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REVIEWER'S REPORT

Manuscript No.: IJAR-53002 Date: 25/07/2025

Title: Antimicrobial resistance profiles of bacterial isolates from clinical specimens of patients referred to private laboratory during 2023.

Recommendation:
Accept as it is .....
Accept after minor revision.....Yes.....
Accept after major revision .....
Do not accept (*Reasons below*) .....

Rating	Excel.	Good	Fair	Poor
Originality	•			
Techn. Quality		•		
Clarity		•		
Significance	•			

Reviewer Name: Dr. Sireesha Kuruganti **Date:** 25/07/2025

Reviewer's Comment for Publication.

(*To be published with the manuscript in the journal*)

The reviewer is requested to provide a brief comment (3-4 lines) highlighting the significance, strengths, or key insights of the manuscript. This comment will be Displayed in the journal publication alongside with the reviewers name.

This manuscript presents a retrospective study on antimicrobial resistance (AMR) profiles of bacterial isolates from clinical specimens in a private laboratory in Surat city during 2023. The study addresses a crucial public health issue, and the data presented offers valuable local insights.

Detailed Reviewer's Report

Here's an in-depth review of the manuscript, with line numbers for specific references:
Detailed In-Depth Review of the Manuscript "Antimicrobial resistance profiles of bacterial isolates from clinical specimens of patients referred to private laboratory during 2023."
This manuscript presents a retrospective study on antimicrobial resistance (AMR) profiles of bacterial isolates from clinical specimens in a private laboratory in Surat city during 2023. The study addresses a crucial public health issue, and the data presented offers valuable local insights. However, several areas could be strengthened for clarity, precision, and adherence to scientific writing standards.
General Comments:
* Flow and Cohesion: While the sections are present, the transitions between them, particularly from the Abstract to Introduction and then into Materials and Methods, could be smoother.
* Consistency in Terminology: Ensure consistent use of terms throughout the manuscript (e.g., "Kerbey Bauer" vs. "Kirby-Bauer").
* Clarity of Language: Some sentences are slightly convoluted and could benefit from rephrasing for better readability.

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* Data Interpretation in Discussion: The discussion largely reiterates results. It needs more robust interpretation, comparison with existing literature (beyond just agreement), and deeper analysis of the implications of the findings.
* Table Presentation: While the tables provide good data, ensuring uniform formatting and clear headers would enhance their readability. For instance, the blank cells in Table 2 could be clearly marked as "0" or "not applicable" if that's the intention.

Specific Comments by Section:

1. Title (Lines 1-2):
* The title is clear and concise, accurately reflecting the study's content.

2. Abstract (Lines 3-10):
* Line 5: "warns against the effective prevention and treatment" - This phrasing is a bit awkward. Consider "hinders effective prevention and treatment" or "threatens the effective prevention and treatment."
* Line 7: "respective AMR profiles would be valuable to optimize treatment and reduce morbidity and mortality associated with infectious disease." - This sentence accurately reflects the importance of the study.
* Line 8: "Thus, up-to-date information on microbial resistance is needed at local and national levels to guide the rational use of the existing antimicrobials." - Good justification for the study.
* Line 9: "Therefore, this study aimed to determine the antimicrobial resistance patterns of the bacterial isolate from different clinical specimens referred to private laboratory during 2023." - Clearly states the objective.
* Result section (Lines 16-22): The results presented here are good, summarizing key findings regarding predominant samples, organisms, and the cumulative MDR rate.
* Line 16: "predominant samples were urine (272/646 total samples) and Blood (271/646 total samples) followed by pus (51/646 samples)." - Clear summary.
* Line 18: "Predominant organism isolated in urine was E.coli (91/100 isolates) and in blood samples predominant isolates were S.Typhi (31/46 isolates) followed by E.coli (13/46 isolates)." - Specific and informative.
* Line 20: "Cumulative MDR isolates rate in this study was 64.29% which is alarming." - Important finding highlighted.
* Discussion section (Lines 23-28):
* Line 23: "The most prevalent bacteria in this study, Escherichia coli." - Good summary.
* Line 25: "Overall, the multidrug resistance rates found in this study were alarming, 64.29%." - Repetition of a key finding from the results, which is acceptable in an abstract.
* Lines 26-28: "Therefore, strengthening antimicrobial resistance surveillance at the national level, and antimicrobial sensitivity testing at local diagnostic centres are very important in reducing the challenges of antimicrobial resistance." - Good conclusion and recommendation.

