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Automating Prior Authorization Workflows for a Leading Healthcare Enterprise

Executive Summary:

A leading healthcare enterprise managing large-scale pharmacy benefit and specialty care operations needed to reduce the manual effort involved in Prior Authorization workflows. Each PA request required clinical review, payer-specific form completion, evidence validation, and citation-backed decisioning, creating delays across approval and rejection cycles.

Factspan developed an AI-assisted PA Automation solution that used patient Electronic Health Record data to generate answers for PA form questions, validate response quality, assign confidence levels, and provide rationale-backed evidence for human review. The pilot reduced PA task completion time from multi-day cycles to approximately 3 hours, creating a scalable foundation for broader authorization automation across drugs, payors, and PBM workflows.

Business Impact:

- Reduced PA task completion time from 1 to 10 days to approximately 3 hours
- Supported automation for 10 drugs in the pilot scope
- Enabled controlled rollout for 10 Benefit Verification Representatives
- Addressed workflows involving 150 to 1,000 questions per PA request
- Created a scale path for automation across 1.2M annual PA requests
- Identified potential annual savings of up to $3M

About the Client:

The client is a leading healthcare enterprise with integrated capabilities across retail pharmacy, pharmacy benefits management, insurance, and care delivery.

The organization manages high-volume specialty pharmacy and payer workflows, including Prior Authorization operations that require accurate clinical interpretation, compliant documentation, and timely coordination between benefit verification teams, prescribers, patients, and payors.

Business Challenge:

Prior Authorization was a highly manual and time-sensitive process. Benefit Verification Representatives had to review patient records, identify the correct payor form, gather clinical reasoning, complete large question sets, follow up with prescribers or payors, and submit approval or rejection responses with supporting citations.

The complexity increased because each PA request could involve 150 to 1,000 questions, depending on the drug, payor, and workflow path. Expedited cases still required up to 48 hours, while non-expedited workflows could take up to 10 days. This created operational pressure, delayed task closure, and limited the organization's ability to scale PA processing efficiently.

Our Solution:

Factspan developed an AI-assisted PA Automation solution to support Benefit Verification Representatives in completing PA forms faster and with stronger evidence traceability.
The solution ingested patient-level EHR data, including medications, allergies, notes, diagnosis details, and historical records. This information was processed and made available to an AI workflow that generated answers for PA form questions while allowing users to validate the answers against source patient data before submission.

The solution leveraged a Retrieval-Augmented Generation (RAG) architecture to ensure accurate and context-aware response generation. Patient data was processed using intelligent chunking techniques, converted into embeddings, and stored in a vector database. During question answering, the system dynamically retrieved the most relevant clinical context to generate responses grounded in source evidence, improving both accuracy and traceability.

The pilot was designed around a human-in-the-loop operating model. AI generated the responses, but representatives retained control over review, validation, and submission. This ensured that automation accelerated the workflow without removing clinical and operational oversight. The solution involved:

EHR Context Processing
Patient records were extracted, cleaned, structured, and prepared using chunking and embedding techniques for AI-based retrieval and question answering.

AI-Based Question Answering
The system generated answers for PA form question sets using retrieval-augmented, patient-specific EHR context.

Evaluation and Confidence Scoring
Generated answers were evaluated for completeness and contextual fit, and confidence levels were assigned.

Rationale and Evidence Support
The system provided rationale-backed, evidence-grounded responses so users could validate AI-generated answers against retrieved clinical context.