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Insights

Ambient AI Governance and Implementation: Findings from Patient-Clinician Interaction at a Health System

Charles O. Frazier, MD, FAAFP, SVP *and Chief Medical Information and Innovation Officer, Riverside Health System*
Rajiv Kohli, PhD., *John N. Dalton Memorial Professor, William & Mary*
Ehsan Valavi, PhD., *Postdoctoral Associate, MIT Sloan School of Management*

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Healthcare organizations integrate new technologies into routine operational processes to improve efficiency. Adoption of such technologies and data gathered from operations supports decision-making and predictive analytics. Artificial intelligence (AI)-related emergent technologies adhere to this trend.

A promising application of GenAI in healthcare involves combining patient data to provide personalized advice. For instance, Large Language Models (LLMs) can answer common questions about diabetes management or interpret test results. However, offering personalized insights requires access to a patient's medical history, test results, and health status. While these applications hold potential, they also introduce risks relating to data accuracy, clinician acceptance, and integration challenges. Therefore, a practical governance framework and risk mitigation policies are crucial to deploy AI in healthcare operational processes.

In this Brief, we report the implementation of an ambient artificial intelligence (aAI) application in a multidisciplinary medical group, Riverside Health (RH), that listens and summarizes patient-clinician interactions and creates summary notes and documentation for accurate coding of disease conditions. Automation of clinicians' operational processes supports diagnoses and facilitates accurate insurance claims processing.

RH's goal was to support clinicians with aAI by lowering their burden of recording data and completing documentation so that they could have more time with the patients. Not only is a richer interaction meaningful for the patients, but it is also crucial for clinician retention since cognitive and administrative burdens of EHR documentation are among the factors attributed to the high rates of clinician burnout. Clinicians spend an average of 15.5 hours per week

completing documentation and administrative activities,[1] often at the end of the day and from home. aAI applications have the potential to reduce the burden of documentation and increase accuracy, allowing clinicians to be more efficient and pay greater attention to their patients' needs.

Governance, Risk, and aAI

Although healthcare organizations excel at adopting emerging medical technologies, information technology (IT) is often viewed as a tool to automate processes. Focus on patient safety and potential legal liability has led RH to take a cautious approach and establish a governance structure that will integrate aAI in operations and electronic health records (EHR).

RH leadership took an entrepreneurial approach and formed an AI Steering Committee to explore AI opportunities in patient care operations. The AI Steering Committee comprised the Chief Information Officer (CIO), Chief Medical Information Officer (CMIO), Chief Information Security Officer (CISO), Privacy Officer, Legal, Risk Management, a Data Scientist, Physician Informaticist who had been trained in AI use. The AI Steering Committee was tasked with the development of policies on (i) data security, including confidentiality and intellectual property protection, (ii) human review for clinical applications, (iii) transparency for disclosure and patient consent, and (iv) vendor contracting and oversight.

RH's core principle was to build AI capabilities without internally developing AI software tools. Instead, RH planned to leverage AI by collaborating with external technology partners. Through proof-of-concept initiatives, RH aimed to act as an innovation testbed and to encourage technology partners to incorporate newly tested AI features directly into the EHR.

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[1] Cass, Andrew, (2023) The hours 23 physician specialties spend on paperwork, administration, *Becker's Hospital Review*, April 19: Available at https://www.beckershospitalreview.com/hospital-physician-relationships/the-hours-23-physician-specialties-spend-on-paperwork-administration/#25, last retrieved on April 2, 2025

After several weekly meetings, the AI Steering Committee released the RH AI policy document to guide employees on:

- Data Security: Employees must avoid unauthorized AI/ML tools and ensure proper verification of AI-generated code
- Confidentiality: Employees must not input Personally Identifiable Information (PII), intellectual property, or company data into non-approved AI tools
- Transparency: AI-generated content must be appropriately cited and logged
- Equity and Ethics: AI-generated content must align with RH's ethical standards and non-discrimination policies
- Compliance: Employees must follow relevant laws and company policies and report non-compliance

The AI policy document provided contact information for reporting any policy violations. Furthermore, RH implemented technology and policy strategies for safeguarding patient data and privacy, including data de-identification, approving specialized vendors, and processing information across different platforms.