3. Introduction (Lines 37-58):
* Line 39: "AMR is a global health and development threat that emerged as one of the major public health problems of the 21^{st} century and warns against the effective prevention and treatment of an ever-increasing range of infections." - Strong opening statement.
* Line 40: "The World Health Organization (WHO) has declared that AMR is one of humanity's top 10 global public health threats." - Reinforces the severity of the issue with a credible source.
* Line 42: "The problem worsens in countries where poor sanitation makes transmitting the bacteria easy." - Important contextual point.
* Line 48: "Therefore, understanding the antimicrobial resistance profiles of bacterial pathogens is essential to optimize treatments and reduce the risks associated with infections." - States the rationale.

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* Line 52: "Furthermore, identifying the most common bacterial pathogens and their respective AMR profiles would be valuable to optimize treatment and reduce morbidity and mortality associated with infectious disease." - Reiteration of abstract point, good for emphasis.
* Line 54: "Thus, up-to-date information on microbial resistance is needed at local and national levels to guide the rational use of the existing antimicrobials." - Justifies the study's local focus.
* Line 55: "Therefore, this study aimed to determine the antimicrobial resistance patterns of the bacterial isolate from different clinical specimens referred to private laboratory during 2023." - Clear restatement of the aim.

4. Material and Methods (Lines 60-86):
* 2.1 Study Design (Lines 61-65):
  * Line 61: "It was a retrospective study." - Clearly stated study design.
  * Line 62: "Dr. Mulla's Laboratory is one of the oldest and NABL accredited private laboratory dealing with different pathological and Microbiological tests." - Provides context about the laboratory.
  * Line 64: "Average sample load of 100-250 exclusively for culture and sensitivity test from different private and corporate hospital of Surat city per month." - Gives an idea of the sample volume.
* 2.2 Data collection and inclusion and exclusion criteria (Lines 66-72):
  * Line 68: "Samples received from different hospital of Surat city during the year 2023 for culture and sensitivity test will be analysed to know the burden of AMR at local level." - Specifies the data source and purpose.
  * Line 70: "Repeat samples from same patient received within 3 days were excluded." - Appropriate exclusion criterion.
  * Line 71: "Mismatched or leakage samples which were rejected by lab were excluded." - Sensible exclusion criteria for data quality.
* 2.3 Culture and antimicrobial sensitivity test (Lines 73-86):
  * Line 75: "Different types of samples were received during 2023 for culture and antimicrobial sensitivity test like blood, pus, stool, body fluids, urine etc. which were processed for aerobic culture on different inhouse prepared culture media like Blood agar, Chocolate agar, Mac Conkey agar, TCBS agar etc. as per standard laboratory protocol and incubated at 37^{\circ}C Incubator." - Comprehensive description of sample types and initial processing.
  * Line 78: "From the isolates antimicrobial sensitivity test were done using manual Kerbey Bauer disk diffusion method on Muller Hinton agar." - Standard method, but "Kerbey Bauer" should consistently be "Kirby-Bauer" (e.g., Line 17).
  * Line 81: "The zones were interpreted as susceptible, intermediate, or resistant according to CLSI 2023 guideline [CLSI 2023]." - Adherence to guidelines is good.
  * Line 82: "The definition of CDC was used in this study for multidrug resistance (MDR): resistance of bacterial isolates to at least one antibiotic in three or more drug classes were used to detect the resistance patterns of each isolate." - Clear definition of MDR, which is crucial for the study's findings.
* 2.4 Data analysis (Lines 88-90):
  * Line 88: "All data were entered in WHONET software." - Specifies the software used for data management.
  * Line 89: "Analysis of data was done to know frequency, distribution of different types of samples percentage for AMR in different samples." - Describes the type of analysis performed.

5. Result (Lines 92-232):
* General: The results section is well-structured, presenting findings clearly with supporting tables.
* Line 93: "In our study, as per Table no.1 and Table no.2 predominant samples were urine (272/646 total samples) and Blood (271/646 total samples) followed by pus (51/646 samples)." - Good initial summary of sample distribution.

