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REVIEWER'S REPORT

Manuscript No.: IJAR-56352
Title: Review Article on Future Status of Robotic Assisted Surgeries in Developing Countries,

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

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

Detailed Reviewer's Report

OVERALL EVALUATION

This manuscript provides a narrative overview of the evolution of robotic surgery, with special emphasis on the da Vinci Surgical System developed by Intuitive Surgical and discusses its potential integration in low- and middle-income countries (LMICs).

The topic is timely and relevant within the broader context of global surgical equity and technological advancement.

STRENGTHS

1. Relevant and Contemporary Topic

Addresses technological disparities in global surgical care.

Aligns with global surgery initiatives and modernization of healthcare systems.

2. Comprehensive Historical Overview

Provides a clear chronological account from early robotic systems (PUMA, AESOP, ZEUS) to modern robotic platforms.

Includes landmark telesurgery events such as transatlantic robotic surgery reported in Nature.

3. Balanced Presentation

Discusses both benefits (infection reduction, tele-mentoring, improved ergonomics) and challenges (cost, training, connectivity).

Highlights educational and research opportunities in LMICs.

4. Adequate Referencing

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References include reputable sources such as JAMA Network Open and other peer-reviewed journals.

WEAKNESSES

1. Absence of Methodological Framework

No description of literature search strategy.

No PRISMA flow diagram or defined inclusion/exclusion criteria.

This limits scientific rigor and reproducibility.

2. Excessive Descriptive Content

Historical sections are overly detailed.

More emphasis is placed on technological evolution than on LMIC-specific analysis.

3. Limited Critical Appraisal

Lacks comparative analysis between robotic, laparoscopic, and open surgery in LMIC settings.

No data synthesis tables or quantitative comparisons.

4. Insufficient LMIC-Specific Data

Few real-world statistics from developing countries.

No country-specific case studies (e.g., India, Africa, Southeast Asia).

5. Language and Formatting Issues

Minor grammatical inconsistencies.

Typographical symbols need correction.

Reference formatting inconsistencies observed.

6. No Visual Aids

No tables, figures, or graphical summaries to enhance clarity.

SIGNIFICANCE

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The manuscript is **conceptually significant** because:

It addresses healthcare technology inequality.

It explores future scalability of robotic surgery in resource-limited settings.

It contributes to policy-level discussions regarding surgical modernization.

However:

Scientific novelty is moderate.

Similar narrative reviews already exist.

Impact would increase with stronger analytical depth and updated LMIC statistics.

Overall Significance: Moderate to Good

KEY POINTS

Evolution of robotic surgery from early systems to the modern Da Vinci era.

Technical advantages of robotic surgery:

- 3D visualization
- Motion scaling
- Enhanced dexterity

Potential LMIC benefits:

- Reduced surgical site infections
- Increased surgical capacity via telesurgery
- Educational advancement

Major barriers:

- High capital and per-procedure costs
- Infrastructure limitations
- Training shortages

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Internet latency constraints (<300 ms requirement)

Future recommendations:

Public–private partnerships

Local manufacturing

International collaboration

Tele-mentoring models

RECOMMENDATION

Decision: Major Revision Required

The manuscript has strong thematic value but requires substantial improvement before publication.

JUSTIFICATION FOR MAJOR REVISION

Manuscript: *Review Article on Future Status of Robotic Assisted Surgeries in Developing Countries*

Absence of Review Methodology (Major Scientific Limitation)

Issue:

The manuscript does not describe:

Databases searched

Search strategy

Inclusion/exclusion criteria

Time period covered

Study selection process

Why This Is Major:

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For a review article, methodological transparency is essential for:

Reproducibility

Bias reduction

Scientific credibility

Without methodology, the article reads as a **narrative opinion piece** rather than a structured scholarly review.

Required Correction:

Add a dedicated **Methodology Section** (e.g., databases: PubMed, Scopus; keywords; time frame; screening process).

