Ambient Artificial Intelligence Documentation in Oncology Pharmacy Practice

ASHP Artificial Intelligence Case Studies

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Case Study Type: Workflow Optimization

Tool Type: Clinical, Vendor Developed, Internal / Operational

Case Overview:
This case study evaluates the implementation of an ambient listening artificial intelligence (AI) documentation tool within ambulatory oncology pharmacy practice at Vanderbilt University Medical Center (VUMC). While the ambient dictation tool had already been adopted by physicians for outpatient and inpatient documentation, its use by clinical pharmacists had not previously been evaluated. Oncology pharmacists within the Vanderbilt Ingram Cancer Center (VICC) provide high value, medication intensive patient care, making documentation efficiency and accuracy critical. This project represents an early evaluation of ambient AI use in oncology pharmacy encounters, with particular focus on documentation characteristics, quality, and pharmacist experience.

Tool and Project Details:
The tool evaluated in this project was an electronic health record (EHR)-integrated ambient AI documentation system. The tool passively listens to patient encounters, differentiates speakers, and generates a structured draft clinical note based on clinician defined templates. Oncology pharmacists used the AI tool during both in person and telehealth visits for pharmacist led appointments, including chemotherapy and immunotherapy education, supportive care counseling, and adverse effect management. Following each encounter, pharmacists reviewed, edited, and finalized AI-generated drafts prior to signing documentation in the EHR.

Key Elements of Success:
Several factors contributed to the successful evaluation of ambient AI documentation in oncology pharmacy practice. The availability of the tool within the institution with unlimited licenses allowed pharmacists to integrate the tool into self-scheduled encounters aligned with real-world workflows. Additionally, robust training helped to ensure pharmacists were able to use the tool confidently and accurately during patient encounters. This training occurred with the team responsible for implementation at Vanderbilt Health and allowed for troubleshooting any potential issues that arose as the pharmacists utilized the tool. Additionally, pharmacist autonomy in determining when and how to use the tool enhanced feasibility and adoption. Methodologically, the development of a structured text-analysis pipeline enabled objective, granular evaluation of AI-generated documentation. Collaboration between pharmacy practice, informatics, the VUMC Artificial Intelligence Technology (AIT) Sub-Committee, and VUMC Institutional Review Board ensured appropriate governance, secure data handling, and alignment with institutional policies. The use of validated instruments (PDQI-9 and Mini Z 2.0) strengthened assessment of documentation quality and pharmacist experience.

Impact on Outcomes:
Analysis of 33 oncology pharmacist–patient encounters demonstrated that ambient AI generated robust initial documentation drafts. On average, 86.6% of original AI-generated content was retained after pharmacist review, with high overall similarity between draft and finalized notes. Most edits were substitution-type and minor in magnitude, suggesting focused refinement rather than large-scale rewriting. Documentation quality scores were high for both AI-generated and pharmacist-edited notes, with higher PDQI-9 scores observed after pharmacist revision. This reinforces the role of pharmacists in ensuring accuracy, synthesis, and clinical relevance of AI-generated content within the note. Pharmacist-reported workplace experience improved following implementation. Mini Z 2.0 scores demonstrated reduced EHR-related stress and improved work pace, indicating potential benefits of ambient AI in mitigating documentation burden.

Role of the Pharmacy and Pharmacists:
Oncology pharmacists served as both primary users and evaluators of the ambient AI tool. They were responsible for activating the tool during eligible encounters, reviewing and editing AI-generated drafts, and ensuring documentation accuracy prior to finalization. Pharmacists also contributed to data collection by submitting paired draft and edited notes for analysis. Their clinical expertise was central to interpreting documentation changes, assessing documentation quality, and contextualizing the role of AI within oncology-specific patient education and medication management workflows.

Budget & Resource Allocation:
This project leveraged existing institutional access to the ambient dictation tool, minimizing incremental costs associated with pilot implementation. Resource utilization primarily involved utilization of a secure web application for data storage and informatics support for text-analysis development. Although formal financial outcomes were not assessed, potential future budget justification includes reductions in documentation burden, improved workflow efficiency, mitigation of EHR burnout-related turnover, and enhanced scalability of pharmacist utilization.

Lessons Learned:
This evaluation highlighted that ambient AI produces clinically meaningful documentation drafts but still requires pharmacist oversight. The predominance of minor and moderate edits underscores the importance of maintaining clinician review to ensure accuracy, synthesis, and patient-specific nuance. Adoption also varied based on individual comfort with technology, encounter type, and pharmacist workflows. Pharmacists were required to utilize a scheduling template to create patient appointments or to schedule patient appointments on their own which is outside of their typical workflow. This required additional assistance from the Vanderbilt Health scheduling team and training on how to schedule appointments. These visits were also not billable under current regulations.

Future Goals & Ongoing Monitoring:

Future efforts include expanding evaluation to larger pharmacist cohorts and additional practice settings to improve generalizability. Longitudinal assessment of documentation time savings, appointment capacity, patient satisfaction, and burnout outcomes is warranted. Ongoing monitoring may incorporate automated EHR-based metrics and standardized documentation quality assessments to reduce manual data collection burden. Findings from this study will inform best practices for training, workflow integration, and governance as ambient AI documentation tools continue to expand within pharmacy practice.

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