



WHIRL: The Women's Health Intelligent Information Retrieval LLM

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BACKGROUND

Diagnostic and treatment inequities in women's health remain a pressing challenge. Frontline professionals often lack immediate access to trusted clinical guidance. Large language models (LLM) offer a path to reliable clinical guidance. WHIRL is a domain-specific LLM developed to bridge this gap by providing real-time, evidence-based responses grounded in RCOG, NICE, and NHS guidelines.

AIM

To develop an intelligent, evidence-based LLM system for women's health that delivers fast and accurate answers to clinical queries by referencing official clinical guidelines (RCOG, NICE, NHS) in real time.

METHODS

We curated a comprehensive database from UK national women's health guidelines, curated by clinical experts. The WHIRL system integrates open-source LLMs (LlamA) with Retrieval-Augmented Generation (RAG) for context-aware semantic search. A verification module cross-references outputs using a lightweight fact-checking agent. The model was co-designed and stress-tested by obstetricians, midwives, and allied health professionals through iterative refinement cycles.

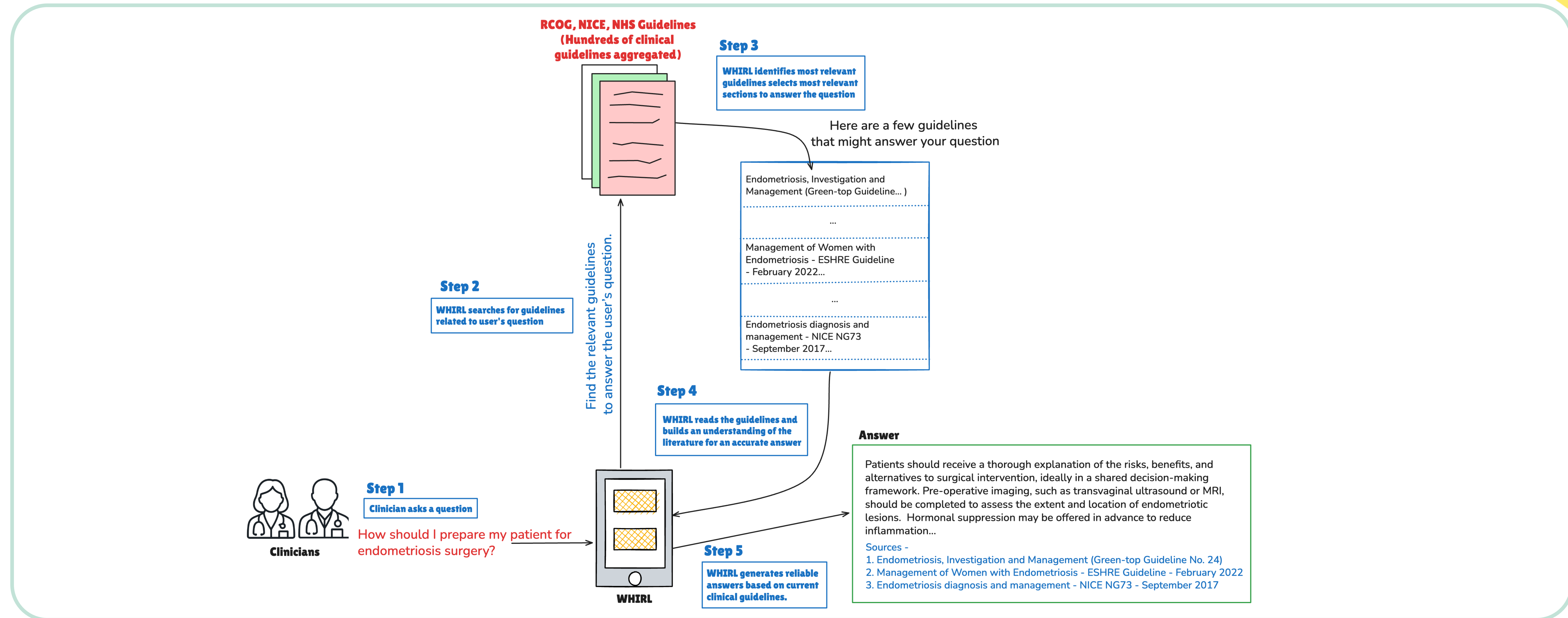


FIGURE 1 : WHIRL Pipeline

RESULTS

WHIRL reliably retrieved and summarised relevant guidance in response to diverse, complex clinical queries. Outputs aligned with current RCOG and NICE recommendations and demonstrated a marked reduction in hallucinated or outdated content. The integrated verification layer enhanced output trustworthiness by flagging discrepancies and reinforcing evidence adherence.

CONCLUSION

WHIRL represents a novel approach to real-time clinical decision support in women's health. Its transparent, guideline-driven architecture shows promise in improving frontline care and supporting advanced triage, planning, and education. Ongoing work includes prospective validation, broader stakeholder input, and healthcare system integration.