



MYBRISKMED + DAWAASSIST + BRISKBOT: A UNIFIED, OFFLINE-CAPABLE, AI-DRIVEN PWA PLATFORM FOR INTEGRATED CARE IN LOW-RESOURCE SETTINGS

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INTRODUCTION

Healthcare delivery in low and middle income countries is often fragmented, with multiple care roles operating in silos and paper-based tools prone to errors and inefficiencies. High connectivity requirements further limit digital tool adoption in resource-constrained environments.. More-over, quality of care is not standardized due to poor adherence to the most recent national clinical guidelines. To address these and more challenges in the health delivery pipeline, we developed mybriskmed, an offline capable Progressive Web Application enhanced with DawaAssist (Ai decision support) and Briskbot (medical chatbot) creating a unified, intelligent and efficient ecosystem

OBJECTIVE

- Deliver a HIPAA and GDPR compliant, offline capable digital health platform
- Implement AI-assisted diagnosis and note parsing using structured data
- Improve diagnostic specificity through schema optimization and vital sign normalization.
- Enhance health literacy and engagement via Briskbot’s conversational interface

METHODOLOGY

Architecture

- Built as a Progressive Web App (PWA) supporting offline caching, Firestore sync, and resumable local storage, ensuring usability without internet access.
- Analogous to ODK’s field-ready functionality for low-connectivity environments.

Role-Based Dashboards

- Dedicated interfaces for Doctors, Nurses, Pharmacists, Facilities, and Patients, tailored to each workflow.

METHODOLOGY CONTINUED..

- Promotes standardization and interoperability across the continuum of care.
- Clinical Intelligence Layer
- DawaAssist integrates a FAISS-powered retriever over the Uganda Clinical Guidelines (UCG).
 - Uses Retrieval-Augmented Generation (RAG) with Groq-powered LLMs.
 - Outputs structured JSON recommendations to ensure fidelity to UCG context.

Conversational AI

BriskBot provides nurse- and patient-facing support via:

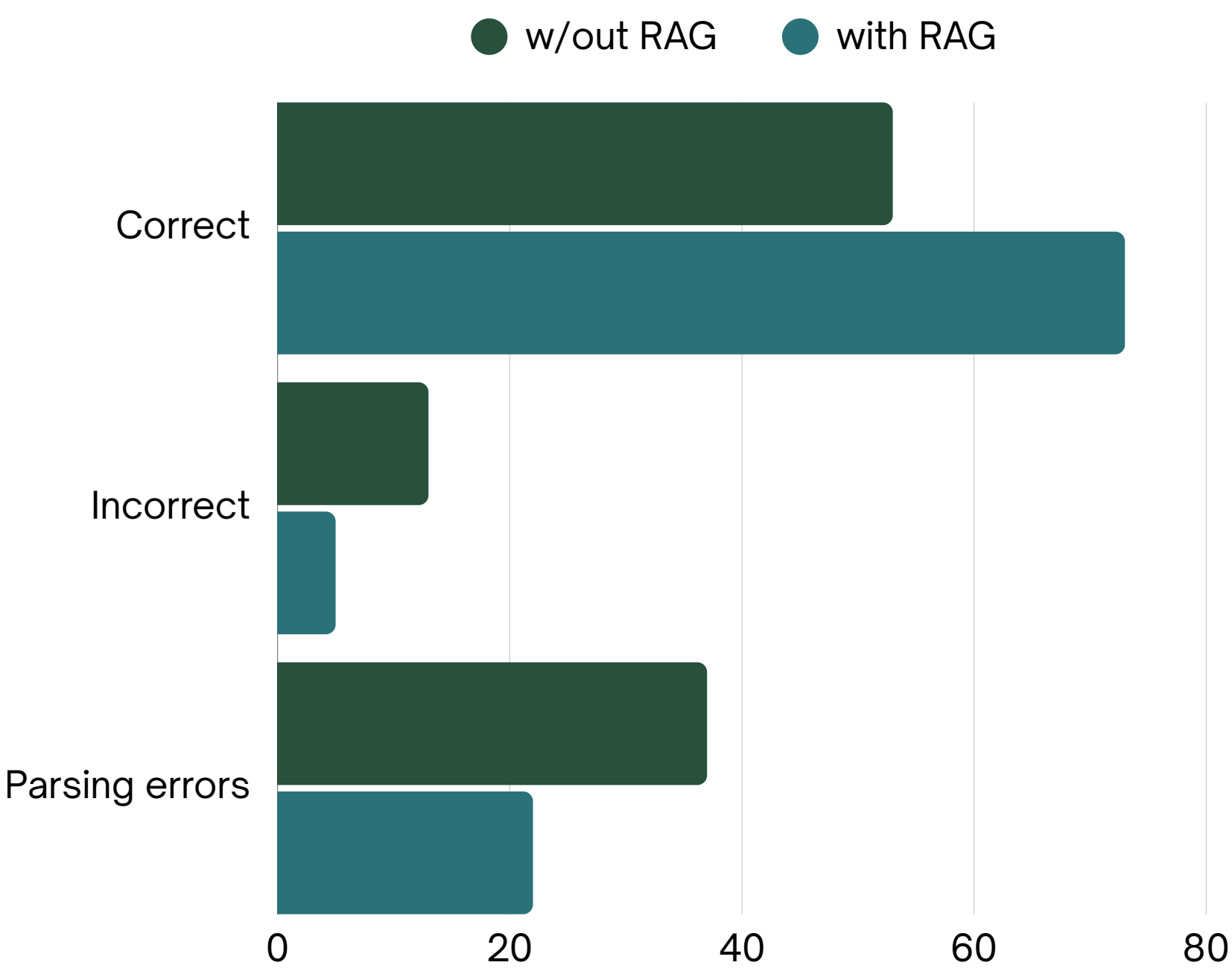
- Contextual health education
- Triage guidance
- Medication safety and drug–drug interaction (DDI) checks

