Using Generative AI to Streamline Clinician Workflow and Reduce Burnout

by Dr. Ravindra Patil, Sr. Director of Data Science at Tredence 11/13/2023 — Leave a Comment

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Clinician stress rose significantly during the pandemic but has remained high even as COVID-19-related patient volumes and illness severity have subsided. In 2021, 62.8% of U.S. physicians exhibited burnout; this year, it is 62%.

Contributing factors include heavy patient loads, too many administrative tasks, and rising clinician shortages. Many physicians work 50 hours a week: seeing up to 20 patients a day, spending an average of 4.5 hours entering electronic health records (EHR data), and managing patient loads of 2,000 or more. In addition, the U.S. faces a shortage of 17,325 primary care specialists, and increasing shortages of physicians, nurses, and other

care staff are projected for years to come. Similar problems are playing out globally.

Against this industry backdrop, chief information and medical officers at healthcare providers and payers are exploring generative AI's potential to transform clinician productivity. These healthcare organizations (HCOs) will deploy task-oriented and domain-specific models that build on large-language models (LLMs), using reinforcement learning and knowledge graphs to deliver relevant, accurate, and stable data outputs.

To reap generative AI's full value, HCO teams should create a strategy with goals and objectives, use a human-centered design approach to develop solutions, correctly estimate the time it takes to build or fine-tune models and consider ethical and privacy concerns. In addition, teams will want to train models on annotated data sets; implement LLMOps processes; and plan for adequate change management, to ensure businesses and teams adopt new solutions. Partner support can help overcome these challenges and speed up the time to value.

With generative AI-powered tools and workflows, HCOs will be able to streamline back-office processes that significantly improve clinician and administrative staff productivity. Providers can use time savings to lessen workloads and improve the quality of life for teams or serve more patients, driving revenues and profitability.

Top Clinical Workflow Use Cases for Generative AI

Key use cases for generative AI include:

Remote Patient Monitoring

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Summarizing patient interactions: Today, busy clinicians transcribe patient interactions and document the next steps for care provision. While capturing this data is vital, it takes time that could otherwise be dedicated to serving more patients, doing targeted patient or population planning, or gaining new skills.

Generative AI automates this cumbersome and wearying transcription process. Automatic speech recognition (ASR) tools capture speech and generate accurate text transcripts of clinician-patient encounters. These transcripts are then uploaded to trained LLMs, which preprocess and filter data, classify and group patient and clinician comments, and summarize findings in a standard SOAP (subjective, objective, assessment, and plan).

Physicians and support staff then spend just a few minutes reviewing and approving content, gaining back time to focus on higher-level duties. Another added benefit is that using the combined audio capture and generative AI solution reduces errors, such as omissions, that can lead to adverse patient events, legal disputes, and settlements.

Improving patient pre-authorization request processing: Providers' administrative staff continually submit requests to payers to gain pre-approval to perform patient tests and procedures. Provider staff use manual processes to submit requests, while payer staff use manual processes to review, approve, or decline them.

Not surprisingly, inefficiency abounds. A recent survey found that physicians and staff spend up to 14 hours a week seeking preauthorization. In 2021, providers made 35 million pre-authorization requests for Medicare

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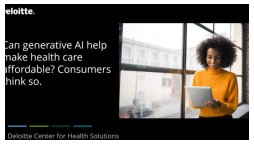
Advantage members. Two million were denied. Denials due to ambiguous requests, incorrect data, or incomplete forms can delay or prevent necessary patient care while costing providers lost revenues. While denials can be appealed, this work costs provider staff additional time that could be spent on other customer service duties.

Generative AI streamlines the authorization process for both parties. Provider staff continue to submit authorization requests via payers' front-end web applications. Requests are queried against an AI agent, which then queries databases that contain business rules, leveraging regulatory guidance, payer FAQ manuals, and policy documents. With this context embedded, requests are processed by the LLM, which approves them, rejects them for specified reasons, or submits them for manual review. Ongoing user feedback continually enhances results.

Payers benefit by increasing the consistency of request processing, reducing operational costs, and enforcing fraud controls. With faster service, they also deliver a better provider and patient experience. Providers benefit by gaining faster feedback on requests, which improves the administrative staff's ability to plan service delivery, optimizing schedules and throughput.

Enabling advanced care planning: Busy clinicians develop personalized care plans for all patients, including those with complex medical issues. More than half (51.8%) of US adults have at least one chronic health condition, while one in four (27.2%) have multiple conditions. This complicates care planning, as clinicians must consider issues such as medication contraindications.



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With its ability to interpret, learn, and create, generative AI serves as an effective copilot for care planning. Clinicians enter a prompt into a front-end interface. The generative AI copilot then sends a query to an embedding pipeline, which extracts and segments data from a data store containing proprietary domain-specific data, such as primary care provider visit notes, EHR data and test results, and stored medical imagery. That data is then ingested into a vector database for querying by the LLM, which creates a personalized care plan that adheres to business rules, finally returning it to the care provider for review. Providers can then accept or tailor these results to meet patient needs and payer guidelines.

By Increasing Clinician Productivity, Generative AI Could Save Careers

Past technology innovations, such as EHRs, digital workflow, and front doors, have transformed care delivery. Yet, the reality is that clinicians are facing outsized demand for services that will continue for years to come.

Providers that use generative AI copilots to transform clinician workflows give busy teams time back in their day. Generative AI tools also streamline administrative work for providers and payers, contributing to a better employee, member, and patient experience.

The good news is that HCOs can deploy these tools in just a few weeks by leveraging partner accelerators. They can also use partner expertise to extend, monitor, and maintain generative AI solutions, creating significant business momentum by enabling a propulsive flywheel of innovation and productivity.

While providers and payers will make generative AI decisions to solve pain points and drive business value, these tools can help retain staff that otherwise might depart due to excessive workloads. In the U.S., 47% of clinicians plan on leaving their jobs within the next 2-3 years, while globally, 31% want to. This type of turnover is costly: Primary care provider departures cost public and private payers $979M annually, with $260 million attributed to burnout. They also destabilize businesses and decrease the availability of healthcare services to patient populations.

The good news is that this epidemic of overwork can be mitigated by deploying generative AI tools: providing clinicians with more time to do the work they love while improving outcomes and costs for patients, providers, and payers alike.

About Dr Ravindra Patil, Senior Director, Data Science

Dr. Ravindra Patil is the Senior Director of Data Science at Tredence, leading a team with 15 years of industrial experience in Data and AI. His expertise lies in successful team leadership and developing effective Data and AI solutions. Ravindra began his career at Siemens, later contributing significantly at Philips Research and its business groups. Before joining Tredence, he led a Data and AI group for Philips' $4 billion Personal Health cluster.

Throughout his journey, Ravindra has created multiple AI algorithms, data platforms, and facilitated their integration into various business sectors. He holds a Bachelor's in Engineering, a Master's in pattern recognition from IIT

Madras, India, and a Ph.D. in machine learning from the University of Maastricht, Netherlands. With over 30 patent filings, numerous published research papers, and recognition as one of India's top 100 AI leaders by AIM magazine, his accomplishments are noteworthy.

Tagged With: Artificial Intelligence, Generative AI, Physician Burnout

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