Overemphasis on Historical Description (Structural Imbalance)

Issue:

Approximately 50–60% of the manuscript focuses on:

Early robotic systems (PUMA, AESOP, ZEUS)

Detailed technical features of the da Vinci Surgical System

Corporate development of Intuitive Surgical

Why This Is Major:

The manuscript title emphasizes:

Future Status in Developing Countries

However, the majority of content focuses on:

Historical evolution

Technical engineering details

This creates a **mismatch between title and content emphasis**.

Required Correction:

Condense historical section to 2–3 paragraphs and expand:

LMIC case studies

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Policy analysis

Cost models

Implementation strategies

Lack of Critical Comparative Analysis

Issue:

The manuscript lists advantages but does not critically compare:

Robotic vs laparoscopic surgery

Robotic vs open surgery

Cost-benefit ratios in LMIC context

Why This Is Major:

High-quality review articles synthesize evidence, not just describe it.

For example:

No comparative complication rates table

No meta-analytical synthesis

No strength-of-evidence grading

Required Correction:

Add:

Comparative outcome table

Cost comparison chart

Evidence strength summary

Insufficient LMIC-Specific Data

Issue:

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The manuscript mentions LMICs but:

No country-wise implementation data

No statistics on number of robotic systems in Africa, India, Southeast Asia

No government policy examples

Why This Is Major:

The article's core focus is **developing countries**, yet evidence is generalized.

References such as:

Lancet Global Health

Nature

JAMA Network Open

are cited, but LMIC-specific synthesis is weak.

Required Correction:

Include:

Case examples (India, Brazil, South Africa)

Public–private model examples

National robotic surgery adoption statistics

Limited Critical Discussion of Cost-Effectiveness

Issue:

Cost-effectiveness is mentioned but:

No economic modeling

No per-QALY analysis

No cost amortization discussion

Why This Is Major:

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Financial feasibility is the **central barrier** in LMICs.
Without strong economic evaluation, conclusions remain speculative.

Required Correction:

Add:

Capital cost breakdown

Maintenance cost analysis

Long-term vs short-term cost comparison

Connectivity and Telesurgery Discussion Is Superficial

Issue:

Mentions 300 ms latency threshold but:

No technical feasibility modeling

No telecom infrastructure data

Why This Is Major:

Telesurgery feasibility depends on:

Fiber penetration

5G coverage

Data redundancy systems

Without data, conclusions remain theoretical.

No Visual Aids or Structured Tables

Issue:

The manuscript contains:

No summary table

No figure

No conceptual model

Why This Is Major:

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Review articles should enhance clarity through:

Summary diagrams

Comparative tables

Framework models

Language and Formatting Inconsistencies

Issue:

Typographical symbols (— —)

Minor grammatical inconsistencies

Reference formatting irregularities

Why This Is Major:

Individually minor, but collectively affect publication quality.

Novelty Level Is Moderate

Issue:

Several narrative reviews already exist on:

Evolution of robotic surgery

Global surgery challenges

Why This Is Major:

To justify publication, the manuscript must:

Provide stronger synthesis

Offer new analytical perspective

Include updated LMIC statistics (2023–2026 data)

Conclusion Section Is Conceptual, Not Evidence-Based

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Issue:

Conclusion states robotic surgery *"has potential"* but:

No structured policy framework

No implementation roadmap

Why This Is Major:

High-impact reviews conclude with:

Actionable frameworks

Tiered implementation models

Strategic recommendations

WHY THIS IS MAJOR REVISION **(Not Minor)**

Minor Revision	Major Revision
Grammar fixes	Add methodology section
Formatting correction	Structural rebalancing of content
Minor clarification	Add comparative analysis
Reference update	Include LMIC-specific evidence
Language polishing	Strengthen economic evaluation

The manuscript requires:

Structural modification

Additional analytical content

Expansion of LMIC evidence

Methodological clarification

These changes are substantial → hence **Major Revision**.

Final Justified Decision

Recommendation: MAJOR REVISION

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