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Exploring Faculty Perspectives on Using AI to Support Individualized Learning Plan Goal-Writing

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Abstract

Introduction: Individualized Learning Plans (ILPs) are a key component for resident-centered learning and competency-based medical education in residency programs. Although best practices exist for ILPs, programs and faculty offer varied levels of support, and residents differ in their goal-writing experience, ability, and motivation. To address these disparities, this pilot study sought insight from family medicine residency faculty on the feasibility of using generative artificial intelligence (AI) to assist residents in writing ILP SMARTIE goals.

Methods: This pilot study surveyed faculty helping residents with ILPs at six family medicine residency programs across the United States. An exploratory qualitative approach was used to assess faculty perspectives on using AI to support ILP goal-writing.

Results: Eleven faculty participated, with comments suggesting that integrating AI into ILP goal-writing was feasible and improved goal structure and clarity, though it was not a replacement for faculty guidance. Some identified challenges like the need for appropriate prompt engineering and reviewing AI output for needed adjustments.

Conclusions: Faculty perspectives highlight the potential of using AI to reduce the burden of creating SMARTIE goals for higher quality ILPs, opening the door for future study on this topic.

Introduction

Competency-based medical education (CBME) has gained favor in the United States,[1] with individualized learning plans (ILPs) serving as a fundamental component to tailor developmental trajectories.[2,3] All residency specialties must now support residents in creating ILPs,[4] a process requiring significant time and faculty development to master reflection, goal generation, and progress tracking.[2,5,6]

Current best practices, gained from pediatric residencies who utilized ILPs a decade earlier, include providing residents with external feedback[6,7] and SMART (specific, measurable, attainable, realistic, timely) goal training.[8,9] Although medical student ILPs have been shown to foster self-directed learning,[10] medical schools vary in whether and how they support ILPs, particularly in relation to learner motivation, specific feedback, protected time, and faculty guidance.[11] This inconsistency limits goal-writing proficiency of incoming interns,[6] and it is

reasonable to assume that residency programs show similar variability in how ILP processes are supported. These challenges can impact the development of meaningful, self-directed goals for residents.

Generative artificial intelligence (AI) may offer a way to assist with ILP goal-writing while increasing careful implementation of AI utilization in medical education.[12,13] No literature exists on AI use for ILP goal-writing in residency. Because faculty help guide the ILP process and faculty adoption of AI has lagged behind that of learners in higher education,[14] this pilot study focused on faculty perspectives. The study objective was to assess the feasibility of using AI to transform resident learning goal ideas into SMARTIE goals (adding inclusivity and equity considerations to SMART),[15] serving as a foundation for future larger-scale investigation into AI-augmented ILP goal-writing.

Methods

Participants and Recruitment

Eligible participants included faculty at six family medicine residency programs willing to use AI with residents during ILP goal-writing. Recruitment occurred via in-person and email communication; no incentives were offered.

Study Design and Data Collection

Participants were asked to use AI to transform raw resident input and faculty feedback into SMARTIE goals. Given the varying ILP timelines and AI experience, participants were allowed to integrate AI into resident ILP goal-writing at their discretion. The study team provided an optional AI primer and a sample prompt (Appendix A); examples of AI integration are shown in Appendix B.

REDCap surveys were used to collect demographics and faculty post-completion perspectives. The latter included five open-ended, exploratory questions (no validity evidence; see Appendix C) regarding AI utility for ILP goal-writing. Given the small number of responses, an exploratory qualitative approach was used to synthesize comments into key categories. Two authors independently reviewed the data to ensure reliable interpretations.

Ethics

This study received exempt status by each investigator's institutional review board. Informed consent was obtained via REDCap prior to collecting any data.

Results

Demographics

Eleven faculty participated; 63% had been an advisor for five years or less. Table 1 summarizes the demographics collected. Of the participants, 64% completed the open-ended questions.

Qualitative Categories

Review of responses to the open-ended survey questions identified four categories (see Table 2 for example responses).

1. Feasibility of AI Support: Faculty found integration of AI to be feasible and helpful, particularly when residents had difficulty translating abstract ideas into actionable steps. Faculty described AI-assisted goals as more structured, specific, and aligned with competency frameworks. AI support was especially helpful when trying to phrase goals in the SMARTIE format.