aAI Implementation in Patient-Clinician Interaction

The aAI implementation comprised a vendor-supplied secure app for iOS and Android operating systems. The app, developed at a leading technology university and trained exclusively on patient data, demonstrated greater than 90% accuracy and includes a traceability feature to trace its recommendations to verbatim comments. It captures audio recordings but does not use the camera to protect patient-clinician privacy. During a patient visit, the clinician describes how aAI is used and requests the patient's consent. Patients can choose not to participate or to terminate participation at any time during the visit. Clinician participants were 32% male and 68% female. Clinician interaction represented 62% of patients from primary care or urgent care, 23% from medical specialties, and 15% from surgical specialties. The insurance type of patients who participated was -- 36% commercial insurance, 26% Medicare, 21% Medicare Advantage, 12% Medicaid, 4% Tricare, and 1% other. We did not track patient race or sex for this study. The

AI policy provided for healthcare provider training, continuous feedback collection, and iterative refinements of the AI tool. Testing and validation processes included pre- and 30-day post-implementation surveys, detailed patient encounter analyses from EHRs, and assessment of financial impact.

Findings

Post-implementation findings show a decrease in provider burnout and cognitive load, accompanied by a modest improvement in patient satisfaction scores. RH clinicians experienced increased efficiency in recording and documentation, shorter time for completing notes, and more accurate diagnostic documentation, all contributing to improved financial outcomes. Qualitative data gathered through open-ended comments reveal that clinicians had positive sentiments and aligned with the quantitative metrics reported in Table 1.

Table 1: aAI Post-implementation Change in Burnout, Patient Satisfaction, Efficiency and Productivity, and Quality Measures

Category	Metric	Change
Burnout	*Mini Z Burnout* is a validated survey tool to measure workplace stress, burnout, and satisfaction.	↓ 33.3%
	NASA-Task Load Index is a multi-dimensional tool for measuring cognitive load, including mental, physical, and time demands.	↓ 61.5%
Patient Satisfaction	Clinician's perception of "being present" with patients	↑ 22%
	Net Promoter Score (NPS) is a measure of customer satisfaction and loyalty. It measures how likely is the customer to recommend the service to a friend or colleague	↑ 26%
Efficiency and Productivity	*Time* spent in completing patient Notes activity	↓ 33%
	"*Pajama time*" is a colloquial term for completing documentation and other administrative tasks after regular working hours, often from home	↓ 5%
	Work Relative Value Units (wRVU) measure clinician clinical productivity	↑ 11%
Quality	Average number of diagnoses documented per patient encounter	↑ 11%

This consistency in the qualitative and quantitative findings supports RH's goal to help clinicians through aAI by lowering their burden of recording data and documentation while improving patient satisfaction, efficiency, and quality of patient care. The aAI-supported patient visit record is now integrated with the patient's EHR.

Limitations

We uncovered a few limitations, as illustrated in the following examples. When a clinician offered the patient a choice of two lab tests, sometimes the aAI could not distinguish whether the patient was given one of the two tests or both tests[2]. Additional people in the room confused the aAI, especially when all were patients. A few times, the aAI missed nuances in the patient's conversation about history, sequence of events, or relevance. Although rare, it occasionally inserted unfamiliar words or interpreted medical terms based on how they sounded, seemingly making educated guesses like a human would. These limitations have the potential for misrecording the patient's condition or diagnosis.

Lessons Learned and Next Steps

We learned that aAI may not be as beneficial for clinicians who are efficient at using templates for documentation or prefer to complete notes during the patient exam, for example, with the help of a human scribe. However, as the processing time for aAI notes has decreased to less than 30 seconds, more clinicians are willing to adopt aAI. We learned that some providers are reluctant due to delays for patients. This can be overcome by streamlining the onboarding process -- consent agreements and training videos -- to increase clinician adoption. Participation increased when the onboarding process was done during an appointment at the day's end.

RH's future patient care strategy includes a private cloud and retrieval-augmented generation (RAG) to analyze archival data so clinicians can identify patients at risk of severe conditions and deliver preventive care. This could be the basis for an advanced LLM for patient education and self-care of chronic conditions, and to research social determinants of health.

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[2] Ng and colleagues (NEJM AI, 2025; 2:1, pp. 1-10) provide limitations and risks from LLM, such as incorrect interpretations despite accurate retrieval and poor prioritization of options primarily because RAG is designed to prioritize relevance over credibility (p. 6).