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REVIEWER'S REPORT

Manuscript No.: IJAR-55802

Title: Quality Improvement Project on Impact of a Modified Blood Collection Protocol on Hemolysis Rates and Sample Rejection at Apollo Multispeciality Hospitals, Kolkata,

Recommendation:

Accept as it is ……YES……

Accept after minor revision……

Accept after major revision ……

Do not accept (*Reasons below*) ……

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

Reviewer Name: Prof. Dr Dillip Kumar Mohapatra

Detailed Reviewer's Report

1. Strengths

Practical Significance:

The study addresses a real-world problem in clinical laboratory practice: hemolysis leading to sample rejection, repeated blood draws, patient discomfort, and potential diagnostic errors.

Implementing a modified protocol with measurable outcomes demonstrates immediate applicability in a hospital setting.

Structured Methodology:

Use of the DMAIC framework (Define, Measure, Analyze, Improve, Control) provides a clear process improvement structure.

Pre- and post-intervention comparison enables assessment of the effect of protocol changes.

Use of Pareto charts and RCA strengthens data-driven decision-making.

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Outcome-Oriented Results:

Demonstrates a quantifiable reduction in hemolysis rates (from 203 to 56), highlighting the effectiveness of intervention.

Improvement in staff practice scores shows that educational interventions and protocol modifications were effective.

Literature Integration:

References existing studies on hemolysis reduction and aligns the project's findings with prior work, demonstrating relevance to the field.

Future Scope Considered:

The report mentions multicentre validation, randomized designs, and potential for guideline development, which shows awareness of the need for broader impact.

2. Weaknesses / Limitations

Single-Center Study:

Conducted at one hospital, limiting generalizability. Results may not reflect other settings with different staff, patient population, or workflow.

Non-Randomized Sampling:

Convenience sampling and exclusion of pediatric, neonates, and certain disease conditions may introduce selection bias.

Lack of Statistical Analysis:

While reduction in hemolysis is shown, the report does not provide statistical tests (e.g., chi-square, t-test) to confirm significance.

Limited Detail on Intervention:

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The modified protocol is mentioned, but **stepwise details** and rationale for each modification are not fully elaborated.

Figures referenced (e.g., Figures 1–4) are not included, making it difficult to evaluate visual data presentation.

Short Post-Intervention Follow-Up:

Sustainability of improvement beyond the study period (September 2025) is unclear. Long-term adherence and durability of results are not assessed.

No Patient-Centered Outcomes:

While lab outcomes improved, the study does not report **patient satisfaction**, reduction in repeated venipunctures, or clinical impact of faster/more accurate results.

3. Significance

Hemolysis is a **major source of pre-analytical error** in laboratories globally.

The project demonstrates that **structured quality improvement interventions** (protocol change + staff training) can significantly reduce hemolysis.

Findings are **clinically relevant**, potentially reducing repeated blood draws, improving patient experience, reducing costs, and increasing diagnostic accuracy.

Adds value by providing a framework for other institutions to replicate similar interventions.

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4. Key Points / Recommendations

Key Findings:

Hemolysis reduced from 203 to 56 post-intervention.

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Staff adherence to correct blood collection practices improved significantly (e.g., luer lock adopter, vacutainer, gel vial usage).

RCA identified critical factors contributing to hemolysis; Pareto analysis highlighted "vital few" causes.

Recommendations for Manuscript Improvement:

Include **full stepwise modified protocol** with rationale.

Provide **statistical analysis** to confirm significance of hemolysis reduction.

Include **all figures and charts** referenced to enhance clarity.

Consider adding **patient outcomes or cost analysis** to strengthen clinical relevance.

Discuss **limitations more explicitly** and outline strategies to mitigate them in future studies.

Conclusion:

Well-structured QI project with measurable outcomes.

Demonstrates feasibility and effectiveness of modified blood collection protocol.

With minor improvements (protocol details, statistical validation, inclusion of figures), this report could be suitable for publication in **clinical laboratory or quality improvement journals**.