, the table highlights substantial areas for improvement, particularly in timely de-escalation, minimizing unnecessary escalation and maintenance, and ensuring complete documentation.
- ❖ Overviewing of the table give the gaps and the area where the interventions can be done and identify the area of concerns , where the hospital can prevent and make necessary interventions to bridge the gap of the standards and compliance found during the audit . While those with high mentioned in gaps are assumed to be more than 55% and standard(minimum) is assumed 100% as not specified by the hospital setting or benchmark.



Fig, 4.3 ,Pie chart representing the breakdown of percentage key metrics

- The pie chart titled "**Breakdown of key metrics**" visually represents the distribution of key antibiotic stewardship practices in the audited sample. The largest segment, shown in orange, is the

- ❖ **Escalation Rate**, accounting for 42% of cases, indicating that antibiotics were broadened or intensified in a significant portion of patients. Due to various clinical reasons such as Resistance and sensitivity reports of the patient obtained.
- ❖ The **Maintenance Rate**, depicted in grey, makes up 40%, reflecting cases where the initial antibiotic regimen was continued without any adjustment.
- ❖ The **De-escalation Rate**, shown in blue, is notably smaller at 15%, highlighting that only a minority of patients had their antibiotics appropriately narrowed based on clinical or microbiological evidence.
- ❖ A small yellow segment labeled **blanks** represents 3% of cases where data was missing or not recorded as the patient expired during the tracking or was DAMA (Discharged against medical advice) i.e., shifted or discharged the patient , or the patient was sent to operation theater or was in the Cath lab. Thus the patient file was missing and was not able to track the patient.
- ❖ This breakdown clearly illustrates that escalation and maintenance of antibiotics dominate current practice, while de-escalation occurs far less frequently than recommended. The presence of blanks also points to some gaps in documentation, emphasizing the need for improved record-keeping.
- ❖ Overall, the chart underscores the key areas where stewardship efforts should be strengthened: increasing de-escalation, minimizing unnecessary escalation and maintenance, and ensuring complete documentation for all cases.

4.5 Critical Gaps and their contributing factors anyalization

Table 4.5: Summary of Critical Compliance Gaps and Contributing Factors

Category	Gap/Rate	Contributing Factors	Cases / Percentage
De-escalation Compliance Gap	65%	Clinical instability	37%
		Suspected microbial infection	25%
		Awaiting further diagnostic results	19%
		No clear justification/documentation	19%
Escalation Rate Gap	58%	Clinical stability	22%
		Suspected microbial infection (Gram stain, complex)	15%
		Pending cultures or imaging results	10%
		No clear justification/documentation	11%
Maintenance Rate Gap	60%	Culture showed sensitivity to narrower agent	23%

		Clinical deterioration/resistant organism	18%
		Antibiotic cycling without clinical justification	8%
		No clear documentation/justification	12%
Justification Adherence Gap	6%	No justification documented	4%
		Incomplete or vague justification	2%
		Documentation error/omission	0.25%
Avg Time to De-escalation	85% delayed	Delay in reviewing culture results	30%
		Ongoing sepsis	22%
		Awaiting further diagnostic clarification	15%
		Lack of stewardship prompts/reminders	10%
		No clear documentation/justification	8%
Documentation Issues	11%	Non-de-escalation cases lacked justification	3%

		Incomplete therapy dates	8%
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This table provides a clear, at-a-glance summary of the audit's key compliance gaps and the main factors contributing to each area.

key compliance gaps in antimicrobial stewardship at facility.

There is a large gap in de-escalation (65%), meaning most eligible patients did not have their antibiotics narrowed as recommended.

Escalation (broadening therapy) and maintenance (continuing initial therapy) rates are also high, indicating repeated usage of wide-range antibiotic .

Justification for decisions is mostly document, cannot be perfect, and average time to de-escalation is much longer than the standard, showing delays in adjusting therapy.

While documentation and specimen collection rates are relatively good, these findings highlight the need for more timely review, better adherence to guidelines, and improved documentation to strengthen antibiotic stewardship and patient safety.

CHAPTER 5

RESULT

RESULT

The audit identified substantial gaps in compliance with established antibiotic stewardship protocols, particularly in the area of de-escalation. Only 35% of eligible cases underwent appropriate de-escalation of antibiotic therapy, resulting in a compliance gap of 65%. Among the cases where de-escalation did not occur, the most frequently cited reason was clinical instability, accounting for 37% (12 cases). In these instances, patients were considered too unwell to safely narrow their antibiotic regimen. Suspected microbial infection was the next most common factor, present in 25% (8 cases), reflecting the complexity of infections where multiple organisms are thought to be involved. In 19% of cases (6 patients), clinicians delayed de-escalation while awaiting further diagnostic results, highlighting the impact of diagnostic uncertainty on stewardship decisions. Notably, in another 19% (6 cases), there was no clear justification or documentation provided for the decision not to de-escalate, underscoring a significant gap in clinical record-keeping and accountability.

