

## REVIEWER'S REPORT

**Manuscript No.: IJAR-59075**

**Title: Screening for Beta-Lactamase and Carbapenemase Phenotypes of *Klebsiella pneumoniae* Strains Isolated from Blood and Urine of Children Aged 0 to 59 Months at the Koutiala Reference Health Center, Mali,**

### Recommendation:

Accept as it is .....

Accept after minor revision.....

Accept after major revision .....x.....

Do not accept (*Reasons below*) .....

| Rating         | Excel. | Good | Fair | Poor |
|----------------|--------|------|------|------|
| Originality    |        | X    |      |      |
| Techn. Quality |        |      | X    |      |
| Clarity        |        |      | X    |      |
| Significance   |        |      | X    |      |

**Reviewer's ID: JPR-142**

### Detailed Reviewer's Report

The manuscript addresses an important and clinically relevant issue, particularly the increasing burden of antimicrobial resistance among young children in resource-limited healthcare settings. The focus on ESBL and suspected carbapenemase-producing *Klebsiella pneumoniae* at a reference health center in Mali is potentially valuable and may provide useful local surveillance information. However, several aspects of the manuscript require clarification and improvement before it can be considered suitable for publication. The main concerns relate to the methodological description, interpretation of resistance phenotypes, presentation of the results, statistical reporting, and the strength of some conclusions.

1. Clarification of the study population and sampling process is needed. Please clearly explain how children were selected for inclusion and whether each patient contributed only one specimen. The manuscript reports 2,771 samples and subsequently 25 *K. pneumoniae* isolates, but the relationship between the number of samples, patients, positive cultures, and individual isolates should be presented more clearly.
2. The microbiological identification procedure should be described in greater detail. The manuscript states that *K. pneumoniae* identification was based on colony morphology and a limited biochemical panel. Please clarify whether any automated identification system, commercial identification kit, MALDI-TOF, or additional confirmatory testing was used.
3. The definition of suspected carbapenemase production needs careful revision. The manuscript describes five isolates as having a suspected carbapenemase phenotype, while only two showed confirmed resistance to imipenem and meropenem. The authors should clearly distinguish phenotypic suspicion of carbapenemase production from confirmed carbapenem resistance or confirmed carbapenemase production. Molecular confirmation should not be implied when molecular testing was not performed.
4. The antimicrobial susceptibility testing methodology should be strengthened. Please provide the antibiotic disk concentrations, quality-control strains, incubation conditions,

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and the specific CA-SFM/EUCAST version used for interpretation. The role of the Antibiogo application should also be described more precisely.

5. The terminology used for resistance phenotypes should be standardized. Terms such as high-level penicillinase, "suspected carbapenemase, ESBL phenotype, and "confirmed resistance" should be defined consistently and supported by appropriate references. The distinction between a phenotypic screening result and a confirmed resistance mechanism is particularly important.
6. The statistical analysis is currently insufficiently described. The manuscript mentions SPSS and Excel, but the statistical tests used to compare groups are not clearly specified. If statements such as "no statistically significant difference according to sex" are retained, the exact statistical test and corresponding p-value should be reported where appropriate.
7. The small sample size should be acknowledged as an important limitation. Only 25 *K. pneumoniae* isolates were identified. Therefore, percentages such as 60%, 20%, and 80% should be interpreted cautiously. The authors should avoid presenting these findings as representative of the wider pediatric population of Mali.
8. Some conclusions appear stronger than the available evidence supports. For example, the statement that amikacin "remains the aminoglycoside of choice" may be too definitive based on only 25 isolates and in-vitro susceptibility results. Similarly, the study cannot establish that antimicrobial resistance caused the observed mortality because the study was not designed to assess causality.
9. The discussion should be more balanced. The authors appropriately emphasize the high frequency of ESBL and MDR phenotypes. However, the discussion sometimes moves from local observations to broader regional or global conclusions without sufficient qualification. The authors should distinguish clearly between what was demonstrated in this study and what has been reported elsewhere.
10. The manuscript would benefit from a dedicated limitations section. Important limitations include the single-center design, short study duration, small number of *K. pneumoniae* isolates, lack of molecular confirmation of resistance mechanisms, and potential selection bias because samples were obtained from hospitalized children with suspected infection.

## Minor comments

1. The title is informative but very long. Consider shortening it while retaining the study population, organism, and setting.
2. Please correct grammatical and typographical problems throughout the manuscript. For example, some words are incorrectly joined together, such as beta-lactamsspecifically and Sebaisand Boughachiche.
3. The abstract should be carefully edited for readability. The objective, methods, principal findings, and conclusion should be presented in a clear and concise sequence.
4. Please ensure consistent use of *Klebsiella pneumoniae* throughout the manuscript and italicize the species name consistently.
5. Table 3 should clearly distinguish between resistance phenotypes and individual antimicrobial resistance rates, because these represent different types of measurements.
6. The mortality analysis should be presented cautiously because only three deaths occurred. The statement that all deaths occurred in infants with MDR strains should be presented descriptively rather than as evidence of an association.

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7. References should be checked carefully for completeness, consistency, and appropriate formatting. Several references are theses or older publications, and more recent peer-reviewed literature should be incorporated where available.
8. The conclusion should avoid language such as fortuitously and instead use scientific wording such as amikacin demonstrated 100% in-vitro susceptibility among the isolates tested.”