2. Faculty Satisfaction with AI Support: Faculty reported that using AI reduced time spent helping residents in ILP goal-writing. Several found AI-generated goals clearer and more actionable than those in initial drafts. Additionally, several reported that the process made them less hesitant to use AI in the future. Comments suggest that once exposed to AI, faculty were more predisposed to trust it as a tool, provided there was appropriate human oversight.
3. Approaches Used for Integrating AI Support: AI approaches used for ILP goals varied; see Table 3 for examples. AI was used to refine resident-generated drafts or to translate jointly discussed targets into

Table 1. Demographic Summary of Participants

Demographic	Result
Age (years)	**n (%)**
25-34	1 (9.1)
35-44	4 (36.4)
45-54	2 (18.2)
55-64	3 (27.3)
65-74	1 (9.1)
Years worked in residency education	**n (%)**
Less than 1	1 (9.1)
1-5	6 (54.5)
6-10	1 (9.1)
11-15	2 (18.2)
16-20	0 (0.0)
20+	1 (9.1)
Years worked as advisor for residents	**n (%)**
Less than 1 year	3 (27.3)
1-5 years	4 (36.4)
6-10 years	2 (18.2)
11-15 years	1 (9.1)
16-20 years	1 (9.1)
20+ years	0 (0.0)
Frequency of ILP review	**n (%)**
Quarterly	5 (45.5)
Semiannually	6 (54.5)
Type of residency program	**n (%)**
Community-based/university-affiliated	10 (90.9)
Community-based	1 (9.1)
Total number of residents in program	**Mean (SD); range 23(5.9); 16–30**

Abbreviation: ILP, individualized learning plan

Table 2. Qualitative Categories and Example Responses

Category	Example response
Feasibility of AI support	"Many of them [the residents] had ideas in mind for goals, but they struggled with articulating them (especially in the SMARTIE format). AI was really helpful in giving them some wording they could work with."
Faculty satisfaction with AI support	"I think it definitely shortened the word-smithing portion of the meeting. Instead of trying to come up with language, we were able to edit and shape that language. This was much more efficient and allowed us to focus on the issues/contributors to goal setting rather than how to write the goals themselves."
Approaches used for integrating AI support	"Once I found a good prompt for writing SMARTIE goals, I found that AI really helped polish the residents' ILP goals."
Challenges of AI support	"The measurable part of the SMARTIE goals wasn't always rational. It might have made sense in the context of the whole goal, but was realistically not likely to work in the course of the day."

Abbreviations: AI, artificial intelligence; ILP, individualized learning plan; SMARTIE, specific, measurable, attainable, realistic, timely, inclusive, and equitable

Table 3. Various Approaches for Integrating AI Support

Category	Example approaches used
Who drafted learning goals	• Residents; goals reviewed later together with faculty • Residents; goals reviewed later separately by faculty • Residents together with faculty
When AI was used	• AI used to help generate initial learning goals based on feedback/ideas in prompt • AI used after goals were drafted, to revise them
AI prompt content	Any combination of: • Drafted goals • SMARTIE explanation • Self-assessment statements • Milestone language/assessments • Faculty feedback • Other external assessments of resident performance

Abbreviations: AI, artificial intelligence; SMARTIE, specific, measurable, attainable, realistic, timely, inclusive, and equitable

specific tasks. AI also streamlined goal refinement but required manual adjustments for personalization.

4. Challenges of AI Support: Challenges identified by faculty included inconsistent AI literacy, ethical concerns around privacy, and uncertainty about whether AI-assisted goals were truly resident-driven.

Additionally, refining prompts to achieve optimal goal output was noted to be a hurdle. Balancing protecting personal information with providing enough personalization to achieve effective results was also challenging.

Discussion

Faculty feedback in this pilot study suggested that using AI to assist with resident ILP goal-writing was feasible. However, faculty clarified that developing appropriate prompts was key to deriving more specific and appropriate learning goals from using AI.[16,17] Detailed AI prompts were deemed helpful in creating learning goals that better adhered to SMARTIE principles.[6,7] While faculty felt that AI augmented the ILP goal-writing process in an efficient and convenient way, they did not see AI as a replacement for experience or insight that can be shared during the resident-faculty ILP interactions.[18] The use of AI in this manner may thus be helpful when residents or faculty have not attained skills in goal-writing, or when programs do not have optimal time or levels of support for CBME.[8,19]

Limitations

The small number of participants in this pilot limits generalizability. Program-specific variability in ILP timelines and processes reduces study reproducibility. The study also lacked direct resident input on AI utility for drafting ILP goals, and the cross-sectional nature of the data collection was process-oriented, without seeking evaluation of outcomes or resident goal achievement.

Conclusion

Faculty perceived that AI was a feasible tool to assist with resident ILP goal-writing, yielding relative improvement in creating SMARTIE goals. With a carefully developed prompt, AI could quickly enhance learning goals by improving their specificity and structure, although faculty still viewed their own input to be helpful for providing guidance and ensuring accuracy and practicality. These preliminary findings suggest AI may reduce the cognitive load and time constraints associated with generating high-quality, more specific learning goals, particularly through structured templates supported by carefully developed prompts grounded in established frameworks. Future research is planned to examine standardized prompts and the impact of AI-augmented ILP goals on resident progress.

Presentations

Preliminary data from this pilot study was presented via a Works in Progress poster at the May 2025 Society of Teachers of Family Medicine Annual Conference in Salt Lake City, UT. The pilot was also shared in the Innovation Showcase at the 2026 Residency Leadership Summit in Dallas, TX.

Conflicts of Interest

The authors have no conflicts of interest to disclose.

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