1. Escalation of antibiotic therapy was observed in 58% of cases, exceeding recommended targets and indicating a tendency toward broader-spectrum antibiotic use. Within this group, 22% of escalations occurred despite patient clinical stability, suggesting that some escalations may not have been clinically warranted. Suspected microbial infection based on Gram stain or complex infection scenarios accounted for 15% of escalations, while 10% were attributed to pending cultures or imaging results. Alarming, 11% of escalation cases lacked clear justification or documentation, further emphasizing issues with transparency and stewardship adherence.
2. Maintenance of empirical therapy-continuing the initial antibiotic regimen without adjustment-was noted in 60% of cases. In nearly a quarter of these (23%), culture results indicated sensitivity to a narrower agent,

representing missed opportunities for targeted therapy. Clinical deterioration or the presence of resistant organisms accounted for 18% of maintenance cases, while 8% involved antibiotic cycling without clinical justification. Additionally, 12% of maintenance cases had no clear documentation or justification for the decision to continue empirical therapy.

3. Justification adherence also fell short of optimal standards, with a 6% overall gap. Specifically, 4% of antibiotic decisions lacked any documented justification, 2% were incomplete or vague, and a small proportion (0.25%) involved documentation errors or omissions. In review, found that in 85% of cases, the decision to scale back antibiotic treatment—known as de-escalation—was delayed. When we looked deeper into why this was happening, several patterns emerged. The most common reason (30% of delayed cases) was simply that culture results weren't being reviewed promptly. In other cases, doctors were understandably cautious—about 22% of delays occurred because patients were still showing signs of serious infection like sepsis, and 15% needed more diagnostic clarity before making changes to treatment.
4. Surprisingly, in 10% of cases, delays were linked to the absence of reminders or prompts from antibiotic stewardship systems—small tools that can make a big difference in a busy hospital. And in 8% of cases, there was no clear explanation or documentation for the delay at all.
5. When it came to documentation more broadly, issues showed up in about 11% of cases. A small but important portion—3%—had no justification recorded for why de-escalation didn't happen, and in 8% of records, key details like therapy dates were missing.

These results point to areas where minor adjustments could have significant advantages. Patients can receive the appropriate treatment at the appropriate

time by avoiding needless antibiotics and saving their power for when they are actually needed with the help of prompt decisions, improved documentation, and integrated support systems. In the long run, filling in these gaps is essential to improving care and bolstering antimicrobial resistance defences.

CHAPTER 6

DISCUSSION

DISCUSSION

- I. This audit Provides a real world glimpse into how antibiotic de-escalation is actually being managed in hospital . It highlights not only where we're doing well but also where there's room to grow . Play edits from while most healthcare professionals are aware of importance of de-escalation translating that knowledge into everyday bedside practice remains a challenge .
- II. One of the most striking findings that only about one in three eligible patients had their antibiotics appropriately adjusted this gap between moral knowing and doing speaks volumes it's not due to lack of intent but rather practical barriers light schedules clinical uncertainty and lack of timely prompts that often stands in a way of best practices . This serves as a crucial reminder improving patients care isn't just about having right protocols in place but about making it easier for our teams to follow them consistently .
- III. Even when results of lab clearly supported narrowing the treatment of broad spectrum antibiotics were often continued there were understandable reasons behind this . Clinicians were cautious especially when with patient with unstable condition worried that stepping down antibiotics too soon might risk their recovery . In the cases of complex infections particularly involving multiple organisms making confident de-escalation decisions was even harder .
- IV. A recurring issue throughout the audit was poor documentation in many cases the reasons behind antibiotic choices was missing or unclear this only not limits our ability to provide meaningful feedback to clinical team but also makes it difficult for review and improve practices.

Delays in de-escalation were also formal often due to the absence of

reminders to assess therapy later review of lab results or ongoing sepsis these delays matter a lot . Each extra day on unnecessary broad spectrum antibiotics increases the risk of complications and encourages the spread of resistant bacteria

V. Interestingly most of the patients in this audit were over 60 this matter because older adults often come with complex health conditions. They are not only more vulnerable to infections but also more likely to experience side effects from antibiotics treating them demands a thoughtful balance quick action yes but with care and precision. The hesitation among some clinicals to deescalate in such cases wasn't about disregarding guidance it was about prioritising safety of the face of complexity . recognising this context is a key to prompting smarter more confident decision in the future.

VI. Though we saw a slightly higher number of male patients the gender distribution was relatively balanced while our audit didn't reveal any major gender bias differences in stewardship practises it's important to remember that both age and gender can influence infection risk and treatment outcomes and must be factored into stewardship efforts

CHAPTER 7

LIMITATIONS

LIMITATIONS

While this audit provides valuable insights into antibiotic de-escalation practices in our hospital, several limitations should be acknowledged.

1. Retrospective Design:

- The audit relied on a retrospective review of patient records. This means we were limited to the information that was already documented, which may not always capture the full clinical reasoning or context behind each decision. Important nuances or discussions that influenced antibiotic choices might not have been recorded.