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* Line 96: "Predominant organism isolated in urine was E.coli(91/100 isolates) and in blood samples predominant isolates were S.Typhi(31/46 isolates) followed by E.coli (13/46 isolates)." - Clear identification of predominant organisms.
* Line 98: "In pus samples S.aureus followed by E.coli were isolated predominantly followed by P.aeruginosa and K. pneumonaie." - Detailed breakdown for pus samples.
* Table 1 (Lines 103-104): "Different samples and their culture positivity rate" - This table is very informative. Ensure the "No(percentage)" column headers are consistently formatted (e.g., "No. (%)").
* Table 2 (Lines 108-109): "Analysis of different isolates in different samples" - Provides a good overview of isolate distribution across sample types. The blank cells under "Body fluid" and "urine" for "E.coli" (Line 109) and other organisms might be zeroes; clarify this in the table legend or by adding '0' where applicable for precision.
* Table 3 (Lines 116-117): "Analysis of E.coli isolates and its drug sensitivity pattern in different samples" - This table is comprehensive.
* Line 120: "In blood samples, all 13 isolates (100%) resistant to Ampicillin, Amoxiclav and Cefuroxime." - Clear, specific finding.
* Line 124: "All 10 E.coli isolates from pus were resistant to Ampicillin, Amoxiclav, cefotaxime and ceftriaxone." - Key resistance patterns.
* Line 128: "91 E.coli isolates from urine samples show good sensitivity to Amikacin (75%), Ertapenem (74%), Imipenem (83%), meropenem (83%) and to piperacillin-tazobactam (69%)." - Highlights effective antibiotics.
* Table 4 (Lines 148-150): "Analysis of K.pneumoniae isolates and its drug sensitivity pattern in different samples" - Provides detailed resistance patterns for K. pneumoniae.
* Line 153: "From isolates of pus, 100 % resistance was noted in Amikacin, Ceftriaxone, and cefuroxime;" - This seems contradictory with the table where Amikacin for pus has 33% resistance and 0% sensitivity, implying it's not 100% resistant. Double-check and correct this statement against Table 4. It might be a misinterpretation of the table data or a typo.
* Line 158: "In the blood isolate, resistance was found in Ampicillin, Amoxiclav, cefepime, cefotaxime, ceftriaxone, cefuroxime, and for piperacillin-tazobactam." - Clear reporting for the single blood isolate.
* Table 5 (Lines 171-172): "Analysis of S. Typhi isolates and its drug sensitivity pattern in different samples" - Well-presented.
* Line 185: "In 31 isolates of S. Typhi, resistant to Ciprofloxacin was 45%." - Important resistance finding.
* Line 186: "Ampicillin (77%), Ceftriaxone (90%), cefixime(74%), Azithromycin(65%), Chloramphenicol (94%) were overall sensitive as per Table no.5." - Highlights effective treatments for S. Typhi.
* Table 6 (Lines 187-188): "Analysis of proteus vulgaris isolates and its drug sensitivity pattern in different samples" and Lines 189-190: "P.vulgaris 2 isolates were found in urine with overall 50% sensitivity to almost all drugs were found as per table no.6." - Clear and concise.
* Table 7 (Lines 191-192): "Analysis of A.baumannii isolates and its drug sensitivity pattern in different samples" and Lines 193-196: "As per table no.7, 2 isolates of A.baumannii were found from pus samples out of which one was resistant to Cephalosporine groups and carbapenem group and another was sensitive to both the groups." - Provides specific details about resistance patterns for A.baumannii.
* Table 8 (Lines 197-198): "Analysis of Enterococci isolates and its drug sensitivity pattern in different samples" and Lines 200-201: "Both were susceptible to almost all drugs except Ciprofloxacin, Tetracycline and Doxycycline." - Clear reporting.
* Table 9 (Lines 206-208): "Analysis of P.aeruginosa isolates and its drug sensitivity pattern in different samples" - Detailed analysis.

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* Line 226: "All isolates from were overall showing sensitivity for Amikacin (57%), Gentamycin (57%), Imipenem (57%), Meropenem (71% isolates), Netilmicin (57%) and to piperacillin-tazobactam (71% isolates)." - Good summary of sensitivity.
* Line 227: "Resistance was seen in Ceftazidime (71%)." - Important resistance highlight.
* Table 10 (Lines 228-230): "Analysis of S.aureus isolates and its drug sensitivity pattern in different samples" - Comprehensive.
* Line 231: "In pus isolates, resistance was found 91% for Amoxiclav and penicillin G, 82% for clindamycin and erythromycin, 64% for ciprofloxacin, 27% for cefoxitin and 18% for linezolid and tetracycline as per table no.10." - Detailed resistance profile.