RESULTS/FINDINGS

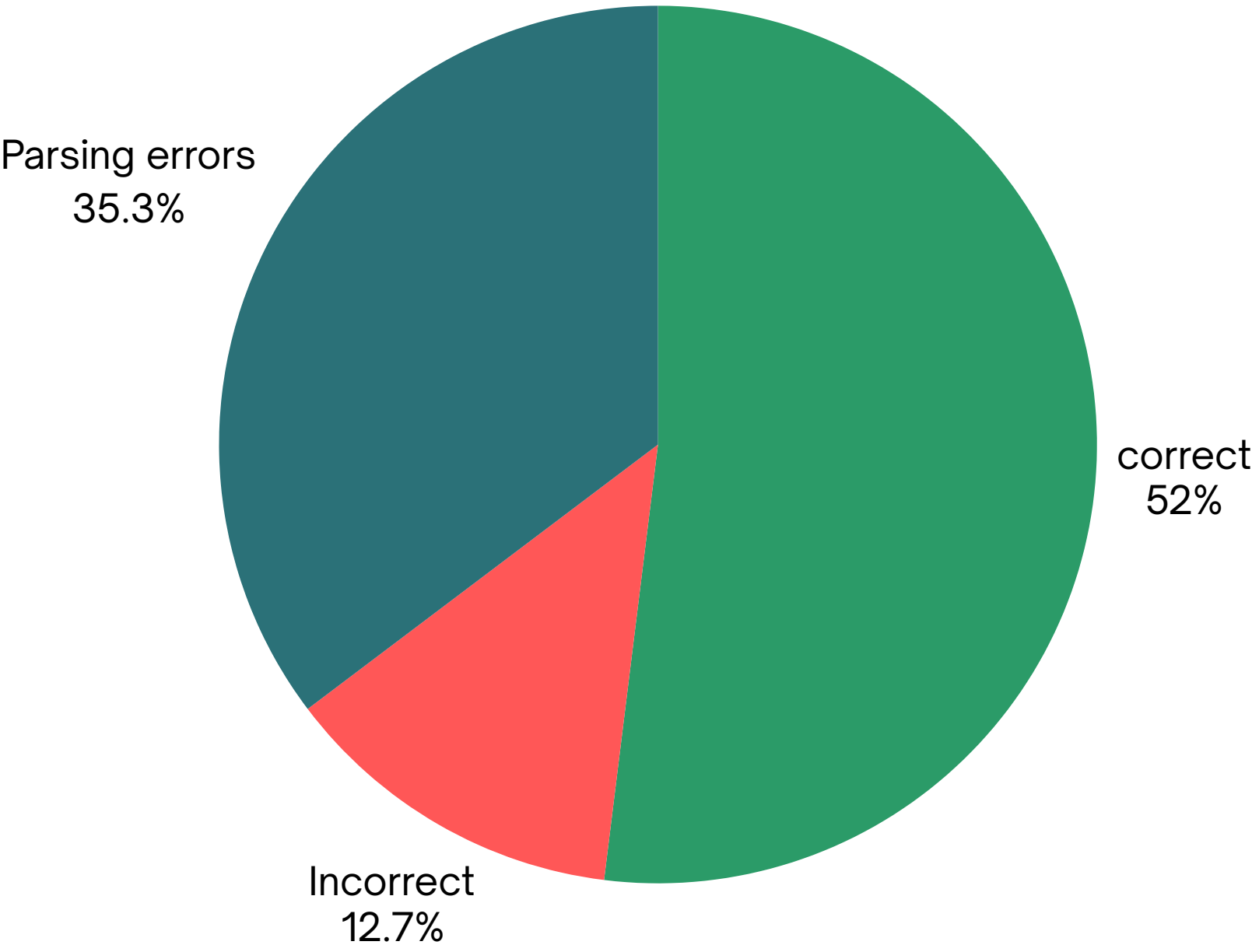
The integrated MyBriskMed ecosystem demonstrated strong usability and functionality in low-connectivity settings.

- Early clinical validation of DawaAssist, the AI-powered Clinical Decision Support System, was conducted using 100 guideline-based clinical queries derived from medical question banks.
- Exact guideline alignment was achieved in 51% of all test queries.
- When restricted to processed inputs (n = 64), exact-match accuracy improved to 79.7%.
- Notably, 100% of outputs were within the correct disease group, with errors largely reflecting acuity-level distinctions (e.g., diabetic ketoacidosis vs. diabetes mellitus, hypertensive crisis vs. essential hypertension).
- Approximately 36% of queries initially failed to process due to vital sign or entity-parsing errors.
- Following iterative refinement of the parsing pipeline and prompt calibration, subsequent internal testing showed significant improvement in both parsing success and recommendation specificity, though full quantitative data are pending publication.

DawaAssist Accuracy Metrics



Baseline results



ANALYSIS

These findings highlight DawaAssist’s robust contextual understanding of Ugandan clinical content and *demonstrate how localized prompt engineering and iterative evaluation can meaningfully improve AI performance in African primary care contexts.*

CONCLUSION

- Structured data quality is crucial for reliable AI output
- contextualization using localized knowledge banks such as UCG ensures relevance to local setting
- Conversational layer(Briskbot) enhanced accessibility and patient literacy
- the solution demonstrates potential for scalable, localized AI adoption across East Africa and beyond. Continued refinement will further enhance diagnostic precision ,vital sign interpretation and end user trust.