2. Documentation Gaps:

- Incomplete or missing documentation was a recurring challenge. In some cases, it was difficult to determine the exact reasons for maintaining, escalating, or de-escalating therapy, simply because the rationale was not clearly written in the notes. This could have led to under- or overestimation of adherence rates and reasons for non-compliance.

3. Sample Size and Scope:

- The audit included 50 patient records from a single hospital. While this sample offers a meaningful snapshot, it may not fully represent the diversity of cases or practices in other wards, specialties, or hospitals. Larger, multi-center studies would provide a broader perspective.

4. Exclusion Criteria:

- Certain cases were excluded, such as patients with polymicrobial infections or those discharged before culture results were available. While

this helped focus the audit, it also means that our findings may not apply to all patient groups, particularly those with more complex infections.

5. Lack of Outcome Data:

- The audit primarily focused on process measures (such as adherence to de-escalation) rather than patient outcomes. As a result, we could not directly assess how stewardship practices impacted recovery, length of stay, or rates of complications.

6. Potential Reviewer Bias:

- Since data collection and interpretation were performed by the audit team, there is a possibility of subjective bias, especially when reviewing cases with incomplete information or ambiguous documentation.

7. No Assessment of Prescriber Factors:

- Factors such as the experience level of prescribers, workload, or access to stewardship support were not evaluated, though these may significantly influence antibiotic decision-making.

In summary, while this audit highlights important trends and areas for improvement, the findings should be interpreted in light of these limitations. Future audits with larger samples, prospective data collection, and more robust outcome tracking would help build a more complete picture of antibiotic stewardship in practice.

CHAPTER 8

CONCLUSION

CONCLUSION

This audit sheds a light on the real-world challenges and untapped potential of antibiotic de-escalation in our hospital setting .While the principles of antimicrobial stewardships are well understood in theory putting them into practise isn't always straightforward. Next paragraph we found that many patients particularly old adults were kept on broad spectrum antibiotics longer than necessary this wasn't due to neglect but offered steamed from clinical caution uncertainty in diagnosis or breakdowns in communication and documentation . Follow for older patients nuts to have more complex health issues are vulnerable to complications these challenges are even more critical every decision about their care requires a thoughtful balance of risk and benefits . The near equal gender distribution in our patient group remind us that stewardship approaches must be adaptable and sensitive to all demographics. Encouragingly not all findings were concerning we saw promising signs regular specimen collection was common and clinical showed a genuine willingness to engage in conversation about responsible integrity in antibiotic de-escalation within our hospital. These are the strength worth building on . still there is room for growth key ideas needing attention include timely reviewing of culture reports and more complete documentation and ongoing support and education for our clinical team. Sometimes, even small changes like adding reminders improving note takings or offering regular feedback can make a big difference next paragraph ultimately effective antibiotic de escalation isn't about following protocols its about equipping healthcare providers to make informed confident decisions that best serve their patients we have identified will not only enhance care but also strengthen our fight against antibiotic resistance .

CHAPTER 9

RECOMMENDATION

Recommendations

1. Introduce EHR- based Reminders :

Support better decision making we recommend adding gentle automated prompts into the hospital's system. These reminders would alert doctors when it's time to review a patient's culture results and reassess their antibiotic treatment by weaving these homes into daily clinical routines we can make it easier for healthcare providers to act confidently and prompt when it's time to adjust or de-escalate treatment .

2. Monthly Stewardship Rounds :

Arrange frequent, multidisciplinary gatherings for frontline clinicians, chemists, microbiologists and infectious disease specialists to discuss recent antibiotic prescriptions and decisions. These monthly stewardship rounds offer a helpful setting for exchanging stories, working through challenging situations, and picking each other's brains. This cooperative strategy has the potential to strengthen the culture of accountability and ongoing antibiotic use improvement over time.

3. Educate Medical professionals :

Provide regular, focused training sessions on de-escalation principles, local resistance trends, and the most recent guidelines to physicians, nurses, and chemists. These sessions can be made more relatable and useful by using actual patient cases from our own hospital. To keep everyone informed and comfortable making stewardship decisions, education should be incorporated into new hire orientation and repeated on a regular basis, and keep them updated with new technologies.

4. Remodel Instructions :

Examine and revise the hospital's antibiotic policies to take into account local resistance trends and the most recent data. These guidelines should specify exactly when and how to escalate or de-escalate therapy. They should also be widely disseminated, both electronically and in print, to ensure that they are always accessible. Clinicians' involvement in the update process can increase support and guarantee that the guidelines are useful in the real world.

5. Track and Offer Quarterly Input :

Monitor important stewardship indicators like the frequency of antibiotic de-escalation, the calibre of documentation, and protocol compliance. Every quarter, present these findings to all clinical teams—not just as figures, but also as anecdotes and illustrations that show both areas of success and room for improvement. Frequent feedback encourages everyone to keep getting better and keeps stewardship goals at the forefront of everyone's mind.

By putting these recommendations into action, we can create a safer, more responsive system for antibiotic use—one that supports clinicians, protects patients, and helps preserve the effectiveness of these vital medicines for years to come.

CHAPTER 10

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