6. Discussion (Lines 233-280):

* Lines 234-235: "Understanding the distribution of microbial pathogens and their associated infections is required to control infectious diseases and monitor antimicrobial resistance. The current study aimed at establishing the prevalence of common pathogenic microorganisms including their antimicrobial susceptibility patterns and distribution according to specimens in a private diagnostic Centre." - Reiteration of objectives, which is fine to set the stage for discussion.
* Lines 236-237: "The excessive use of antibiotics among other factors has led to extensive antimicrobial resistance. If this trend continues unabated, then all other antibiotic options will be exhausted making the treatment of associated infections extremely difficult." - Emphasizes the significance of AMR.
* Line 241: "In this study, gram-negative bacteria were more prevalent than gram-positive isolates, similar to reports by Newman and colleagues, and Fahim1[9]." - Good comparison with other studies.
* Line 245: "All microorganisms isolated showed resistance to more than one antimicrobial agent." - Significant finding reinforcing the MDR problem.
* Line 246: "Cotrimoxazole, Erythromycin, Vancomycin, Chloramphenicol and Cefuroxime were among the top five antimicrobials with a high prevalence of resistance." - Specific resistance patterns identified.
* Line 247: "However, Amikacin, Gentamicin and Nitrofurantoin were the three most effective antibiotics." - Identifies useful antibiotics.
* Line 250: "Factors that may have contributed to the emergence and prevalence of resistance, includes uncontrolled use of these drugs, non-compliance with treatment and geographical location/unsanitary environment." - Discusses potential contributing factors, which is important.
* Lines 253-254: "This study showed that gram negative bacteria were predominantly isolated from most clinical samples, E. coli was the most commonly isolated bacterial pathogen, followed by K. pneumoniae; from all 840 isolates, E. coli accounts for 51.43%, regardless of specimen type this finding agrees with other studies done in India (53.3%) [15]" - Good comparison of E. coli prevalence.
* Lines 255-257: "E. coli, Klebsiella spp, Acinetobacter spp, and Citrobacter spp were highly resistant to commonly prescribed drugs like Sulfamethoxazole-Trimethoprim (Cotrimoxazole), Ceftriaxone, Ampicillin, Ciprofloxacin, Cefotaxime, Cefepime, and Ceftazidime." - Lists specific resistant pathogens and antibiotics.
* Lines 258-259: "However, these bacteria are highly susceptible to Amoxicillin/ clavulanic acid, Amikacin, Doripenem, Meropenem, and Imipenem." - Lists antibiotics with good susceptibility.
* Lines 259-261: "The overall observed high rate of MDR could be linked to irrational use and/or self-medication of antibiotics, possibly contributing to the resistance rates in the study area." - Proposes reasons for high MDR.
* Limitations (Lines 262-264):
* Line 262: "This study has some limitations. Since our study was retrospective, it could not indicate the current antimicrobial resistance patterns of the isolates." - Valid limitation, acknowledge the time-sensitive nature of AMR.
* Line 264: "This study also couldn't determine whether the identified resistance was due to hospital-acquired or community-acquired." - Another important limitation.

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7. Conclusions (Lines 286-291):
* Lines 287-288: "The most prevalent bacteria in this study, Escherichia coli. Overall, the multidrug resistance isolates found in this study were alarming, 64.29%." - Summarizes key findings, which is appropriate for a conclusion.
* Lines 289-291: "Therefore, strengthening antimicrobial resistance surveillance at the national level, and antimicrobial sensitivity testing at local diagnostic centres are very important in reducing the challenges of antimicrobial resistance." - Strong and actionable recommendations.
8. References (Lines 292-344):
* The references are generally well-formatted and appear relevant to the discussion. Ensure consistent citation style (e.g., some references include journal abbreviations, others full names).
Suggestions for Improvement:
* "Kerbey Bauer" vs. "Kirby-Bauer": Please correct the spelling of "Kirby-Bauer" throughout the manuscript for consistency and accuracy (e.g., line 17, 78).
* Clarify Table 2 Blanks: In Table 2, explicitly state in the table notes or by entering "0" that blank cells indicate no isolates found, if that is the case. This avoids ambiguity.
* Verify Table 4 Discrepancy (K. pneumoniae - Pus Amikacin Resistance): Recheck the statement on Line 153 regarding 100% resistance of K. pneumoniae in pus to Amikacin. Table 4 indicates 33% resistance and 67% sensitivity for Amikacin in pus, which contradicts the text. This needs correction.
* Discussion - Deeper Analysis: While comparisons with other studies are present, the discussion could benefit from a deeper analysis of why certain resistance patterns are observed locally. For example, linking specific resistance rates to local antibiotic prescription practices or common infections.
* Future Directions: In the discussion or conclusion, briefly mention potential future research directions stemming from this study's limitations or findings (e.g., investigating hospital vs. community acquired infections, genetic basis of resistance).
* Minor Grammatical and Punctuation Checks: A thorough proofread for minor grammatical errors, tense consistency, and punctuation would enhance the manuscript's professionalism. For example, "an ever-increasing range of infections." (Line 5) or "Antimicrobial resistance profiles of bacterial isolates from clinical specimens of patients referred to private laboratory during 2023." (Line 1-2)
By addressing these points, the manuscript will be significantly strengthened in terms of clarity, accuracy, and scientific rigor, making it a more impactful contribution to the understanding of AMR patterns.